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Appendix F—Public Comments
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Appendix F
Public Comments

Appendix F, *Public Comments*, consists of three sections. Section F.1*, Overview,* briefly summarizes the public comment process, describes how comments received from the public were analyzed, responded to, and presented in this appendix, and provides examples of the range of comments received from the public on the draft document. Section F.2, *Comment Response Matrix*, contains responses to all of the comments received on the DEIS/NFHCP. Section F.3, *Written Comments*, contains all of the comments received on the DEIS/NFHCP.

F.1 Overview

F.1.1 Public Comment Process

The public comment period opened with the announcement of the availability of the DEIS in the Federal Register on December 17, 1999. At the public's request, the Services extended the comment period from 60 to 90 days, and the public comment period closed on March 17, 2000. Six public meetings were held in Montana, Idaho, and Washington between January 11 and 20, 1999, and were attended by 95 individuals. Section 6.6*, FEIS Coordination*, provides additional information on the public involvement program.

The Services received 83 separate pieces of correspondence on the draft document. Comments were received at the six public meetings and in mailed letters, faxes, and e-mails. Section F.3, *Written Comments*, contains a list of all commentors, together with the full text of their comments.

F.1.2 Public Comment Analysis and Response

The analysis method used for this project provided a means of categorizing each person's comments into separate subjects, then grouping similar subjects together so that the public's comments could be thoroughly examined. To accomplish this, the Services analyzed and responded to comments using a two-step process:

- The first step was to assign comment numbers to all individual comments within each piece of correspondence. A total of 1,281 separate comments were identified in the 83 separate pieces of correspondence received. The comment letters and comments received at public meetings are provided in Section F.3, *Written Comments*.

- Second, the Services wrote a response to every identified comment. Some commentors shared the same concern, which was addressed by the same response; therefore, 814 separate responses were written for the 1,281 separate comments identified. All of the responses were compiled into a response matrix, contained in Section F.2, *Comment Response Matrix,* which is categorized by the type of concern or suggestion. For example, in the response matrix, all comments dealing with road abandonment are listed in the major category of Roads and the sub-category of Abandonment. The 17 major categories and associated subcategories of the matrix are provided in Table F.1-1,

presented at the end of this section. All categories and sub-categories of the response matrix are also listed in the Table of Contents at the beginning of this appendix to direct the reader to the category of interest.

F.1.3 How to Find Public Comments and Responses

To find an individual comment, go to Section F.3, *Written Comments*. The table of contents for this appendix lists all of the entities who submitted comments. On the paper copy of this FEIS/NFHCP, the table of contents lists page numbers so the reader can quickly find the comment letter of interest. In the electronic version of this FEIS/NFHCP, the reader can access the comment letter by clicking on the name of the commentor in the table of contents.

To find the response to a particular comment, go to the comment letter in Section F.3 and find the comment number. On the right-hand side of the comment letter, the comment number (assigned to the comment) is cross-referenced to the response number (the response that applies to the comment number). On the paper version of this FEIS/NFHCP, go to Section F.2, *Comment Response Matrix*, and find the response number. Response numbers are listed sequentially throughout the categories and subcategories in the first column of the matrix. The matching response is presented in the second column of the matrix. After reading the response, the reader can review similar responses in the same category, or look in the third column of the matrix and find comments from others who had similar concerns or suggestions.

In the electronic version of this FEIS/NFHCP (located at http://www.fws.gov/r1srbo/srbo/plumck.htm through December 31, 2000), go to the comment letter and find the comment number. On the right-hand side of the letter, the comment number is cross-referenced to the response number. Click on the response number and the matching response will appear in the second column of the matrix. After reading the response to the comment, the reader may return to the comment letter by clicking on the link to the comment letter in the third column of the matrix. The reader may also scroll up or down to see responses to similar comments, or click on other comment number links in the third column to see similar comments.

F.1.4 Examples of Comments Received

A wide range of comments on many of the categories and subcategories was received during the public comment period. This range is reflected in the full text of public comments presented in Section F.3, *Written Comments*. Several examples are summarized below to illustrate the diversity of opinion expressed by the public on the proposed project. Quotes used in the following text are exactly as provided in correspondence to preserve the integrity of the person's comment.

The DEIS and NFHCP were presented under one cover to provide the public a better opportunity to understand and comment on the proposed plan. One result of that approach was that commentors focused on the NFHCP and the alternatives analysis process. No comments were received on the Internal Bull Trout Conservation Alternative, and only several comments addressed the Simplified Prescriptions Alternative. The range of comments on the alternatives includes the following:

- "In our assessment, none of the proposed alternatives satisfactorily provides the proper functions or conditions for imperiled fish species…We would request that additional alternatives be developed and added to the NFHCP which more closely reflect past recommendations…."

- "I believe the DEIS did an adequate job of using available information in evaluating the 4 alternatives. The Alternatives represented a reasonable range of actions that meet the stated purpose and need, and presented the Alternatives in a format which reasonably compared and contrasted them."

Comments on the NFHCP span a wide range of opinion from total support to complete opposition. Many support the NFHCP without reservation for different reasons. Some support the NFHCP for the positive economic impact, while others praise the habitat conservation commitments:

- "Overall, I felt that this is an exceptional HCP in its design. Compared to others I have viewed, it is one which I felt had the best landscape description and even provided foresight into specific landscape applications."

- "We are particularly pleased that the NFHCP alternative seeks to create the synergy necessary to realize both the biological goals and the regulatory certainly that PC needs to make the considerable business investments required to improve fisheries habitat…."

- "I want to add my support to the NFHCP developed by Plum Creek Timber Company, USFWS, and NMFS…. The plan represents over two years of peer-reviewed scientific research…it is compatible with the recently enacted Forest and Fish Plan, but it tailored to the characteristics of specific landscapes. It is also broader, in that it provides management measures for grazing, land uses, and legacy issues such as old roads and water diversions….We should do everything possible to encourage others to follow the example of Plum Creek and the entire timber industry."

Several commentors support the idea of HCPs, but believe that this particular NFHCP needs modification to meet species' or economic needs:

- "Plum Creek and the Agencies are to be congratulated for developing this creative partnership. We encourage you to move forward in implementing a Habitat Conservation Plan that benefits fish and provides certainly to the landowner. Our primary concern centers around how other, smaller landowners will ultimately be effected. Clearly, Plum Creek's commitment far exceeds its legal obligation under the ESA, and other landowners will not have the resources to follow the company's lead."

- "Keep in mind that designing HCPs is experimental in nature. Planning is being done at the landscape level, yet we do not know a lot about these animals on the community and population level."

Several commentors do not directly support or oppose the NFHCP. Instead, they propose modifications to the plan and reserve judgement. Proposed modifications range from minor additions to revision of the entire document, as follows:

- "The NFHCP represents the beginning of a process that we find encouraging….While the proposed adaptive management and monitoring program is a good start, we have concerns that this program lacks the necessary scope and detail to assure that effects from Plum Creek's management activities upon water quality, aquatic habitat, and fisheries will be fully identified and mitigated…."

- "Because Washington has spent the last 2 years heavily involved in development of a forest practices regulatory package…we do have a standard or level of protection which we strongly believe should not be compromised. Therefore, we hope that the above comments will be seriously considered and that they will help to strengthen the proposed NFHCP."

- "As a result of significant defects in the coordination process and the failure to recognize that Plum Creek's management must take into consideration the impacts and problems to salmon caused by other entities…we believe it is necessary to re-draft the HCP and accompanying DEIS."

Another group of commentors generally support the idea of an HCP, but oppose this particular NFHCP. Recommendations for modification range from drafting a new plan to adding more conservation benefits:

- "In short, the USFWS would be failing to provide the necessary protection and consideration to rare native fish species as required by the ESA if they approve this plan….A supplemental plan should be written which takes into account credible science and realistic habitat protection considerations before moving forward."

- "Trout Unlimited supports the use of HCPs and incidental take permits for advancing endangered species conservation on private lands. But we believe these tools should be used judiciously and be backed with sound science….We believe the proposed HCP includes enough shortcomings and uncertainty that its potential conservation benefits do not outweigh the risk associated with issuing a 30-year incidental take permit."

Many commentors oppose the NFHCP, and would not support it under any circumstances. Reasons for opposing range from the perceived inadequacy of NFHCP conservation measures to believing that any HCP should be illegal under the ESA.

- "We object to issuance of an incidental take permit by the US Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS)….The HCP fails to meet the most basic requirements of the Endangered Species Act…."

- "The public is being asked to gauge the costs and benefits of granting Plum Creek this HCP. Past evidence of the effectiveness of HCP's shows overall poor results. Although this HCP is somewhat different than past HCP's, it is unlikely to be much more effective. Our wild native fish deserve much better protection from human development than is presently included in this proposed HCP."

- "At the outset, we wish to note that we are opposed to the practice of issuing widespread permits to "take"—i.e., harm, kill, destroy—endangered species and their habitats across

large tracts of land. Issuance of ITPs like Plum Creek's is particularly objectionable as: 1) these same timber companies share much of the responsibility for fish and wildlife species' imperiled status, and 2) the companies' mitigation plans for the ITPs (i.e., their HCPs) fail to provide meaningful and adequate mitigation for most species."

Please refer to Section F.3 to review in their entirety all comments received from the public on the DEIS/NFHCP.

TABLE F.1-1
Major Categories and Sub-Categories Used in Section F.2, *Comment Response Matrix*

General Federal Lands Tribal Issues States Take Recovery **DEIS** Purpose and Need Alternatives Permit Species Non-Permit Species Covered Activities Cumulative Effects Baseline Best Available Information Coordination Upland Activities Groundwater Hydrology **NFHCP** Environmental Principles Permit Species Permit Length Covered Activities Covered Lands Pay as You Go Key Migratory Rivers **Administration** External Audits (NFHCP Commitment A5) Reporting (NFHCP Commitment A6) Changed Circumstances (NFHCP Commitment AM3) Oversight Termination **Biological Goals** **Business Goals** **Issuance Criteria** **Assurances** **Implementing Agreement** Adding Lands **Practicability** Maximum Extent Practicable **Roads** Sediment Road Sediment Delivery Analyses (NFHCP Commitment R9) Fish Passage Stream Crossings Interface Caution Areas (NFHCP Commitment R8) Density	**Roads, continued** New Roads (NFHCP Commitment R2) Abandonment (NFHCP Commitment R7) Upgrade (NFHCP Commitment R5) Hot Spots (NFHCP Commitment R6) Best Management Practices (NFHCP Commitment R1) Maintenance (NFHCP Commitment R8) Inspections (NFHCP Commitment R4) Landslides Poaching (NFHCP Commitment R10) Restrictions (NFHCP Commitment R11) **Riparian** Stream Type Tier 1 Watersheds Headwaters (NFHCP Commitment Rp7) Other Streams (NFHCP Commitment Rp6) Slope Distance Channel Migration Zones Interface Caution Areas (NFHCP Commitment Rp8) Temperature Large Woody Debris Riparian Harvest Deferrals (NFHCP Commitment Rp9) Forest and Fish Report (State of Washington) State Rules (NFHCP Commitment Rp1) **Adaptive Management** Monitoring (NFHCP Commitment AM1) Triggers Timing Management Responses (NFHCP Commitment AM2) Changed Circumstances (NFHCP Commitment AM3) Sediment Temperature Native Fish Assemblages (NFHCP Commitment AM4) **Grazing** Best Management Practices (NFHCP Commitment G1) Exclosures (NFHCP Commitment G2) Vacated Leases (NFHCP Commitment G4) Training (NFHCP Commitment G5) Monitoring **Land Use** Land Use Principles (NFHCP Commitment L1) Sales to Public (NFHCP Commitment L2) Conservation Sales (NFHCP Commitment L3) Land Use Conservation Areas (NFHCP Commitment L4) Neutral (NFHCP Commitment L5) Exchange (NFHCP Commitment L8) Proportionality Balance (NFHCP Commitment L9) **Legacy** **Clean Water Act**

F.2 Comment Response Matrix

General

Response Number	Response	Comment Number
1	Thank you for your comments. Section F.1, *Public Comments Summary,* in Appendix F of this Final Environmental Impact Statement (FEIS), summarizes the wide range of comments and opinions received on the draft documents and the proposed Native Fish Habitat Conservation Plan (NFHCP).	A1-1, A2-1, A3-1, A4-1, A5-1, B2-3, B2-20, C1-1, C1-15, C2-1, C3-34, D1-1, D1-13, D3-1, E1-1, E1-10, E1-28, E2-1, E2-3, E2-4, E2-44, E2-45, E2-18, E2-19, E4-2, E5-2, E6-1, E7-2, E8-1, E8-12, E9-13, E9-3, E10-1, E12-1 E12-10, E13-15, E13-29, E13-36, E13-38, E15-9, E16-1, E16-5, E18-13, E19-1, E20-1, E21-1, E21-5, E21-7, E23-6, E24-1, E24-11, E25-1, E26-1, E26-2, E26-8, E27-1, E28-1, E29-1, E29-2, E29-4, E31-4, E32-1, E34-1, F1-7, F2-1, F2-14, F8-1, F9-4, F11-1, F12-3, F13-1, F13-5, F14-1, F16-1, F16-2, F17-1, F18-1, F19-1, F19-2, F20-1, F21-1, F22-1, F23-2, F24-2, F25-4, F26-1, F26-2, F27-2, F29-1, F30-1,

Response Number	Response	Comment Number
		F31-1, F32-1, G3-1
2	See responses 77 and 14. The U.S Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS; used together, the Services) agree that "increments of improvement are good, but they must be examined in the context of what species need."	B1-2
3	The All-H paper contained five goals for a regional fish recovery plan, namely: conserve species, conserve ecosystems, assure tribal fishing rights, balance needs of other species, and minimize effects on humans. The All-H paper also described various regional alternatives for managing anadromous fish, and was intended to inform the public and elected officials of options for developing a regional strategy. The All-H paper did not endorse any particular alternative or establish productivity goals. NMFS agrees that a certain level of habitat productivity is necessary for the protection and management of salmonids, and uses their Habitat Approach guidance to establish proper habitat function. The sufficiency of the NFHCP toward meeting legal requirements of Sections 7 and 10 of the Endangered Species Act (ESA) must be evaluated in a biological opinion, and a set of findings, respectively. NMFS would not issue an Incidental Take Permit (Permit) if the legal requirements were not met.	B1-4
4	No legal mechanism is available to hold Plum Creek responsible for factors beyond their control or unrelated to their operations; therefore, such factors were not considered in development of alternatives for this plan. NMFS considered ways to integrate population factors into the NFHCP; however, this idea was dropped because of the large amount of uncertainty involved with relating abundance of anadromous fish to habitat characteristics in a particular watershed. Certain surrogates, such as egg-to-parr or adult-to-smolt ratios are useful indices to gauge trends in survival, and will be considered in the adaptive management framework where this type of information is available.	B1-5
5	NMFS agrees that merely slowing habitat degradation or maintaining status quo is unlikely to ensure the continued existence of listed anadromous fish. Therefore, a Permit cannot be issued to Plum Creek Timber Company (Plum Creek) unless the NFHCP maintains habitat quality sufficient to support all potential life stages of anadromous fish. NMFS also agrees that requirements of the Clean Water Act (CWA) and treaty rights cannot be usurped through a Habitat Conservation Plan (HCP). At the same time, NMFS does not have authority under the ESA to mandate actions under the CWA or under treaties, apart from those actions authorized by the ESA.	B1-6, B1-12, B1-15, B3-1
6	NMFS agrees that changes in fish abundance can require a response that would require an increase in the level of protection for a listed species. This is dealt with in the NFHCP under the provisions of "unforeseen circumstances" and through voluntary and "triggered" management response pathways.	B1-7

Response Number	Response	Comment Number
	The tribal restoration plan calls for land management restrictions that would provide greater assurances of species recovery than the proposed NFHCP, but some of the recommendations are beyond the statutory authorities of the ESA.	
7	The Services agree that degradation of fish habitat can occur under state Best Management Practices (BMPs), and that timber harvest has detrimental effects to fish habitat in many circumstances. The Draft Environmental Impact Statement (DEIS) disclosed short-term changes in riparian areas that are likely to occur as a result of riparian timber harvest, but it did not conclude that "short-term degradation is consistent with the needs of listed salmonids," as stated in this comment. Because of inevitable effects of commercial forestry, a specified amount of take would be authorized under this NFHCP. The ESA requires that the amount of authorized take would not be so large as to preclude the survival and recovery of the species covered by the Permit.	B1-8
8	The Services are aware of the publications cited by the commentor, and acknowledge that there are strengths and weaknesses in all current conservation plans. The proposed NFHCP is no exception. Certain aspects of the NFHCP afford a low level of risk to Permit species, while other aspects of the NFHCP pose either an unknown risk, or have a comparatively higher risk. An HCP is not intended or required to eliminate all risks, it is required to minimize and mitigate risk factors to the maximum extent practicable. The Services believe that risks to Permit species posed by issuance of a Permit to Plum Creek are unlikely to jeopardize the continued existence of the Permit species, and that BMPs will actually result in a net improvement in habitat quality that should reduce existing threats to Permit species.	B1-10
9	The Services agree evidence suggests that land-management-induced increases in water temperature and sediment delivery rates likely provide exotic species with a competitive advantage over native stocks. However, the degree to which this affects interactions between brook trout and bull trout is unknown. NFHCP commitments will tend to benefit native stocks through net decreases in water temperature (through a net increase in stream canopy cover) and sediment delivery. In addition, Plum Creek has proposed to work cooperatively on exotic species removal, and the Services thank the commentor for their support on this issue.	C2-22
10	Thank you for your comments. All suggestions were considered by the Services during revisions to the draft documents.	C2-32
11	Terms and conditions of the NFHCP Implementing Agreement, contained in Appendix A of the DEIS and this FEIS, provide the basis for evaluating and measuring the success of the proposed conservation partnership between FWS and Plum Creek.	D1-41, E2-37
12	See responses 77 and 46. The Services agree that uncertainty exists regarding the degree of adequacy of the proposed NFHCP in allowing for recovery of Permit species. However, the FWS believes it is a valuable approach, and the most risk-averse approach. The NFHCP, as modified, reduces uncertainty with the up-front commitments, and will allow further reduction of uncertainty through the adaptive management process.	E1-3, E20-3

Response Number	Response	Comment Number
13	See responses 335 and 701. The FWS agrees that, "short-term reduction in canopy cover and spikes in sedimentation due to road-building are expected." Hence, the reason for offering a Permit—to allow for such short-term impacts—in exchange for the promise of broader-scale, longer-term habitat conservation.	E1-22
14	The NFHCP and DEIS provide estimates of potential improvements in all of the **Four Cs**, or four habitat areas of clean, cold, complex, and connected habitat, in Chapter 4, Section 4.6.6, *Environmental Consequences*. See response 77 and response 246 for more information on "recovery standards." The Services believe that impacts to Permit species habitat will occur (hence the proposed incidental take authorization). However, the rate and degree of impacts that would occur would be reduced from current levels, and overall habitat conditions across the Project Area would improve at a rate sufficient to allow for recovery of Permit species, through implementation of the up-front conservation commitments combined with the ability to modify the NFHCP if the biological goals are not being met. The Services agree that some key portions of the Project Area are more important to Permit species than others, and are worthy of greater protection, and we did account for this by considering a form of this "reserve-based strategy" in the current draft NFHCP. The FWS' and Plum Creek's approach to incorporating this approach to conservation was to identify Native Fish Assemblages (NFAs, see NFHCP) to provide special conservation commitments based on a more site-specific analysis of conservation needs in those watersheds. The FWS and Plum Creek also identified known bull trout spawning and rearing streams to provide additional riparian buffer protection. The Services also agree that monitoring of these watersheds for comparison purposes to other, more intensively managed watersheds, may be an important part of the Adaptive Management commitments in the NFHCP. The FWS worked with Plum Creek to include monitoring of NFAs and Tier 1 watersheds in the Core Adaptive Management Project (CAMP) designs and monitoring study designs (see NFHCP Appendix AM-1).	E1-30, F4-5, B1-12, E1-12, E16-14, E4-93, E22-9, E4-122, E4-123, E17-22
15	The Services concluded in the DEIS that risk of broad-scale impacts to Permit species from complete failure of up-front conservation commitments in the first 10 years of the Permit is low. The risk is low, in part, because Plum Creek will access only 20 percent of all riparian areas on their lands. Therefore, the geographic scope of the risk of such failure in the first 10 years is relatively limited. In each subsequent 10-year period of the Permit, Plum Creek would access roughly another 20 percent of the total number of riparian areas on their lands. So, after 10 years of experience implementing the NFHCP, any inadequacies of the conservation commitments that are identified could then be addressed through adaptive management, and implemented in a way that provides even greater assurance of fish conservation over the remaining 20 years of the Permit period.	E1-56
16	Comment does not relate to the DEIS or NFHCP, but rather to Technical Report #3. Citations are provided for the information included in Table 1 of Technical Report #3.	E1-70

Response Number	Response	Comment Number
17	While it is true that watershed boundaries and connectivity may be relatively more important than large-scale ecological classifications when considering species demographics or inter-/intra-population effects, it is important to remember that the responsibility of the applicant under the NFHCP is to protect and maintain habitat. When considering physical habitat dynamics, several independent factors (geology, geomorphology, and climate patterns) become important in determining the rates and process of habitat formation and maintenance. Technical Reports #4, #8, #9, and #10 demonstrate approaches to stratify these large-scale physical characteristics to minimize independent factor variance so that the effects of upland forest management on fish habitat can be better understood and predicted.	E1-106
18	Because of the location of project area lands in relation to current passage barriers (dams), there is a very low probability that activities on Plum Creek lands could affect fish populations that use streams or lakes in Canada for any part of the year, or visa-versa. Additionally, the Service has no authority to condition or issue a Permit relative to potential impacts to species in Canada, unless those impacts in turn resulted in additional impacts within the United States.	E1-107
19	The effects of global warming are assumed to be relatively equal among all alternatives, and were not independently analyzed in this NFHCP review process.	E1-108
20	We regret any difficulty experienced in distinguishing among the HCP, DEIS, and Implementing Agreement, or in distinguishing the specific conservation measures that Plum Creek has agreed to implement. The goal was to provide the reader with less paper to review.	E4-1
21	Section 10(a)(1)(B) of the ESA (1973; as amended) specifies that the Secretary may permit any taking otherwise prohibited if such taking is incidental to an otherwise legal activity, and specifies the circumstances under which the Secretary shall issue the Permit. The Services have implemented this section of the Act in the belief that issuance of a Permit under an approved conservation plan, which minimizes or eliminates adverse effects to species as compared to activities not guided by a conservation plan, will result in net benefits that contribute to the conservation of the affected species. Inclusion of unlisted species on a Permit is a means for the Services to provide incentives to applicants to provide conservation measures for species that are not protected under the ESA. Early application of conservation measures may contribute to reducing those factors that might lead to a listing under the ESA.	E4-3, E4-6, F6-2, E23-2, E23-3
22	NMFS has authority to include unlisted anadromous fish in an HCP to encourage implementation of protective measures before a species becomes listed. The numbered statements 2 and 3 in this comment are not accurate interpretations of the regulations. However, the observation that 4(d) rules have not been finalized for all of the species covered by the Permit is correct. For threatened species, a 4(d) rule establishes provisions that are necessary for the conservation of the species, and also defines what	E4-5

Response Number	Response	Comment Number
	constitutes take. In the absence of a 4(d) rule for a threatened species, take prohibitions do not exist; therefore, no take Permit would be required, and none would be issued. A Permit would be issued for an anadromous species covered under this plan only in the event that one becomes listed, and after a 4(d) rule is promulgated. Criticism of covering unlisted species is that the HCP "locks in" certain practices before it is known what problems might arise in the future, or before there is clear scientific understanding of what might be needed to adequately protect a certain species. As long as unlisted species are treated in an HCP as though they were listed, then a Permit can be issued at the time a covered species becomes listed, without requiring any additional conservation measures on the part of the Permit holder in the future, should the species become listed. This practice meets the legal requirements of the ESA as long as the conservation measures are adequate and functioning as intended.	
23	See the Services' responses to specific comments detailed later in commentor's letter.	E4-7
24	See responses 220 and 26. The Services obtained lists of threatened, endangered, proposed, candidate and sensitive species known to occur in the Project Area, and evaluated potential effects on these species.	E4-21
25	The Permit issued by the Services does not allow certain *activities*. The Section 10(a)(1)(B) Permit authorizes *incidental take*, as a result of certain specific land management activities. The Services must determine whether activities such as logging, site preparation, road building, and other forestry operations are likely to result in serious impacts to habitat that is essential for long-term survival of Permit species, and whether these impacts are adequately minimized and mitigated by conservation measures. The Permit would not authorize incidental take for forest chemical applications. The NFHCP and DEIS addressed key habitat variables thought to be most important to native salmonids, including temperature, sediment, large woody debris, and water quality. Several mitigation measures under the proposed NFHCP strategy are intended to reduce or offset impacts on these habitat features. Riparian prescriptions under the proposed NFHCP intend to provide widest buffer widths in the most important areas for Permit species to improve stream shade and temperature. Deferred, restricted, and excluded riparian harvest play a part in mitigation measures within riparian zones that are intended to increase large woody debris loading. Mitigation measures in the road management plan were designed to reduce sediment delivery through road abandonment, upgrade of old roads, and constructing new roads to higher standards. Fencing of areas where livestock have unrestricted access to sensitive stream reaches are aimed to improve water quality by reducing nutrient loading and fecal coliform contamination. The mitigation measures proposed under the NFHCP conservation categories, in combination, are projected to avoid or minimize negative impacts to the most important habitat attributes for native salmonids in the Project Areas. The Services will determine if all the habitat attributes important to covered species have been addressed adequately in the NFHCP for purposes of this	E4-24

Response Number	Response	Comment Number
	Permit application. The commentor discusses the potential for adverse modification of designated critical habitat, and assumes that adverse modification is likely to occur. The DEIS disclosed potential adverse effects, but did not make a determination regarding adverse modification. There is a legal distinction between adverse effects and adverse modification of habitat. When the term "adverse effect" is used in the DEIS, it means that there is some type of condition that would become less favorable for fish. "Adverse modification of habitat" is a legal threshold under ESA Section 7, similar to jeopardy, and evaluated through Section 7 consultation. The distinction between the two is illustrated by the following hypothetical example. An increase in sediment beyond the capacity of a stream to transport the sediment would potentially have an adverse effect on spawning and rearing success of salmonids. The magnitude of the effect would dictate whether or not the sediment increase is an "adverse modification of habitat" under Section 7. In order to find this effect to be an adverse modification, the magnitude of effect would have to be large enough to threaten the continued existence of listed species in a significant portion of its range. The biological opinion for the NFHCP will evaluate the potential for adverse modification of designated critical habitat, and the findings will be included in the FEIS.	
26	The ESA does not require an HCP applicant to provide for rare plant surveys or the recovery of listed plant species. The ESA does not prohibit the incidental take of federally listed plants on private lands unless the take or the action resulting in the take is a violation of state law. Known locations of federally listed plants and plants of federal concern are identified in Chapter 4 of the DEIS. Some of these species occur in riparian zones and may be impacted; however, the actual impacts are indeterminate without site specific information. See response 220.	E4-38, E4-28
27	The NFHCP does not contain commitments to preserve old growth, as the commentor points out, because there is very little old growth forest in the Project Area, which has been managed for commercial timber harvest for many decades. The conservation commitments for Native Fish Assemblage areas will offer greater protection for some of the areas that are relatively more "pristine."	E4-43
28	The NFHCP includes open involvement with the Services for many aspects of the plan.	E4-65
29	The obligations under the Permit are applicable regardless of personnel or organizational changes within Plum Creek.	E4-72
30	See response 377 for a response to this commentor's concerns about economic information and determination of "minimizing and mitigation of take to the maximum extent practicable." The Services and Plum Creek have included additional information and analyses in Chapter 4 of the FEIS and in the NFHCP concerning the impacts to native salmonids from NFHCP implementation, including the relationship to these species'	E4-92

Response Number	Response	Comment Number
	recovery. Should the Services decide to issue the Permit to Plum Creek, the rationale for approval of the NFHCP and issuance of the Permit will be contained in the Section 10 findings and Record of Decision (ROD) documents.	
31	See response to 603. The Services acknowledge the incorporation by reference of the Washington Environmental Council's comments on the proposed 4(d) rule in Washington. Comments on the Forest and Fish Report are not addressed in this document.	E4-99
32	The interim bull trout conservation guidance developed by the FWS are guidelines designed to suggest risk-averse approaches to land management that the FWS could confidently view as leading to habitat and species recovery. In most cases, if all provisions of the guidance were strictly followed, the reduction in risk of impact to bull trout may even be sufficient to conclude that take would be avoided. However, in the case where the FWS is authorizing incidental take, the guidance is more a goal to be worked towards than a minimum set of land management requirements. In fact, the FWS does not even achieve such a reduction in risk of land management impacts from federal agencies who are required to promote recovery, much less from non-federal entities required to meet the slightly lower standard of allowing for, or not precluding, recovery. Nevertheless, Plum Creek incorporated several approaches articulated in the guidance, such as the use of caution zones, use of performance indicators, management of irrigation diversions, measures to protect microclimate, improvement of connectivity at road stream crossings, greater riparian retention, "storm-proofing" of old roads, care in selecting location of new roads, decreasing road densities, controlling road access, managing against poaching, use of mitigation ratios when constructing new roads, abandonment of old roads, and continuous buffers on non-fish perennial streams.	E4-102, E4-101, E11-8, E11-18, E12-8, E20-5
33	Even though not explicitly identified as such, the NFHCP actually delineates and provides protection for "refugia" at two levels. First, habitat is afforded a higher level of protection and restorative measures are accelerated in Tier 1 watersheds. Secondly, Native Fish Assemblages were identified (see Commitment AM-4) with the specific intent of providing a high level of conservation certainty for those watersheds in the Planning Area that would be mostly likely to represent the concept of refugium (that is, support robust, diverse, and genetically-pure populations of native species capable of acting as a "source" to colonize other areas). In addition to these conservation measures, the majority of lands in the Planning Area Basins are federally managed, and are likely to be used as refugia by native fish.	E4-111
34	"Watershed Analysis" is referenced in the NFHCP as a type of tool that is useful to assess the specific management needs for drainages supporting Native Fish Assemblages. The commentors describe potential shortcomings of Washington's Watershed Analysis process. It is beyond the scope of the NFHCP to develop or propose remedies for these potential shortcomings.	E4-137
35	Few old-growth forest stands remain on lands currently owned by Plum Creek because much of the Project Area has been subject to timber	E4-139

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	harvest at some point within the last century. Also see responses 327, 92, and 239.	
36	Where intensive forestry is minimized or precluded as a result of NFHCP implementation, the Services assume that the Permit holder will likely explore other opportunities for reasonable economic returns within the new context for land management.	E4-162
37	The Services agree that mitigation should occur onsite. This is generally consistent with the mitigation proposals offered by Plum Creek in their NFHCP. Also see response 95.	E4-175
38	See response 155. Future impacts are assessed based upon likely future management regimes.	E4-191
39	Guilds for aggregating the biological needs of Permit species were not used in the NFHCP. Rather, literature for individual species was reviewed to identify Permit species' biological sensitivities and needs. The habitat requirements of the individual Permit species were discussed in detail under Section 4.6.5 of the DEIS and were considered in the development of the NFHCP. Details of the nine different riparian habitat types used to model large woody debris responses to management were described in Chapter 4, Section 4.5.5, of the DEIS, beginning on page 4-39. Effects of the alternatives on wildlife resources were analyzed in the DEIS using lifeform analysis discussed beginning on page 4-212 of the DEIS. The FWS believes this type of analysis is appropriate as a means of addressing effects and their significance. Wildlife species were placed in groups based on similar ecological feeding and breeding niche requirements and habitat requirements. Effects on these lifeform groups from the land management activities were analyzed under each of the alternatives. In addition, effects to special emphasis wildlife species (wildlife species listed, proposed for listing under the ESA, or other species of concern) from each of the alternatives were analyzed species by species. The commentor should note that no wildlife species covered under the lifeform analysis and no special emphasis species are Permit species, and therefore, none of these species would be covered by Plum Creek's Permit.	E4-202, E4-203
40	The Services disagree with the commentor's assertion. For Plum Creek's NFHCP the Services will, prior to making a Permit decision, determine whether or not including each of the proposed Permit species on the Permit will satisfy requirements of Sections 7 and 10 of the ESA. A Section 7 Biological/Conference Opinion will be written on the effects to all Permit species, those currently unlisted as well as those listed. A Section 10 Findings document will examine how an HCP would satisfy the Permit issuance criteria for each of the Permit species. If any of the currently unlisted Permit species be listed on the Permit and subsequently become listed, they will be covered under the Permit and Plum Creek will not be required to take any action. Nothing in the NFHCP or Implementing Agreement precludes the Services from, at any time, conducting additional analyses, relative to the reinitiation criteria under Section 7 of the ESA, to determine if implementing the Permit would appreciably reduce the likelihood of the survival and recovery of the Permit species. If the Services find that the likelihood of the survival and	E4-224

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	recovery of the Permit species would be appreciably reduced, the Services would have to remedy the situation or revoke or suspend the Permit.	
41	While the Services do consider it potentially warranted to require applicants to contribute money to a trust fund in lieu of contributing real conservation, we prefer to obtain mitigation that is directly meaningful to Permit species. Also we recognize that many HCPs, including the NFHCP, provide contributions in science and methodology that are useful in propagating conservation in future agreements.	E4-238
42	Where possible, preliminary data were displayed on the efficacy of proposed mitigation measures, such as in DEIS Chapter 4, Section 4.6.6. Plum Creek's proposed monitoring is intended to track the rate of minimization and mitigation.	E4-249
43	The body of information and data presented in the NFHCP, along with the extensive outside review and discussion by the Services and Plum Creek participants, provides a record of progress toward this concern. When quantified data were not available (for example, brook trout elimination), outside agencies were consulted or studies designed to evaluate the efficacy of the mitigation measure.	E4-258
44	The FWS internal Section 7 consultation considers effects to listed plants.	E4-263
45	Contrary to the commentor's assertion, the Services believe they are using all practicable means to avoid or minimize environmental harm within the context of the stated purpose and need and the limits of regulatory authority under the ESA. See responses to 146, 184, 377, 375, and 373.	E4-271
46	The Services agree that the level of risk to Permit species is larger with HCPs that cover larger geographic areas, or that cover many species. However, the Services also believe that the level of opportunity for significant habitat improvement also increases with increasing geographic scope. For example, Plum Creek is perhaps the largest owner of lands with bull trout habitat after the federal government. Because of this, working with Plum Creek to conserve bull trout poses the greatest opportunity for ensuring bull trout recovery outside of working with federal land management agencies. Not working with them poses significant risks to bull trout because Plum Creek would be less motivated to seek to conserve bull trout without a Permit. The Services do not seek to manage risk by minimizing the geographic scope of HCPs, but by controlling for uncertainties in effectiveness of conservation commitments. This can be achieved through the following methods: 1) obtaining up-front conservation commitments that can reduce risk to Permit species beyond existing requirements, and 2) allowing for opportunities to revisit those commitments with Plum Creek to ensure their adequacy. Even inaction—in this case, not issuing a Permit—entails high risk to species, and even more "significant scientific uncertainty" than the creative partnership that the NFHCP represents because no Permit means no agreement to implement additional conservation measures, re-evaluate effectiveness of those measures, or adapt management opportunities.	E5-1, E4-242, E20-3, F12-1, F11-2, E4-243, E4-257, E16-21, E20-8, E4-156

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	The Services believe that a true "creative partnership" in an HCP permitting process results in an agreement that shares risk of success or failure equally with both parties. We seek a package of up-front commitments and adaptive management flexibility from an applicant to achieve our assurances, while offering an applicant what we believe is a commensurate level of regulatory certainty. The Services have worked with Plum Creek to develop risk-averse strategies, including focusing conservation commitments in those areas where they are most likely to provide the greatest benefit to the most imperiled species. For example, Plum Creek would implement "Tier 1" riparian buffers in areas where Permit species are known to spawn and rear, and additional watersheds can be designated as Tier 1 watersheds when appropriate. In addition, Native Fish Assemblage streams would receive even more risk-averse, site-specific management prescriptions to conserve the greatest number of Permit species possible in key areas. Also, Plum Creek has revised their NFHCP to include a commitment to gather more information on Permit species other than bull trout to ensure that, if those Permit species are inadequately protected by the NFHCP, or they become more imperiled in the future, more restrictive conservation measures can be implemented to ensure their conservation (see NFHCP Adaptive Management commitments).	
47	The Services believe that business goals and conservation goals can be compatible. In fact, a key underlying assumption of the entire HCP program is that landowners can manage their lands to meet their business needs while protecting public resources. Therefore, the Services disagree with the commentor's implication that because a commitment, "is a good business practice…it's not really a conservation commitment."	E5-26
48	Please see the responses 209, 109, 210, 261, 567, 699, 663, 306, and 707 regarding these recommendations.	E10-11
49	The Services agree that Plum Creek must provide meaningful commitments to reduce the risk of impact to Permit species. The NFHCP describes a set of commitments that the Services believe is likely to achieve such a level of risk reduction.	E12-4
50	Chapter 4 of the DEIS describes the affected Permit species, the factors affecting Permit species, and the geographic extent of effects. As is the case with NEPA and Section 7 analyses relative to INFISH and PACFISH, the scope of impacts is not described in terms of numbers of individuals likely to be affected. Rather, effects to habitat are employed as a surrogate for effects on individuals, with appropriate scientific support to describe how individuals use and react to changes in habitat. Through Section 7(a)(2) of the ESA, Permits issued to non-federal entities are required to result in actions that do not jeopardize listed species or result in the adverse modification of critical habitat. Federal entities, such as those implementing INFISH/PACFISH standards, have the further affirmative obligation under Section 7(a)(1) of the ESA to provide for conservation of listed species. Accordingly, different conservation standards are implied for federal and non-federal entities.	E12-7

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	Further, INFISH/PACFISH standards are designed to eliminate or minimize the effects of ongoing or new actions that might affect listed aquatic species. The NFHCP not only addresses ongoing and new Plum Creek actions, but also commits the company to address legacy road, water diversion, exotic species and habitat restoration issues. Although it is clear that NFHCP riparian prescriptions are not equivalent to INFISH/PACFISH riparian measures, the NFHCP also goes beyond the federal approaches to address other issues that potentially affect proposed Permit species negatively. See response 21. Other aspects of the respondents concerns relative to the "No Surprises" policy are addressed in response 618.	
51	The purpose of authorizing incidental take of listed species that may occur in the future is independent of past actions. This Permitting process is not a punitive action, but is in fact intended to be a creative partnership between the applicant and the government. Should there be a case that an individual or entity violated take prohibitions under Section 9 of the ESA, then an enforcement action would be the appropriate course of action. Also, Plum Creek did not own more than 50 percent of the Project Area until just 7 years ago, and it is likely that much of the past impacts that may have occurred on these lands likely occurred before Plum Creek took ownership.	E13-7
52	See responses 77, 2, and 352. The Services agree that this NFHCP must allow for recovery of Permit species (see DEIS Chapter 1, page 1-15).	E13-19
53	Plum Creek will curtail new road building until sediment reduction measures have been implemented. This would include abandoning or repairing old roads, especially those that may impact Permit species' habitat; implementing riparian buffer zones that would be at least three times wider than existing riparian buffer zones in most cases; and taking steps to limit effects of sediment delivery to streams from logging on steep slopes near streams.	E14-10, F7-11, F28-1
54	The National Environmental Policy Act (NEPA) Scoping Report, prepared by FWS and NMFS (July 27, 1998), contains a matrix listing public comments received during scoping, whether those comments would be addressed in the EIS, and if not why not. Public comment number LND-8 under landscape issues in the Scoping Report Matrix states that lands owned by Plum Creek are being held illegally and should be taken back. The Services responded in the matrix that this comment is outside the scope of this EIS, would not be addressed in this EIS, and should be pursued independently with Plum Creek.	E15-8, F26-3
55	See response 246, and DEIS Chapter 4 for current information used.	E16-12
56	The Services believe the NFHCP meets the legal requirements of the ESA. See responses 189 and 271, which address the specific comments relating to ESA requirements and related issues.	B2-12, E16-2
57	See responses 355, 611, 701, and 361. The Services will work with adjacent federal land managers under Section 7 of the ESA to ensure adequate conservation of Permit species across the landscape. The	E19-5

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	Services will also seek to ensure, through recovery planning, that listed species are adequately conserved so recovery goals can be achieved.	
58	Section 10 of the ESA gives the Services a much better opportunity to work directly with private landowners for conservation. This HCP will provide grater assurance to the public that Plum Creek's extensive activities will not harm fish.	E20-2
59	The goal of the NEPA process is not to adopt, "the best alternative for species recovery." The goal of NEPA is to develop alternative that best achieves the stated project purpose and need. The purpose and need identified dual goals of species conservation and commercial forestry.	E22-3
60	As discussed with the commentor verbally, the FWS assumes that Plum Creek holds legal title to all Project Area lands covered under the NFHCP and the proposed Permit, as identified in their Permit application, unless a relevant government agency or court demonstrates otherwise. The Services cannot resolve under this ESA Permitting process the question of how such lands were obtained decades or a century ago.	E23-1, E4-10
61	See response 77. If the commentor's remark is intended to point out that more could be done to conserve Permit species than what is proposed in the NFHCP, then the Service agrees. This proposed NFHCP is intended to be a "creative partnership" between the federal government and a private landowner to allow for business opportunities while achieving species conservation needs by allowing for recovery. It is not intended to be an approach that maximizes fish conservation at the expense of all else. Also see response 377.	E23-5, E23-4
62	See response 559. The Services agree that specifically quantifying the level of harm to Permit species is less important than the fact that risk of harm is minimized and mitigated to the maximum extent practicable, and that Plum Creek and the Services continue to work together to ensure that risk of harm is sufficiently reduced.	E24-2, E24-3
63	The Services recognize that Plum Creek has the availability of scientific expertise that other landowners may not. This additional expertise is being leveraged by Plum Creek to acquire some flexibility while still preserving certainty of conservation. Regardless, the issuance criteria under Section 10 of the ESA are the same for all landowners.	E26-7
64	The Services recognize that contentious regulation to achieve conservation goals can be unproductive. That is why we continue to support efforts such as the NFHCP that emanate from a creative partnership and build solutions within a property owner's capabilities.	E30-1, E8-10
65	It is important to the Services to have confidence in the applicant because of their track record. This is a substantive demonstration of intent to follow through in an ongoing creative partnership.	E31-1
66	The Services hope to successfully complete the Permitting process to meet the needs of Plum Creek and Permit species.	E31-3
67	The Services will provide technical assistance to landowners interested in developing HCPs and will process Permit applications as they are received from landowners. The HCP process is an applicant-driven	E32-2

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	process and as landowners indicate interest in the program the Services will provide assistance. Also see response 90.	
68	Since the NFHCP is a *habitat* conservation plan, it is appropriate to focus effort on habitat features. The Services agree that with this NFHCP, Plum Creek will be providing leadership on measuring and evaluating the effects of forest management actions on native salmonids. The FWS will seek to support complementary research efforts where possible.	E32-6
69	See response 53. The NFHCP contains measures that seek to address the NFHCP biological goals. Commentor suggests alternative management strategies that are roughly captured in the Simplified Prescriptions Alternative evaluated in the EIS.	F5-9, F7-11
70	The narrative uses the illustration “fish do not know where property lines are” to communicate in a general sense that entire watersheds interact with fish habitat and that therefore an ecosystem approach is desired.	F6-5
71	The impacts, minimization and mitigation measures, alternatives, and other measures being considered (for example, issuance criteria) are described in Chapters 3, 4, and 5 of the DEIS. The Simplified Prescriptions Alternative is one alternative to the proposed NFHCP that is described. Combining the most conservative features (in terms of wildlife conservation) of the various alternatives, regardless of cost, would not likely result in a plan that, considering that it is a for-profit corporation, would be practicable for Plum Creek to implement.	F6-8
72	Fish populations will face increased risk under the No Action Alternative. Also, the Services believe that Plum Creek faces a greater risk that their actions would take listed fish species. Non-Permitted take of listed fish species would be illegal under the ESA, and Plum Creek could face prosecution if this occurred. Plum Creek seeks to address impacts to native fish from a variety of actions by paying for and implementing mitigation measures, including impacts from irrigation diversions constructed and maintained by others, as a part of their efforts to mitigate for impacts from their forestry actions. Real estate values will likely not be impacted in any way because irrigation opportunities will likely not dry up as a result of Plum Creek’s actions.	F6-11
73	The scientists who reviewed some of the documents used in preparation of the NFHCP were asked by Plum Creek and the FWS to participate in such review, out of professional courtesy. Reviewing scientists were employed with a variety of state and federal agencies and private entities. The FWS asked all potentially affected Native American Tribes to indicate their interest in participating in development of the NFHCP. The FWS met with five tribes. Two tribes, plus the Columbia River Inter-Tribal Fish Commission actually participated and submitted public comments on the draft documents. Both participating tribes are supportive of the concept of HCPs in general, but are critical of some aspects of the proposed NFHCP.	F6-15
74	Plum Creek’s Environmental Principles and Land Use Planning Principles are an indication that Plum Creek as a company is interested in protecting the environment. Through the creative partnership of the NFHCP, the FWS and Plum Creek can continue to work together to	F10-5

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	protect Permit species and their habitats, and achieve Plum Creek's stated principles. An HCP increases the accountability of any entity with good intentions and increases long-term certainty for the public.	
75	It is important to note that even if the proposed Permit were not issued to Plum Creek, timber harvest would still occur on Plum Creek lands. The No Action Alternative provides an example of timber harvest activities that generally would likely occur if the Permit were not issued. The commentor is also referred to response 80.	F11-6
76	The Services do not have the legal authority to prevent all logging on Plum Creek lands. We only have legal authority to prohibit take of listed species.	F11-7
77	The FWS agrees with the commentor that, although the plan is likely to result in improving conditions, "we cannot know how quickly and by how much." This, coupled with the fact that we are unsure what recovery goals are for listed Permit species, or conservation goals for unlisted Permit species (see response 246), means that it is difficult to determine whether the NFHCP will allow for, or not preclude, recovery of Permit species. Without this kind of information, the FWS team working on the project initially was asked in the fall of 1997 whether the FWS had enough information even to enter into conservation planning with Plum Creek. Despite existing information gaps, all FWS biologists agreed that enough information was available to engage in conservation planning with Plum Creek, and that the opportunity for gaining significant conservation for native salmonids on Plum Creek lands was significant. An HCP must meet all issuance criteria, including that it will avoid "jeopardizing" species, or not appreciably reduce the survival and recovery of the species in the wild. With this NFHCP, the initial conservation commitments are intended to provide an increased likelihood that conditions will improve at a rate sufficient to allow for recovery, or avoid "jeopardizing" species in most cases in the project area. In addition, NFHCP commitment AM2 would allow the FWS to intervene in those cases where commitments are determined to not be adequate to conserve Permit species, and ask Plum Creek to do more to conserve species. The adequacy of the "up-front" commitments and the adaptive management flexibility is explained further in Section 4.6.6 of the FEIS (and in the findings document). In summary, the FWS defines adequacy of the NFHCP as achieving a direction and magnitude of change in habitat quality sufficient to allow for recovery (DEIS Section 1.4.3, p. 1-15). This is accomplished in the NFHCP by the "up-front" commitments *combined* with the ability to change these commitments through adaptive management measures, and ultimately to suspend or revoke the Permit if the biological goals of the NFHCP are not being met or recovery of any Permit species is not being allowed for. Since recovery needs will likely not be defined until after a Permit decision is rendered for most, if not all species, adequate flexibilities must be available to adjust the plan to achieve recovery goals as they are determined. Also, recovery plans provide no assurance of conservation, on public land or private land, so the FWS seeks to take advantage of the opportunity provided by Plum Creek to conserve	F13-2, F4-5, B1-12, E16-14, E4-93, E22-9, F24-1. F8-6, F12-1, F11-2, E1-13, E1-58, E4-120, E13-8, E17-22, E23-4, E4-170

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	species starting right away under the HCP process.	
78	The FWS agrees with the discussion of how to assess risk. In the analysis, we found no Planning Area Basins where Plum Creek was the predominant owner of lands with bull trout habitat in the basin. In all cases, federal land management agencies dominated land ownership. Therefore, the FWS viewed management of federal lands as influenced by consultation under Section 7 of the ESA, coupled with Plum Creek's NFHCP, as providing an opportunity to ensure adequate conservation. The FWS also sought to encourage Plum Creek to tailor more conservative habitat management actions to areas of greater risk, or potential for benefit, using Native Fish Assemblages, High Priority Bins for road upgrades, specified riparian deferral areas, and Tier 1 Watershed designations. Also, any of the prescriptions are "self adjusting" based upon basin conditions. For example, more road upgrade work will be conducted where there are more roads, and riparian prescriptions with a tree-per-acre minimum require site specific riparian harvest deferral or a very minimal harvest where there are fewer trees.	F13-3
79	It is the intent of this proposed NFHCP to not only protect gains in habitat protection of the past, but to further enhance fish habitat quality into the future and allow for recovery of listed species.	F15-1
80	One of the issuance criteria for a Section 10 Permit is that impacts to the species covered under the Permit be minimized and mitigated to the maximum extent practicable. Should the Services find that Plum Creek's Permit application satisfies the Permit issuance criteria, they must determine that the Plum Creek NFHCP commitments provide adequate conservation benefits for species covered under the Permit. Should approval of the NFHCP encourage other entities to develop HCPs, they will also have to minimize and mitigate impacts to covered species. The Services believe that if other landowners develop HCPs, it would further enhance the conservation of listed and other sensitive native salmonids.	F15-2, F11-3
81	See response 181. A primary purpose of the NFHCP is to allow for recovery of Permit species and their habitats, in the opinion of the Services.	F16-3
82	Under Section 7(d) of the ESA, the FWS evaluated the risk of Plum Creek making irreversible and irretrievable commitment of resources during the time when the NFHCP is being developed. The FWS concluded that such risk was minimal (memo from Bob Ruesink, FWS, Boise, Idaho, to Kemper McMaster, FWS, Helena, Montana).	F16-4
83	This NFHCP and Permit represent a creative partnership that relies on effective participation by and trust in both parties to ensure adequate conservation for Permit species, and regulatory protection for the permittee. The implementation framework for the NFHCP will help achieve this effect.	F18-2, G5-6
84	See response 611. Extensive monitoring and evaluation is planned in the NFHCP.	F20-2
85	The intent of Congress in creating HCP opportunities was not only to enlist private landowners in conservation, but to provide opportunities to	F21-2, F19-6, F19-4

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	gain conservation while minimizing the impact to private landowners and economies. The Services are interested in finding solutions that are consistent with a healthy economy.	
86	The purpose of incidental take permits for species listed under the ESA is to authorize future take of listed species by non-federal entities consistent with otherwise lawful activities. It does not address the lawfulness of past impacts. Also, Plum Creek did not own over 50 percent of the Project Area until just 6 years ago—well after the majority of impacts to those lands occurred.	F22-2, E12-2
87	The Services agree that difficult decisions must be made now to implement adequate fish conservation. We also believe that sufficient flexibilities should be available in the future to adapt management in those instances where conservation commitments are inadequate.	F22-3
88	The Services believe that some risk of take will occur regardless of whether a Permit is issued or not. Therefore, the Services are faced with enforcing take prohibitions in an exceedingly difficult circumstance, or working with Plum Creek in a creative partnership through the HCP permitting process to minimize and mitigate for the impacts, or take, that may occur.	F24-3
89	Thank you for your comments. All federally listed species are protected under the ESA and their take, as defined in Chapter 8, *Glossary*, of the DEIS, is a prohibited action under federal law, except where authorized. For this reason, Plum Creek's has applied for a Permit that would allow the authorized incidental take of eight species of native salmonids that are listed as "threatened" under the ESA and the potential authorized incidental take of nine unlisted species of native salmonids in the event they receive federal listing in the future.	F25-1
90	"Take", as defined under the ESA, and its implementing regulations, is determined case-by-case using project-, site-, and species-specific information. In some cases, existing state forest practices and regulations may avoid take of listed fish species and in other cases they may not. As noted in the DEIS, the No Action Alternative does not represent the Services' opinion about what would be specifically required to avoid take of listed species. There are likely a wide variety of possible outcomes that could occur across the Project Area to avoid take of listed salmonids. Approval of the Plum Creek NFHCP will not set a "bar" or "standard" for other landowners. The NFHCP was designed to minimize and mitigate impacts on native fish species to the maximum extent practicable on Plum Creek's lands; these measures may or may not be applicable to other landowners. Conservation commitments in HCPs can vary as a result of many things such as landscape baseline conditions, specific status of and threats to the covered species on the landowner's property, land management objectives of the landowner, and other factors. The Services evaluate each landowner's Permit application and HCP, and adequacy is determined based on whether or not the ESA Section 10 incidental take permit issuance criteria are met.	G1-1, G3-6, E5-3, E7-3, E13-5, E13-37, E24-4, E28-2, E32-4
91	As noted above in response 90, HCPs differ for a variety of reasons, so the Services are unable to speculate how another potential applicant's	G3-7

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	hypothetical HCP would differ from the Plum Creek NFHCP. The Services will evaluate each landowner's Permit application and HCP, and adequacy will be determined based on whether or not the ESA Section 10 issuance criteria are met.	
92	See responses 246 and 14. Recovery "standards" have not yet been developed, but in general federal entities are required to "promote" the conservation of species under Section 7(a)(1), while non-federal entities under Section 10(a)(1)(B) must allow for, or not preclude recovery. Bull trout and other Permit species should receive enough protection under a Section 10 Permit to ensure survival and recovery of the species in the wild.	G5-2, E4-239, E4-122, E4-123, E16-9, E4-110

Federal Lands

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93	The NFHCP does not provide Permit coverage for federal activities on federal lands. It only covers Plum Creek activities on Plum Creek lands and on roads for which Plum Creek has or shares management responsibility.	E4-9
94	The Services agree that federal lands alone may not be sufficient to conserve and recover Permit species. This is why the Services believe that conservation planning efforts on non-federal lands, like Plum Creek's NFHCP, are important to the long-term survival of these species.	E4-140
95	The Services agree that conservation provided on lands other than Plum Creek lands do not "count" towards minimization and mitigation achievements on Plum Creek lands.	E4-206

Tribal Issues

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96	The Columbia River Inter-Tribal Fish Commission (CRITFC) suggested that NMFS consider and use the report by Rhodes et al. (1994) and the Wy-Kan-Ush-Mi Wa-Kish-Wit anadromous fish restoration plan. While neither document was cited in the DEIS, during formulation of the NFHCP, NMFS suggested to Plum Creek conservation measures that are included in the tribal restoration plan, and in Rhodes et al. (1994). Habitat problems highlighted in the tribal restoration plan are addressed by NFHCP. For example, the Wy-Kan-Ush-Mi Wa-Kish-Wit lists seven environmental concerns in the Clearwater River system, which include high sedimentation, loss of riparian area, elevated water temperature, low stream flows, and removal of large woody debris. All of these factors are addressed through the NFHCP prescriptions, with the exception of low stream flows. The Wy-Kan-Ush-Mi Wa-Kish-Wit also suggests that log-ging, road building, and grazing be stopped or severely restricted. The	B1-1, B1-14

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	NFHCP limits all three of these activities, but not to the extent suggested in the Wy-Kan-Ush-Mi Wa-Kish-Wit or in Rhodes et al. (1994). Additional recommendations, such as institutional changes, in the plan were outside the scope of this action.	
97	The Services have tried to meet their trust responsibilities associated with this NFHCP. We have sought to ensure that impacts to tribal trust resources have been adequately disclosed. The FWS contacted all potentially affected Native American tribes (14 tribes that we could identify) on multiple occasions, in writing, by e-mail, and by phone, during a nearly 3-year period, to determine their interest in participating in development of the NFHCP. The FWS met with a total of five tribes. Two tribes participated in discussions with the FWS, and those two tribes, plus the CRITFC submitted public comments on the draft documents. Both participating tribes are supportive of the concept of HCPs in general, but are critical of some aspects of the proposed NFHCP. See response 360. The Services understand that we must ensure our tribal trust responsibilities are met for all Native American Tribes affected by this project, and to do our best to incorporate all tribal ideas, and address all concerns. The Services will continue to coordinate with those tribes that have expressed an interest in the project, and have requested such coordination in response to the FWS' inquiries.	B2-1, B2-2, D1-73, B3-9, E4-265

States

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98	See response 602. The NFHCP development began prior to the development of Washington's new Forest and Fish Report, which forms the basis for Washington's new emergency rules. It was therefore developed independently and with the advantage of being able to incorporate specific operational capabilities of an individual landowner. The NFHCP also incorporates unique opportunities because of the known landscape that cannot be easily addressed under a regulatory process. While the Forest and Fish Report has not yet been analyzed to quantify the conservation benefits that it will provide, the existing riparian measures and expected road measures seem to provide similar levels of conservation between the two approaches, yet the NFHCP contains a number of additional features.	E5-44
99	While Information is available that indicates compliance with state forest practice rules is high (Fortunate et al. 1998), there is little information available to indicate the extent to which current state forest practices actually conserve native fish or fish habitat. In the final bull trout listing rule for the Klamath River and Columbia River distinct population segments (63 FR 31647, June 1998), the FWS cited examples where implementation of land management activities that follow existing state forest practices still degraded bull trout habitat, and stated that "Based on current information, the FWS is unable to conclude that State forest	E17-21

Response Number	Response	Comment Number
	practices acts and related legislation are adequate to protect bull trout habitat".	
100	See response 604. The Services agree that current state forest practice rules help protect Permit species to a certain degree. However, there is always risk of harm to Permit species from any activities that affect species' habitat. The purpose of the NFHCP is to conserve Permit species by further reducing those risks beyond what is provided for under state rules.	E25-2
101	Existing state forest practice rules vary somewhat between Idaho, Montana, and Washington. NFHCP prescriptions work largely as supplements to these rules and are consistent across the three states. They therefore serve to bring greater consistency.	G1-7
102	The FWS sought as much as possible to maintain consistency with state planning processes for conserving native fish. Specifically, the FWS used the planning area delineations developed by the states of Idaho and Montana, which resulted in the Kootenai River Planning Area Basin stopping at the Montana border, consistent with the state plan. Fortunately, this anomaly has no impact on the analysis of the effects of the NFHCP because Plum Creek has relatively little land in this Planning Area Basin, it is not immediately adjacent to the Idaho border, and they have no land in the Idaho portion of the basin.	G2-1
103	The NFHCP is not intended to replace state forest practice regulations or in any way diminish the authority of state regulatory agencies. The NFHCP conservation commitments include state forest practice rules as a starting point and, for some categories, provides additional conservation. In addition, if the Permit is issued to Plum Creek it would be conditioned as follows: "The validity of this Permit is also conditioned upon strict observance of all applicable foreign, state, local, or other federal law."	G2-5
104	Our response presumes the commentor is referring to adequate protection of native fish covered in the NFHCP. The decision before the Services is to approve or deny Plum Creek's application for a Permit, in accordance with Section 10 of the ESA, **not** to evaluate whether or not the state forest practice acts are adequate to protect native fish species. The Services will evaluate and base their Permit decisions on whether the NFHCP provides adequate conservation, and other measures, necessary to satisfy the Permit issuance criteria under the ESA. In the final bull trout listing rule (63 FR 31647, June 1998), the FWS cited examples where implementation of land management activities that follow existing state forest practices still degraded bull trout habitat, and stated that "Based on current information, the FWS is unable to conclude that state forest practices acts and related legislation are adequate to protect bull trout habitat". See response 604.	G2-6

Take

Response Number	Response	Comment Number
105	The Services anticipate that during the Permit term, there may be a risk that incidental take of a Permit species could occur, either directly or indirectly, at some point in time. This risk will vary across the landscape and across watersheds depending on the baseline conditions of populations and habitat. The issuance of the Permit would authorize "take" under ESA if the Services determine, among other things, the taking will be incidental, the impacts of the taking have been minimized and mitigated to the maximum extent practicable, and the taking will not appreciably reduce the likelihood of survival and recovery in the wild. The definition of "take" under ESA includes harm. The Services further define harm to include significant habitat modification or degradation that results in death or injury to a listed species. Because of the inherent biological characteristics of native salmonids, the likelihood of discovering an individual death or injury attributable to activities covered in the NFHCP is very small. The Services anticipate that impacts to covered species will be difficult to detect at the individual organism level. Therefore, even though the Services expect incidental take to occur from the effects of the action, the best scientific and commercial data available are not sufficient to enable the Services to estimate a specific number of individuals incidentally taken based on loss or injury of individuals of the species or precisely the location of where this take would occur. However, conditions of specific habitat attributes important to survival of native fish may be used as a surrogate preliminary indicator of the risk of take or adverse impact that may occur. To reduce the risk of adverse impacts (that is, take) to Permit species, the approach in the NFHCP focused on conservation of the habitat attributes most important and influential to native salmonids and at greatest risk from Plum Creek's activities. Even though take cannot be defined quantitatively for the NFHCP, the risk and the effects of take may be reduced or avoided by having focused conservation efforts to maintain, improve, or restore habitat structure and function of the aquatic environment and associated riparian zone. Prior to issuing the Permit, the Services must determine whether the anticipated "taking" would severely reduce reproduction, numbers, and distribution of a Permit species to the degree it would outwardly curtail survival and recovery. In effect, this is a risk assessment of the expected magnitude of habitat degradation on Permit species covered in the NFHCP.	E1-29, E4-58, F10-1, E1-11, E8-2, E9-4, E11-4, E13-31, E14-1, E15-1, E15-2, E18-1
106	See responses 77 and 14. For a discussion on quantification of take of Permit species see response 109. See DEIS Chapter 4 for a discussion of the various parameters mentioned by the commentor.	E4-95
107	The Services intend to fulfill all regulatory responsibilities, including enforcement of the prohibitions against "take" of listed species under Section 9 of the ESA.	E4-159
108	See response 109 regarding quantifying take. The Services' internal Section 7 consultation process will address potential effects to populations of Permit species that occur within the Project Area such as	E4-256

Response Number	Response	Comment Number
	the Columbia River Distinct Population Segment (DPS) of bull trout, and each of the listed salmon and steelhead Evolutionary Significant Units (ESUs).	
109	The commentor notes that in the NFHCP and DEIS, incidental take for Permit species has not been calculated or quantified in terms of anticipated effects on individuals or habitat units as indicated as a task according to the Services' 1996 *Habitat Conservation Planning Handbook*. Although it is typical to express take levels in the form of a specific number of individual animals killed, injured, or harassed, or in the form of all individuals associated with a specific number of habitat units (for example, habitat acres), this is not required by the ESA or federal regulation *per se*. The ESA and federal regulation require that the **effects** of the taking be specified in an HCP, not necessarily that the specific amount of take be specified. The key point is that the effects of the taking–however that take is quantified or expressed–must be understood and analyzed. In many cases, it is relatively easy to quantify take levels, either in the form of individual animals or habitat units. It is also relatively easy to express take in the form of habitat units when those units will be destroyed or permanently modified. In other cases, it is extremely difficult to quantify take in a meaningful sense either in the form of individual animals (since specific numbers of animals either present or killed or injured is unknown), or in the form of habitat units (since relatively subtle habitat effects are involved, not actual destruction of the habitat). This is the situation in HCPs involving aquatic species in timberlands. In short, timber harvest activities may create adverse conditions for aquatic species, but exactly when or where such conditions rise to the level of a taking may be unknown in any clear, quantifiable sense. Furthermore, the extent to which takings in such cases can be tied back to obvious habitat modifications is also difficult to determine. At least two options are available in such cases: 1) take can be expressed through a non-habitat-unit surrogate (for example, sediment delivery to or percent canopy cover over streams); or 2) the Services can authorize an unquantified or undetermined level of take, so long as the likely **effects** of such taking has been analyzed and described. The NFHCP utilizes a combination of these two approaches. That is, the plan will track certain variables affecting aquatic conditions in the Project Area (for example, sediment load, streamside shade, and presence of large woody debris) and will use these variables to determine salmonid habitat quality and the success of the plan. However, the plan stops short of using such variables as surrogates for quantifying take; instead the NFHCP's associated incidental take Permit will authorize an unquantified level of take of the Permit species. However, such authorization will be based on an analysis and description of where covered activities will occur in relation to fish habitats, what the likely effects on those habitats will be, monitoring of the habitats through time, and implementation of all requirements under the NFHCP by Plum Creek. Because of the inherent biological characteristics of native fish like bull trout, the likelihood of discovering an individual death or injury attributable to activities covered in the NFHCP is very small. The Services anticipate	E5-30, E8-4, F10-1, E1-11, E8-2, E9-4, E11-4, E13-31, E14-1, E15-1, E15-2, E18-1, E13-32, F5-1, F7-1, E4-253, E4-247, E4-248, E10-3, E5-4, E7-4, E16-13

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	that impacts to covered species will be difficult to detect at the individual organism level. Therefore, even though the Services anticipate a risk of incidental take, either directly or indirectly, from the effects of conducting covered activities under the NFHCP, the best scientific and commercial data available are not sufficient to 1) enable the Services to estimate a specific number of individuals incidentally taken based on loss or injury of individuals of the species, or 2) determine the location of where this take would occur. However, conditions of specific habitat attributes important to survival of native fish may be used as a surrogate preliminary indicator of take or impact. The relationship between habitat and the number individuals an area can support is embodied in the concept of carrying capacity, which recognizes that a specific area of land or water can support a finite population of a particular species because food and other resources in that area are finite. By extension, increasing the carrying capacity of an area (that is, increasing the quality or quantity of resources available to a population within that area) increases the number of individuals the area can sustain over time. By the same reasoning, decreasing the carrying capacity of an area (that is, decreasing the quality or quantity of resources available to a population) decreases the number of individuals the area can support over time. Restoring habitat that had been previously destroyed or degraded can increase the size of a population the habitat can support, conversely, habitat destruction and alteration can reduce the size of a population the habitat can support. The Services presumed baseline habitat conditions for the majority of watersheds in the Planning Area Basins are probably functioning at some level of risk such that current population levels are below that which can be sustained by the habitat. This premise is supported in the final rules listing bull trout, steelhead and Chinook salmon as threatened species. The listings were mandated by the ESA because the distribution and numbers of listed species in the Planning Area have declined significantly to the degree they warrant "threatened" status under the ESA. Baseline habitat conditions were also cited in petitions for listing redband and pure westslope cutthroat trout, and in the rationale for their designation as state sensitive species. The approach used in the DEIS assessment determined how the proposed NFHCP would impact the quantity and quality of habitat components necessary to support populations of Permit species. For example, it is well known that fine sediment deposited on spawning habitat can severely limit native fish production. The analysis in the DEIS examined the potential of the NFHCP road commitments to reduce sediment delivery over the 30-year Permit period. The results indicated that total sediment delivery could be reduced by approximately 379,000 tons. However, it is uncertain whether this reduction would be adequate in all watersheds, therefore, there is a risk that incidental take may occur somewhere over the 30-year period. The Services expect that some incidental take could occur to covered species at some time during the 30-year Permit period resulting from the effects of timber harvest, grazing, road construction, and related activities. The actual effects of implementing the proposed NFHCP and the actual level of protection for native fish and their habitats cannot be ascertained precisely, but can only be inferred. However, sufficient amounts and quality of habitat are expected to be present to provide	

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	Permit species with an opportunity to maintain and increase their numbers within the Project Area. Therefore, incidental take is generally expected to be minimized to the maximum extent practicable, but if it occurs, only a minimal number of individuals or habitat area would likely be affected. In effect, to issue the Permit, the Services must determine that the habitat impacts that may occur during the Permit term would be adequately minimized and mitigated. Incidental take would likely occur indirectly and likely in the form of harm resulting from the detrimental effects on habitat parameters such as water temperature, substrate quality, streambank stability, sediment levels, pool quality, and other important habitat features that support a properly functioning aquatic environment for native salmonids.	
110	The proposed Permit would authorize a certain level of incidental take of Permit species while Plum Creek conducts certain business activities as specified by the Permit and NFHCP. The Permit would not prevent the Services from undertaking legal or regulatory action consistent with measures in the Permit or in a case, for example, where incidental take is inconsistent with or exceeds Permitted levels. This could include cases where harm, as defined under the ESA and its implementing regulations, exceeds that or is inconsistent with that authorized by the Permit.	E7-1

Recovery

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111	The respondent argues that a Permit and HCP should not be developed in circumstances where, relative to the covered species, critical habitat has not been designated and recovery plans have not been finalized. As indicated in response 21, the Services have implemented this section of the ESA in the belief that issuance of a Permit under an approved conservation plan, which minimizes or eliminates adverse effects to species as compared to activities not guided by a conservation plan, will result in net benefits that contribute to the conservation of the affected species. While we agree that consideration of recovery plans and critical habitat information would fortify the development of an HCP, there are several reasons why this is not always possible. Because of the prioritization of work activity relative to agency budgeting, recovery plans are often not completed until several years after a species is listed. Critical habitat is not designated until a species is listed. We do not think it is prudent to delay the development of plans that will contribute to the conservation of listed wildlife until recovery plans are finalized. We are similarly reluctant to delay entering into an agreement that will contribute to the conservation of unlisted species and reduce those factors that might lead to a listing under the ESA because recovery plans and critical habitat have not yet been developed.	E4-208, E13-20
112	See responses 77, 14, and 52. The FWS agrees with the reader that its legal requirement to recover species, "…mandates more than mere 'survival' of the species..." In fact, the point of the discussion on DEIS page 1-15 and the 1995 National Research Council report cited in the text	E11-16, F3-8, E4-170

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	was to stress the fact that the FWS cannot issue a long-term Permit covering a significant portion of the species' range under the presumption that bull trout or other Permit species will merely "survive" over the long-term. Instead, the FWS believes the Permit decision includes as an assumption that this NFHCP must allow for the recovery of all Permit species, rather than being the sole vehicle to achieve recovery.	
113	The respondent asserts that, in the absence of an HCP, the applicant would be subject to restrictions imposed by the federal government as part of its recovery plan for individual species. Recovery plans for listed species do not contain restrictions or impose requirements upon the public or federal agencies.	E13-18

DEIS

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114	The DEIS disclosed incremental impacts to fish habitat and water quality that would occur under the proposed NFHCP. The DEIS also disclosed that different streams and watersheds would respond differently to the NFHCP prescriptions. Consequently, while average conditions are predicted to improve under the NFHCP, habitat conditions in certain streams or watersheds may be unchanged or decline as a result of activities covered by the NFHCP. To address this concern, the Project Area is subdivided into Planning Area basins that will be used to evaluate trends in NFHCP effectiveness at a finer scale. This approach would ensure that average conditions in each Planning Area basin were either improved or maintained, but it does not eliminate the possibility that some water bodies would not attain a level of habitat quality sufficient to support all potential uses by listed fish.	B1-9
115	The purpose of the NFHCP commitments is to provide relatively equal conservation benefit for Permit species across all three states by complementing existing rules already designed to achieve conservation. This may mean, for example, that an NFHCP commitment in one state will result in relatively greater conservation benefit compared to existing rules than in another state, where existing rules are already more protective.	C1-3
116	Text in this FEIS has been revised to remove references to whitefish and bull trout as not being sport fish and as previously being considered "trash fish."	C2-26
117	The St. Joe River is no longer included in the Project Area because Plum Creek sold their lands. Information on the Spokane River bull trout subpopulation has been added to Tables 4.6-4, 4.6-5, and 4.6-10.	C2-27
118	The size and scale of a single map (Map 2.2-1 in the DEIS) required for displaying Planning Area Basins and Tier 1 watersheds did not allow depiction and labeling of specific drainages on the order of Rock and Spruce Creeks in the upper Lochsa watershed, but they are within Tier 1 wastersheds.	C2-28

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119	NMFS appreciates clarification on the steelhead distribution in the Ahtanum and Tieton drainages. NMFS designated as critical habitat the entire portion of the Yakima River drainage that was historically accessible to steelhead, including Ahtanum and Oak Creeks. The maps depict the extent of anadromous ESU boundaries, but are not intended to depict specific streams where anadromous fish were known to be present or absent.	C3-11a
120	Text has been added to Section 4.6, *Fisheries and Aquatic Resources,* of this FEIS, as recommended, that broadly summarizes efforts to conserve and protect native salmonid habitat in the Planning Area, the status of these efforts, and implications for species and habitat viability and sustainability.	D1-14
121	The commentor inquires whether activities are assumed to be spread equally across the Project Area and over the life of the Permit; the answer is yes—we assumed equal distribution of activities in time and space.	E2-2
122	The source document for Tables 4.6-4 and 4.6-5 is *Klamath River and Columbia River Bull Trout Population Segments: Status Summary and Supporting Documents Lists,* prepared by the Bull Trout Listing Team (FWS 1998). The source document states that the Columbia River population segment of bull trout is composed of 141 subpopulations. Those bull trout subpopulations occurring within basins and drainages within the overall Planning Area are listed in the referenced tables, together with identifying characteristics. Table 4.6-10 associates FWS-identified subpopulations with the specific Planning Area Basins comprising the project's Planning Area and lists threats to each subpopulation, which were derived from the cited source document.	E2-14
123	Tables 4.6-6 and 4.6-10 have been revised in this FEIS to show the potential relationship between mining and connected water.	E2-15
124	Referenced text has been modified in this FEIS as necessary in response to this comment.	E2-16
125	The conservation measures as outlined and described in the NFHCP and analyzed in the DEIS will apply to all streams and stream reaches within the Project Area. Streams and stream reaches currently unoccupied or that have very low populations levels of Permit species would receive the same level of protection as those that are occupied. Consequently, under the NFHCP, streams that were historically occupied, though currently unoccupied, may be reseeded naturally assuming the aquatic habitat functions are restored or improved and recovery potential increases across the landscape. Potential effects on other listed and unlisted species and designated critical habitat not covered in the NFHCP as Permit species were addressed in the DEIS in Chapter 4, Section 4.7 (see responses 223 and 279). The Services' internal Section 7 consultation will address the effects of the action of issuing the Permit on other listed species and designated critical habitat that are not covered in the NFHCP as Permit species. A list of federally listed species not covered in the NFHCP and that may occur in the Project Area is provided in Appendix D of the DEIS.	E4-35, E4-195

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126	See DEIS Chapter 4 for a comparison of effects of each alternative, and the degree to which impacts will be reduced from current levels.	E4-128
127	The DEIS presents a more specific examination of factors affecting native fish on Project Area lands than the bull trout listing rule. See also responses 254, 554, and 477. The NFHCP relies on a combination of minimization (for example, buffers and BMPs) and mitigation (for example, addressing stream reaches that lack large wood because of past practices).	E4-132
128	The Services believe that significant evidence has been provided in the draft documents to suggest that riparian harvest prescriptions limit harvest to levels that will maintain or improve fish habitat. With respect to the other species mentioned within the comment, the Services believe that significant harm will be avoided through proper implementation of the NFHCP should it be accepted. However, the Service is not proposing to provide assurances for these other species at this time.	E4-133
129	Full-scale watershed analysis under the NFHCP will only be performed in native fish assemblage watersheds under commitment AM-4. This analysis will be performed to determine if unique circumstances exist in native fish assemblages that warrant additional conservation above and beyond the NFHCP. Watershed analysis will not be used to reduce conservation levels. However, findings from watershed analyses will be extrapolated to other watersheds within a geologically similar area. The mass wasting, channel condition, and surface-erosion modules will be completed to the synthesis stage within Washington state at the rate of one Watershed Administrative Unit per year.	E4-136
130	The commentor is referred to the responses 375 and 373 for a discussion of alternatives in HCPs and economics. Also, see the response 140. The EIS evaluates the alternatives according to the purpose and need, which includes both effects on habitat as well as effects on business.	E4-163
131	The respondent indicates that the NFHCP must provide for detailed habitat definitions that actually support Permit species. Chapters 3 and 4 of the DEIS provide details on the proposed NFHCP and the effects of the proposed NFHCP, including effects on geomorphic processes, hydrology and water quality, vegetation, and wildlife. Also included in these chapters are descriptions of precisely how habitat affecting aquatic species will be managed (for example, stand characteristics and canopy closure). Because of the variety of factors affecting Permit species that cannot be controlled through the NFHCP (for example, migration barriers not associated with Plum Creek lands, land management of adjacent parcels, state fishery regulations, illegal activities, and historical effects related to the current status of Permit species), and because the effects of improved land management practices may take many generations before they are reflected by healthier populations of Permit species, the FWS has chosen to base plan performance on habitat indicators rather than the status of fish populations. Primary considerations are the Plum Creek commitments to reduce sediment delivery by 49 percent in the Project Area and to maintain or decrease stream water temperatures in the Project Area.	E4-172

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132	The comment expresses the opinion that more detailed information is required on the following topics (response includes how each topic was covered in the NFHCP): current population trend data (obtained from FWS and state agencies); literature on species habitat needs (see DEIS Section 4.6.5); information on how species are affected by management (Section 4.6.5 and technical reports, summarized in Appendix B); information on economics and alternative land management; population viability analyses (these types of data are not available for species in project area); risk analyses (see technical reports and Section 4.6.5); areas of uncertainty (addressed in "changed circumstances" commitment AM-3 in the NFHCP).	E4-186
133	All of the Environmental Consequences sections of Chapter 4 of the DEIS seeks to accomplish precisely what the commentor is asking. The Services have added a table describing and comparing effects among the four alternatives to help the reader better understand the analysis results and conclusions.	E4-193
134	FWS is not aware of any exceptions to the conservation commitments in the NFHCP.	E4-197
135	These and numerous other ecological functions and processes, and associated cause-effect relationships, are discussed under the heading, *Ecological Implications of Land Management Activities on Aquatic Habitat and Fish,* on pages 4-120 through 4-144 of the DEIS. These functions and processes are then evaluated in the Environmental Consequences discussions for the affected or potentially affected resource, such as soils and sediment delivery, hydrology and water resources, and nutrients and water quality. These same discussions are contained in this FEIS. Also, please see the response 803.	E4-201
136	See response 230. Furthermore, cumulative effects will be addressed in the Services' internal Section 7 consultation. Cumulative effects under Section 7 only considers effects of future non-federal actions (that is, state, tribal, local, and private actions) that are reasonably certain to occur within the Planning Area.	E4-205
137	No additional, but unavailable, data or analyses were needed in the preparation of the documents, or in the assessment of the potential effects of the proposed NFHCP and other alternatives.	E4-207
138	The Services agree that independent scientific review of proposed HCPs can be a valuable tool for ensuring scientific adequacy of the draft documents. Because of this, the FWS requested review of the NFHCP from four independent scientific organizations: the American Fisheries Society, the Society for Range Management, the Soil and Water Conservation Society, and the Society of American Foresters. We received comments from American Fisheries Society and Society for Range Management. In addition, Plum Creek, with cooperation from the Services, sought professional review from many scientists on the technical reports they prepared in support of their NFHCP. See response 316.	E4-240
139	The commentor makes several points: 1) analysis for NEPA should use current and accurate information, including population trend and minimum viable population data to assess impacts; 2) the HCP might not be	E4-259

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	"biologically-sufficient" to protect bull trout and salmon; and 3) the DEIS economic analysis of effects of logging to local economies is flawed. Regarding the first point, the scope of the NEPA analysis relates to the incidental take Permit and Plum Creek's NFHCP. The HCP application process is to provide a Permit to Plum Creek that authorizes take of Permit species in the context of the conservation provided in the NFHCP. As required under the HCP application process, the NFHCP/DEIS has attempted to disclose the expected impacts that would likely result from the taking and what steps Plum Creek will take to minimize and mitigate such impacts using the best scientific information available. In addition, the Services' internal Section 7 consultation process must also use the best scientific and commercial data available to assess impacts and ensure the NFHCP will not jeopardize the continued existence of Permit species. During the Section 7 consultation process, the Services will address population trend information and baseline conditions when available, as well as information on overall habitat conditions for Planning Area Basins. However, it is likely the Services approach for the Section 7 analysis will assess "take" in terms of impacts resulting from expected habitat changes since there is substantial information on the habitat requirements for Permit species. Whereas, typically, population trend data for listed Permit species is limited in availability because of the lack of long-term population survey sampling over such a large landscape such as the 1.7 million acre Planning Area. Moreover, very little data or modeling information exists regarding what constitutes minimum viable populations for listed Permit species within the Planning Area. More of this type of data may become available in the future through the federal recovery planning process and additional research. Considering point 2, we disagree that the DEIS analysis of the NFHCP suggests that the anticipated improved conditions for Permit species are exaggerated. In fact, in most cases the Services took a very conservative approach when analyzing potential impacts and the conservation measures to offset those impacts. As a result, for example, following the DEIS sediment analysis from roads, the Services acknowledged a level of uncertainty still existed as to the effectiveness of conservation measures, particularly in relation to those watersheds that are already highly degraded because of high sediment loading—a potentially limiting factor for Permit species. Consequently, this was addressed specifically as a commitment in a core adaptive management study in the NFHCP. Furthermore, there is no explicit provision of the ESA or its implementing regulations requiring that an HCP result in "no take" to Permit species. The NFHCP is intended to minimize and mitigate to the maximum extent practicable the effects of take by providing long-term assurances and benefits to Permit species over the term of the Permit. The Services anticipate there could be a risk of take at some time during implementation of the NFHCP; however, this take would be authorized as long as it is in compliance with the Permit. On point 3 regarding the DEIS economic analyses, the Services made the best assessment of potential economic effects possible, using existing information. The Services expect that logging is of variable importance to local economies in different places throughout the Planning Area. We also agree that enhanced fish and wildlife populations may help local	

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	economies somewhat, but we cannot quantify this level. Upon further review, there was no readily available additional information the Services could identify to include in the final EIS analysis.	
140	The Services disagree that the economic analyses contained in the DEIS are incomplete and biased. See response 184 regarding the response to more sustainable forestry practices, and responses 377, 375, 373, and 370 concerning economic analyses. Regarding the commentor's assertion that the DEIS fails to provide a thorough or objective analysis of whether the NFHCP minimizes and mitigates take to the maximum extent practicable, it is important to note that the DEIS is supposed to report the environmental effects associated with implementing the action alternatives. Thus, the DEIS is an inappropriate forum to discuss a finding required under Section 10 of the ESA. As to whether the HCP minimizes and mitigates take to the maximum extent practicable, that particular finding will be addressed in the Services' Section 10 Findings document which will be developed by the Services prior to making a Permit decision, and which will be available to the public upon request. See our responses 377, 375, 373, and for further discussion regarding "maximum extent practicable".	E4-262, E19-2, E18-2
141	The Services believe the DEIS appropriately addresses the health, water quality, air quality, and other effects associated with the wood process plant. Since operations at the wood processing plant would be essentially the same whether the Permit were issued or not, there is not a significant difference in environmental effects between a "with Permit" situation and a "no Permit" situation. Since there would not be a significant difference in environment effects, an exhaustive environmental analysis is not warranted.	E4-264
142	The Services approved the selection of the contractor. While NMFS and FWS personnel need not be responsible for physically drafting the NEPA document, the Services are responsible for the content of the NEPA document. The Services approved the content of the document and published the DEIS for public review and comment.	E4-266
143	The Services and the applicant believe that real, decision based alternatives were included and analyzed in the DEIS and have satisfied the requirements of NEPA. The Services also believe the No Action Alternative represents a reasonable environmental baseline resulting in an impact analysis that depicts the relative effects of the various action alternatives. See responses 184 and 445. As described in the DEIS, numerous actions would be enacted to reduce the use level of or eliminate activities which degrade aquatic habitat conditions. Thus, the Services believe overall conditions will improve during the Permit term to the benefit of aquatic species. Regarding the commentors assertion that the impact analysis fails to adequately quantify certain environmental parameters, the Services believe the DEIS adequately assesses the environmental ramifications for all impact topics. Clearly, it is unrealistic to expect the Services to be able to determine the number of individual fish in any particular segment of stream at a particular time. The Services used the best science available	E4-267

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	to assess existing aquatic habitat conditions and how they might change over time under implementation of each alternative. The DEIS assessed environmental impacts by impact topics in Chapter 4 of the DEIS as well as the ecosystem interaction of all of the relevant factors in DEIS Chapter 5. Regarding the commentor's assertion that the DEIS fails to compare the NFHCP outcomes with conditions needed for aquatic species recovery, the Services note that the function of the DEIS is to assess environmental effects of proposed actions, not necessarily compare NFHCP outcomes with recovery standards for aquatic species. The Services believe the DEIS has examined and analyzed all the relevant factors for which information exists and provided a detailed analysis of the anticipated environmental ramifications associated with each alternative. The fact that the DEIS does not establish and compare the NFHCP to some set of quantified recovery standards which the commentor prefers be done does not render the DEIS inadequate. Contrary to the commentor's assertion, the DEIS does go into detail assessing how fish populations would be expected to respond to changes in habitat conditions. The DEIS does not attempt to speculate on the number of individual fish that may be produced or may occupy a particular segment of stream precisely because such quantitative assessments are impossible to accurately predict in light of all the other variables affecting fish outside of the Plum Creek Permit lands. Thus, the Services appropriately analyzed effects to fishery resources by analyzing changes in the various physical and biological elements that constitute fish habitat. Regarding the commentor's assertions that the impact analysis is inadequate in assessing the effects of the adaptive management processes, it is important to note that because it cannot be known what elements of the plan will need to be addressed under the adaptive management provisions, the Services cannot analyze the specific actions that would be implemented in the future. The DEIS attempts to describe the types of environmental effects that may occur under any number of potential actions enacted under the adaptive management provisions. The DEIS does acknowledge a certain level of uncertainty associated with implementing the HCP which is precisely why the Services believes it is important and appropriate to have the type of extensive monitoring program and type of flexibility developed under the adaptive management program to address elements of the plan which may not be resulting in desired outcomes. Contrary to the commentor's assertion, the Services believe the analyses addressing non Permit species is accurate and at an appropriate level of detail. Please see response 39. Additionally, the Service's disagree with the commentor's assertion that the impact analysis is flawed because the DEIS has an "inaccurate" No Action Alternative. See responses 184, 169, and 177. The Services disagree with the commentor's assertion that substantial negative impacts would occur to other listed and sensitive species contained in the DEIS. Regarding whether implementation of the HCP would significantly impact listed and sensitive chances of survival and recovery, in examining whether the Services issue the Permit to Plum	

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	Creek, they will have to find as a part of formal consultation under Section 7 of the ESA, that issuance of the Permit would not appreciably reduce the survival and recovery of any species listed under the ESA. This determination will be made in the Services' Section 7 Biological/ Conference Opinion issued prior to Permit issuance, and which will be available to the public upon request. The DEIS does not ignore what the commentor refers to as "Plum Creek's existing and potential intensive, short-rotation, low-retention, chemical intensive forestry practices across the majority of the plan area." The Services are well aware of Plum Creek's past forest management practices, current forest management practices, and proposed future forest management practices. The environmental legacy of Plum Creek's past and current forest management practices are reflected in the No Action Alternative and description of the Affected Environment. These sections of the DEIS describe the existing environmental baseline. The Environmental Consequences section describes the anticipated environmental effects of implementing the action alternatives.	
144	The Services disagree with the commentor's assertion that the cumulative effects analysis is inadequate. It is important to note that by virtue of the size of the planning area (spanning three states and numerous watersheds) and comprehensive nature of the environmental impact analyses, the DEIS largely constitutes a cumulative effects analysis. Additionally, the DEIS addresses the anticipated effects of management of adjacent federal lands and non-federal within the planning area in order to assess the effects of HCP implementation on a multi-regional scale. Regarding the commentor's assertion that the cumulative effects analysis must be based on actual, on-the-ground practices, the Services do not have the personnel, budget or authority to conduct on-the-ground investigations of forestry practices on the millions of acres of federal lands and non-federal lands within the planning area; thus, the Services have relied on an analysis of the forest practice rules (which apply to non-federal lands) and existing management for the various National Forests within the planning area to assess impacts.	E4-268
145	Growth-inducing impacts did not warrant a discussion in the DEIS since issuance of a Permit would not result in any substantial land use changes over the Plum Creek ownership and thus would not allow for additional growth above what might occur under the No Action Alternative scenario.	E4-269
146	Under NEPA (40 CFR 1502.16(h)), federal agencies are required to identify and discuss means to mitigate adverse effects but are not obligated to implement those identified measures. In this instance, the applicant is obligated (among other things) to minimize and mitigate adverse effects to Permit species to the maximum extent practicable in order to be issued an incidental take Permit. However, if implementation of the applicant's plan were to result in significant impacts to some resource outside the Services' regulatory authority, the Services are obligated to identify how those impacts might be mitigated, but the Services are not necessarily obligated to carry out those identified mitigation measures. federal agencies can decide to implement actions resulting in significant impacts so long as the agency has assessed the environmental ramifications of doing so. (Robertson v. Methow Valley Citizen Council,	E4-270

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	1989. "NEPA…simply prescribes the necessary process for preventing uninformed, rather than unwise, agency actions…. If the adverse environmental effects of the proposed action are adequately identified and evaluated, the agency is not constrained by NEPA from deciding that other values outweigh the environmental costs.")	
147	The items the commentor refers to are discussed in the DEIS in Section 4.15.	E4-272
148	The Services believe attempting to assess the costs to the public and future generations of items such as lost fish and wildlife, lost fisheries employment, lost rare medicinal plants, regional ecosystem failures, and future neighbor habitat restoration expenditures, and costs for increasing protections on federal lands to compensate for failed HCPs would be a wildly speculative exercise. Also, many of the issues raised by the commentor are hardly reasonably foreseeable. Thus, it would be inappropriate for the DEIS to attempt to portend such events since they are clearly outside the scope of Services' proposed action.	E4-273
149	The DEIS addressed all of the impact topics identified by the commentor in Chapter 4 of the DEIS except for sequestration and storage of atmospheric carbon dioxide. The Services believe the proposed action's impact connections to sequestration and storage of atmospheric carbon dioxide is tenuous at best and thus outside the scope of the DEIS.	E4-274
150	The Services believe they have addressed all relevant information to date and will address all relevant information gathered as part of the DEIS public comment process in preparing the FEIS.	E4-275
151	Plum Creek's St. Joe and Little North Fork Clearwater River lands were a part of the NFHCP Project Area at the time the DEIS was published. The FEIS discloses this change in Project Area boundary.	E11-19
152	The DEIS analyzed impacts associated with upland management on a suite of public resources, including Geology and Soils (DEIS Chapter 4, Section 4.2), Water Resources and Hydrology (Section 4.3), Fish (Section 4.6) and others.	E11-20
153	Much of the cumulative effects analysis for soils is presented in Section 4.6, *Fisheries and Aquatic Resources*, in the DEIS and this FEIS under discussions of sediment delivery effects on fish habitat. Section 4.2, *Geology and Soils,* in the draft and final documents, references Section 4.6 for a more detailed discussion of soils and sediment delivery.	E11-23
154	Critical habitat for Snake River Basin steelhead has been designated, and includes the Lochsa River basin. Additional commitments were added to the NFHCP to address problems known in the Lochsa River basin. The other concerns expressed are addressed in response 111.	E13-3
155	The DEIS compares current practices with potential future practices and quantifies expected improvements to fish habitat from current conditions.	E13-12
156	Few old-growth forest stands remain on lands currently owned by Plum Creek because much of the Project Area has been subject to timber harvest at some point within the last century. Analysis of effects of timber	E16-4

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	management activities on riparian forests are provided in the Environmental Consequences section of Chapter 4, Section 4.5, *Vegetation Resources*, of the DEIS.	
157	These and numerous other ecological functions and processes, and associated cause-effect relationships, are discussed under the heading, *Ecological Implications of Land Management Activities on Aquatic Habitat and Fish,* on pages 4-120 through 4-144 of the DEIS. These functions and processes are then evaluated in the Environmental Consequences discussions for the affected or potentially affected resource, such as soils and sediment delivery, hydrology and water resources, and nutrients and water quality. These same discussions are contained in this FEIS. Also, please see the response 803 regarding threats to bull trout subpopulations reported by the FWS.	E16-7
158	Page 4-127 of the DEIS describes the methodology used to evaluate sediment delivery to streams from actions that would be taken under the alternatives.	E17-7
159	Text has been added to this FEIS as necessary in response to this comment.	E17-8
160	Assumptions regarding federal protective standards for native fish on lands adjacent to the Project Area are not necessarily related to the specific measures that are currently applied, and that may change with the incorporation of new information in the future. Instead, they are meant to convey the fact that federal entities on adjacent lands will likely continue to employ land management techniques that reflect the requirements of both Section 7(a)(1) and 7(a)(2) of the ESA for the conservation of listed species.	E17-13
161	The citations the commentor notes are select portions from the Council on Environmental Quality's (CEQ) *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* pertaining to the CEQ definition of term "significantly." The EIS does address impacts that are considered both adverse and beneficial [40 CFR 1508.27(b)(1)] in assessing the direct, indirect and cumulative impacts [40 CFR 1508.27(b)(7)] associated with lead agencies' proposed actions. Please see also response 144 regarding cumulative impacts.	E17-23
162	See response 252. We were aware of this Frissell (1999) publication.	E18-4
163	Consistent with NEPA's disclosure provisions, the supporting technical papers or white papers mentioned by the commentor were readily available upon request from the FWS's Snake River Basin Office in Boise, Idaho, as well as Plum Creek Timber Company offices in Columbia Falls, Montana.	E19-6
164	The 4 white papers and 13 technical reports prepared by Plum Creek in support of their proposed NFHCP are summarized in Section 2.1.1, *Data Sources,* and in Appendix B*, Technical Report Summaries*, of the DEIS.	F6-3
165	The reference is to Figure ES-1 on page ES-11 of the DEIS.	F6-12
166	Conservation commitments implemented under the No Action Alternative would only be implemented at a rate matching the rate of timber harvest	F6-13

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	entry within the Project Area. Consequently, some portions of the Project Area may receive minimization and mitigation measures very late in the 30-year analysis period, and in some cases, not at all. Also, the value of such measures would be less than under other alternatives. Conversely, under the NFHCP most minimization and mitigation efforts would be implemented within the first 15 years of the plan, and across the entire Project Area. Also, the value of those measures under the NFHCP would be greater than under the No Action Alternative.	
167	The Services made several efforts to help ensure adequate access to all necessary supporting materials for the DEIS and NFHCP, including requesting that Plum Creek freely distribute many copies of its technical reports and white papers to a broad variety of potentially interested reviewers, especially including state agencies and Native American Tribes. We regret any difficulties some reviewers may have had in accessing materials, and in any errors in some of the electronic media (we received only one complaint regarding the adequacy of electronic media, other than that voiced by the commentor here). The Services worked with Plum Creek to include a commitment under NFHCP A-6 for Plum Creek to share monitoring data, and Section 8.3 of the Implementing Agreement has been changed to allow the Services to seek independent scientific review of monitoring reports.	F8-4, F8-7
168	The formal comment period began on December 17, 1999, and was scheduled to end in 60 days on February 17, 2000. Several respondents believed the comment period should be extended to 90 days because the DEIS/NFHCP was released near the holidays and a number of other large federal documents relating to Northwest fish habitat were released at the same time. The Services, therefore, extended the comment period 30 days, and it closed on March 17, 2000.	F11-5, F23-1, F27-1
169	The Services are not clear on which specific adverse effects from the No Action Alternative the commentor is referring to. The DEIS presents a programmatic analysis of the effects of the No Action Alternative and other alternatives, and the Services believe the DEIS provides an accurate analysis of the effects over the large Planning Area. The Services recognizes that, over the 1.7 million-acre Project Area, there could be site-specific adverse effects under the No Action Alternative other than those discussed in the DEIS. However, it would be virtually impossible, and therefore unreasonable, to conduct an analysis to this level of detail over the large Planning Area. In addition, this level of detailed information is not available for any of the action alternatives for comparison to the No Action Alternative. Also see response 184.	G1-9
170	Table 2.2-1 has been corrected in the FEIS to include the Stillwater State Forest in the Flathead River Planning Area basin acreage. The Stillwater State Forest is not depicted on Maps ES-1 or 1.3-1.	G3-4

Purpose and Need

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171	The DEIS identified a Purpose and Need Statement and evaluated all of the chosen alternatives in light of that purpose and need. The Services believe that by issuing a Permit that is satisfactory to both Plum Creek and the Services, better conservation for fish will be obtained than through less cooperative methods.	E6-4
172	Please see response 184 regarding the DEIS statement of purpose and need as it pertains to the range of alternatives selected for analysis in the DEIS. The statement purpose and need is needed to comply with NEPA; it is not a factor for consideration in the Services' findings under Section 10 of the ESA as the commentor implies. Contrary to the commentors assertion, Plum Creek's economic interests do not factor into the Services' determination as to whether the Permit application satisfies the permitting criterion that the HCP not appreciably reduce the likelihood of the survival and recovery of the species in the wild. Also see responses 377, 375, and 370.	E11-1
173	The EIS evaluated a range of alternatives designed to address the purpose and need, which is to provide both greater business certainty and greater conservation certainty. The simplified prescriptions alternative tended to be skewed away from business certainty without achieving significantly more–-and in most cases less—conservation opportunity.	E13-14

Alternatives

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174	Table 3.3-1 and accompanying text in the DEIS note that existing regulations, consisting of federal and state land management laws, rules, and BMPs, including forest practices regulations and guidelines, provide the basis and would (must) be adhered to under the Preferred Alternative and each of the other action alternatives. Benefits and any potentially adverse effects from adhering to existing regulations would be the same under each alternative, including the No Action Alternative. Existing regulations were addressed in the DEIS the same as in this FEIS.	C2-31
175	The statement that only the NFHCP alternative would meet the purpose and need (page ES-10) was not correct. The statement should have read that the NFHCP alternative best achieved both conservation and business goals, while the other action alternatives tended to favor one goal or the other. The three action alternatives all provide additional conservation for fish over the No Action Alternative, though at differing levels and in different ways. The three action alternatives all provide the applicant with some level of additional management and regulatory certainty, again at different levels. Therefore, all three action alternatives address purpose and need and provide a reasonable range.	D1-18
176	An "extensive conservation alternative" was considered by the Services but was dismissed from detailed analysis because it was determined not to	D1-19

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	meet the purpose and need. This is discussed in Section 3.1.2 of the DEIS.	
177	The Services believe the No Action Alternative is a viable alternative since it includes compliance with applicable state, federal, and local laws, including avoiding take of listed species on a site-specific basis while allowing Plum Creek to remain in business. Plum Creek is seeking an incidental take Permit in order to reduce a certain level of uncertainty in conducting timber harvest and other forest management practices. As indicated in the DEIS, there is likely a wide range of possible site-specific outcomes that could occur across the large Project Area to avoid take of listed native salmonids. The Services believe it would be speculative to attempt to identify exactly what specific take avoidance measures would entail on Plum Creek lands within the Project Area. Also, see responses 184 and 169.	E1-14, E5-5, E7-5, E8-3, E9-5
178	The No Action Alternative is required by regulation to be analyzed in detail because it establishes the environmental baseline from which the action alternatives are compared. Following is guidance from the Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations pertaining to the No Action Alternative: Section 1502.14(d) requires the alternatives analysis in the EIS to "include the alternative of no action." This analysis provides a benchmark, enabling decisionmakers to compare the magnitude of environmental effects of the action alternatives. Inclusion of such an analysis in the EIS is necessary to inform the Congress, the public, and the President as intended by NEPA. Section 1500.1(a).	E1-85
179	Please see response 184 regarding the range of alternatives selected for analysis in the DEIS. The NFHCP proposal does include the idea of setting aside areas of greatest importance for Permit species for "special" treatment under the native fish assemblage commitment, AM 5.	E1-87
180	The Services acknowledge that additional alternatives could be developed from various combinations of portions of existing alternatives. However, recombining commitments into additional alternatives would not change the range of activities considered, and therefore would not be of much value.	E2-36
181	The Services modeled the No Action Alternative in the DEIS based upon what it understands to be the prevailing approach to private forest land management that exists under current forest practice rules today. It is possible that such rules will change over the next 30 years, but the Services cannot reliably speculate on what those changes may include. The Services acknowledge that if we were able to determine "no take standards" for forest management actions on Permit species, they may, in some cases and for some activities, be considerably more restrictive than current state forest practice rules. However, the Services cannot reliably speculate on what those "no take standards" may include, or when or where they would be necessary to avoid take, especially over such a large Planning Area. Because of the above considerations, the Services believe that the most	E4-94, E4-27, E4-37, F24-1

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	realistic, reliable, and non-speculative characterization of a No Action Alternative is what was modeled in the DEIS. The differences in effects between the No Action Alternative compared to the other alternatives analyzed is provided in Chapter 4 of the DEIS. The Services have added a table describing and comparing effects among the four alternatives to help the reader better understand the analysis results and conclusions. The Biological Opinion for the selected alternative will disclose the risk of take expected from implementation of that alternative. This disclosure will be substantively very similar to, and in fact largely based upon, the impact analysis provided in the NEPA documents.	
182	The commentor provided an opinion on HCP standards and alternatives that should have been considered during development of the NFHCP. The Services believe that an adequate range of alternatives were analyzed in the NFHCP and DEIS. See responses 184 and 177.	E4-154
183	“Permanent mitigation” through the designation of reserves is a management strategy that was evaluated to some extent in the simplified prescriptions alternative which highlighted passive conservation approaches through set-asides. While it is a valid alternative management strategy that appears to meet the purpose and need less successfully than the NFHCP, the approach is not a standard or a criterion necessary for Permit issuance.	E4-176, E4-180, E4-181
184	The Services disagree with the commentors assertion that the No Action is flawed, misleading, or inaccurate. While the DEIS noted that it is reasonably foreseeable that the regulatory threshold under state forest practices rules will increase conservation benefits to species in response to ESA listings and other regulatory factors, the Services also believe it is remote and speculative to attempt to discern exactly what the regulatory changes in forest practice rules the States of Washington, Idaho, and Montana might enact and thus inappropriate to attempt to model remote and speculative prescriptions. Therefore, the Services elected to use existing forest practice rules as a means of establishing a reasonable environmental baseline for purposes of describing the No Action Alternative and as a basis for comparing the environmental effects of the action alternatives. All of the action alternatives are compared to the same environmental baseline thus showing the relative merits of the various alternatives in a comparative manner. Regarding the commentor’s assertion that the DEIS does not consider a reasonable range of alternatives because the DEIS did not consider an alternative with higher conservation benefits, the Services and the applicant believe that real, decision-based alternatives were included and analyzed in the DEIS. The DEIS considered a wide range of alternatives through development of the habitat conservation plan and through the scoping processes required under NEPA. The DEIS rigorously explores and objectively evaluates all reasonable alternatives in detail (40 CFR 1502.14). The Services are not required to analyze alternatives in detail which do not satisfy the purpose and need stated in Chapter 1 of the DEIS. The CEQ has written, "[t]here is no need to disregard the Applicant's purposes and needs and the common sense realities of a given situation in the development of alternatives" (*Federal Register*, 48 FR 34263). As noted in *NCAP v. Lyng*, 844F2d 588 (9th Cir.) 842 F2d 238, “The range of	E4-260, E4-261, F3-1, F11-4

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	alternatives is limited by the notion of feasibility and must be reasonably related to the purposes of the project." In considering a reasonable range of alternatives, the Services include the needs of the applicant as well. Further, the Services adhere to the sentiments expressed by the court in *Resident in Protest—135 v. Dole*, 583 F.Supp. 660-61(D.Minn. 1984), "A reasonable alternative is one which would effectuate the purposes of the project. If an alternative does not implement the purposes of the project it certainly is not reasonable and no purpose is served by requiring a detailed discussion of its environmental effects since the alternative would never be adopted." Based on its analysis that certain alternatives considered would not effectuate the purpose and needs stated in the DEIS Plum Creek appropriately informed the Services it would not implement certain alternatives if analyzed and adopted. The Services believe it would serve little purpose to analyze an alternative that would be financially impractical for the company to adopt. Using the common sense approach suggested in CEQ's guidance, and in *Lyng and Residents*, the Services eliminated certain alternatives from detailed analysis. The commentor suggests the DEIS should have analyzed a number of other "more sustainable" forest management alternatives. As noted above, the Services considered other alternatives, but did not analyze them in detail for the reasons identified in the DEIS. Other alternatives were also considered as part of the HCP process under Section 10 of the ESA. These alternatives were also identified in the NFHCP/DEIS. The commentor is also referred to our responses 373 and 375.	
185	The commentor makes two points in this comment: 1) that the alternatives analysis in the NFHCP/DEIS may satisfy NEPA, but fails to satisfy the ESA because no alternative that avoids take was analyzed; and 2) the commentor cites the HCP Handbook's statement that HCPs commonly include a No Action Alternative, and states that the DEIS appears to treat the No Action Alternative as a no take alternative. The Services disagree with the first point. Section 10(a)(2)(A)(iii) of the ESA requires that an HCP specify what alternative actions to **such** taking the applicant considered, and the reasons why such alternatives are not being utilized (emphasis added). This provision does not necessarily mean that an alternative that avoids take entirely must be analyzed in an HCP. Rather, the Services interpret this to mean that alternatives to the level of taking **as proposed** in the HCP (that is, such taking) must be analyzed. This could mean a level of taking above the level actually proposed, a level of taking below the level actually proposed, or no taking at all. However, what alternatives are actually described in an HCP is largely at the discretion of the Services and the applicant, and neither the ESA, federal regulation, nor agency policy requires analysis of any particular type or category of alternative. Regarding the commentor's second point, the HCP Handbook states that two alternatives **commonly** included in the alternatives analyzed section of the HCP are: 1) any specific alternative...that would reduce such take below levels anticipated for the project proposal; and 2) a No Action Alternative...(emphasis added). In this excerpt, the Handbook does not require that any particular type or category of alternative be analyzed in an HCP but simply states what is common. Thus, analysis of a no take	E5-31

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	alternative is not required by statute, regulation, or policy, and the DEIS/NFHCP does not attempt to portray the No Action Alternative as a specific no take alternative. The No Action Alternative in the DEIS simply means that an incidental take Permit would not be issued to Plum Creek, the NFHCP would not be implemented, and that Plum Creek would avoid take of listed salmonids on a site-specific basis. For the Services to attempt to analyze a specific no take alternative across the Project Area would be highly speculative (also see responses 184 and 177). The commentor is also referred to Sections 3.1.2 and 5.3 of the DEIS, which are incorporated as part of the NFHCP (see Tables 1.2-1 and NFHCP 1-1). Section 3.1.2 discusses two additional alternatives that were considered by Plum Creek during development of their NFHCP and the reasons why they were not selected. Section 5.3 discusses why the three alternatives that were analyzed in detail in the NFHCP/DEIS were not selected by Plum Creek. In summary, the FWS believes that Plum Creek's NFHCP does adequately specify what alternative actions to their proposed NFHCP were considered, and the reasons why such alternatives were not utilized.	
186	The commentor is referred to our responses 377 and 373. With respect to the commentor's assertion concerning statements on pages ES-9, ES-10, and 3-10 of the DEIS, the Services believe the commentor took both statements out of context. The statement on pages ES-9 to ES-10 is a general, illustrative statement that, while major conservation would be obtained from combining components of two of the alternatives that were analyzed in detail (NFHCP and Simplified Prescriptions), this would result in no new timber harvest, road building or other development projects over the Project Area for the next 30 years; therefore this approach was not evaluated. The Services believe that it is clear that an approach that would not allow timber harvest, road building, or other development projects on Plum Creek lands for 30 years is clearly inconsistent with the purpose and need for the action. The statement on page 3-10 of the DEIS does not dismiss the Simplified Prescriptions Alternative as the commentor suggests. This section of the DEIS describes the alternatives that were analyzed in detail. The specific statement referred to by the commentor simply explains that in the Simplified Prescriptions Alternative, conservation measures are more robust and restricted to three categories compared to the broader array and larger number of conservation categories under the NFHCP. Also see responses 376 and 140.	E11-3
187	Please see response to 184 regarding the range of alternatives selected for analysis in the DEIS. Regarding the commentor's assertion that INFISH/PACFISH standards should be considered a reasonable alternative for private commercial timber companies because federal lands are able to generate timber sales using these standards, it is important to note that the purposes for which federal timber lands are managed and commercial private timber holdings are vastly different and the economic strategies associated with managing each is vastly different. Commercial private timber companies must remain competitive within a very competitive timber market whereas there is not the same level of economic demands on publicly managed lands	E12-9

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188	One of the purposes of scoping was to seek input from the public at meetings, and in writing, on the range of alternatives that should be considered in the EIS. Public comments received are documented in the *NEPA Scoping Report for the Plum Creek Timber Company Native Fish Habitat Conservation Plan* (FWS and NMFS 1998). Based on these comments, the Scoping Report identifies four alternatives anticipated to be evaluated in the EIS. Public comments and alternatives anticipated for evaluation directly shaped the alternatives eventually selected for analysis in the DEIS. This process is described in detail in Section 3.1.1, *How the Alternatives were Developed*, and Section 3.1.2, *Alternatives Considered but not Selected for Further Analysis*. The refinement of alternatives subsequently evaluated also relied on guidelines contained in CEQ regulations that agencies should seek to evaluate a range of reasonable alternatives that will accomplish project objectives (that is, meet project purpose and need). The Simplified Prescriptions Alternative evaluated in the DEIS and this FEIS represents one of the alternatives developed from Scoping Report comments that would provide a different package of conservation measures (from the proposed NFHCP) on Plum Creek lands that could result in issuance of a Permit by FWS. The commentor is also referred to our response 184 concerning the Range of alternatives analyzed.	E13-13
189	See responses 77 and 14, for a discussion of how the NFHCP can meet the objectives of the ESA by allowing for recovery of Permit species. See response 184 for a discussion of alternatives and the basis for the No Action Alternative, and the DEIS environmental consequences Section 4.6.6 for a discussion of effects of the proposed NFHCP.	E16-3
190	The DEIS analyzes a range of alternative management actions for forestry on Plum Creek lands. Other alternatives not analyzed were beyond the scope of the document, and were not specifically evaluated as part of the DEIS.	E19-4
191	The alternatives considered by Plum Creek are discussed on page 3-5 of the DEIS.	E22-5

Permit Species

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192	The adequacy of the NCHCP for coverage of anadromous fish is evaluated in a Biological Opinion and the Services' findings documents. The Biological Opinion describes baseline habitat conditions in those basis that potentially support one or more anadromous ESUs, and it evaluates the potential for the NFHCP to jeopardize each of the covered ESUs. The Biological Opinion and the Services' findings documents conclude that anadromous ESUs covered by the NFHCP would not be jeopardized by the activities described in the plan. The full text of the Plum Creek NFHCP Biological Opinion is available on the internet at the following link: http://www.nwr.noaa.gov/1habcon/habweb/biops.htm.	B2-4

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193	See response 208. The FWS has revised the FEIS to include reference to the cutthroat trout conservation agreement, and has reassessed the NFHCP in light of the agreement to ensure consistency.	C1-14
194	The adequacy of the NCHCP for coverage of anadromous fish is evaluated in a Biological Opinion and the Services' findings documents. The Biological Opinion describes baseline habitat conditions in those basis that potentially support one or more anadromous ESUs, and it evaluates the potential for the NFHCP to jeopardize each of the covered ESUs. The Biological Opinion and the Services' findings documents conclude that anadromous ESUs covered by the NFHCP would not be jeopardized by the activities described in the plan. The full text of the Plum Creek NFHCP Biological Opinion is available on the internet at the following link: http://www.nwr.noaa.gov/1habcon/habweb/biops.htm.	C3-1
195	Chapter 4 of the FEIS was modified to reflect the reviewers comment. Except for specific projects (see Commitment Lg6, experimental brook trout suppression), it is not the intent of the NFHCP to selectively apply conservation commitments so as to discriminate against hybrids or exotic species. Hence, all salmonids will realize a net benefit from the NFHCP commitments.	C3-12
196	The NFHCP does not purport to substitute the habitat requirements of all 17 Permit species with those of bull trout. The habitat requirements of the individual Permit species were discussed in detail under Section 4.6.5 of the DEIS and were considered in the development of the preferred alternative. The basic conservation objective of the NFHCP is embodied in the concept that by maintaining or improving the Four C's indicative of proper function and structure of a stream ecosystem (cold, clean, connected, and complex), habitat will be supported for all cold water salmonids. Application of the specific habitat objectives as outlined in Table NFHCP 1-2 will lead to conservation of all Permit species, regardless of the specific requirements of each. Conservation measures to achieve the broad biological goals for all species will be applied across all of the project area lands (Tier 2). Additional conservation measures will be employed site-specifically (Tier 1) where the habitat requirements of bull trout are more difficult to achieve. This is not to suggest that other species (for example, cutthroat trout) receive less conservation benefit, but rather to apply additional conservation where required (because of more particular habitat requirements and/or ESA status). See response 208.	E1-102
197	See response 208. All but five of the 56 conservation commitments proposed by Plum Creek in their NFHCP would apply equally to Tier 2 and Tier 1 watersheds. In addition, other resident Permit species are less imperiled and less habitat sensitive than are bull trout, so although less specific information exists for other Permit species in the Project Area, and therefore less certainty, the likelihood that conservation commitments are adequate is still relatively high. Additional commitments in the Lochsa River basin to address habitat needs of anadromous fish have also been added.	E1-103
198	While five out of 56 commitments of the NFHCP do apply differentially to Tier 1 watersheds, the metrics upon which success will be measured are the same for both Tier 1 and Tier 2 watersheds.	E1-104,E2-7

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199	Section 4.6, *Fisheries and Aquatic Resources,* in the DEIS and this FEIS describes the distribution, status, life history and habitat requirements, and factors affecting populations of each Permit species.	E4-12, E4-246
200	See response 208. Also, see Chapter 4 of the EIS for species-specific information.	E4-47
201	Levels of uncertainty with respect to different species are discussed in the DEIS but not quantified. Some commitments have been obtained because of specific identified uncertainties, such as the provision included within commitment AM1 to incorporate survey information to improve the knowledge of the distribution of covered species.	E4-56
202	The rationale for including unlisted species under the proposed Permit and the reasons that this approach contrasts with previous HCP efforts is documented in another response to American Lands (618). The concern that analyses under Section 7 may be outdated at the time that unlisted species included under the proposed Permit are ultimately listed, should this occur, is valid. However, reinitiation criteria under Section 7 requires that consultation be opened for further analysis if new information on the effects of the action reveals effects not previously analyzed. Therefore, any such event would result in a new biological opinion, the results of which would feed into the adaptive management process established under the NFHCP.	E4-60, E4-235
203	The Services agree that all covered species must be treated as though they are listed. The Services believe all covered species have been adequately addressed under the NFHCP.	E4-182
204	See response 133. All resident Permit species are mainly dependent on federal lands, with less than 10 percent or so of their ranges occurring on Plum Creek lands. Anadromous Permit species vary in their degree of reliance on federal and non-federal lands, with reliance on federal lands generally highest in Snake River ESUs, and lowest in coastal ESUs. Plum Creek lands make up significantly less than 10 percent of any single anadromous fish ESU.	E4-192
205	Some species-specific information is included in the DEIS/NFHCP. For example, Tier 1 watersheds are identified and mapped based on known bull trout spawning and rearing areas. Boundaries of anadromous fish ESUs or critical habitat were used to identify areas important to anadromous fish, and all areas within the boundaries were treated as if they were occupied. Baseline information for some Permit species is limited. In general, the Services took a habitat-based approach and analyzed impacts to Permit species based on effects to their habitat. As baseline information becomes available, the Services will apply this information to evaluations and subsequent NFHCP modifications as part of adaptive management implementation. The Services and Plum Creek have included additional information and analyses in the NFHCP and FEIS concerning the impacts to Permit species.	E4-194
206	The Services and Plum Creek included substantial amounts of information in the DEIS and NFHCP regarding impacts to Permit species. Significant additional information and analyses have been included in the NFHCP and	E4-200

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	FEIS concerning impacts to Permit species.	
207	Detailed, species-specific information for endangered, threatened, sensitive, of concern, and special status species was presented in the DEIS in Section 4.5*, Vegetation Resources* (pages 4-46 through 4-50), Section 4.6*, Fisheries and Aquatic Resources* (pages 4-68 through 4-119), and Section 4.7*, Wildlife Resources* (pages 4-216 through 4-229).	E4-204
208	The basic conservation objective of the NFHCP is embodied in the concept that by maintaining or improving the Four C's indicative of proper function and structure of a stream ecosystem (cold, clean, connected, and complex), habitat will be supported for all native salmonids. Since the biological goals of the NFHCP are identical for all Permit species, fulfillment of the specific habitat objectives as outlined in Table NFHCP 1-2 should lead to equally beneficial conservation and habitat improvement. Most of the conservation commitments, 51 of 56 (91 percent), are independent of tier-designation and will be applied across all of Plum Creek's lands in the project area in order to provide equivalent benefits for all Permit species. Additionally, while Tier 1 prescriptions represent a somewhat more risk averse management strategy, field application of Tier 2 prescriptions often results in on-the-ground measures that are identical to results from Tier 1 prescriptions. The effects analysis, which is mostly driven by conservation measures common to all watersheds, demonstrates reasonable certainty that Tier 2 prescriptions provide for maintenance and restoration of riparian function. The hypotheses to be tested in the CAMP studies that will inform the adaptive management triggers are intended to test NFHCP effectiveness across the project area—not just in Tier 1 watersheds (the idea of "demonstration watersheds" has been abandoned). We will be able to compare effectiveness of commitments between Tier 1 and Tier 2 watersheds and to native fish assemblages through effectiveness monitoring. The scientific literature suggests that bull trout are the most biologically "specialized" of all the 17 Permit species, resulting in specific habitat selection, and limited, localized distribution. Additionally, the literature suggests that bull trout exhibit more stringent habitat preferences, requiring colder water temperatures for spawning and juvenile rearing, as well as stream reaches offering very high stability and very low fine sediment concentrations (a consequence of a long embryo maturation period). Auxiliary conservation measures for the more stringent needs of bull trout are not unique to this conservation plan. The NFHCP recognizes bull trout spawning watersheds in order to address the combination of bull trout's site-specific distribution patterns and exceptional habitat requirements. Additionally, Plum Creek is the largest private landowner containing streams with bull trout habitat within the DPS. This warrants a greater consideration of risk. This is not true of the other Permit species. In addition to the Tier 1 approach utilized in five of the conservation commitments, the NFHCP employs several other programmatic approaches intended to accelerate and/or provide additional habitat protection beneficial to all Permit species: • **Riparian Harvest Deferrals** (R9); watersheds chosen based upon a	E5-38, E21-2, F20-3, G1-6, G1-15, E4-17, E4-40, E4-48, E4-96, E4-97, E4-157, E5-8, E7-8, E8-6, E9-7, E11-15, E13-33, E18-5, E4-169, E5-45, E4-242, B3-1, E4-41, C3-2

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	risk screen that considers property ownership and past harvest history. • **Native Fish Assemblages** (AM4); watersheds chosen based upon unique assemblages of a diversity of covered species. • **High Priority Bin for Road Upgrades** (R5); watersheds selected based upon risk features related to roads, such as erodible geologic types, streams considered "impaired" by the EPA because of sediment, and watersheds considered to have special importance for other Permit species. • **Hot Spot Treatments** (R6); prioritization for site specific situations based upon observations of site conditions. • **Key migratory rivers** provide larger-waters habitat for all Permit species. The conservation opportunities for these streams are more related to the intensive past land management practices common to river bottoms than to the specific needs of one species. These approaches provide supplemental conservation to specific watersheds or situations for all Permit species independent of the presence of bull trout. These commitments allow for a "layering-on" of additional conservation practices where they are needed and likely to provide the most benefit to any and all of the NFHCP Permit species. Relative to both the range of, and perceived threats to, Permit species other than bull trout, NFHCP Project Area lands and covered activities are likely to exert very little influence upon the maintenance or recovery of these populations as a whole. The contribution of the NFHCP towards the recovery of "other" Permit species is understandably modest when the ranges and distribution of these other Permit species are considered. Albeit, the NFHCP is designed to have a benign effect on these species even though Plum Creek lands encompass a small portion of their distribution. Additionally, forest management activities covered under the NFHCP represent minor threats to the persistence of other Permit species when compared to over-harvest, passage at mainstem dams, and predation, competition, and hybridization from exotic or hatchery stocks. More information was available on the status and occurrence of bull trout, and key bull trout life history stages, than for other Permit resident species. Therefore, the FWS and Plum Creek were able to focus some habitat conservation measures more specifically for bull trout than for other resident Permit species. See Chapter 4 of the EIS for a discussion of species-specific habitat and conservation needs. Potential habitat for anadromous Permit species on Plum Creek land is found only in a few locations. Site-specific prescriptions were developed for anadromous fish in areas potentially used by salmon or steelhead, when information was available on habitat condition. Otherwise, NFHCP conservation measures contribute to improved habitat quality in watersheds where anadromous fish are found. The FWS believes that other resident Permit species are generally less imperiled, including by Plum Creek covered activities, than bull trout (for example, status reviews for both westslope cutthroat trout and some redband trout in the project area indicate listing under the ESA is, or may not be, warranted, given existing threats). The Services and Plum Creek view	

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	the difference in habitat conservation value between the proposed NFHCP and the Internal Conservation Plan alternatives best represents the difference between an all-native-salmonids plan (the NFHCP) and a bull-trout-only plan (the Internal Conservation Plan). The Services believe that there is significant additional habitat conservation value for Permit species other than bull trout in the NFHCP, Compared to the internal Conservation Plan alternative. The application of NFHCP commitments on Plum Creek lands will propagate and, in turn, complement federal land management actions to protect and/or recover Permit species. This landscape-scale synergism will provide a continuum of conservation benefit throughout the planning area basins, likely to result in added protection and more secure habitats for the array of Permit species' freshwater life stages. For example, conservation commitments applied on Plum Creek land may benefit upstream passage for migratory adults to the extent that spawning grounds protected on federal ownership are utilized more extensively. Complementary habitat protection/enhancement measures, combined with the augmented conservation provided to all species that utilize Tier 1 and/or NFA watersheds will result in a network of secure habitat refugia throughout the planning area. Additionally, the NFHCP includes a commitment (AM1) to update Permit species distribution information every five years, based on new information collected by Plum Creek, the Services, and state fish and game agencies. A new commitment has been added to the NFHCP (AM6) which provides the Services with the opportunity to use the updated distribution and status information to designate up to twelve additional watersheds as Tier 1, to be treated as such for the remainder of the life of the plan. These new Tier 1 designations can be made not only for newly discovered bull trout populations, but also for population(s) of any Permit species, thus assuring additional conservation for any stock of Permit species when deemed necessary by the Services.	
209	See response 208. The FWS acknowledges that Plum Creek began the planning process with a primary concern for bull trout in July of 1997, but by October of 1997 Plum Creek had proposed a conceptual framework, prior to substantive work on the detail of conservation commitments, that included all native salmonids. The FWS agreed at that time that a Tiering approach may represent a sound way to prioritize conservation resources. However, as the plan developed this approach was diminished significantly in its scope.	E10-2
210	The FWS has defined populations of only two Permit species: the Columbia River DPS of bull trout, and the westslope cutthroat trout. For both species, only one population occurs in the Plum Creek NFHCP Project Area. The FWS is unaware of any population-specific distinctions for other Permit species in the Project Area. The FWS understands the commentor's point to be that all sub-populations of all Permit species throughout the Project Area should be conserved unless species-specific and site-specific analysis suggests that such a conservative approach is unwarranted. The FWS agrees, and the Plum Creek NFHCP is designed to provide relatively equal conservation of	E10-4, E11-21

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	each Permit species in all watersheds throughout its range within the Project Area to minimize the risk of losing important genetic variability with species populations. One notable addition to this homogenous approach to providing species conservation is where native fish assemblage streams will receive relatively greater conservation benefits to ensure that the very best remaining habitats with the greatest abundance of Permit species receive special consideration. In general, the FWS expects that Permit species habitat should generally improve, and the prospects for conservation of that subpopulation should improve, in all watersheds within the Project Area.	
211	Section 4.6, *Fisheries and Aquatic Resources,* in the DEIS and this FEIS describes the distribution, status, life history and habitat requirements, and factors affecting populations of each Permit species. Conservation measures proposed by Plum Creek are intended to benefit bull trout and the other native salmonid Permit species. Results of impact analysis for the proposed NFHCP indicate improved conditions for the Four C's of clean, cold, complex, and connected habitat, which would benefit all native salmonids.	E14-4
212	The respondent questions the appropriateness of including unlisted species on the proposed Permit, and references language in the Implementing Agreement indicating that further action by the Services will not be necessary. The substance of this concern is addressed in the response to American Lands (202). Additionally, the language in the Implementing Agreement refers to Permit alteration and public notice procedures and is not intended to contradict Section 7 reinitiation of consultation requirements, as described above.	E15-7
213	Information regarding habitat requirements for coastal cutthroat trout was cited by the commentor as being insufficient for effects analysis. The Services provided basic information as it was available in the DEIS on pages 4-100 and 4-101, and cited references. However, in response to the commentor's point, the Services included additional information in the FEIS on coastal cutthroat trout. The Services further believe that in many ways the specific habitat needs of the species and how those might be defined may not be very relevant. Coastal cutthroat evolved in conjunction with a set of circumstances that we characterize as the "natural set of processes and functions". These included factors we perceive as good (for example, old growth riparian stands and streams rich in large woody debris) as well as those we perceive as bad (such as landslides and channelized debris flows). In order to meet the needs of cutthroat on the subject lands, the Services believe the most effective set of measures are those that return to that natural state or return to a state which is as close as possible given all the other constraints that are present. We also feel this is the best way to meet the needs of many species found on these lands which may appear to have conflicting habitat needs. Managing for these processes will ensure that a diversity of conditions exist and not just a single set of conditions that fit a paradigm based upon habitat conditions defined for a single species. In fact, the Services are the primary entity responsible for the DEIS. Our	E21-3

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	statements in the cited portion of the document are as follows: "Restoration of native runs of this DPS is being considered for the Lewis River and Cowlitz River portions of the Planning Area above migration barriers. Habitat above such barriers may be considered necessary for species recovery." These statements indicate that such consideration is occurring and do not mean that those actions are a necessary step. Wherever possible, the Services prefer to restore native runs through natural recovery rather than through artificial means.	
214	See response 208. Also, see Chapter 4 of the FEIS for additional information on coastal cutthroat trout occurrence in the Project Area.	E21-6
215	Section 4.6, *Fisheries and Aquatic Resources,* in the DEIS describes the distribution, status, life history and habitat requirements, and factors affecting populations of each Permit species. Conservation measures proposed by Plum Creek are intended to benefit bull trout and the other native salmonid Permit species. Results of impact analysis for the proposed NFHCP indicate improved conditions for the Four C's of clean, cold, complex, and connected habitat, which would benefit all native salmonids.	F5-4
216	Section ES.2, Covered Species, of the Executive Summary, Volume 1, identifies the 17 proposed Permit species, including the 8 species listed as threatened under the ESA. Chapter 4 of the DEIS and this FEIS discuss the status and ecological requirements of each Permit species and examine and compare the expected magnitude and direction of trend of habitat conditions important to these species among the proposed NFHCP and other alternatives. The Services' Section 7 Biological/Conference Opinion analyzing the proposed approval of the NFHCP and issuance of the Permit to Plum Creek will also contain analyses on the effects of NFHCP implementation on the Permit species and other species listed under the ESA. This Biological/Conference Opinion will be available to the public upon request. The commentor is also referred to our response 109 concerning quantification of take.	F6-1
217	Section 4.6, *Fisheries and Aquatic Resources,* in the DEIS and this FEIS describes the biological needs and related factors for the Permit species, including their distribution, status, life history and habitat requirements, and factors affecting populations. Numerous ecological functions and processes, including possible genetic introgression and hybridization, are discussed under the heading, *Ecological Implications of Land Management Activities on Aquatic Habitat and Fish,* on pages 4-120 through 4-144 of the DEIS.	F6-4
218	Section 4.6, *Fisheries and Aquatic Resources,* in the DEIS and this FEIS describes the distribution, status, life history and habitat requirements, and factors affecting populations of each Permit species. Conservation measures proposed by Plum Creek are intended to benefit bull trout and the other native salmonid Permit species. Results of impact analysis for the proposed NFHCP indicate improved conditions for the Four C's of clean, cold, complex, and connected habitat, which would benefit all native salmonids.	F7-4

Non-Permit Species

Response Number	Response	Comment Number
219	Kootenai River white sturgeon were addressed in Section 4.6, *Fisheries and Aquatic Resources,* of the DEIS (see pages 4-117 and 4-118). The FWS concluded that Kootenai River white sturgeon would not be potentially affected by the proposed project and, therefore, did not recommend this species for coverage in the proposed NFHCP.	D1-21
220	Impacts to listed species not covered in the NFHCP will be addressed through the Services' internal Section 7 consultation process. The Services must conduct an internal (or intra-FWS) Section 7 consultation process to ensure that the action of issuing the Permit is not likely to jeopardize the continued existence of any listed species or adversely modify designated critical habitat that may occur on or near Project Lands. The ESA does not prohibit the incidental take of federally listed plants on private lands unless the take or the action resulting in the take is a violation of state law. Listed plants will be addressed during the FWS's Section 7 consultation and if this process concludes that issuance of the Permit to Plum Creek would jeopardize the existence of a listed plant species, the Permit would not be issued. However, if it is determined that the NFHCP is not likely to jeopardize the continued existence of any federally listed plant species, then any such plants present within the Project Area are protected against incidental take only to the extent state law applies. Chapter 4 of the DEIS discussed three federally threatened plant species and 14 federal plant species of concern that may be present in the Project Area.	D1-22, E4-28
221	The Services acknowledge that other listed species or designated critical habitat not covered by the NFHCP may be influenced by implementation of the NFHCP. Section 4.7 in the DEIS addresses the potential for impacting various wildlife resources, including listed species such as the grizzly bear, bald eagle, and gray wolf. In addition, the FWS's internal Section 7 consultation process will address potential effects on all listed species from the action of issuing the Permit to ensure that the NFHCP will not jeopardize the continued existence of a listed species that may occur on Project lands.	E4-23, E4-195
222	The FWS is not offering coverage to Plum Creek for amphibians. The DEIS analysis suggests that, in general, amphibians may receive increased protection from conservation commitments under the NFHCP as compared to the No Action Alternative.	E4-109
223	Plum Creek is applying for an incidental take Permit covering native salmonids that may occur on the Project Area lands. The NFHCP discusses impacts to these species and identifies measures to minimize and mitigate those impacts. There will be impacts to other species and resources from implementation of the NFHCP. These impacts are disclosed in Chapter 4 of the DEIS. In addition, impacts to other species currently listed under the ESA from issuance of the Permit and implementation of the NFHCP such as bald eagles, grizzly bears, gray wolves, lynx, and listed plant species will be analyzed in the FWS' Section 7 Biological/Conference Opinion on issuance of the Permit to Plum Creek.	E4-141

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224	The Implementing Agreement does not exempt Plum Creek from future responsibilities for hundreds of currently unlisted species as the commentor suggests. The Permit and Implementing Agreement would provide ESA regulatory assurances only for 17 native salmonid species, nine of which are currently not listed under the ESA. For all other currently unlisted species, Plum Creek would obtain no regulatory assurances. For all species (listed or unlisted) other than the 17 Permit species, Plum Creek would receive no regulatory assurances under the Permit and Implementing Agreement, and would be required to comply with any protection measures for these species required by local, state, or federal laws.	E16-18

Covered Activities

Response Number	Response	Comment Number
225	Plum Creek indicated an interest in obtaining coverage through the NFHCP for take associated with chemical application, but agreed to drop this activity because the Services did not feel that there was enough information on the effects of the chemicals to identify appropriate measures to minimize or mitigate harmful effects. The vast majority of chemicals used by the timber industry, as well as agricultural interests, have not been the subject of consultation between the EPA and the Services. Because of the lack of information on the effects of various chemicals and the surfactants used to deliver them on proposed Permit species, the Services are unable to provide Permit coverage for the application of chemicals. Hence, the effects of chemical applications is the same among all alternatives, and are not analyzed in the DEIS/NFHCP.	D1-23
226	Pit run gravel quarries are typically located away from streams or riparian areas in the Project Area. New pits are prohibited within riparian management zones under existing rules and higher quality material is generally found closer to ridges and away from streams, according to Plum Creek.	E1-74
227	Chapter 2 of the DEIS describes all the covered activities in which incidental take would be authorized including Plum Creek's commercial forestry operations and associated activities that would occur during the Permit term and within the Project Area. The NFHCP describes in detail the proposed conservation measures associated with actions carried out during operations of commercial forestry such as forest road construction and upland and riparian timber harvest. See response 109 regarding quantifying "take".	E4-18
228	Chapter 2 of the DEIS describes the **nature** of the covered activities. The effects analysis in Chapter 4 describes the **quantity** of those activities that are most likely to interact with fish habitat and it estimates their **effects.** Various conditions upon or limits to certain covered activities are included within the 53 conservation commitments of the NFHCP as a part of the overall conservation package.	E15-3

Response Number	Response	Comment Number
229	The commentor believes the NFHCP over-emphasizes effects of forestry in comparison to other factors such as fishing and exotic species. The Services overtly focused on effects of forestry actions on Permit species because the NFHCP is a plan that deals primarily with forestry. To err on the other side would be to diminish the impacts of the actions. We agree however, that these other factors should be addressed and often may not be addressed as well as the forestry impacts. Chapter 4 of the DEIS provides a review of the effects of forestry actions on fish. The Services agree that non-native fish species often pose a significant threat to native fish species, and is working with state fishery management agencies to address this issue.	E28-5

Cumulative Effects

Response Number	Response	Comment Number
230	The Services recognize the importance of cumulative effects caused by land use changes. However, the physical and biological systems that generate and experience cumulative effects are extremely complex and interactive and there are many issues that complicate analyzing and understanding cumulative watershed effects that go beyond the scope of this NFHCP. Other problems that complicate such an analysis are as follows: 1) watershed response often lags behind the changes that drive it; 2) impacts may occur far from the activities that triggered them; 3) different sites respond to a particular environmental change in different ways; 4) apparent benign changes may accumulate over time and space that eventually trigger an event of sufficient magnitude to cause their full impact; 5) chronic changes over time finally reach a point that adverse effects become evident; 6) different changes interact and modify a watershed response; and 7) a particular change may not always elicit the same response. The Services believe that the cumulative effects of timber harvest, grazing, and roads on the quality of native fish habitat is largely unknown because of the many uncontrolled factors influencing habitat quality and the variable conditions that exist across the Planning Area. The NFHCP could result in improved habitat conditions for Permit species over the Project Area, however, effects generated on other land ownerships may be transported to Plum Creek lands. Consequently, it is difficult to predict cumulative effects of the NFHCP given these potential interactions. The commentor is also referred to our response 144.	E4-22
231	The most relevant habitat criteria that would be affected by Plum Creek's proposed activities under the NFHCP and that comprise the Four C's of cold, clean, complex, and connected fish habitat were selected for analysis and assessed in the documents. All of the selected criteria are important components of native salmonid habitat. Examples of criteria analyzed include sediment delivery, canopy cover, water temperature, and large woody debris recruitment. Each of these criteria encompasses a range of activities that occur in the Project Area, some of which are identified in the	E11-5

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	comment. These criteria can also be analyzed at a scale required in the DEIS and this FEIS because of the large size of the 1.7-million-acre Project Area, and because of the programmatic nature of many of the prescriptions of the proposed NFHCP and other alternatives. It was not necessary to analyze at the level of detail requested in the comment in order to assess and compare the potential effects of the alternatives evaluated. Cumulative impacts are analyzed in the DEIS and this FEIS for each resource area at a level adequate to meet NEPA requirements, and to compare broad differences among the alternatives at the Planning Area scale. For native salmonids, the cumulative impacts analysis considered predominant land owners in the Planning Area, the rigor of other management prescriptions being implemented by those landowners compared to the proposed NFHCP, the expected trend of habitat conditions for bull trout and other native salmonids in the Planing Area, and comparison of the proposed NFHCP and alternatives. Also, please see the response 144 regarding the cumulative impacts analysis.	
232	The NFHCP is designed to reduce the adverse impacts of Plum Creek's land management activities, provide conservation benefits for the proposed Permit species, and improve the baseline of habitat conditions. By significantly reducing sediment delivery to streams, maintaining or reducing stream temperatures, minimizing the effects of grazing, and addressing other various elements that negatively affect native salmonids (for example, migration barriers, exotic species, and habitat restoration needs), the Services believe that the cumulative effects of the NFHCP will be beneficial to the proposed Permit species. Cumulative effects to watersheds within the Planning Area include the effects of other landowner activities. Since 59 percent of the Planning Area (other than Plum Creek lands) is owned by the federal government, the Services anticipate that activities on those lands will also result in progressively improved habitat conditions for both listed species and co-occurring unlisted species because of the application of Section 7 of the ESA.	E22-8

Baseline

Response Number	Response	Comment Number
233	Past impacts to riparian stands have been inferred in the EIS through the riparian stand inventory conducted by Plum Creek. The extent of the existing road network on Plum Creek's lands has been disclosed, although the stratification of those roads by their impact will not be possible until R4, road condition inspections, has been completed at the end of year 5 of the Permit. The extent and location of grazing activities was summarized by Plum Creek in the grazing white paper and used in the EIS. Similar information on these activities for adjacent landowners is not readily available.	D1-16, F3-3
234	The commentor suggests that without accurate baseline trends, it is difficult to determine whether the NFHCP will provide a net benefit or adequate mitigation. The commentor also suggests consideration of	E4-20, E13-1

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	"no take" provisions. The Services presumed baseline conditions for the majority of watersheds in the Planning Area basins are probably functioning at some level of risk. This premise is supported because distribution and numbers of listed species in the Planning Area have declined significantly to the degree they warrant "threatened" status under the ESA, and that redband and pure westslope cutthroat trout are state sensitive species and both have been petitioned for listing in the recent past. The mitigation and minimization measures in the proposed NFHCP are intended to improve baseline habitat conditions for Permit species. These measures may accomplish this either directly or indirectly. The actual effects of implementing the proposed NFHCP and the actual level of protection for native fish and their habitats cannot be ascertained precisely, but can only be inferred. Just as there are highly variable baseline conditions across watersheds in the Planning Area, so too it is likely that the rate and direction of changing baseline conditions will be highly variable. During the Permit period, the proposed NFHCP would be expected to halt and reverse downward trends in baseline habitat conditions on Plum Creek lands, particularly in highly degraded watersheds. In those watersheds that are moderately or slightly degraded, baseline conditions would be expected to improve with good measure. Overall, the proposed NFHCP is expected to ensure an improvement of habitat quality throughout the Project Area and contribute to recovery of listed species and conservation of non-listed covered species. Habitat baseline conditions for Permit species will be assessed as part of the Services' internal Section 7 consultations. There is no explicit provision of the ESA or its implementing regulations that requires an HCP must result in a "net benefit" or a "no take" to affected species. However, Plum Creek and the Services expect the proposed NFHCP to provide a net benefit and long-term assurances for Permit species, particularly because of the large size of the landscape affected and the Permit duration.	
235	Survey data for bull trout and other Permit species were obtained from available inventories, including 3 years of field surveys with review and input by Washington, Idaho, and Montana state fish and game agencies. Techniques and findings of this effort was shared with the FWS and displayed in Technical Report #1. The habitat requirements of the individual Permit species were discussed in detail under Section 4.6.5 of the Draft EIS and were considered in the development of the Preferred Alternative.	E4-187
236	Commentor requests detailed data about Plum Creek's management activities going back 20 years. It was not practicable to obtain such data, not directly relevant to the Permit issuance decision, and in many cases, not available.	E17-9
237	See response 239. The percent of riparian forest areas that occur in Idaho, as compared to the Project Area as a whole, is roughly equal to the percent of land overall in each portion of the Project Area. So for the purpose of the DEIS, roughly 8 percent of all the riparian areas in the Project Area occurred in Idaho.	E17-14

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238	The FWS does not believe that very many large diameter trees remain in riparian areas on lands currently owned by Plum Creek because much of the Project Area has been subject to timber harvest at some point within the last century. Therefore, the risk of losing many large diameter trees that might otherwise benefit native fish habitat is low. Stream temperatures will be lowered and large woody debris recruitment potential will be increased under the NFHCP because more large trees would be left by the stream than under current state forest practice rules.	E17-15
239	Stand data indicating riparian tree size for Idaho are not available. Plum Creek does, and would continue to, leave a minimum of half of all “large diameter trees” (actually, half of all trees representative of the original stand) in a riparian area in which they conduct a timber harvest. Plum Creek would be allowed to access all riparian areas within the Project Area for which a timber harvest opportunity exists. This would equal approximately 20 percent of their Project Area riparian areas per each 10-year period within the 30-year Permit.	E17-16, E17-17
240	The data requested are not available. Technical Report #7 summarizes the results of a riparian cruise conducted by Plum Creek in 1998 to describe the existing situation.	E17-18

Best Available Information

Response Number	Response	Comment Number
241	See responses 46 and 77. The Services agree with the uncertainties of the data pointed out by the commentor. However, we and the applicant sought to use the best data available for their lands, which necessarily are largely Plum Creek data. Additionally, several of the technical reports prepared by Plum Creek summarizing their data were reviewed at a draft stage by reviewers agreed to between Plum Creek and the FWS. Much of the information collected in these technical reports was collected from adjacent, undisturbed streams and stream reaches on U.S. Forest Service (FS) property. To address the risk that the use of such data is in error, the NFHCP includes sufficient flexibility for the Services to use new data from any source to change adaptive management triggers, or help inform other determinations of whether management should be adapted.	E1-7
242	This comment is concerned about the fact that information used in the development of the HCP was derived from populations in the U.S. that are "already impacted." The reviewer suggests that Canadian populations are "more pristine" and provide potential targets "to meet recovery goals." This approach may be salient if the “recovery goals” of the NFHCP were defined in numbers of fish. However, the goals of the NFHCP are to maintain and improve fish habitat to the extent that populations may be conserved, not to provide “pristine” conditions on Plum Creek lands. Hence, it was more important to understand cause-and-effect relationships between habitat modification and	E1-99

Response Number	Response	Comment Number
	population response. An array of habitat conditions and population densities is needed to establish these relationships. By focusing only on pristine conditions, the ability to understand or predict population response to a variety of habitat conditions is lost. Moreover, technical reports developed to provide a scientific foundation for the NFHCP incorporated the relevant and available literature. An object of the NFHCP is to allow for recovery and to mitigate and minimize the impacts of future activities by the applicant. Establishing an environmental objective based on pristine or "less impacted" populations runs the risk of ignoring management related effects that could be recognized and corrected by focusing efforts and objectives on managed landscapes. Additionally, other factors of biological importance in evaluating the relevance and applicability of results obtained in these “pristine” environments distant from the NFHCP project area (for example, geomorphology, climate, and vegetation types) are not known	
243	The comment is concerned with the lack of references to published data in the DEIS analysis. The literature was reviewed by the Services in the DEIS, and by Plum Creek in their 13 peer-reviewed technical reports that examined aspects of bull trout biology and ecological relationships in the NFHCP area. The survey data collected by Plum Creek since 1993 has been shared and reviewed with state fish and game departments, provided to the FWS during its status review of bull trout, and examined in more detail in Tech Report #1. References to unusual occurrences for bull trout are set in context with larger data sets and statistical analysis (See Technical Report #12 on analysis of temperature data for more than 100 sites in the planning area). Coordination with state and federal biologists in the development of the plan was done deliberately to evaluate and obtain additional data and studies pertinent to the issues examined.	E1-100
244	The following individual responses correspond to each of the nine paragraphs contained in this comment. Because the DEIS and NFHCP were prepared as a combined document, some sections of the DEIS also satisfy content requirements of the NFHCP. This information was provided in Table 1.2-1, *Required Contents of an HCP and an EIS and their Locations in this Combined Document*, in Volume I of the DEIS. 1. We disagree with this comment. We believe the best available science was used to perform the impact analysis, given the programmatic nature of the assessment. Relevant information for each of the Permit species and discussions of the ecological implications of land management activities on aquatic habitat and fish were presented in Section 4.6, *Fisheries and Aquatic Resources.* This information was presented at a scale appropriate for conducting programmatic-level assessments contained in the DEIS and this FEIS. Recovery goals that have been developed for Permit species, or in the case of bull trout—interim conservation guidance during recovery plan development, are described in Section 1.5.1, *Federal Regulations*. The DEIS and	E4-11

Response Number	Response	Comment Number
	this FEIS assess the likelihood of not precluding recovery of listed species under the proposed NFHCP and the other action alternatives through an analysis of the expected direction and magnitude of trends of key habitat components. 2. We disagree with this comment. These activities were described and their effects analyzed at a scale relevant to the programmatic nature of the proposed NFHCP and other action alternatives. Covered activities were described in Section 2.3.1, *Plum Creek's Land Management,* in Volume I of the DEIS and this FEIS. Potential effects of these activities were analyzed in the appropriate resource sections, and the potential for adverse effects identified if such effects were expected to occur. The analysis and projection of sediment delivery, for example, considered a host of contributing factors, including those identified in this comment and others. Many of these analyses are contained in Section 4.3, *Water Resources and Hydrology*, Section 4.4, *Water Quality and Contaminants*, and Section 4.6, *Fisheries and Aquatic Resources* because of potential direct or indirect effects on aquatic habitat components. Risks associated with chemical contaminants were addressed in Section 4.3, even though fertilizer, herbicide, and pesticide applications are not covered activities under the proposed NFHCP. Potential impacts on the broader forest ecosystem are addressed in other sections of the DEIS and this FEIS, such as in Section 4.5, *Vegetation Resources*, Section 4.7, *Wildlife Resources*, and Section 4.8, *Land Use,* and Section 4.9, *Recreation Resources*. Impacts on native salmonid habitat used by Permit species were broadly assessed through anticipated changes in the condition of the Four C's (cold, clean, complex, and connected habitat). 3. As noted in the opening response to this comment and in Table 1.2-1 of the DEIS, some sections of the DEIS in this combined EIS/HCP document also satisfy content requirements of the NFHCP. The impact analysis and description of background conditions presented in the DEIS provide information on all the subject areas listed in this comment. The level of detail presented varies with the subject area, but it is appropriate for use in the programmatic assessment of potential effects that was conducted for various resources. Section 4.6, *Fisheries and Aquatic Resources*, in the DEIS recognizes the importance of aquatic invertebrates in the diet of various fishes, and also notes examples of predator-prey relationships among some fish species. 4. Performance standards and indicators developed for the proposed NFHCP focus on those activities important to the success of the NFHCP. These are expressed through goals of improved habitat conditions (that is, the Four C's) that affect the survival and recovery of the Permit species. Tables NFHCP 8-1A, 8-1B, and 8-2 provide detailed information on the NFHCP implementation framework and associated triggers and activities regarding changes in stream temperature, increased canopy cover, reduced sediment delivery, and woody debris recruitment.	

Response Number	Response	Comment Number
	The Implementing Agreement in Appendix A, Volume II, defines terms and conditions for implementing the NFHCP, including remedies and recourses should any party fail to perform its obligations. 5. Please see responses 14, 77, and 208. 6. Please see response 234. 7. The draft and this final EIS/NFHCP meet the standards and guidelines for the preparation of HCPs and NEPA documents followed by the Services, who are officially responsible for the enforcement of ESA requirements. 8. We disagree with this comment. The nature of each peer review was reviewed by the FWS and is accurately described in the NFHCP. 9. We disagree with this comment. Cumulative impacts are analyzed in the DEIS for each resource area at a level adequate to meet HCP and NEPA requirements and to compare broad differences among the alternatives at the Planning Area scale. Also, please see response 144.	
245	The respondent states that Section 7(a)(2) of the ESA and associated administrative rules require agencies to use the best available science. The Services agrees with this statement. See responses 77, 61, and DEIS Chapter 4 for more information.	E22-2

Coordination

Response Number	Response	Comment Number
246	Because the Services have not completed recovery plans for any of the listed Permit species, and are not currently considering managing unlisted Permit species under the ESA, we do not yet have a clear picture of the "overall efforts to conserve" all Permit species (see response 77). However, the Services have sought to help Plum Creek design this NFHCP in a manner consistent with the likely recovery needs of all Permit species on a broader scale, as they are determined. For example, the Services have sought to include enough adaptive management flexibility to ensure Plum Creek's management can be adapted to meet recovery goals or be consistent with recovery tasks as they are identified. In addition, the clear majority of lands occupied by bull trout, and most of the anadromous Permit species in the Planning Area, are owned and managed by the federal government. Therefore, as discussed in the DEIS, the Services have the opportunity through future consultation with these land management agencies under Section 7 of the ESA to ensure actions they carry out promote recovery of listed species, and complement other, ongoing state and private species conservation and restoration activities.	D1-5, F4-5, F3-7, E2-31, E4-161, E4-190, E4-252, E13-2, E20-7, E4-34, E4-239, E16-14, E4-122, E4-123, E16-9

Response Number	Response	Comment Number
	The Services also based their technical assistance to Plum Creek in large part on information provided in other, existing planning processes, including the state plans for bull trout restoration in Idaho and Montana, and the draft ICBEMP. Information from these plans is also being incorporated into the FWS' bull trout recovery planning process. The Services believe that HCPs should not supplant development of recovery plans. Ideally, range-wide recovery plans would be completed before HCPs are developed, but conservation planning can continue absent approved recovery plans provided enough information is available to ensure adequate conservation. The FWS coordinated the development of the NFHCP with the bull trout recovery team coordinator, and obtained input from recovery team members to help ensure development of the NFHCP was consistent with the recovery teams current views on what is needed for adequate conservation.	
247	Several dozen state, federal and tribal conservation or management plans are being written for at least some portion of the Planning Area. These plans contain inconsistencies with one another, and often contain conflicting goals. The Services agree that a comprehensive watershed conservation strategy with other land ownerships would provide a high level of habitat protection, but there is no clear strategy available for the Planning Area. Under the proposed NFHCP commitment Lg8, Plum Creek will be required to participate wherever possible as a cooperator in watershed planning groups that will work together for conservation of healthy riparian and stream systems. This will include neighboring landowners and other stakeholder groups such as the Montana Bull Trout Restoration Plan Watershed Group.	D1-15

Upland Activities

Response Number	Response	Comment Number
248	Erosion impacts to Permit species from harvest was considered in the development of the NFHCP, specifically in the more conservative riparian buffer commitments within 50 feet of streams, and especially in the Interface Caution Area zone, out to at least 150 feet from streams. Also, existing state forest practice rules are designed specifically to reduce risk of sediment movement from timber harvest. Lastly, Chapter 4 of the DEIS analyzed risk of clearcutting on Plum Creek lands, and concluded there was very low risk—less than 2 percent of Plum Creek lands are likely to be clearcut over the next 30 years.	E1-68
249	As described in the DEIS, analyses completed in the Planning Area have found observed sediment delivery to streams associated with harvest area erosion to be very low where BMPs are applied and SMZs retained (See also response 477). Monitoring harvest or	E1-69

Response Number	Response	Comment Number
	clearcut area (by Planning Area basin) for harvest-related sediment delivery will be achieved in part through continued monitoring of BMP effectiveness, and through instream monitoring of sediment levels. Should future research or third party audits indicate that harvest-related erosion is a significant process of concern, a cooperative management response under adaptive management could be initiated.	
250	Logging—Commitments R1 and Rp8 address logging and other upland management activities. Also, the linkages between these activities and fish habitat becomes less clear with increasing distance from the stream. Chemicals—see response to 225 Upslope retention—Upslope retention is addressed in commitment Rp8. The relationship between retention of trees and fish habitat become less clear with increasing distance from the stream. The NFHCP does not include Permit coverage for upland species.	E4-127
251	The ICA commitment (Rp8) recognizes that management in upland areas can possibly impact riparian function. It specifies restrictions in upland management in those uplands that are closest to the riparian areas. For the final NFHCP, the services have obtained a commitment to limit clearcuts to less than 5 percent of the total harvest in the ICAs.	E13-24

Groundwater

Response Number	Response	Comment Number
252	The NFHCP provides several measures to protect near-surface groundwater, including the use of BMPs for road construction and upgrading (commitments R-2 and R-5) and riparian harvest restrictions for CMZs (commitments Rp-2, Rp-3, and Rp-4). The potential for upslope timber harvest and road building to affect groundwater flows and timing, to the extent that fish habitat is impacted, depends on numerous localized factors such as soil development, bedrock structure, recent precipitation events, and local patterns of sub-surfaced flows. Hence, this potential effect was not assessed when comparing NFHCP alternatives since the relevant factors are unknown. See responses 256 and 266.	E4-130, F4-2, F7-3, E14-3

Hydrology

Response Number	Response	Comment Number
253	A discussion of the hydrologic effects of the various alternatives has been expanded in Chapter 4 of the FEIS. See responses 254 and 415.	B2-18
254	Chapter 4.3 of the DEIS discussed hydrologic effects of the various alternatives. Because more than 95 percent of Plum Creek harvesting in the Rocky Mountains and 80 percent in the eastern Cascades is by partial cutting, the Services believe hydrologic risk from this covered activity is low. Additionally, the NFHCP includes several road management commitments that serve to reduce the delivery efficiency of sediment and water to streams (particularly from old roads). It is believed that these actions will reduce potential hydrologic effects of roads. Plum Creek clearcutting will be reported to the Services annually, so if management changes and the Services determine that this would jeopardize Permit species, NFHCP conservation commitments could be revisited.	C2-20, E2-43
255	Section 4.6, *Fisheries and Aquatic Resources*, of the DEIS contains detailed information on projected rates of sediment delivery from various Plum Creek activities in the 1.7-million-acre Project Area. This information was presented for each of the alternatives, and was used to assess potential effects on native fish habitat, which was characterized using one or more of the Four C's (cold, clean, complex, and connected habitat). As discussed in Section 4.1, *Introduction*, of the DEIS, the extremely large size of the Planning Area (17 million acres) and the projected application of NFHCP prescriptions on only about 10 percent of the Planning Area required that potential cumulative impacts be assessed based on large, regional patterns in the expected direction and magnitude of trends of key habitat components. Such cumulative assessments were presented for each alternative. Table 4.6-3 in the DEIS summarizes 17 categories of attribute data for project area and adjacent lands by state and Planning Area basin. For the proposed NFHCP, the cumulative impacts assessment of fisheries and aquatic resources concluded that because of the predominance of federal lands in the 17-million-acre Planning Area, because of the comparatively low-risk habitat management strategies for native salmonids and at-risk species on federal lands within the Planning Area, and because of expected benefits from the NFHCP on a relatively small portion of the Planning Area, a positive trend of gradually improving habitat conditions for bull trout and other native salmonids would be expected over the 30-year Permit period.	D1-17, E1-10
256	Concern for timber harvest impacts on water yield is being addressed via a new commitment to avoid clearcutting under NFHCP commitment Rp8, and under commitment EP-1 (Table NFHCP7-1), which specifies that Plum Creek will annually report the percent of total acres clearcut in the project area, including outside of interface caution areas. Substrate coring and percent fine sediments will be the technique used to determine substrate sediment level, as recommended by the commentor. Channel cross sectioning will be	D1-49

Response Number	Response	Comment Number
	used as suggested for monitoring channel stability, particularly in conjunction with riparian legacy restoration projects (Lg-3) and monitoring of grazing (G-3) operations. Sediment increases relative to timber harvest and road construction are the primary vectors that adversely affect nutrient levels for fish and are a major focus of the NFHCP monitoring and adaptive management program as well as a factor used in the design of riparian buffers and road maintenance commitments. The use of aquatic biota other than fish as monitoring indicators has been considered and will likely be implemented as CAMP projects are refined in consultation with the Services. Specifically, use of macroinvertebrates will be considered in conjunction with grazing leases.	
257	The Services agree that human alteration of watersheds, including through forestry actions such as timber harvesting and road building, can change hydrologic regimes. There is no "goal of hydrologic maturity" in the NFHCP because there is likely to be broad disagreement and scientific uncertainty over even how to measure such a goal, much less exactly what that goal, or standard, should be (see responses 14 and 246 for more discussion on "standards"). Plum Creek designed the NFHCP to reduce risks to watershed hydrology by minimizing impacts of roads and promoting increased efforts to avoid roads significantly altering water flows, by reducing risk of clearcutting across watersheds, and by increasing buffer widths and densities near streams. The effectiveness of these measures will be evaluated through Plum Creek studies and through the use of outside information. If these measures are insufficient, Plum Creek will either adapt management, or risk losing the regulatory assurances of the Permit.	E1-78
258	See responses 415, 554, and 254. Note that flooding is also addressed as a changed circumstance in NFHCP commitment AM3.	E1-79
259	See response 252. Because a clear, quantifiable linkage between forest management and groundwater temperature (as it may affect stream temperature) does not exist, it was not felt that development of a Specific Habitat Objective for the NFHCP was desirable. Should future research identify this as an important process that the NFHCP should actively manage for, adaptive management procedures could be invoked.	E2-12
260	While it was not felt that development of a specific habitat objective dealing with watershed hydrology was needed under the "complex" biological goal, this process was analyzed in Chapter 4.3 of the DEIS. See response 254.	E2-13
261	The DEIS did consider the cumulative effects of new road construction, as well as road upgrading and abandonment (see Chapter 4.6.6 in the DEIS). The distribution of new roads would be similar to the distribution of existing roads. It is therefore assumed that stream-crossing densities would be proportional to those in place today. An increase in road densities is not expected to result in a proportional increase in landslides as improved standards for placement and construction of roads will be used. Lastly, hydrological	E10-5

Response Number	Response	Comment Number
	effects are expected to be of lesser issue in the absence of clear-cutting as a dominant forest-management tool.	
262	Bedload movement was not identified as a significant process of concern in Project Area watershed analyses (See Technical Reports #5 and #11). However, minimization of changes in bedload movement is addressed in the DEIS/NFHCP through management of processes that affect bedload transport, such as coarse sediment supply (road erosion, mass wasting), hydrology, bank stability, and instream large woody debris. In addition, Plum Creek included a new commitment to monitor mass wasting events on their lands to minimize risk of impacts to stream bedload (see NFHCP commitment AM-5).	E17-1, E17-3, E17-4, E17-5, E17-6, E17-11
263	The FWS agrees with the importance of protecting tributary streams to achieve native fish conservation.	E17-2
264	Through increased road drainage, NFHCP commitments (including more rigorous enhanced BMPs for road drainage for the final NFHCP in commitments R2 and R5) would reduce the hydrologic connectivity of roads with streams and reduce sediment supply, both of which should improve watershed hydrologic conditions and bedload movement.	E17-10
265	Effects of Permit activities on water yield in the Project Area were addressed in Chapter 4 of the DEIS. Risk of major vegetation removal (widespread clearcutting) is low, and road density will not increase significantly, if at all, so the likelihood of significant hydrologic effects from implementing the NFHCP is low.	E34-5
266	The proposed NFHCP makes several commitments that contribute to proper groundwater flows and hyporrheic (groundwater/surface water interaction) area function. However, the NFHCP does not include upland harvest prescriptions for groundwater flows. The riparian, road, and “hot spot” commitments are intended to make improvements in riparian function and associated water quality parameters. Additionally, the commitments to maintain or reduce stream water temperatures throughout the Project Area and implement the adaptive management process is intended to address any unanticipated changes in stream temperatures. See response 252.	F5-3
267	Chapter 4.3 of the DEIS describes the analysis of water resources and hydrology. Watershed scale hydrology was also investigated in several Plum Creek watershed analyses described in Technical Reports #5 and #11. See response 253.	G5-4

NFHCP

Response Number	Response	Comment Number
268	The NFHCP was written to specify the terms of the agreement while at the same time communicating how they work and why they were chosen to the general public who would be reviewing the plan. In order to separate the specific terms from general communication ("fluff' as termed by some) full width boxes were used to contain the text of the specific commitment.	E5-40, E5-9
269	The NFHCP was constructed by building upon the practices Plum Creek has been developing during the past several years under environmental forestry. It also includes several completely new features.	G1-8

Environmental Principles

Response Number	Response	Comment Number
270	Nine of the 11 Environmental Principles for forest management activities described in Chapter 2 of the DEIS and this FEIS directly or indirectly relate to water quality and fish habitat protection. These Environmental Principles were adopted by Plum Creek in 1991 and are an important basic component of the NFHCP negotiated between the FWS and Plum Creek.	E12-1
271	Plum Creek intends to use silvicultural techniques that minimize and mitigate the effects of their actions on native fish species to the maximum extent practicable.	E16-22

Permit Species

Response Number	Response	Comment Number
272	HCPs range in coverage from single species to all species. An all species approach is now effectively precluded by the No Surprises Rule. The NFHCP uses a multi-species approach so that an ecosystem approach may be implemented but one that is focussed on fish. This reduces uncertainties associated with inclusion of species for which little is known. Species that occur in the Project Area that are not included in Permit coverage are still subject to take prohibitions if they are listed under the ESA, and other regulations that govern their protection.	E4-167
273	The NFHCP does not cover terrestrial species.	E4-177
274	Generally, the NFHCP does not provide coverage for species that utilize snags or down logs. Down logs that are incorporated into the stream channel function as large woody debris. Large woody debris retention and recruitment for fish habitat is addressed by the NFHCP.	E4-179

Response Number	Response	Comment Number
275	There is no “standard” that an HCP address species with large area and specialized habitat requirements as the commentor suggests. An HCP must address those species for which an applicant wishes an incidental take Permit. Plum Creek’s NFHCP and the DEIS address species for which Plum Creek seeks a Permit.	E4-184, E4-183
276	The bald eagle is a generalized predator/scavenger primarily adapted to edges of aquatic habitats. Typically, fish comprise up to about 70 percent of the nesting eagle diet with mammals, birds, and some amphibians and reptiles providing the balance of the diet. Golden eagles feed primarily on mammals, with birds and reptiles rounding out their diet. Osprey feed primarily on live fish. The Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. 703-712), and the Bald and Golden Eagle Protection Act of 1940, as amended (16 U.S.C. 668-668d), provide statutory protection for eagles and osprey. Eagles and osprey evolved with native salmonids. Even absent statutory protections, we are not aware of such a proliferation in the numbers of bald eagles or osprey or of any unusual mechanisms enabling them to take advantage of fishery resources to the extent that management measures would be necessary to limit their take of native fish.	F21-3
277	Plum Creek requested a Permit for native salmonids only. In providing technical assistance to Plum Creek during NFHCP development, the FWS indicated to Plum Creek that, in its best judgement, take of Kootenai River white sturgeon from their forest management actions was unlikely.	G2-2

Permit Length

Response Number	Response	Comment Number
278	The Services agree with the expression of uncertainty over the ability of the NFHCP to allow for recovery of Permit species. For this reason, the Services retained the ability to modify practices through management, and to suspend or revoke the Permit if the biological goals or Permit issuance criteria were not met and agreement on management adaptations could not be reached. The effectiveness of the Permit at meeting the goals would be reviewed every 5 years, with decisions on the success of the prescriptions made at those times. Permit compliance monitoring will be reported on and reviewed every year. Assuming that state forest practice rules do not become more restrictive than the NFHCP during the next 30 years, there is reduced conservation associated with a shorter Permit term. The benefits to Permit species of some habitat restoration or protection measures will be felt immediately, but will continue to accrue for years or decades to come. Therefore, the longer the Permit period, the greater the certainty of benefits accruing to Permit species. Should the Permit term end sooner than the proposed 30-year period, benefits may be less than they otherwise would have been over a longer time frame. See analysis statements on shorter Permit term lengths in Chapter 4 of the DEIS.	D1-9, E4-41, E16-19, E4-156, F5-8

Response Number	Response	Comment Number
279	The Services and Plum Creek have included additional information and analyses in the NFHCP and FEIS concerning the impacts to native salmonid Permit Species from NFHCP implementation, including the relationship to these species' recovery. In the Section 7 Biological/ Conference Opinion concerning approval of the NFHCP and issuance of the Permit, the Services must find that the action of issuing the Permit will not appreciably reduce the likelihood of the continued survival and recovery of each Permit Species. After a Permit is issued, the Services can reinitiate Section 7 consultation at any time, subject to the reinitiation criteria, to ensure that implementation of the NFHCP is not appreciably reducing the likelihood of the survival and recovery of any listed species (including each Permit Species). For example, Section 7 consultation could be reinitiated if new information reveals that the effects of NFHCP implementation may affect Permit Species in a manner or to an extent not previously considered. If the FWS finds that as a result of Permit issuance, and NFHCP implementation, the likelihood of the survival and recovery of a Permit Species may be appreciably reduced, the FWS has the authority to revoke or suspend the Permit in whole or in part. Should the Services decide to issue the Permit to Plum Creek, the rationale for approval of the NFHCP and issuance of the Permit will be given in the Section 10 Findings and Record of Decision documents. These documents will be available to the public upon request.	E4-90
280	The respondent questioned whether an Permit was appropriate, and also whether a Permit period of 30 years, during which time the Services could not "sue" for extra protections, was appropriate. The first issue is covered in response 111. There are several issues relative to the second point. As discussed in the DEIS, when a conservation plan is based on improving habitat to benefit Permit species, a longer Permit period will provide the opportunity for the habitat to respond more completely and will affect more generations of covered species than a shorter time period. Additionally, the Services will have opportunities to work with the applicant to improve the conservation plan if anticipated benefits to covered species are not realized. The proposed NFHCP includes various commitments, objectives, and triggers for refining the plan to provide anticipated conservation benefits should the need arise.	E9-1
281	The Permit already contains milestones. In general, the Permit will be reviewed annually for implementation and every 5 years for effectiveness. If the goals are not being met and a satisfactory management response cannot be devised, the Permit can be terminated.	E14-9, E4-57, D1-67, F4-4, F5-8, F7-10, E1-86, E18-12, E4-216
282	This phrase refers to conditions of water quality, stream channel complexity, and stream connectivity that allow native fish species to successfully feed, migrate, reproduce, and find shelter. Parameters reflecting functional habitat for native salmonids include water temperature, water sediment levels, woody debris in streams, and unobstructed migratory pathways between rivers and tributaries, and within tributaries.	F6-10

Covered Activities

Response Number	Response	Comment Number
283	The NFHCP and proposed Permit would not authorize take of species from any land development activities such as home or building construction. Plum Creek could sell their lands, increasing the potential that they would be developed in the future, at any time, without consequence under the ESA. Under the NFHCP, Plum Creek has proactively offered the Services the opportunity to gain certainty that such impacts would be reduced through the Land Use Planning commitments. The Services have no authority to prevent a landowner from selling their land, and without the NFHCP the Services would have no opportunity to reduce risk of impact from development of lands Plum Creek currently owns. The NFHCP and proposed Permit also would not authorize take associated with the use of any forest chemicals, including pesticides or fertilizers. Take authorization for recreation, electronic facilities, sawmills and forest product manufacturing sites are discussed in the DEIS. Any potential take from such activities would be identified in the Biological Opinion. Plum Creek forestlands include little or no old growth forests. Also, while risk of impact to Permit species is least where no management actions occur, Permit species are not old growth forest obligate species, or even forest obligate species. For more information on livestock grazing, see responses 719 and 724.	E4-25, E4-26, E4-165
284	Plum Creek requested a Permit for incidental take of native salmonid fish. They have proposed no actions regarding weed management for which they seek Permit coverage.	G3-9

Covered Lands

Response Number	Response	Comment Number
285	Section 3.3 of the Implementing Agreement describes the covered lands. It includes roads upon which Plum Creek owns an easement across the land of others or otherwise shares management responsibility.	E4-8

Pay as You Go

Response Number	Response	Comment Number
286	The NFHCP uses a “pay-as-you-go” mitigation strategy that employs mitigation in advance of impacts, so future economic solvency of Plum Creek is not an issue. Every 5 years, the external audit will determine whether mitigation is occurring per the agreement. Because of these features, the Services believe that the annual financial disclosure and the	E4-86, E4-85

Response Number	Response	Comment Number
	company's authority over its own resources provide adequate financial assurance.	
287	The NFHCP generally obtains mitigation prior to or concurrent with impacts. In the case of riparian stand development, future expected impacts are evaluated against future expected stand development. The Services and Plum Creek have amended the Implementing Agreement to allow for a "close-out" audit to ensure mitigation requirements have been met. Also, see NFHCP page 1-16, "pay-as-you-go."	E4-174, E4-254
288	The Services' policies require mitigation in perpetuity for development-related projects where habitat is likely to be lost forever. Potential Plum Creek land sales do not necessarily fit into this category, but are clearly not the same as timber land management where the company's actions only affect the landscape on an interim, cyclical basis. The NFHCP proposes to balance the effects of land sales by ensuring a net conservation benefit for all land sales during the term of the proposed Permit. Methods by which this will be achieved include land sales to buyers whose primary purpose is to promote conservation, sales with perpetual conservation easement requirements, sales with deed restrictions related to conserving wildlife habitat, sales that retain the requirement for implementing NFHCP conservation measures, and unrestricted sales. The Services' approach to providing incidental take coverage to lands that are managed but not permanently converted to unsuitable habitat for Permit species is to require minimization measures throughout the term of the Permit. If the minimization measures are applied at a rate commensurate with the land management activities (that is, "pay as you go"), as in the proposed NFHCP, then the Services' position is that further minimization or mitigation measures beyond the term of the Permit are unwarranted.	E4-229
289	Under the Permit, the effects of incidental take are expected to be mitigated prior to or as the change in habitat condition occurs. In other words, the amount of mitigation provided would more than offset the amount of adverse habitat change (that is, take) at any point in the life of the Plan (that is, "pay as-you-go"). Should Plum Creek elect to relinquish the Permit, and assuming they were in compliance with the terms of the Permit, no post-termination mitigation would be required. However, if Plum Creek failed to adhere to the Permit terms and take was not mitigated adequately, the Permit could be revoked by the Services. Any "take" occurring after this point would not be authorized and subject to Section 9 of the ESA.	E4-230
290	Proposed mitigation measures are expected to offset effects of any incidental take prior to or during Plum Creek's forestry operations. The various conservation measures are anticipated to be implemented at a sufficient rate to exceed the rate at which the effect of "take" is authorized. In addition, if monitoring, evaluation, and adaptive management show that conservation measures are ineffective within the first five years of the Plan or during the term of the Permit, a process is provided to make adjustments to the measures to correct the problem. See response 289 and Section 8, Adaptive Management, in the NFHCP.	E4-244, E4-253

Response Number	Response	Comment Number
291	See response 327. As long as the rate of minimization and mitigation outpaces the rate of impacts to—or "take" of—Permit species, as would be agreed to under the NFHCP, then the Services can ensure at all times that adequate funding is available to implement those measures. If Plum Creek were to not have adequate funding to implement the agreed-to conservation measures, it would result in non-compliance with the terms of the Permit, and Permit suspension or revocation.	E15-5

Key Migratory Rivers

Response Number	Response	Comment Number
292	Three of the nine Riparian Commitments provide extra conservation benefit to migratory corridors. Additionally, Range Management, Land Use planning, and Legacy and Restoration commitments specifically tend to focus on key migratory rivers, even more so than Tier 1.	C3-4
293	Key Migratory River designation is applied to those migratory channel segments that are bordered by Plum Creek lands. Since there are no Plum Creek lands downstream of RM18.9, this designation need not be applied. The Key Migratory River designation will be clarified in the final NFHCP.	C3-8
294	The Tieton River is indeed identified as a migratory/foraging stream. See map NFHCP1-2. The map on page 4-77 will be corrected as necessary. The Tieton River has been designated as a key migratory river for the Final NFHCP.	C3-9, C3-10
295	Oak Creek will be identified as an Additional Migratory/Foraging Stream. Until spawning and juvenile rearing are validated, the Oak Creek watershed would not be designated as Tier 1. In terms of watersheds that may be identified as bull trout spawning/rearing streams in the future, the final version of the NFHCP delineates a mechanisms to identify, validate, and incorporate "new" Tier 1 watersheds within the planning area (see new NFHCP commitment AM6).	C3-11
296	Key Migratory River designation is applied to those migratory channel segments that are bordered by Plum Creek lands. The Tieton River was designated as a Key Migratory River in the final NFHCP.	C3-21
297	The assumptions in the comment are correct. Tier 1 watersheds are those that contain Plum Creek lands and bull trout spawning/rearing streams. Key Migratory Rivers are those rivers that connect Tier 1 streams with downstream rearing areas and are bordered by Plum Creek lands. The final NFHCP has been changed to add clarity, to expand the definition of key migratory rivers to include large waters habitat for all Permit species (not just bull trout), and to allow for the addition of Tier 1 watersheds for bull trout or other Permit species.	E2-8

Administration

Response Number	Response	Comment Number
298	See response 307 on paperwork, and response 47 regarding conservation commitments making good business sense. Commitment A6 specifies the measurement units that will be used to measure implementation of conservation measures. See responses 323 and 303 regarding third-party audits.	E9-2
299	Plum Creek would commit to carrying out the conservation commitments in the NFHCP by signing the Implementing Agreement. Should Plum Creek not do so for funding or other reasons, they would not be in compliance with the NFHCP, and their Permit would be subject to suspension or revocation.	F15-3

External Audits (NFHCP Commitment A5)

Response Number	Response	Comment Number
300	The audit process will be conducted by an independent, third-party auditor, with results shared with the Services. See the Administration and Implementation commitments for monitoring and reporting parameters. An external audit protocol has been added (see NFHCP Appendix A-1) to detail requirements and the audit protocol required of auditors.	E2-39
301	See response 303. Also see the revised appendix AM-1 which specifies more detail on specific study designs and sampling criteria within CAMPs. The reliance on “demonstration watersheds" has been eliminated.	E4-63, E4-79
302	NFHCP commitments A2 through A5 provide for a range of training and audits that include the Services involvement to ensure correct implementation of conservation measures. See also responses 323 and 303.	E4-118
303	The NFHCP includes a new Appendix, A-1, that describes the audit protocol in detail as well as the required qualifications of the audit firm. Plum Creek will make the selection according to the criteria specified in Appendix A-1	E11-22

Reporting (NFHCP Commitment A6)

Response Number	Response	Comment Number
304	Information collected under the NFHCP would be provided to the Services (see A6) and would be shared with adjacent landowners and management agencies upon request. Compatibility of that information is a different matter. For example, Plum Creek's road database may not be compatible with the FS road database. Road databases are complex and even the database in one FS location may not be compatible with that in another. In some cases, Plum Creek may gather data to serve the needs of	C2-29, E4-215

Response Number	Response	Comment Number
	implementing the NFHCP that is not being gathered by anyone else.	
305	The NFHCP will be critically evaluated every 5 years through the monitoring and adaptive management commitments and a number of implementation metrics will be reported annually. Implementation and effectiveness monitoring measurements serve as milestones for Permit implementation achievements, and effectiveness monitoring results inform whether the NFHCP is conserving Permit species' habitat.	E2-38
306	Plum Creek is responsible for reporting and monitoring as outlined under the NFHCP. Failure to comply with these requirements would be a violation of the terms of the Permit, in which case the Permit is no longer valid. The FWS' experience with Plum Creek's Cascade's HCP has indicated that since it was approved in 1996, Plum Creek has fully complied with the required routine reporting and monitoring as scheduled. Regarding monitoring requirements for the Swan Valley Grizzly Bear Conservation Agreement (Agreement), there have been delays in producing scheduled monitoring reports because of the logistical constraints of the Flathead National Forest. Plum Creek has met their monitoring obligations under this Agreement during the 5 years in has been in effect even though a monitoring plan was not agreed to and signed until October 21, 1998. All required monitoring activities since the signing have been met in 1998 and 1999 and a final report for monitoring activities in 1999 (the first full year under the signed monitoring plan) was completed by the required reporting date of April 1, 2000 (final was sent out on March 30, 2000).	E10-9
307	The reporting requirements of the NFHCP (A6) were largely developed by Plum Creek with the intent to be consistent with other reporting requirements such as for the Sustainable Forestry Initiative program, internal needs, other conservation plans, etc. The Services recognize that the good things done on the ground are what is really important for fish so we have tried, to the extent possible, to honor this intent.	E25-5, E4-215

Changed Circumstances (NFHCP Commitment AM3)

Response Number	Response	Comment Number
308	The NFHCP specifies timeframes for responding to landslides that qualify as a changed circumstance. This requires the submission of an action plan within 30 days and approval within another 60 days. Implementation timing will be specified in the action plan but must be as prompt as is reasonably practicable (see NFHCP 8-25).	E1-72

Oversight

Response Number	Response	Comment Number
309	The NFHCP is intended to involve the Services in Plum Creek management oversight in the Project Area where they have not been involved before. The NFHCP is designed to function in a self-implementing way so that it will continue even if federal resources are reduced or redirected. Federal manpower resources may not be available to oversee NFHCP implementation throughout the Permit period, but because the plan results in an increase in conservation, it would not be prudent to postpone a conservation opportunity because of questions about the Services' staffing. See response 313 regarding agency resources.	D1-8, B2-19, E4-213, E4-158, E4-73
310	External audit results will provide a range of detail to Plum Creek related to effectiveness of implementing the NFHCP and offering the ability to build upon "opportunities for improvement" as well as some proprietary information. Included among that range of detail will be specific "departure findings" that will lead to specific action plans developed by Plum Creek. The latter will be a subset of the report and will be provided to the Services. See NFHCP Appendix A-1.	D1-36, E4-215
311	The NFHCP provides for specific reporting obligations on the part of the Permit holder. Inherent in these obligations is responsiveness of the Services. By agreeing to these reporting obligations, the Services are accepting a base level of participation in oversight. Additionally, the plan does not prohibit the Services from expanding oversight activities if resources should become available or if it should prove necessary. See response 313 regarding agency resources.	D1-38, E4-213
312	Commitment A6 shows the implementation monitoring metrics that will be reported to the Services annually and every 5 years. Commitment AM2 (Table NFHCP 8-1B) outlines the framework for reporting of effectiveness monitoring metrics to the Services. Appendix NFHCP AM-1 describes the results of the CAMP studies that will be reported to the Services.	D1-58, D1-64
313	The Services agree that successful implementation and effectiveness of this NFHCP lies in the ability for the Services to continue participating in the creative partnership with Plum Creek that characterized the construction of the NFHCP. If the Services cannot actively participate in review and oversight of NFHCP implementation, monitoring, and adaptive management decisions, then the certainty that of the level of conservation may be reduced from what was anticipated at the time of Permit issuance. Currently, the Services will participate in implementation of the NFHCP using funds as available. Plum Creek and the Services have also sought to include an approach to verifying implementation that streamlines the Services' effective involvement so that the NFHCP does not inordinately demand resources of the Services. An HCP is valuable because it enlists the participation of private landowners in conservation. Such an advantage is supplanted by an approach that requires great oversight resources on the part of the public agencies. Because of the self –implementing and external audit features of the NFHCP that streamline Services' involvement, the risk to certainty of implementation that could accompany reduced Services' involvement is minimized.	E1-17 D1-37, F5-7, F7-7, F18-3, F19-3, G1-2, G1-3, G3-2, G3-5, G5-7

Response Number	Response	Comment Number
	Should the Services not have funds necessary to participate sufficiently in Permit implementation, it would likely negatively affect the relationship between the Services and Plum Creek, and therefore the long-term viability of the Permit. An erosion of the creative partnership between Services and Plum Creek that was the basis for building the NFHCP could reduce confidence in Permit effectiveness. This would probably lead to an increased tendency by the Services to seek management adaptations that are more restrictive in order to ensure biological goals are achieved and Permit issuance criteria continue to be met. Such additional restrictions on forest management increase the risk that the NFHCP agreement is untenable to Plum Creek, and may ultimately provide them with a greater incentive to relinquish the Permit. See response 319.	
314	As provided for in the NFHCP and Permit, the Services will monitor NFHCP implementation and compliance with the terms and conditions of the Permit, including being actively involved in adaptive management. While there are no specific provisions to publish NFHCP status reports in the Federal Register, any member of the public can request that the Services provide them with a report on the status of NFHCP implementation at any time.	E4-231
315	See response 324. The Services agree that monitoring report information should be made available to the public, and the NFHCP has been modified to allow for review by scientists outside of the services summary reports available to the public (see A6 and Section 8.3 of the Implementing Agreement).	E4-241
316	The Services agree that it would be useful for Plum Creek to formalize a periodic NFHCP review process by outside interests, and has worked with Plum Creek to include such a provision in the final documents. See NFHCP commitment A-6 and revisions to Section 8.3 of the Implementing Agreement. Oversight committees have been implemented in some large scale HCPs encompassing multiple landowners or when the applicant is a public entity such as a county agency. However, there are three concerns for a private landowner to overcome when considering subscribing to an oversight committee. The first is proprietary information—companies will not open their operations to the potential for collusion, competition or interference in their business; the second is level of interaction—interpretation and implementation of HCPs are a day-to-day responsibility requiring constant attention and interaction. The third is continuity: HCPs are a business plan and major investment on the part of the company and require a long-term commitment of time and attention which can not be achieved by an oversight committee of revolving memberships and rotating presence. To compensate for this, applicants like Plum Creek have involved many outside experts in the development of the plan, coordinated with many interest and agency groups to incorporate issues and approaches, and involved the Services, adjacent landowners, outside experts and public agencies in the implementation, monitoring, reporting and management of the HCP. See responses 138 and 324.	E5-39, D1-3, D1-53, E9-6, E4-75, E4-76, E8-5, D1-7
317	The NFHCP records commitments by Plum Creek and not the commitments of others. The NFHCP specifically requires Plum Creek to monitor and report implementation and effectiveness and the Implementing Agreement specifically allows the Services to come onto Plum Creek land	E6-3, E4-74, F10-3, F9-1, E8-5

Response Number	Response	Comment Number
	for verification or for review of compliance and implementation.	
318	The Service agrees with the idea of allowing for independent review of NFHCP monitoring reports. To serve this need, Plum Creek included a commitment to share monitoring reports with entities other than the Service under A-6. Also, Section 8.3 of the Implementing Agreement was amended to allow the Services to solicit independent scientific review of reports.	E7-7
319	One of the advantages of HCPs is that they can mobilize the resources of the private sector for conservation. Therefore, a challenge in developing an HCP is to construct it in such a way as to minimize the impact to public resources such as agency staff time. Some conservation plans have created large burdens of process on federal agencies, an unforeseen "cost" of achieving additional private conservation. The implementation monitoring approach of the NFHCP was designed to place the burden of process on the Permit holder and structure reporting to streamline federal involvement. Under it, federal agencies can increase their involvement when manpower and priorities Permit, but rely on the efficiency of audit verification when necessary. In this way the public receives greater certainty that monitoring will take place. However, the Services acknowledge the need to commit resources to continuing the creative partnership of implementing this NFHCP. See response 313.	E11-10, D1-39, F10-3, F9-1, E14-7, D1-7, E4-158, E4-73
320	The Services agree that adequate agency staffing for NFHCP monitoring and implementation is necessary. The FWS has committed to including as a high priority budgeting funds to provide the resources for compliance monitoring and implementation should the Permit be issued. Furthermore, if the Permit is issued, the Services intend to participate fully in adaptive management and effectiveness monitoring components of the NFHCP, as the budget allows. To help ensure adequate outside review of Plum Creek's NFHCP, Plum Creek will hire an independent external auditor every 5 years throughout the life of the NFHCP. The auditor will evaluate and report to the Services and Plum Creek on the success of NFHCP implementation as well as identify opportunities to improve the plan (see Administration commitments). Lastly, Plum Creek will conduct periodic internal audits in the first three years of the plan in order to identify operational problems with the plan and to provide a process to continuously improve NFHCP implementation.	E13-30, D1-37
321	See responses 611 and 625. Also, see Chapter 8 of the NFHCP, and Section 10.3 of the Implementing Agreement. The FWS believes that adequate flexibilities are allowed for in the NFHCP. See response 324.	E16-6
322	The Services will use the best information available when conducting adaptive management reviews and making decisions on adaptive management responses. This may include independent scientific review. The adaptive management and dispute resolution processes identified in the Implementing Agreement provide further opportunity for the Services and Plum Creek to incorporate new scientific information and provide for additional scientific scrutiny, including input from expert sources that are not a party to the proposed NFHCP. The reinitiation of consultation criteria described above (202) addresses the respondents concern about the need for an updated cumulative effects analysis.	E16-17

Response Number	Response	Comment Number
323	To provide confidence of quality control, Commitment A5 provides for an external audit of implementation of NFHCP measures. This not only verifies compliance but renders some judgement on quality of compliance. In addition, the Services will be allowed to visit Plum Creek lands to inspect for compliance.	E18-10, E4-213 C1-12
324	See responses 313 and 611. The Services agree that creation of a public review process of Plum Creek effectiveness monitoring findings is a good idea, and has worked with Plum Creek to include such a commitment (see commitment A-6 and Section 8.3 of the Implementing Agreement). See response 316 for further discussion of this commitment.	E34-2, G1-5
325	Quality control considerations are covered within the terms and conditions of the *Implementing Agreement,* which is contained in Appendix A of the DEIS and FEIS.	F7-8
326	The FWS has the responsibility to monitor the implementation and success of the NFHCP should the Permit be issued. The FWS office in Montana intends to monitor compliance with the specific terms of the NFHCP, including the adaptive management commitments on Project Lands in Montana. Every 5 years throughout the life of the NFHCP, Plum Creek will have an independent auditor evaluate and report to the FWS and Plum Creek on the success of implementation of the plan. In addition, Plum Creek will provide annual internal audits for the first 3 years of the NFHCP and compliance monitoring reports annually to ensure conservation measures are being implemented. Furthermore, Montana's BMP audit process for forest practices, which involves audit teams with a Montana Fish, Wildlife, and Park's (MFWP) fish biologist as a member, would also provide an additional check of the NFHCP through compliance with BMP effectiveness.	G5-1

Termination

Response Number	Response	Comment Number
327	See response 46. As stated in Chapter 4 of the DEIS, the rate of minimization and mitigation of impacts from their forest management actions would be greater than the rate of impacts themselves. Therefore, if Plum Creek were to relinquish the Permit, no further mitigation "debt" would be owed. This "pay-as-you-go" approach to minimizing and mitigating impacts requires recovery actions to be implemented before take occurs, rather than after. In addition, Plum Creek has already begun implementing many of the conservation commitments starting as long as two years ago. Consistent with Plum Creek's broad flexibility to relinquish the Permit, the Services retain the right to suspend or revoke the Permit should the terms of the Permit be violated, or the biological goals or Permit issuance criteria are not met. The difference between the NFHCP and some past HCPs is that impacts to, or "take" of Permit species is not "front-loaded" in the NFHCP. That is, take would not occur disproportionately in the first part of the Permit period, but instead would occur at a constant rate throughout the life of the Permit.	E1-90, D1-42, E4-42, E4-52, E4-54, E4-84, E4-237, E4-41

Response Number	Response	Comment Number
	Most minimization and mitigation efforts, will be implemented within the first 10 to 15 years of the Permit period. The benefits to Permit species of some habitat restoration or protection measures will be felt immediately, but will continue to accrue for years or decades to come. Therefore, the longer the Permit period, the greater the certainty of benefits accruing to Permit species. Should Plum Creek relinquish the Permit before the end of the proposed 30-year period, benefits may be less than they otherwise would have been over a longer time frame, but they will still outpace the rate of impacts. Also, it is unlikely that many of the benefits provided to Permit species from conservation commitments would disappear right away, or necessarily even be compromised at all, with relinquishment of the Permit. For example, it is unlikely that Plum Creek would seek to actively undo repairs to roads fixed under the commitments of the NFHCP upon relinquishment of the Permit. Commitment A5 has been revised to for the Services to conduct a review of minimization and mitigation measures implemented by Plum Creek at the time of their proposed Permit relinquishment to ensure compliance with all conservation commitments that are part of the NFHCP, therefore ensuring that the "pay-as-you-go" approach was properly implemented.	
328	The respondent questions the threshold for Permit revocation. The respondent also affirms that "jeopardy" is not the appropriate standard by which the implementation of the NFHCP should be evaluated, but, rather, the survival and recovery of Permit species and avoiding adverse modification of critical habitat are the correct standards. Relative to suspension or revocation, the Implementing Agreement refers to the laws and regulations in force at the time of suspension or revocation. There is no need, and indeed in the event that laws and regulations are changed in the future there is no opportunity, to restate those laws and regulations in the Implementing Agreement. Regarding "jeopardy" versus "survival and recovery", the criteria for revocation are referenced in Section 6.2.1 of the Implementing Agreement. These criteria include the stipulation that incidental take "will not appreciably reduce the likelihood of the survival and recovery of the species in the wild". Critical habitat has not been designated for many of the proposed Permit species. For those that have been designated, an examination of the NFHCP proposals relative to critical habitat will be included in the biological opinion that analyzes the effects of Permit issuance. If critical habitat is subsequently designated for other Permit species and information suggests that adverse modification may occur as a result of the NFHCP, then the ESA Section 7 reinitiation criteria will be triggered, the effects of the action will be analyzed relative to the new designation, and the adaptive management process of the NFHCP may be employed to remove those threats.	E4-88, D1-37
329	The respondent suggests that the Implementing Agreement fails to identify circumstances that would result in the Permit being revoked, and that the Implementing Agreement and NFHCP contradict the ESA by restricting the Services' authority to revoke the Permit. Section 6.2 of the Implementing Agreement references specific areas of the CFR that will apply relative to revocation issues. There are no additional restrictions on the Services.	E4-89

Response Number	Response	Comment Number
330	The Services agree with the commentor that we must be able to suspend or revoke the Permit in case the biological goals or Permit issuance criteria are not met. See chapter 4 of the DEIS and Section 10.3 of the Implementing Agreement for more information.	E4-232
331	Implementation of the NFHCP is reported annually for some commitments and in conjunction with the 5-year external audit for others. Commentor cites risk that termination will create exposure that some commitments may remain unfulfilled. Nothing in the Implementing Agreement prohibits the Services from entering upon Plum Creek lands to make a determination that the NFHCP has been "properly implemented" at the point of termination. However, the Services agree with the comment and have changed the final NFHCP to address it. In commitment A5, a clause has been added which will require a "termination audit" to make a determination of "proper implementation" at the time of termination of any Planning Area basin.	E5-33, F9-3

Biological Goals

Response Number	Response	Comment Number
332	NMFS agrees that the ecological value of Plum Creek's conservation efforts in a larger context, and the level of improvement in habitat productivity needed to rebuild harvestable levels of anadromous fish, were not addressed in the DEIS. Instead, NMFS used the *Habitat Approach* guidance as context for achieving properly functioning habitat and meeting productivity goals. Properly functioning habitat is defined at the watershed scale, and comprises natural processes that support fish populations. With this approach, each and every watershed is expected to begin or maintain a trajectory toward natural function and therefore, also toward restoring fish numbers to the extent that the systems can potentially produce them. The specific level of change in habitat productivity needed in a given watershed was an issue raised by NMFS during development of the NFHCP. NMFS was concerned that the programmatic direction might be sufficient to restore habitat function and productivity in some settings, while not in others. Plum Creek agreed to defer harvests in portions of the Lochsa River and to modify the monitoring and adaptive management portion of the HCP to answer this need. A risk remains that certain streams will not be moving toward their potential, and in that event, NMFS would ask Plum Creek to modify their management practices through adaptive management, or the Permit might be revoked in all or in part.	B1-3, E4-66

Response Number	Response	Comment Number
333	The objectives of the proposed NFHCP are short of many NMFS recommendations for restoration and protection of fully-functioning fish habitat. However, HCPs are proposed by the applicant, and the applicant is not required to follow NMFS' recommendations beyond those needed to meet the statutory requirements of the ESA. The NMFS recognizes that the NFHCP might offer greater assurance of restoring or protecting habitat function by adopting objectives intended to achieve some specific level of habitat restoration or protection	B1-13, E4-66
334	See response 333.The NFHCP goals form a hierarchical structure. The biological goals are few, broad and mostly unmeasurable. The habitat objectives break down these broad goals into more measurable entities, and some are more measurable than others. The metrics listed in Table NFHCP 8-1B are the units of measurement and the CAMPs describe how those metrics will be calculated. A simple tally of units of implementation is the most specific and measurable entity in this hierarchy. See response 335. See revised Appendix AM-1 in the FEIS for a more detailed discussion of how trigger metrics will be calculated using CAMPs.	C2-25, E4-66, E16-11, E4-53, E4-51
335	The Services and Plum Creek developed four broad biological goals for all Permit species (see response 208) in the NFHCP—restoring where necessary, or protecting where adequate, the Four C's of native salmonid habitat. The Adaptive Management Implementation Framework (see NFHCP Chapter 8) steps these four broad goals down through 15 specific habitat objectives to many quantitative, measurable habitat criteria, or performance metrics, with specific triggers set for suggesting when management should be adapted to ensure the NFHCP can achieve the goals. These goals, objectives, metrics and triggers are designed to be as specific as possible about measuring the adequacy of the NFHCP for conserving all Permit species across the Project Area, and to serve as benchmarks or targets that are reviewed every 5 years to determine NFHCP adequacy for meeting biological goals and Permit issuance criteria for all Permit species, including more site-specifically than when the Permit issuance decision is made. The Services agree that more site-specific, or species-specific information would be relatively more valuable to understanding the risks and benefits of this NFHCP to all Permit species everywhere in the Project Area. However, we were not able to develop an approach that could achieve greater specificity for such a large project area (1.7 million acres over three states) than the approach proposed in the NFHCP. The Services are reasonably confident for all Permit species that, (1) up-front habitat conservation commitments are sufficient to ensure an adequate trend and magnitude of improvement in habitat quality to allow for recovery or conservation, and (2) sufficient flexibility is available in the NFHCP to allow management adaptations to ensure an adequate trend and magnitude of improvement in habitat quality occurs.	E4-13, E4-66, E1-9, E1-27, E4-14, E4-16, E4-198
336	See response 246, and DEIS Chapter 4, for current information used.	E4-17a

Response Number	Response	Comment Number
337	See responses 77 and 14. As described in the DEIS, the Services do not believe it would be appropriate to use species population levels to measure the success of the NFHCP at achieving biological goals because Permit species population levels are often affected by more than just Plum Creek's land management actions.	E4-36, E4-66
338	On page NFHCP 1–7 of the DEIS/NFHCP, 4 broad biological goals are shown with 15 more specific measurable habitat objectives. See response 334.	E4-45
339	The commentor states that the HCP fails to include specific quantitative biological goals, monitoring indicators, and adaptive management triggers. The Services disagree; the NFHCP includes 4 broad biological goals, 15 specific habitat objectives, and numerous metrics and triggers for evaluating plan performance.	E4-124, E4-66
340	The Services evaluate, through Section 7 analysis, the validity of the biological goals and habitat objectives for Permit species and whether the conservation measures in the NFHCP adequately address the habitat requirements and properly functioning habitat conditions for riparian areas for Permit species within the Project Area. Plum Creek anticipates implementation of the NFHCP would improve baseline conditions for native salmonids and increase the probability of recovery within the Planning Area basins. Habitat baseline conditions for Permit species will be addressed in the Services' internal Section 7 consultation process.	E4-189, E4-66
341	The commentor expressed concern about a lack of quantified goals for sediment biological objective #2. Specific metrics for this goal are listed in table NFHCP 8-1B on page NFHCP 8-19 of the DEIS/NFHCP. Instream triggers were not established due to the complexities of how instream fine sediment levels are affected by geology, geomorphology, channel type, and local climate. Also, use of instream sediment levels for a trigger does not provide rapid feedback needed for developing management responses within a meaningful timeframe. While instream targets were not used as triggers to effect change, CAMP1 will investigate how sediment delivery reductions across the Project Area translate to changes in fine sediment levels in spawning gravels.	E11-14, E4-66
342	See page NFHCP 1-7 of the DEIS/NFHCP to review the NFHCP 4 broad biological goals and the 15 specific habitat objectives.	E20-4, E4-66, E4-251, E16-11
343	See response 334. See in particular CAMP 3 in the revised NFHCP Appendix AM-1 in the FEIS.	F3-4
344	See response 696, paragraph b.	F3-6
345	If the cold biological goal is not met, the Services will work with Plum Creek to adapt management to ensure it is met.	F25-2
346	The Services seek to ensure that all existing populations of Permit species will be conserved with the NFHCP. Restoration of connectivity through restored fish passage and lower water temperatures should help ensure that population structure is maintained or restored.	G1-14

Business Goals

Response Number	Response	Comment Number
347	See pages NFHCP 1-7 through 1-9 of the DEIS/NFHCP for a more detailed discussion of Plum Creek's NFHCP business goals.	F6-7
348	While the Services and Plum Creek are not always in full agreement on the degree to which a certain specification provides measurable conservation or is merely "just for show," Plum Creek has consistently relied on their NFHCP business goals to avoid frivolous allocation of resources.	F19-5

Issuance Criteria

Response Number	Response	Comment Number
349	See response 46. The Services agree that many more protective measures could be taken to promote fish conservation. However, this permitting process seeks to fulfill the idea of a "creative partnership" as envisioned by Congress by achieving the dual purpose and need, as stated in the DEIS, which includes more than just fish conservation.	E1-4
350	See response 109 regarding quantifying "take." Under the ESA, the HCP applicant is required to provide conservation that minimizes and mitigates the impacts of its planned activities on the Permit species. The NFHCP focuses conservation on the habitat requirements of native salmonids. These measures are designed to minimize impacts and improve habitat conditions for these species. The anticipated improvement of habitat conditions, if realized, presumably could provide the additional benefit of increased aquatic insect production, which is a major food source for Permit species. In addition, other instream or riparian-dependent species such as amphibians may benefit from conservation measures in the NFHCP. The Permit would not authorize incidental take for forest chemical applications such as herbicides.	E4-19
351	The riparian protection measures in the NFHCP fall short of many NMFS recommendations for restoration and protection of fully functioning fish habitat. An HCP applicant is not required to follow NMFS' recommendations beyond those needed to meet the statutory requirements of the ESA. See response 333 for consistency with NMFS recommendations, and 77 and 112 for recovery issues. For more information on adaptive management flexibilities, see response 611; for more information on the adequacy of "up-front" conservation measures, see response 208.	E4-29
352	As described on DEIS p. 1-15, Permits issued under Section 10(a)(1)(B) must allow for, or not preclude, the recovery of listed Permit species. Non-federal entities are not required to "promote" species recovery, as federal agencies are directed to under Section 7(a)(1). See response 208.	E4-168, E4-169 E4-34, E4-170

Response Number	Response	Comment Number
353	The Services agree that improvement over existing situations does not guarantee sufficiency. In this case, we believe the NFHCP represents an improvement over current regulatory approaches, and also represents a comprehensive approach to conservation of salmonids and will evaluate whether Permit issuance is warranted based upon the issuance criteria contained in 50 CFR Parts 17 and 222. However, we do believe that the documents released to the public for comment represent the use of the best available science and the best commercial data available. The Services further note that it is not necessary for Plum Creek to select the "best available alternative for species recovery" or to prevent the take of species, so long as they meet the issuance criteria.	E22-4

Assurances

Response Number	Response	Comment Number
354	See response 208. Also, the Services do not have authority to permit take of unlisted species. Should a Permit be issued to Plum Creek, the currently unlisted Permit species would be named on the Permit. The incidental take authority issued through the Permit would take effect upon the ESA listing of any of the Permit species named on the Permit. It is important to note that while incidental take authority would not occur until a currently unlisted Permit species is listed, Plum Creek would implement conservation measures for all Permit species (currently listed and unlisted) immediately upon approval of the NFHCP and Implementing Agreement and issuance of the Permit.	C2-2
355	See responses 77 and 611. The Services agree with the premise of the comment. The intent of the HCP creative partnership is to balance risk and opportunity for both parties–the Services and the permittee–while achieving progress towards both parties' goals, which in this case are species conservation and commercial forestry. The FWS has sought to balance its offer of regulatory assurances against the value of the up-front conservation commitments and the degree of flexibility to require more conservation in the future, if and when necessary.	E1-2, E1-18, G3-10, E4-4, E12-5
356	The Services have determined that the riparian and road measures of the NFHCP and FFR provide similar conservation benefits. Additionally, the NFHCP provides for landowner-specific conservation measures that are difficult to acquire through a state regulatory process.	E1-16
357	Plum Creek has not requested and will not receive a Safe Harbor Agreement. Plum Creek has applied for an incidental take permit under Section 10(a)(1)(B) of the ESA. The commentor is referred to the Introduction section of the DEIS for information on the type of Permit for which Plum Creek has applied.	E4-160
358	The Services' response addressing the proposed final "No Surprises" rule are addressed in FR Volume 63, Number 35, dated February 23, 1998, and are hereby incorporated by reference.	E11-17, F5-11, F7-12

Response Number	Response	Comment Number
359	"No Surprises" is the policy direction for the Services, and it has been established through appropriate legal mechanisms. At any given time, there be may numerous challenges to federal policies, regulations or practices. The federal government would not be able to operate if it were required to cease activities whenever a party disputed a federal practice. The federal court system provides the public with the opportunity to seek injunctive relief when they believe federal agencies are not following the law. No such injunction has been granted for the No Surprises policy.	E12-6
360	The Services believe that the risk of plan failure is balanced appropriately between species conservation and Plum Creek's business goals. The adaptive management framework will require periodic evaluation of the Permit, and allow for adjustments, including Permit revocation or suspension if agreements cannot be reached. See responses 355, 611, and 613.	E16-15
361	See responses 355, 611, and 359. No Surprises is consistent with the purposes of the ESA, and is a part of the Services' implementing regulations. No Surprises assurances do not absolve a permittee of responsibility. In fact, they require a permittee to take responsibility for complying with the terms of a Permit designed to allow for, or not preclude, recovery.	E16-20, E4-4, E12-5, E1-18

Implementing Agreement

Response Number	Response	Comment Number
362	The respondent questions the enforceability of the terms of the Permit through the Implementing Agreement and ties this issue into the question of mitigation and minimization measures. These issues are addressed in the comment responses 365 and 367. Additionally, the respondent maintains that the Implementing Agreement does not, but should, clearly maintain citizen rights to sue for enforcement of the ESA's protective provisions. Section 14.8 of the Implementing Agreement clearly states that the applicability of rights granted to the public pursuant to the ESA or other federal laws are not limited. It further states that the duties, obligations, and responsibilities of the parties to this agreement shall remain as imposed under existing law.	E4-82, E4-81
363	As indicated in responses 362 and 368, the Implementing Agreement states that the obligations of the parties to this agreement shall remain as imposed under existing law. If habitat supporting Permit species is adversely affected in violation of the NFHCP, then existing law and remedies will apply (i.e., ESA Section 9 take prohibitions).	E4-83, E4-233

Response Number	Response	Comment Number
364	The Services agree that no lands should be added to the Permit without additional analysis to ensure levels of authorized take are not exceeded. In those cases where Plum Creek may propose to add lands to their Permit and potentially increase the level of authorized take, the Services will review and ensure the biological goals of the NFHCP can be achieved on the new lands.	E4-226
365	Section 6 of the Implementing Agreement references the appropriate section of the Code of Federal Regulations relative to Permit suspension and revocation. Further, Sections 10 and 13 of the Implementing Agreement specify adaptive management and dispute resolution processes to resolve potential NFHCP inadequacies and differing perceptions relative to plan implementation, as well as a clear statement indicating that administrative action or court proceedings are not precluded by either the Implementing Agreement, the NFHCP, or any Permit issued.	E4-228, D1-37
366	Upon issuance of the Permit and approval of the NFHCP, Plum Creek would begin implementing conservation measures for all unlisted as well as listed Permit species. In other words, Plum Creek will not wait for some of the currently unlisted Permit species to become listed before implementing certain conservation measures. Unlisted species will receive protection from the NFHCP conservation measures upon issuance of the Permit.	E4-234
367	The Services believe that the NFHCP and the Implementing Agreement contain assurances that funding will be adequate to effectively implement the NFHCP. “Unforeseen circumstances” are those circumstances that are not addressed by the NFHCP or the Implementing Agreement. For example, if circumstances arise that are captured under the NFHCP conservation measures, adaptive management, or changed circumstances, they are not unforeseen circumstances. If, after the Permit were issued, continued implementation of the NFHCP would result in an appreciable reduction in the likelihood of the survival and recovery of a listed species, the Services would be required to remedy the situation or revoke or suspend the Permit.	E4-236

Adding Lands

Response Number	Response	Comment Number
368	Under Implementing Agreement provision 11.1.2, lands acquired by Plum Creek within the Planning Area can be added to the Permit and NFHCP through a minor amendment process if seven conditions are satisfied. One condition is that the net effect on the environment and the Permit species (including the level of take of Permit species) from managing the acquired lands under the NFHCP would not be significantly different from the effects at the inception of the NFHCP. If the Services believe these conditions are not met, addition of these lands to the NFHCP and Permit would require a “formal” amendment. The Services may need to perform evaluations under Sections 7 or 10 of the ESA when determining the significance of these effects. Nothing in the Implementing Agreement prevents the FWS from performing these or any other necessary evaluations.	E4-82, E4-153

Practicability

Response Number	Response	Comment Number
369	The Services address the "maximum extent practicable" standard in our responses 375 and 377. The Services appreciate the commentor's concern, and also believe that Plum Creek's business goals should not and **do not** override biological considerations with respect to the NFHCP adaptive management provisions. With respect to the sentence cited by the commentor, note that the circumstances referred to would be **if** Plum Creek had to provide resources to correct a problem **in addition to** those commitments already made in the NFHCP, and that the financial extent of those additional resources are currently unknown and not specifically limited. Thus, Plum Creek understandably wishes to encourage the use of business considerations to **guide** development of additional commitments it would be required to make. The Services' interpretation of this sentence is that meeting the biological goals will be the ultimate test of whether additional commitments are adequate, but that Plum Creek's business goals will be considered as much as possible. Ultimately, if Plum Creek cannot, or will not, make the additional commitments necessary to meet the biological goals, the Services can revoke or suspend the Permit, or Plum Creek can terminate the Permit. Nevertheless, the Services agree that the sentence could be clearer. Therefore, the sentence in the NFHCP was modified to clarify that if a conservation surplus is not available and additional resources must be committed to maintain biological goals, Plum Creek and the Services will consider the NFHCP business goals as much as possible while developing additional measures to ensure the biological goals are met.	D1-20, F10-2, D1-40, E8-4, F3-2, E5-6, D1-6, E1-15, E7-6
370	The commentor states that when deciding "economic practicality," the alternatives should be viewed in light of other alternatives with the same level of environmental protection (citing *Friends of the Earth v. Hall*), and that under Section 10(a)(2)(A)(iv) and Section 10(a)(2)(B)(v) of the ESA, the Services have the authority to require mitigation beyond that which is "practicable." On the first point, the commentor suggests that the Services will make an "economic practicality" determination in deciding whether the NFHCP meets the "maximum extent practicable" standard, and that such a determination must be made in light of other alternatives with the same level of environmental protection. The Services do not typically make an isolated "economic practicability " determination, but, as explained in our response 377, we consider several factors that are primarily biological in determining whether mitigation has met the "maximum extent practicable" standard. The Services typically do not make a detailed analysis of an applicant's economic status in making a determination on practicability (see response 373). The Services ensure that sound biological methods and principles are incorporated into an HCP and that statutory ESA criteria are met. Although economic factors may occasionally be disputed in an HCP process, the applicant, not the Services, is typically more knowledgeable concerning technical issues such as engineering, logistics, and business costs and affordability. Thus, the Services are unsure of the relevance of *Friends of the Earth v. Hill* to ESA determinations under	E22-1, E4-33

Response Number	Response	Comment Number
	Section 10(a)(2)(B), or of the commentor's assertion that alternatives should be viewed only in light of other alternatives with the same level of environmental protection. On the second point, the Services do not agree that either Section 10(a)(2)(A)(iv) or Section 10(a)(2)(B)(v) of the ESA authorizes the Services to require mitigation beyond that which is "practicable." Certainly, these provisions provide the Services with authority to mandate certain HCP measures it considers necessary. However, requiring mitigation beyond that which is "practicable" seems a contradiction in terms, since if something is "impracticable" it probably cannot and will not be implemented, at least over the long term. Furthermore, doing so would seem to conflict with the other issuance criteria if they had been met. If the level of mitigation necessary to meet statutory issuance criteria for an HCP exceeds the ability of an applicant to implement it, the correct course of action would be, first, to try to modify the project proposal so that adequate mitigation could be provided. If project modification did not yield a solution, then either the applicant would have to withdraw the Permit application, or, if the application was submitted with inadequate mitigation, the Services would have to deny the Permit.	

Maximum Extent Practicable

Response Number	Response	Comment Number
371	The Services have determined that the riparian and road measures of the NFHCP and Washington's Forest and Fish Report provide similar conservation benefits. Additionally, the NFHCP provides for landowner-specific conservation measures that are difficult to acquire through a state regulatory process.	E1-16
372	While the Services must make a determination of practicability to determine "the maximum extent practicable," an applicant is not required to disclose proprietary financial information as a condition of issuing the Permit. The alternative that costs most to the applicant is not necessarily the best alternative for the species.	E1-110
373	The commentor makes a number of points, including the following: 1) that substantial improvements in the HCPs mitigation measures are technologically and economically practicable (citing the fact, for example, that other HCPs require longer timber rotations than the NFHCP); 2) that the Services should independently evaluate Plum Creek's timber resources and determine what management practices would minimize and mitigate impacts to the Permit species to the maximum extent practicable; 3) generally, that numerous factors affecting Plum Creek's economic status have not been adequately considered in the NFHCP/DEIS (including subsidies Plum Creek receives, the economic benefits of "No Surprises," and the economic value of non-timber forest resources); and 4) that the NFHCP erroneously states that road densities are an "impracticable" measure of impacts to the covered species. The commentor also states that: 5) the DEIS (page 4-281) states that the Services assume the NFHCP is the most practicable alternative because	E4-30, E4-31, B3-7, E4-15, E4-32, E4-166, E4-209, E8-4, D1-6, E1-15, E19-2, E7-6, E18-2

Response Number	Response	Comment Number
	this is the alternative that Plum Creek has chosen to implement. With respect to topic (1) above, the Services do not agree that the NFHCP fails to meet the "maximum extent practicable" standard simply because other HCPs are different or because other measures not included in the NFHCP are technologically feasible. As explained in our response 377, determining whether an HCP meets the "maximum extent practicable" standard is based on a variety of biological, technical, and economic factors. Satisfying this criterion does not necessarily mean that the applicant must implement every measure that is technologically feasible up to the absolute maximum extent of affordability. It also does not mean that what is in one HCP is necessarily appropriate for another. The commentor cites a number of approved HCPs (e.g., the Elliott State Forest HCP, Simpson Timber Company HCP, Scofield HCP, and Washington Department of Natural Resources [WDNR] HCP) asserting that these HCPs utilize longer rotations, "late successional reserves," etc. However, most these HCPs were developed for spotted owls, marbled murrelets, and other non-fish species, and what was appropriate for these HCPs is not necessarily appropriate for Plum Creek's NFHCP. Every large-scale HCP represents the results of a complex negotiation in which biological, economic, and technical factors and the interests of the applicant and of endangered species have been balanced. Furthermore, while it is important for individual HCPs to be consistent where species addressed are similar, there will always remain the possibility for individual variation between HCPs since, in most cases, the circumstances surrounding individual HCPs and individual HCP applicants will be different. The commentor is also referred to our response 90. With respect to topics (2) and (3) above, the commentor evidently believes the Services, in making a "maximum extent practicable" determination, are responsible for undertaking a complex economic analysis of Plum Creek's financial status. The Services disagree. First, the Services do not have the expertise to undertake an economic analysis of the scope and complexity as suggested by the commentor. We believe Plum Creek is better qualified to evaluate its own economic needs and limitations than the Services, although we believe that economic considerations **alone** would justify neither a failure to meet basic ESA statutory criteria or the implementation of reasonable and, in the Services' judgement, necessary mitigation. Second, the Services do not believe that such an analysis is necessary to determine whether the "maximum extent practicable" standard has been met, **unless** unusual circumstances are involved (e.g., refusal by an applicant on economic grounds to implement conservation measures that have been determined by the Services to provide a necessary biological benefit to the Permit species). Finally, the Services do not believe that any provision of the ESA, federal regulation, or policy requires us to undertake such an analysis. With respect to topic (4) above, the Services and Plum Creek recognized that if road density were a measure used to minimize and mitigate effects of roads on Permit species, then there would be no room for an overlap of common interests, and therefore no agreement. That is, Plum Creek could not conduct commercial forestry operations at road densities the Services would deem adequate to ensure removal of threats to Permit species. Instead, the Services and Plum Creek sought to identify those negative	

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	effects of roads on fish habitat, and minimize and mitigate those effects. Lastly, the Services and Plum Creek sought to ensure the NFHCP had adequate flexibility to change management where conservation measures were inadequate. With respect to topic (5) above, the Services agree that the statement referred to in the DEIS (page 4-281) is confusing. To clarify, the Services do not mean to imply that Plum Creek's willingness to implement the NFHCP is the only factor leading to a conclusion that the NFHCP meets the "maximum extent practicable" standard. Plum Creek's willingness to implement the plan is important, since all parties to an HCP negotiation must agree before a plan can be approved and implemented, and since this means that Plum Creek finds the NFHCP to be economically practicable from its perspective. However, as explained in response 377, the "maximum extent practicable" standard must be evaluated in light of several factors, not just economics. The Services must also find that an HCP is biologically adequate in order to meet this standard. The sentence quoted in the DEIS has been modified in an attempt to remove any impression that Plum Creek's economic interests alone are the determining factor in the "maximum extent practicable" determination.	
374	One of the issuance criteria that an applicant for an incidental take Permit must satisfy is the requirement to minimize and mitigate the proposed take of Permit species to the maximum extent practicable. Therefore, should the Services issue a Permit to Plum Creek, impacts from the proposed take of Permit species would be fully mitigated. In addition, as noted in the DEIS, issuance of the Permit, and implementation of the NFHCP would allow for recovery of Permit species. The commentor is also referred to the response 377 for further discussion on the issue of minimizing and mitigating take to the maximum extent practicable.	E4-155
375	In addition to the following response, the commentor is referred to the response 377. Neither the ESA, federal regulation, or FWS or NMFS policy requires an HCP to evaluate a particular type, category, or number of alternatives to the HCP that were considered but not adopted. The commentor quotes the HCP Handbook (page 7-3) that recommends "[a]nalysis of the alternatives that would require additional mitigation in the HCP and NEPA analysis" and evidently takes this to mean a recommendation that HCPs should generally contain analysis of an alternative that minimizes and mitigates to an extent greater than the HCP proposal. However, prior to this statement and in the same paragraph, the HCP Handbook states that, "[The maximum extent practicable] finding typically requires consideration of two factors: adequacy of the minimization and mitigation program, and whether it is the maximum that can be practically implemented by the applicant. To the extent maximum that the minimization and mitigation program can be demonstrated to provide substantial benefits to the species, **less** emphasis can be placed on the second factor" (emphasis added). In other words, if an HCP provides "substantial benefits" to the species, "less emphasis" need be given to determining whether the mitigation is the "maximum that can be practically implemented by the applicant." Furthermore, according to the Handbook the need for an alternative that provides more mitigation than the HCP proposal, and the presentation of	E5-32, B3-7, E4-15, E4-32, E4-166, E4-209, E8-4, E5-6, E13-32, D1-6, E19-2, E7-6

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	economic data, are both recommended in cases where the FWS considers the adequacy of the mitigation to be a "close call." As explained in our response 377, the Services do not believe that the ESA's "maximum extent practicable" criterion requires an HCP applicant to minimize and mitigate to the absolute maximum extent it can economically afford. We believe a more reasonable interpretation of this standard, considered together with the "no jeopardy" standard under Section 7(a)(2) and Section 10(a)(2)(B)(iv) of the ESA, is that an HCP should provide a substantial biological benefit to its covered species, and should ensure that the survival and recovery of the species in the wild is not jeopardized. Response 194 summarizes the NFHCP's conservation program and explains the conservation benefits of the plan, and additional analyses are found in Chapter 4 of the FEIS. The Services believe that the NFHCP/DEIS is consistent with Section B.2, page 7-3 of the HCP Handbook, as quoted by the commentor, and we reiterate our belief that analysis of an HCP alternative that minimizes and mitigates at a higher level than the NFHCP proposal is not an explicit requirement of the ESA, federal regulation, or FWS or NMFS policy. Nevertheless, as the commentor points out, the DEIS does briefly describe, but rejects from further analysis, an alternative that mitigates at a greater level than the NFHCP, the "Extensive Conservation Alternative," which would have extended forestry practices adopted for federal lands to Plum Creek lands. This alternative was not acceptable to Plum Creek. However, the commentor believes that two statements from the discussion on this alternative are contradictory. The first, from page 3-6, states that, "There would be long-term economic certainty that Plum Creek could manage its lands without the risk of noncompliance with ESA [under the Extensive Conservation Alternative]." The second, from page 3-7, states that, "Therefore, this alternative would not meet the project purpose and need from Plum Creek's perspective, which includes the need for long-term certainty of economic use of their lands, nor would it meet the CEQ guidelines followed by the Services during alternatives development of being reasonable, feasible, or viable." The Services agree that these two statements are poorly worded. However, they are not, in fact, contradictory because they refer to two different types of "certainty." The first refers to long-term **regulatory** certainty; that is, because an incidental take Permit could be issued under the Extensive Conservation Alternative, Plum Creek would be assured that its land management would be within ESA compliance. The second statement refers to **economic** certainty; that is, Plum Creek's need to make economic use of its lands, which Plum Creek considers doubtful under the Extensive Conservation Alternative because of its significant land use restrictions. The Services have modified these statements in the FEIS to remove this confusion. The commentors last point concerns the lack of presentation of economic data supporting rejection of the Extensive Conservation Alternative on page 3-6 of the DEIS. The commentor notes that no documentation is provided to support the statements. Information is presented on the effects of the alternative in terms of the likely set-asides from Plum Creek management that would be required, and a memorandum between Plum Creek and the FWS (Plum Creek 1999d) is referenced as supporting information. The FWS has worked to provide additional information to the	

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	public in this portion of the FEIS. The commentor is also referred to responses 373 and 377 for additional discussion on economics.	
376	The Services have not found that "Plum Creek's business interests are tantamount to the intent of the ESA", with respect to Section 10 of the ESA, as the commentor claims. The Services agree with the commentor that biological factors are the primary consideration used to determine the adequacy of mitigation measures in the NFHCP. The Services recognize that economic reasons are a major reason that Plum Creek is interested in obtaining a Permit and implementing the NFHCP and Plum Creek is free to express economic goals in their NFHCP if they choose. The commentor is referred to the response 377 for further discussion on the issue of economics and "maximum extent practicable". The Services will fulfill responsibilities under Section 7 of the ESA prior to making a decision on Permit issuance. If issuing the Permit to Plum Creek would likely jeopardize the continued existence of species listed under the ESA, the Services will not issue the Permit.	E11-2, E18-2, E1-111
377	A number of commentors have asserted that the NFHCP fails to minimize and mitigate to the maximum extent practicable (see also comments 109, 140, 369, 373, 375, and 696) and have asserted that economic considerations override biological factors or needs in the NFHCP. The FWS disagrees with both assertions. From the standpoint of an HCP applicant, economic considerations are likely paramount. Virtually all HCP applicants are concerned about limiting costs and ensuring that the financial burden of developing and implementing an HCP are within their economic resources. This is to be expected. The commentor should note that an HCP is the **applicant's** proposal to the Services. The applicant is therefore free to include whatever information, objectives, goals, or economic considerations it deems appropriate from its perspective. The Services do not have the authority to dictate the content of an HCP except to the extent that the biological and regulatory information presented is correct and that the content of the plan meets statutory and regulatory standards. This does not mean, however, that the applicant's priorities are necessarily the same as the Services'. The Services' primary objectives in any HCP process are to negotiate the best plan it can biologically, and to ensure that statutory and regulatory standards have been satisfied. The fact, therefore, that Plum Creek has expressed its own business goals and interests at length in the NFHCP is neither inappropriate nor illegal, and the fact that such interests are portrayed does not mean that the Services have implicitly or explicitly adopted the same standards. The Services' views *per se* in the HCP process are enumerated and explained in its own correspondence, its internal documentation, and its final decision documents when it decides whether or not to issue a Permit. The ESA's "maximum extent practicable" requirement is not a clear or absolute standard but one that involves a number of considerations—biological, logistical, technical, and economic. Definitions of "practicable" provided by the commentors on this issue include that which is "performable, feasible, [or] possible...", or "economically or technologically possible." One commentor stated that the term "practicable" should be understood as simply referring to cases where a lack of available	E15-4, F10-2, B3-7, E4-15, E4-32, E4-166, E4-209, E8-4, F3-2, E4-164, E4-185, E13-32, D1-6, E1-15, E19-2, E7-6, E1-111

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	technology renders a mitigation measure impossible for all practical purposes. Another commentor stated that the term "practicable" means "possible, not profitable." However, nothing in such definitions or in the ESA, federal regulations, or federal policy suggests that the maximum extent practicable standard means either the absolute maximum mitigation that the applicant can afford without going bankrupt, or the absolute minimum the applicant can get by with. A sound HCP both biologically and economically generally will fall somewhere between these extremes. Practicability in an HCP depends, in part, on an agreement by all sides that all biological, technical, and economic factors have been balanced. The ESA provides three requirements concerning the adequacy and reliability of mitigation: (1) the maximum extent practicable requirement under Section 10(a)(2)(B)(ii); (2) the no jeopardy requirement under Section 7(a)(2) and Section 10(a)(2)(B)(iv); and (3) the funding requirement under Section 10(a)(2)(B)(iii). Arguably, the most important standard of all is the no jeopardy standard, that issuance of the Permit will not appreciably reduce the likelihood of the survival and recovery of listed species in the wild. Guidance is provided by the Services' HCP Handbook (page 7-3), which states that "[The maximum extent practicable] finding typically requires consideration of two factors: adequacy of the minimization and mitigation program, and whether it is the maximum that can be practically implemented by the applicant. To the extent maximum that the minimization and mitigation program can be demonstrated to provide substantial benefits to the species, **less** emphasis can be placed on the second factor" (emphasis added). In other words, if an HCP provides "substantial benefits" to the species, it is not explicitly necessary to demonstrate that the applicant has provided the absolute maximum in mitigation that it can afford (this is discussed further in the response 696). Put another way, a substantial biological benefit to the Permit species is a key indicator in determining whether the maximum extent practicable standard has been met. The biological benefits the NFHCP provides for Permit species is summarized in the response 194 and additional analyses found in Chapter 4 of the FEIS. If the Services issue the Permit to Plum Creek they must find that the NFHCP has satisfied the "no jeopardy" standard and has met all the Section 10 incidental take Permit issuance criteria. These factors will be analyzed and the findings explained in the Services' Section 7 Biological/Conference Opinion, and Section 10 Findings documents which will be available to the public upon request. The commentor specifically notes that the statements on page 4-187 of the DEIS eschew maximum minimization and mitigation requirements under the NFHCP because of Plum Creek's business interests. The intent of the statements to which the commentor refers is to compare alternatives (NFHCP versus Simplified Prescriptions) and point out that an alternative approach to the adaptive management provisions of the NFHCP would be to provide greater conservation measures up-front so adaptive management is unnecessary. Plum Creek chose not to take that approach for business reasons, and the Services are evaluating Plum Creek's Permit application and NFHCP as submitted. The commentor is reminded that the NFHCP is Plum Creek's document and the Services' roles are to evaluate whether it, and the rest of their Permit application, satisfy the	

Response Number	Response	Comment Number
	Section 10 Permit issuance criteria under the ESA. The commentor also notes that the NFHCP contradicts the "maximum extent practicable" standard because, as noted on page 8-10 of the NFHCP, Plum Creek can adopt "relaxed practices" if conservation targets are exceeded. The Services disagree. The Services believe that if the biological goals and objectives are met, as required under the NFHCP, and monitoring indicates that the NFHCP is not resulting in a greater amount of take than anticipated, the NFHCP will provide adequate conservation of Permit species. If conservation goals are exceeded, the measures are expected to provide more than adequate mitigation and Plum Creek would have the option of relaxing certain measures. The Services' finding on this issue is made primarily on the merits of the NFHCP to provide adequate biological conservation benefits to the Permit species rather than economic factors.	
377a	The Services disagree with the commentor's implication that business considerations overrode native fish conservation. As we have noted in responses to several other comments (see responses 376 and 377), the Services based its evaluation of the NFHCP on biological factors rather than economic ones. The NFHCP provides a significant reduction in threats to native salmonid Permit species, and also provides a monitoring and adaptive management program to make adjustments in NFHCP conservation measures should the original commitments fail to meet specific biological goals.	E1-109, E1-111

Roads

Response Number	Response	Comment Number
378	See response 268. The relationship between road commitments, the specific habitat objectives, and the biological goals is outlined in Table NFHCP 8-1B.	B2-6
379	See responses 416, 398, 430, 431, 417, 421, and 424. The Services agree that road construction and high road densities can impair the various functions of the stream/riparian environment and contribute to impacts on native fish. Because Plum Creek's future forestry operations would require about 900 miles of new road construction, and realizing old, existing roads were not built up to current standards, the Services and Plum Creek worked closely on addressing new and old road-related issues. These discussions resulted in numerous road management commitments in the NFHCP that go beyond state BMPs for forest roads. Rather than inventorying all road segments within 300 feet of a stream or identifying the total number of stream crossings in the Permit Area, Plum Creek will identify all road segments and all stream crossings that are sediment sources, and they developed a process to fix these specific problems at those sources. Sediment sources would be identified through road inspections or during proposed timber sale layout. Road stability risks are addressed under state BMPs and state regulations which will be complied with under the NFHCP strategy, as well as the commitment	D1-25, E4-112

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	under road condition inspections which will identify where perched culverts and potential fish passage barriers exist or other areas having fill slope stability concerns. In addition, chronic sources of sediment will be identified as "hot spots" and receive priority for repair. A good point is made in that bridges that provide a clear span over the stream channel at stream crossings would avoid potential damage to the stream compared to installing culverts using fill that may enter the stream. Although this may avoid some problems, the cost of constructing and maintaining bridges may be prohibitive in some cases. However, under the NFHCP, Plum Creek would use bridge crossings instead of culverts where necessary. Under the NFHCP, Plum Creek would avoid stream crossings when possible. Also, Plum Creek will inspect existing culverts during road condition inspections and correct associated erosion or fish passage problems. New culverts will be sized to avoid any backwater effect and fills at culvert inlets will be well armored with rock. Road maintenance, such as blading, will follow existing state regulations and BMPs. These standards prohibit side-casting material into streams to locations where erosion will carry materials into a stream. Another BMP states that cutting of the toe of cut slopes when grading roads or pulling ditches should be avoided. No specific maintenance frequency is required under the NFHCP. However, commitment R-8 would require Plum Creek to periodically re-inspect all roads and conduct maintenance necessary to preserve BMP function.	
380	The Services are aware of increased risk of high stream temperatures in summer (and extremely low stream temperatures in winter) from increased sediment delivery to streams. Despite the fact that under all alternatives sediment delivery is expected to be reduced from current levels, therefore reducing risk to Permit species, Plum Creek did not model the expected benefit from these reductions. Instead, modeled temperature benefits to streams in the Project Area only included impacts from direct reductions in canopy cover, and the benefit to Permit species from minimizing those reductions and allowing for overall increases in canopy cover across all Plum Creek lands. The Services acknowledge that benefits from reduced impacts to water temperature from sediment delivery to streams would have been greater under all alternatives, and especially under the NFHCP, since this alternative would result in the greatest amount of sediment reductions.	E1-63
381	The road management commitments are based upon known relationships between roads and proper riparian function. Upgrades will be performed within the timeframes described in R5, R6, and R7 and will not be postponed or modified based upon transportation needs. R6 requires an accelerated schedule based upon impacts to riparian function. Enhanced BMPs are described in NFHCP Appendices R-1 and R-3.	E1-81
382	The Services view each of Plum Creek's seven conservation commitment categories as integrated packages of conservation commitments designed to work together to minimize and mitigate impacts, or take, to the maximum extent practicable. The roads package of commitments are designed to reduce sediment delivery, and to evaluate and document that	E5-14, E5-9, E5-16, E5-20, E5-25

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	reduction. Although an individual commitment may amount to little more than monitoring, or developing a plan, and therefore has little value to fish "on the ground," the commitment is key to the success of developing, implementing, and monitoring the other "on the ground" commitments within that category. An advantage of breaking out commitments more specifically, as opposed to grouping many activities into fewer commitments, is that compliance monitoring can be conducted more precisely. Also, although Plum Creek may already engage in some conservation practices, or some practices are already encouraged or required under other mandates, the Services cannot necessarily count on those mandates existing in a satisfactory form for the length of the Permit period. Therefore, it is important for Plum Creek to continue implementing these measures as a part of Permit compliance. Just because a particular commitment doesn't require Plum Creek to do more than they currently do does not mean it is meaningless. To the contrary, the Services believe Plum Creek currently implements measures that significantly reduce impacts to benefit Permit species. The Services agree that the value of some of the commitments is difficult to quantify up front. Because of this, the Services must continue to work with Plum Creek to implement the NFHCP to ensure the maximum benefits from the commitments are derived.	
383	The Services have sought to develop a plan with Plum Creek that allows sufficient flexibility to reduce sediment delivery from roads, minimize the risk of other impacts from roads to fish habitat and hydrology, and maintain access to timber on Plum Creek lands.	E24-9, E30-2
384	The Services are relying on the road management commitments in the Plum Creek NFHCP to achieve the kinds of results described by the commentor in order to reduce risk of impacts to Permit species.	E31-2

Sediment

Response Number	Response	Comment Number
385	The DEIS acknowledges in Chapter 4.6.6 (Pages 4-166 and 4-167) that it is unknown if sediment reduction rates projected in the effects analysis will lead to recovery of all Permit species in all portions of the Project Area. The effects analysis also did not quantify benefits of treating Hot Spots, such as stream adjacent roads. In Ahtanum Creek this may be a significant component of road sediment delivery. Adaptive management (CAMP1) will provide feedback on if cumulative NFHCP commitments are leading to proper functioning conditions over time in instream sediment. Watershed analysis prescriptions and target reductions specific to Ahtanum Creek would not be affected by the NFHCP. Plum Creek will meet prescriptions generated by watershed analysis as part of the Native Fish HCP and will continue to be subject to water quality standards.	B2-10

Road Sediment Delivery Analyses (NFHCP Commitment R9)

Response Number	Response	Comment Number
386	Where possible, quantitative estimates of components of the overall sediment budget were calculated (for example, road sediment delivery). In other situations however, analyses had to be qualitative (for example, reductions associated with hot spot treatments under Commitment R6, mass wasting rates). As such, preparing a full sediment budget for the Planning Area was not possible. Watershed analyses in the Planning Area (see Technical Reports #5 and #11) provide a better comparison of the fraction of watershed-scale sediment delivery associated with mass wasting. The overall effectiveness of cumulative NFHCP commitments will be investigated in CAMP #1. As part of this study, additional detailed sediment budgets are planned.	E1-64
387	The Road Sediment Delivery Analysis (RSDA) approach in R9 uses established procedures (Washington Forest Practices Board [WFPB] 1997) and is conducted by trained experts. While RSDAs will provide feedback on watershed-scale sediment delivery from roads, no triggers are associated with this commitment. A major benefit of RSDAs is to dovetail with other watershed planning efforts such as Total Maximum Daily Loads.	E5-67
388	Early in the development of the NFHCP, Plum Creek had considered a watershed analysis approach that would combine several modules. This approach was not selected because it would start the Permit with "interim" protection measures and then replace them with unknown future watershed analysis measures. Plum Creek also pointed out that, based upon experience in Washington, consistent themes emerged that could be incorporated into a more programmatic approach effectively. The RSDAs represent the one module of this approach that was retained.	F17-7

Fish Passage

Response Number	Response	Comment Number
389	The maximum acceptable velocity was changed to 4 fps (see response 407). Providing passage for adult cutthroats in the spring is one of the goals for this aspect of the NFHCP. Also see response 394.	C1-7
390	The Services and Plum Creek concur with the state of Montana that fish passage may not be desirable in all cases and should be evaluated on a case-by-case basis prior to re-establishment of fish passage. It is anticipated that the State of Montana will be invited to consult as such situations arise.	C1-8
391	Text in this FEIS has been revised to note the *Idaho Code* requirement to provide fish passage.	C2-8
392	The Idaho requirement for fish passage applies only to new installations of culverts during road construction or reconstruction, and to	C2-9

Response Number	Response	Comment Number
	reinstallations necessitated by floods. Plum Creek will continue to be required to meet this standard as a starting point. Additionally, Plum Creek will be restoring fish passage to old roads, a requirement not found in the Idaho rules. This represents an important conservation gain.	
393	Jumps at culvert inlets, especially to the extent that fish passage is impeded, rarely occur within the Project Area. In fact, when this phenomenon does occur, it is as a result of a blockage at the culvert inlet that can be rectified at the time of inspection. Since barrier jumps at culvert inlets are generally not a function of culvert design or installation, this evaluation was not included in Appendix R-6. Date of evaluation was added to the Culvert Verification Checklist so that seasonal variance in flow conditions may be considered. Appendix R-6 will be modified so that in the final NFHCP, Section 1b of the key will read "Natural slope of stream above and below culvert remains >25 percent." All field personnel will be trained in culvert evaluation for fish passage and use of the checklist. For any crossing for which measurements are taken, the crossing will be evaluated by a fisheries biologist. Any crossings identified as barriers either via the key or biologist evaluation will undergo Hot Spot Prioritization (Appendix R-5) for repair or replacement so that fish passage may be restored.	C2-10
394	Since the installation or replacement of any stream crossing structures in Washington requires an Hydraulic Project Approval (administered by WDFW), any NFHCP-directed activities of this type must necessarily be conducted in compliance with WAC 220-110-070. Maximum acceptable velocity was changed to 4 fps (see response 407). Culverts greater than 90 feet long will be evaluated by a Plum Creek fish biologist (see Appendix R-6, Section 7, of the key). Because the intent of Appendix R-6 is to accommodate upstream passage for adults, it is not necessary to institute a maximum acceptable velocity as low as 2 fps. Appendix R-6 was modified so that in the final NFHCP, Section 1b of the key will read "Natural slope of stream above and below culvert remains >25 percent." The natural slope of the stream will be measured over a sufficient distance so that a meaningful value is recorded. If outfall drop is greater than 6 inches, measurements will be taken and the culvert will be evaluated by a Plum Creek fish biologist. Section 5 of the key evaluates outfall pool metrics, other sections of the key evaluate other physical attributes of the culvert.	C3-30
395	The FWS agrees with the precaution pointed out by the commentor. The FWS and Plum Creek intend to temper the positive benefits of restoring connectivity against the risk of increasing threats to Permit species by allowing introgression of non-native salmonids where they are currently excluded. Plum Creek and the FWS will coordinate with the appropriate local experts including state agency biologists. This intent is met in the Schroeder Creek example.	E1-83

Response Number	Response	Comment Number
396	The intent of the NFHCP is to remedy fish passage problems in all areas where it will benefit Permit species. Site-specific evaluations will be made as to whether fish passage is necessary at a given site. Successful implementation will be monitored and reported first by Plum Creek, then by an independent auditor, and finally by the Services every 5 years.	E1-84
397	Comment noted. All fish passage barriers are treated as hot spots (Commitment R-6). As such, all hot spots are evaluated via Hot Spot Prioritization Guidance (Appendix R-5) prior to any action being taken. Since the evaluation schedule attempts to ascertain both net benefit to native species and the probability of treatment success, the potential impacts from non-native invasion will be considered.	E2-17, E5-56
398	NFHCP commitment R6 would require that Plum Creek identify all fish passage barriers as hot spots. Additionally, hot spot designation could also be made where culverts have failed or are plugged. R6 specifies the procedure and timeframes for addressing hot spots. While road construction attempts to avoid wet areas such as seeps and springs (Per Forestry BMPs, R1), where seeps are encountered during construction, R2 specifies the procedure to be followed to try to get that water re-infiltrated into the soil as close to the point of origin as possible such that impacts are minimized.	E4-117
399	Designing new crossing structures to accommodate fish passage is the intent of the NFHCP, although indirectly through the hot spot commitment (R6). A commitment has been added to R2 clarifying that new crossing structures will be designed to accommodate native fish passage where applicable. Regarding design flows and velocities, see response 407.	E5-49
400	Passage velocities in Appendix R-6 were reduced to 4 fps (see response 407). Criteria for outfall height were considered in Step 4 in Appendix R-6.	E5-59
401	The intent of the specific NFHCP Commitments (R-2, R-5, and R-6) related to the identification and repair of passage barriers is to maintain and improve passage for Permit species within the project area, not necessarily to “simulate” streambeds. For this reason, Appendix R-6 was developed for Plum Creek to use in the evaluation of fish passage. Plum Creek is not pursuing a Permit for sculpins, dace, or amphibians. However, the Services agree with the commentor’s implication that culvert design and installation should mimic as closely as possible natural streambed conditions.	F1-1
402	The Services agree with the need for increased culvert sizing in some cases. The NFHCP road maintenance commitments and appendices have been modified to include this opportunity, per the commentor’s suggestion.	F1-2

Response Number	Response	Comment Number
403	In most cases, triangular squash culverts will be used in fish bearing streams where bridges or bottomless arches are not installed. However, circular or elliptical culverts can also provide passage for Permit species. These configurations may even be necessary, considering the specific setting where the culvert needs to be installed. The goal is to maintain or improve upstream passage for Permit species, not to prescribe specifically how it is achieved.	F1-3
404	Comment noted. The applicant is aware of several techniques and designs for culvert installation and retrofit so as to provide fish passage, and will seek to use the best technique for each site where treatment is warranted.	F1-4
405	The intent of the specific NFHCP commitments (R-2, R-5, and R-6) related to the identification and repair of passage barriers is to maintain and improve passage for spawning adults of the Permit species to reach spawning grounds. Several options are available to the applicant in order to provide upstream passage, including replacement of impassable culvert pipes with bridges, arches, or baffled culverts.	F1-5
406	Plum Creek is applying for a Permit for native salmonid fish within the project area. Hence, the basis of evaluation of must remain focused on Permit species. A Permit is not being pursued for amphibians or other non-salmonid species. However, the Services and Plum Creek will continue to cooperate where opportunities exist or develop to enhance connectivity for less mobile species.	F1-6
407	The Services agree with the comment. Appendix R-6 was modified so that the culvert will be considered a barrier if water velocity exceeds 4 feet per second. All field personnel will be trained in protocol to measure outfall heights and plunge pool dimensions.	F8-2, E5-56

Stream Crossings

Response Number	Response	Comment Number
408	The commitment for culvert sizing in R2 and R5 is only applicable to Montana. In Washington, existing regulations already require sizing to accommodate the 100-year flood. Regarding fish passage, see response 399. Also see response 410.	B2-9
409	State BMPs specify timing considerations for construction of stream crossings. Additionally, these are subject to additional site specific criteria under the stream crossing permitting processes in each of the three states.	C2-11
410	The NFHCP would require new culvert installations to be sized to accommodate the 50-year flood in Montana. The Idaho Forest Practices Acts already requires sizing to accommodate at least the 50-year flood. Sizing to the 100-year flood in Idaho would further reduce risk because of debris plugging, and the applicant has proposed to use larger culverts in the Lochsa River basin based upon the risk of failure and magnitude of effect.	C2-12

Response Number	Response	Comment Number
	Under the NFHCP, the applicant would adhere to a specified interval for road re-inspection that would identify problems such as culvert plugging, and require that they be maintained. Specific criteria for when bridges should be used in lieu of culverts are not proposed. However, requirements for fish passage will indirectly necessitate use of bridges in some cases.	
411	Montana BMPs requires that culverts be able to pass a 25-year storm event. Hence, the commitments (R-2, R-5) to use culverts capable of passing 50-year peak flows for new or replacement installation should provide a conservation benefit for native fish species in terms of providing fish passage as well as reducing the probability of culvert failure. Additionally, following 25-year flood events, Plum Creek will inventory and inspect road and stream crossing areas affected on their lands and repair or replace damaged culverts. Furthermore, blown-out culverts or culverts that are fish passage barriers are considered “hot spots” and will receive prioritization for repair.	E4-119, E5-56

Interface Caution Areas (NFHCP Commitment R8)

Response Number	Response	Comment Number
412	NFHCP Commitment R8 prohibits new road construction within Interface Caution Areas and provides incentives for abandonment of existing roads within them.	C3-26

Density

Response Number	Response	Comment Number
413	The NFHCP includes commitments to reduce road density, but it does not place a limit on road density. Plum Creek has committed to abandon surplus roads that are not required for long-term forest management—the DEIS estimated that there could be as many as 1,000 miles of surplus road. The remaining road length (including newly constructed roads) will be managed to reduce the direct (and indirect) impacts to native fish and their habitat in the following ways: reducing sediment delivery to streams from surface erosion and mass wasting, reducing hydrologic connectivity to streams through added road drainage, restoring fish passage, restricting access to known poaching areas, and reinspecting and maintaining roads on a frequent basis. This combination of conservation actions is intended to achieve a similar outcome as a road density restriction might, but in a way that is viable for the applicant. See also the response 414. Commitment Rp8 provides an incentive to abandon those roads closer to streams.	B2-5, F5-5, F7-5

Response Number	Response	Comment Number
414	The Services discussed road density at length with Plum Creek during development of the draft NFHCP. Plum Creek believes there are opportunities to abandon surplus roads that are not necessary for long-term forest management and have committed to do so in commitment R-7. To meet Plum Creek's unique needs as a private landowner, a strategy of managing impacts from roads through a road density threshold was not pursued. Rather, the NFHCP manages the specific impacts because of roads (for example, fish passage restoration, sediment delivery reduction, reducing delivery efficiency, and other actions). These collective actions are expected to adequately minimize and mitigate effects of impacts from roads on Permit species and their habitats. The NFHCP also includes sufficient adaptive management flexibility to ensure that, in those cases where the proposed approach is not as effective as necessary in conserving Permit species, management can be modified as necessary.	D1-26, E3-16, F5-5, F7-5, E4-112, D1-65, E13-16
415	The Services agree that high road densities contribute to increased peak flows, but to varying degrees, and depending on local conditions. Scientific literature indicates variable responses of peak flows related to road density (Peak flows exceeding a two-year recurrence interval) in the Pacific Northwest. While Jones and Grant (1996) identified increases in small peak flows (less than 2-year runoff events), this was not identified for larger peak flows (Thomas and Megahan 1998). In the Rockies, King and Tennyson (1984) studied road construction effects on peak flows in six watersheds and did not find any significant effect on flood flows. The Services believe that the NFHCP commitments to disconnect road-runoff from perennial channels and to close surplus roads should adequately reduce the risks to Permit species associated with peak flows.	E4-113
416	At present, Plum Creek has direct or shared management responsibility for approximately 20,000 miles of road in the Project Area. Plum Creek has committed to abandon all surplus roads. Because surveys have not been completed, it is unknown exactly how many miles of road this would encompass, but Plum Creek has estimated that there may be 1,000 miles abandoned. This was the number that was analyzed as reasonably foreseeable in the DEIS.	E4-114
417	The Services believe that road density is a general indicator of potential watershed problems because road density is correlated with many types of watershed alterations, and it is useful when more specific indicators are not available. The Services do not believe that road densities *per se* cause fish populations to decline when roads exceed some specific density. Certain portions of road systems create the majority of negative effects associated with roads—those segments built on erodible soils, on steep or unstable slopes, and in close proximity to streams. Because of this, the NFHCP road commitments focus on problem road segments and road abandonment in locations where roads are not needed.	E13-28

Response Number	Response	Comment Number
418	See responses 379 and 414. Roads are necessary for Plum Creek to conduct commercial forestry. However, high road densities in watersheds inhabited by Permit species are a concern of the Services. Consequently, during discussions with Plum Creek, the Services sought opportunities to reduce road densities on Plum Creek lands by permanently closing roads. R7 commits to abandoning surplus roads, particularly those that are old and not up to current standards and that occur near streams or valley bottoms. An exact estimate of surplus roads to be abandoned will not be available until after road inspections are complete by Year 5 of the Permit. Plum Creek has estimated that 1,000 miles could be abandoned in the future. See response 414 regarding road density. The analysis of predicted sediment delivery from new road construction is described in the DEIS Section 4.6.6 and Figure 4.6-6.	E14-5, E4-112
419	See responses 379, 414, and 418. See NFHCP road commitments for the specific action that will be taken to minimize impacts from roads.	E18-6
420	See response 414. While Plum Creek will be responsible for tracking roads on their land, this will be periodically verified through third-party audits under A5.	F4-3, D1-65

New Roads (NFHCP Commitment R2)

Response Number	Response	Comment Number
421	Commentor notes a variety of factors that should be considered in evaluating road location and specific design considerations to minimize risks of landsliding and delivery efficiency to streams. The NFHCP does pre-identify management actions for some specific situations (for example, inner gorge landforms, cutslope springs, and others), that are known to be important. To the extent practicable, Plum Creek would locate and design new roads considering key landscape variables that might reduce sediment delivery and potential landslides. Areas of unstable slopes and inner gorges, as well as other sensitive sites identified during road design planning, will be avoided when possible. Because of this landscape variability, Plum Creek's road management planning should involve flexibility in road location and design based on project level conditions encountered.	C2-4
422	Per commentor's suggestion, a commitment was added in R2 that will specify that any new roads in Channel Migration Zones (CMZs) minimize impacts to channel morphology and function. This would include minimizing fill depths and installing culverts on all overflow channels.	C2-5
423	See response 383. The NFHCP would require that 2 miles of road be abandoned or repaired for every 1 mile constructed. The purpose of this provision is to help ensure that the rate of sediment delivery, or impacts or "take" of Permit species, from new road construction is out-paced by the rate of road abandonment or repair, ensuring a "pay-as-you-go" approach to Permit implementation. That is, mitigation would occur before	C2-6

Response Number	Response	Comment Number
	take occurs.	
424	We believe commentor suggests what is already provided for in NFHCP commitment R2. There are only two situations where roads may be constructed in inner gorges: 1) if the construction meets highly restrictive pre-specified design considerations, or 2) field review by a geotechnical specialist.	C3-25
425	Roads constructed in areas that have "highly erodible soils," according to the description in Appendix NFHCP R-1, would require gravel surfacing at stream crossings as the commentor has recommended. The NFHCP would not preclude Plum Creek from choosing to pave in certain very high risk situations, though it is not a requirement to do so.	C3-28
426	Plum Creek estimated that the majority of road construction will take place in the first decade of the plan, but some lower level of construction would continue throughout the plan. The DEIS assumed all road construction would occur in the first as a conservative analysis. In response to this concentration of construction activity in the first decade, the NFHCP requires the rate of road impact reduction (through abandonment or application of enhanced BMPs) to occur at twice the rate of new road construction.	D1-27
427	The intent of including a "mitigation ratio" by Planning Area basin is to ensure that the benefits of improving roads are secured in advance of the minimized impact of new road construction. This allows "early warning" monitoring through the annual reporting of implementation metrics in addition to the longer term effectiveness monitoring.	E1-66
428	Regarding road drainage spacing, see responses 430 and 711. We do not understand the commentors' last sentence in this paragraph.	E1-67
429	The DEIS does not suggest that building roads will reduce sediment delivery. Net sediment delivery reduction will primarily result from upgrading old roads, while minimizing sediment impacts from new roads. The DEIS used established protocol and available scientific literature to estimate impacts (or benefits) of the various alternatives. Adaptive management research conducted under CAMP1 will seek to locally-validate some of the modeling coefficients. Regarding sediment budgets, see response 386.	E1-75
430	NFHCP commitments R2 and R5 specify locations for drainage features near streams (where they have the highest potential to affect water quality). Outside of these areas, Plum Creek must still provide adequate road surface drainage (per BMP requirements) to control erosion. Because of the myriad of factors that affect drainage feature location and spacing (for example, side slopes, skid trail entry points, road vertical alignment, and others), locations away from streams are not "hard wired" under the NFHCP. Location and spacing will be determined based on project-level forester or specialist reviews. However, the Services have obtained more specificity in the enhanced BMPs for a maximum road surface drainage interval for native surfaced roads. Road drainage application and effectiveness away from streams will be monitored during third-party audits to determine compliance (see Table NFHCP7-1).	E5-47, E5-51, E5-55, E7-9, E9-9, E8-8

Response Number	Response	Comment Number
	Exact dip construction specifications are not provided, but the end product must be functional to route road runoff into filtration areas. Effectiveness of drive dips will be evaluated in CAMP #1.	
431	NFHCP commitment R2 (and discussed in more detail in Appendix R-1) requires that fills over stream crossings be grass-seeded concurrent with construction. This should increase the probability that the grass will become immediately established in the most critical areas (near streams). Other locations must be seeded within one operating season. For the greatest success, grass seeding should be timed to coincide with moist weather conditions. Soil conditions at stream crossings are generally moist enough at the time of construction for successful germination, but the on remainder of the road conditions are variable. Appendix R-1 discusses use of fertilizer where necessary to establish vegetation. Third party monitoring of BMP implementation is discussed in Table NFHCP7-1.	E5-48
432	BMPs require that all roads (permanent and temporary) be adequately drained. For temporary roads, this could be less than for a permanent road if the road was to be abandoned prior to runoff periods. Third party audits will verify the road abandonment meets the specifications of NFHCP Appendix R-7.	E5-53
433	No, a road upgrade in one drainage does not necessarily allow the company to build more road in another drainage. See response 246.	E13-25, F17-3
434	Once road upgrades and abandonment are accomplished in a watershed the 2:1 requirement in R2 will no longer be binding. This will prevent the creation of a disincentive for accelerated upgrades.	E34-6, F17-3
435	The 2:1 provision of R2 is primarily a policy and programmatic measure. It ensures that there will be a net reduction in sediment (based upon the scientific support) from the beginning of the Permit period. For this commitment, Plum Creek is given consideration for having “paid” for impacts that occur under the Permit in advance. See page NFHCP 1-16, “pay-as-you-go.”	F17-2
436	The Services prefer the use of native plant species for rehabilitation; however native grasses are not known to have greater effectiveness in minimizing impacts from sedimentation than exotic grasses. Therefore, we do not see it as a necessary provision to meet Permit issuance criteria.	F17-4

Abandonment (NFCHP Commitment R7)

Response Number	Response	Comment Number
437	The frequent drainage intervals in the road abandonment specification is intended to re-establish sub-surface flow of water that may have surfaced because of the road prism.	C2-15

Response Number	Response	Comment Number
438	a. It is unlikely that even hillslope recontouring for some distance from the road takeoff will be effective for controlling all-terrain vehicle use in and of itself. Plum Creek will be working to control unauthorized use of its roads through cooperation with enforcement agencies (for example, see Commitment Lg5). b. As required in Appendix R-7, drainage feature spacing cannot exceed 100 feet. c. In Appendix R-7 (criteria #7) road scarification (ripping) is required where necessary to establish vegetation.	E5-64
439	The commentor proposes that there "should be" a prohibition on new road construction in the Lochsa River basin and that roads should be "obliterated" rather than abandoned. The Services are aware of high road densities and landslide occurrence in this particular watershed. The Services believe that, as a rule, lower road density is likely to provide greater assurance of native fish conservation. Plum Creek has agreed to investigate additional opportunities to abandon jammer roads in the Lochsa River basin to complement efforts undertaken by the FS. (See new commitment R12, Papoose Creek Landslide assessment) The decision to "obliterate" a road template versus some other type of abandonment will be decided on a case-by-case basis. Obliteration is not always the most conservative treatment for sediment reduction. NFHCP abandonment specifications (Appendix NFHCP R-7) require full or partial recontouring in certain situations.	E13-22
440	The only roads that would be abandoned under the NFHCP would be roads that are surplus to Plum Creek's long-term forest management needs. Other roads may be "put to sleep" under NFHCP Commitment R8 where the road is not needed for 15 years or more. This would involve risk reduction through increased more rigorous road drainage, which is a risk reduction strategy.	E33-1
441	The 10 percent estimate applies to the Simplified Prescriptions Alternative, only.	F25-3
442	NFHCP commitment R7 will require that certain roads be re-contoured (obliterated). These include stream crossings and unstable hillsides.	G1-11, E4-116

Upgrade (NFCHP Commitment R5)

Response Number	Response	Comment Number
443	Commitment A6 requires Plum Creek to annually report progress in road upgrade implementation. Commitment AM2 specifies triggers that require acceleration of implementation activity if implementation falls significantly behind schedule. This essentially functions as an annual milestone or benchmark for a 10- and a 15-year time frame.	C1-6, C3-29, E4-57, F17-5
444	Streamside and floodplain roads are specifically targeted for improvements in the NFHCP because of their disproportionate impact to	C2-7

Response Number	Response	Comment Number
	aquatic ecosystems. Commitments include reducing contributing ditch lengths leading to streams (R2 and R5), relocating stream adjacent roads where possible (R5), abandoning surplus stream adjacent roads, or treating them as hot spots (R6).	
445	The NFHCP is Plum Creek's document; therefore, Plum Creek is free to imply whether or not impacts to native salmonids from legacy roads would likely result in take under the ESA. Plum Creek's views expressed in their NFHCP are not necessarily shared by the Services. Specifically with respect to legacy roads, the Services chose to concentrate efforts into analyzing and disclosing effects to native salmonids rather than hypothetical and speculative analysis of in what context legacy road impacts may rise to the level of take of listed species. The Services believe that impacts from legacy roads have been adequately addressed in the NFHCP with the conservation measures, combined with the commitments to monitoring and adaptive management. Due to the large Planning Area and the lack of information in many watersheds, the Services were unable to analyze the specific effects of legacy roads on native salmonids in each watershed. The Services agree with the commentor that the risk from legacy roads and from other impacts could be high in some watersheds. However, in watersheds where there is a higher frequency of impacts, there will also be a higher frequency of mitigation actions under the NFHCP that addresses these impacts. The Services intend to look at watershed effects to Permit species through the NFHCP's monitoring and adaptive management provisions, including use of information available independent of NFHCP monitoring or studies. Under the NFHCP, the Services can request that Plum Creek **voluntarily** provide additional conservation on a watershed basis should problems arise at the watershed scale. Should it be necessary to modify the NFHCP on a Planning Area Basin basis, in order to meet the biological goals identified in the NFHCP, or to avoid significantly reducing the survival and recovery of Permit species at any scale, the Services can request that Plum Creek change the NFHCP conservation measures. Should Plum Creek refuse to do so, the Services can revoke or suspend the Permit in whole or in part.	E1-25
446	The NFHCP does not prohibit upgrading of roads that are not in the high priority bin before Year 10; rather, it requires that 80 percent be all roads be upgraded over a 15-year time frame and that 20 percent be upgraded over a 10-year time frame. It also includes an adaptive management trigger that requires more aggressive upgrading if Plum Creek falls significantly behind the prorated upgrade schedule.	E5-54, E34-7, F17-5
447	It is believed that in many cases, surfacing will the only solution to addressing impacts from stream-adjacent roads.	E5-57
448	All reconstructed roads must have stable cutslopes as well as new roads. Specific upgrade BMP #6 in commitment R5 has been modified to reflect that if disturbance is immediately adjacent to streams that grass seeding will be concurrent with project completion. Due to factors listed in the response 431, Plum Creek will grass-seed other sites within one operating season.	E5-58

Response Number	Response	Comment Number
449	See response 451. A culvert observed to be in a condition where failure was imminent or has occurred would be treated as a hot spot, but otherwise, culverts will not be replaced merely because they do not meet flow specifications. The wording under R5, enhanced BMP 3 has been revised to be more clear on this matter.	E24-10
450	The language in R5 and Appendix R-3 regarding replacing pipes to a 50-year flood standards has been clarified to specify the standard only when they need to be replaced.	E25-3
451	There is no intent to replace all existing steam crossings with crossing structures capable of passing a 50-year peak flow. Crossings will be replaced with 50-year event structures either after failure or if identified as a hot spot, indicating that failure is imminent or that the structure is a fish passage barrier. The wording in commitment R5 under enhanced BMP 3 has been modified to clarify this point.	E26-5
452	Appendix NFHCP R-3 is not intended to be an inclusive list. It specifies the “enhancements” that will be used in addition to the existing BMPs and the 310 or hydraulics permitting process. Appendix NFHCP R-7 specifies the nine criteria that must be met before a road can be considered abandoned.	E34-8
453	The Services agree with the commentor’s concern about culverts that are "too-short," and has worked with Plum Creek to ensure culverts are adequately addressed in the NFHCP. Where culverts are leading to fillslope instability and sediment delivery because they are not long enough, they will be classified as hot spots and treated under commitment R6. The NFHCP has been modified to reflect this change. Plum Creek has committed to surface highly erodible soils over stream crossings on all new roads. This will ensure reduced erosion rates when road erosion is highest (first 2 years after construction). While surfacing existing roads is a tool under state BMPs, a specific programmatic approach is not included in the NFHCP.	F17-6

Hot Spots (NFHCP Commitment R6)

Response Number	Response	Comment Number
454	The overall approach for upgrading is to treat the entire Plum Creek road system throughout watersheds. The hot spot commitment (R6) is a subset of the overall upgrade program intended to find “symptoms” that warrant more immediate treatment.	C2-14
455	a. The hot spot concept is best viewed in the context of R4, Road Condition Inspections, and R2, Road Condition Tracking. This shows a management system that includes identifying, recording (on maps and narratively), fixing, and reporting on hot spots. b. The Services recognize that some road segments exist that are easily identifiable without technical criteria that my have sufficient vegetation	E1-82

Response Number	Response	Comment Number
	or are otherwise benign that may not technically meet enhanced BMP specifications. It is appropriate in these cases to avoid short-term disturbance associated with upgrading until it is otherwise required. This allows Plum Creek to focus resources where a benefit is accomplished. c. Roads where Plum Creek shares management responsibility are included within all of the NFHCP road commitments.	
456	Designation of a Hot Spot for road rutting and sediment delivery to streams would result in a rapid response under the NFHCP. We would expect to encounter these situations on roads that are not up to current BMP standards for road drainage. Under BMPs, road drainage features must be functional at all times, even during active truck hauling.	E5-60
457	Plum Creek verifies attainment of BMP objectives upon completion of a timber harvest. They also inspect conditions for forestry activities such as planting, regeneration verification, and precommercial thinning. Upland hot spots noted during these inspections will be recorded. Watershed analyses and state BMP audits (See Technical Report #3) have not indicated that hillslope sediment delivery is common in the Project Area when adequate skid trail drainage is provided and buffer strips maintained. As such, creating a programmatic commitment to inspect every acre of land periodically after harvesting is unnecessary. Feedback will be provided by internal and third party audits of BMP compliance and effectiveness that can inform a cooperative management response should one be warranted.	E5-63
458	Culvert specifications have been modified in Appendix R-6. Ensurance of adequate funding is already an issuance criteria. See response 407.	F8-5

Best Management Practices (NFHCP Commitment R1)

Response Number	Response	Comment Number
459	See responses 605 and 606. Existing state BMPs are used as a “basis” in the sense that they are a starting point. To comply with the terms of a Permit, the Permit holder most not only comply with the terms of the HCP but with all other laws. In development of the NFHCP, the Services worked with Plum Creek to “enhance” BMPs by making them more specific or rigorous, or to add to them with completely new commitments. While the plan is still programmatic in nature, it contains a variety of features that require site-specific information in developing an individual prescription.	C2-3
460	Where state rules exist that do not specifically provide for an exemption in the case of an HCP, a Permit holder must adhere to them to be in compliance with the terms of the Permit.	C3-27

Response Number	Response	Comment Number
461	The Services agree that state BMPs may not be adequate to protect habitat for Permit species in all cases. For example, in the final listing rule for bull trout, the FWS was unable to conclude that State Forest Practice Act (FPA) regulations or rules, which establishes state BMPs, were adequate to protect bull trout. Inadequacy of state forest practice regulations was cited by NMFS in the final listing rules for salmon and steelhead as a factor allowing continued habitat degradation. Consequently, the NFHCP must provide more protection than existing state BMPs, which is Plum Creek's commitment to implement "enhanced BMPs." The "enhanced BMPs" are expected to add an incremental level of protection. In addition, through adaptive management the effectiveness of these measures will be ascertained and adjusted more conservatively if they fail to meet biological objectives of reducing sediment delivery. The incremental benefit of the enhanced BMPs for new road construction is discussed in NFHCP Appendix R-1 and is analyzed in DEIS Section 4.6.6. The cumulative benefit of these measures in reducing instream fine sediment levels will be studied in Core Adaptive Management Project #1.	E4-115
462	See response 604. The FWS is aware of the background of and purpose for state BMPs.	E5-12
463	See response 604. NFHCP Technical Report #3 discussed some of the literature regarding BMP proximal effectiveness at controlling sediment delivery. Adaptive Management research (CAMP1) will advance the evaluation of BMP effectiveness for fish by aiding in determining if cumulative NFHCP commitments are effective at improving in-stream sediment levels over time. SMZ effectiveness at Large Woody Debris (LWD) recruitment was discussed in Technical Report #7 and canopy cover (temperature control) was discussed in Technical Report #12. Effectiveness results summarized in these two studies provided much of the basis for evaluating the DEIS alternatives. Summaries of the Technical Reports were available in the DEIS and online, and complete copies of reports were available upon request.	E5-42, E5-9
464	The approach that Plum Creek took in the NFHCP for developing conservation measures was to use existing regulations and BMPs as a starting point and examine Plum Creek activities under them in the context of the biological goals. This approach was performed by Plum Creek with the development 13 peer reviewed technical reports and 4 white papers. Commitments for the NFHCP were then developed which "enhanced" the existing measures by making them more specific or adding rigor where it was demonstrated that additional conservation benefit could be achieved. Where no existing measures existed to build upon, unique commitments were developed to achieve additional conservation benefits. See response 604.	E5-43, E6-2
465	NFHCP Commitment R1 will require Plum Creek to comply with Montana's voluntary forestry BMPs. These BMPs have requirements that address all of the factors that the commentor lists (for example, stable fill construction, cutslopes at stable angles, minimize cut and fill slopes, and avoiding unstable areas). These were discussed in the DEIS in Table 3.3-4.	E5-46

Response Number	Response	Comment Number
466	Forestry BMPs as mandated under R1 specify skid trail management criteria (for example, location, design, frequency, and drainage). Placing organic matter, such as slash or tops, in skid trails for erosion control is common practice on many Plum Creek harvest operations under BMPs.	E5-52

Maintenance (NFCHP Commitment R8)

Response Number	Response	Comment Number
467	The Idaho FPA requires "regular preventative maintenance" and further specifies that culverts be kept functional for active roads. When activity ceases, it specifies that culverts be cleared and "maintained thereafter as needed." Plum Creek will still be obligated to this standard as a basis, but the Services believed that "as needed" was not as specific and measurable as desired. Plum Creek "enhanced" this state rule by specifying a maximum interval and creating a management system to measure against it. The Services believe that this adds conservation certainty to the state rule.	C2-13
468	The reinspection priority using Tier 1 watersheds was designed after the priority system originally intended for road upgrades (R5). During plan development, the priority for upgrades was changed from Tier 1 watersheds only to a to-be-identified "high priority bin," roads within watersheds that are chose based upon concerns more broad ranging than the needs of just one species. Commitment R8 has been similarly changed to prioritize the "high priority bin" rather than Tier 1 watersheds.	E5-65
469	Commentor suggests numerous practices that are already provided for under existing state BMPs and will be required under the NFHCP (per commitment R1).	E5-66

Inspection (NFHCP Commitment R4)

Response Number	Response	Comment Number
470	Commitment R4 has been revised to include an opportunity for outside experts to submit observations or knowledge of possible road problems to Plum Creek for inspection and possible inclusion in the road database.	C1-5
471	Post-failure response of failed culverts can reduce sediment delivery from what would occur otherwise. Culvert inspections will occur in conjunction with the NFHCP Road Condition Inspection commitment (R4). In most cases, Plum Creek foresters will take the lead in completing road inspections; if they have questions they can consult with staff scientists. The NFHCP uses a road database to track condition of roads (R3) to track conditions on roads and at stream crossings rather than the suggested use of only a stream crossing database.	E5-62

Response Number	Response	Comment Number
472	Seventeen sediment source surveys conducted by Plum Creek in the planning area were used to evaluate effects in the DEIS. The results of 11 of these were disclosed in Technical report #7. Plum Creek has been inspecting and upgrading roads since 1994 in conjunction with its existing activities subject to internal accountability. The NFHCP will require the higher burden of external accountability to this effort, which necessitated the development of tools and process to better measure and assure implementation. One of the main benefits of having a systematic approach to inspection and upgrade is that roads will be included that might be by-passed when relying on day-by-day incidental inspections.	E11-11, F3-5

Landslides

Response Number	Response	Comment Number
473	Plum Creek has added new road commitments to the NFHCP to avoid or minimize potential problems with landslide-prone areas, which occur primarily in the Washington and Idaho portions of the Project Area. Because of the numerous other unstable landforms present in western Washington, the NFHCP will defer to Forest and Fish prescriptions in western Washington. The Services and Plum Creek agree that a variety of landforms can be affected by human activities and that this can result in a higher incidence of mass failure. These landforms include those listed by the Yakama Nation, such as bedrock hollows and convergent headwalls. The HCP was not attempting to dismiss these from consideration, merely point out the attention that is provided to inner gorge landforms and the positive steps to be taken to address that risk.	B2-7
474	Plum Creek has added new road commitments to the NFHCP to avoid or minimize potential problems with land slide-prone areas (see road commitments section of the NFHCP).	B2-8
475	Commentor references a BMP for addressing slope stability that is required under NFHCP Commitment R1. Regarding sediment budgets and quantification, see response 386.	E1-71
476	The DEIS notes that landslide rates are generally much lower in the interior portion of the Project Area based on a variety of information summarized in Technical Report #3 (See also responses 485 and 486). Certainly there are localized areas where mass wasting (or surface erosion) hazards are higher. The Lochsa River basin is one example where landslide potential is high, and additional commitments were added to reduce the potential for landslides in this basin. Based on watershed analyses conducted in the Project Area (see Technical Reports #5 and #11), inner gorge landforms are the area of greatest concern. A specific commitment (R2) was crafted to mitigate for landslide risk in these areas associated with road construction. Other unstable areas are addressed through provisions in the state BMPs (see Commitment R1).	E1-80, F5-10

Response Number	Response	Comment Number
477	Chapter 4.2 (page 4-7) referenced Technical Report #3 to conclude that harvest-related surface erosion in the Project Area is minimal, with little or no observed delivery of sediment to streams when forestry BMPs are implemented and SMZs maintained. Technical Report #3 analyzed watershed analyses conducted throughout the NFHCP Project and Planning Area, which address mass wasting and landslide potential.	E4-131, F5-10
478	Due to the additional complexities of mass wasting in western Washington, the NFHCP relies on the state of Washington provisions for consideration of unstable slopes for all of the NFHCP Washington Project Area lands.	E5-50
479	The intent of this commitment is to identify road segments that are at imminent risk of landsliding based on physical features (for example, tension cracks in fill, existing slumping, and local experience) and reduce risk through a site specific management response. The following type of factors were mentioned by the commentor: soil type, steepness of slope, amount of cut and fill, presence of water, potential for concentration of water, will all be used to assess landslide risk.	E5-61
480	The DEIS acknowledges that landslides occur in the Project Area and will continue to occur. Additional commitments for landslide-prone areas were incorporated to address this concern. See responses 485, 486, 476, 477, and 533.	E11-24
481	Improvements in road construction technology and specifications have reduced landsliding risks but it is not yet known by how much. Management activities in Walton Creek under modern BMPs have a reduced likelihood to cause landslides compared to earlier management, but some risk remains.	E13-9, E13-10
482	The statement reflects the fact some events that may adversely affect aquatic species will occur despite land management efforts aimed at conservation, and will occur through natural processes even in the absence of land management activities. The commitments in the NFHCP to address hot spots (areas requiring special attention in addition to standard management prescriptions aimed at reducing potential adverse effects to proposed Permit species) and respond to changed circumstances (for example, fire, flood, landslide events even if not related to land management activities) are directed at such events, should they occur.	E13-11
483	Additional commitments were added to the NFHCP to reduce the potential for mass wasting, including site specific commitments in the Lochsa (Papoose Creek, new commitment R12), a commitment to use the Washington unstable slopes protocol in Washington, and the following new programmatic commitments for the whole project area: • A new enhanced BMP under R2 specifying additional requirements when new roads on steep sideslopes are located where unstable features exist • New enhanced BMPs under R2 and R5 that require more specific cross drain intervals for roads • Extending the Rp7 non-fish perennial streamside management	E13-23

Response Number	Response	Comment Number
	requirement to seasonal streams where they occur within unstable features • A requirement under R2 requiring Plum Creek to provide information to help foresters determine where unstable features occur.	
484	As noted by the commentor, the HCP indicated that landslide rates were 15 to 25 times higher in western Washington than drier sites in eastern Washington and 50 times higher than in western Montana. The Services and Plum Creek believe that these factors warrant additional protection and made those statements within the documents to illustrate that need. The additional or differing needs of western Washington streams, and therefore of cutthroat, were addressed in the NFHCP in several ways. First, the FFR procedures for addressing landslide-prone areas have been incorporated into the NFHCP. Second, the prescriptions for western Washington require wider buffers and the retention of more trees in recognition of the different conditions in western Washington. Again, these measures should combine to address the natural set of conditions expected for western Washington and therefore should adequately address the needs of coastal cutthroat.	E21-4
485	Mass wasting was addressed in DEIS Chapter 4.4.6. Numerous NFHCP commitments relate to reducing risks of landsliding (See NFHCP Sections 2 and 3).	G4-1, F4-2, E4-134
486	Mass wasting frequencies across the Planning Area were discussed in DEIS Chapter 4.6.5 and in more detail in Technical Reports #3, #5, and #11. The areas with the highest chance of landslide occurrence are in the Lochsa River basin and in Western Washington.	G4-2
487	Per commentor suggestion, the NFHCP monitoring and adaptive management section has been modified to include a provision to track landslide occurrence over time across the Project Area.	G4-3

Poaching (NFHCP Commitment R10)

Response Number	Response	Comment Number
488	The Services do not anticipate that the implementation of the NFHCP by Plum Creek will increase exposure to poaching, but rather that it will be reduced because of generally decreased public access and a defined strategy under R10. Therefore requiring Plum Creek to finance increased enforcement of poaching is not warranted.	C2-21
489	The vulnerability to bull trout unique to staging areas is the risk of poaching. This is addressed in NFHCP Commitment R10 on page NFHCP 2-20 and is not limited to Tier 1 Watersheds.	E1-105
490	Commitment R10 requires Plum Creek to work with state fish and game departments to develop a road management plan to reduce risk of poaching.	G2-3

Restrictions (NFHCP Commitment R11)

Response Number	Response	Comment Number
491	It is beyond the scope of a conservation planning process with an individual private landowner to seek to influence public policy on federal lands. On Plum Creek lands, R11 does not require an absolute level of road restrictions, but requires that these closures are tracked using a road database. It is the intent of Plum Creek and the Services that the use of a tool such as this will aid in making judicious decisions on road restrictions, so that some roads may be closed while others can remain open without negatively affecting fish habitat.	E25-6

Riparian

Response Number	Response	Comment Number
492	The estimate that riparian harvest is precluded on 65 percent of streamside miles is based upon a riparian timber stand inventory conducted by Plum Creek (see Technical Report #7) that identified nine broad riparian stand types. Montana SMZ rules prescribe a harvest deferral on fish-bearing streams, perennial streams and many seasonal streams if there are less than 88 trees per acre. Washington emergency rules recently passed governing riparian areas for eastern Washington only allow riparian stand harvest if the riparian stands exceed a specified basal area. When these prescriptions are viewed in the context of the riparian stand prescriptions derived from the riparian stand inventory, the estimate can be derived.	B2-11
493	In eastern Washington, trees in the Interface Caution Area (ICA) are left primarily to protect the integrity of the leave-tree arrangement inside the 50-foot Streamside Management Zone (SMZ) by “feathering” the buffer edge. For instance, maintenance of the ICA should help stabilize air temperatures within the riparian buffer. A base-level density of 88 trees per acre will be present perpetually in the SMZ along fish-habitat reaches of Washington’s streams, regardless of the number of harvest entries. Plum Creek’s modeling of LWD recruitment used a combination of the same published references mentioned in the comments. These were integrated via the RAIS model and coupled with a forest growth simulator. Modeling results show approximately 85 percent of LWD derives from within 1/2 a site potential tree height, or about 60 feet in the mixed conifer zone of Eastern Washington. This result has been empirically supported within the Project Area. See Technical Report #7.	B2-16, B2-14
494	A basic pretext of the NFHCP is that the most conservation is focused where it is provides the greatest benefit. The determination of where con-servation provides the greatest benefit is a function of a given locations' features: • Habitat availability (rare or common),	C3-20

Response Number	Response	Comment Number
	• Sensitivity to management activities, • Importance to a specific species and the status of that species, • Importance to a specific species' life stage and the relative sensitivity of that life stage to habitat impacts. The conservation measures practiced in Tier 2 lands (that is, throughout the Project Area) were developed to meet the biological goals and specific habitat objectives applicable to all Permit species. The additional or accelerated conservation measures added for Tier 1 lands provide an additional margin of safety in recognition of bull trout's listing status, more extreme habitat requirements, and limited/site specific distribution in terms of spawning/early rearing habitats. Commitment Rp2 represents the application of the focused conservation approach since high sensitivity Tier 1 CMZs represent the utmost of the above criteria (that is, limited availability, high sensitivity to management, importance to bull trout [listed as threatened] for spawning and early rearing). Hence, the prohibition of harvest in these locales was prescribed as an additional mitigation measure so as to maximize conservation. Allowing limited harvest in Moderate Sensitivity CMZs (Types A, D, and E) is not likely to reduce LWD recruitment through the life of the NFHCP since channels tend migrate slowly via erosion (CMZ Type A) or the 25 foot no harvest zone will likely encompass the entire CMZ (CMZ Types D and E).	
495	See response 595. The Service believes that the NFHCP will provide for the recovery of bull trout. The final analysis to that effect will occur during the preparation of the Services' findings.	D1-4
496	The Services agree that it is difficult to determine with certainty whether Permit species will be adequately conserved by all riparian commitments. Because of this, the NFHCP includes provisions to monitor plan effectiveness and allow management to be adapted in the future.	E1-43
497	The Services agree that basing riparian buffers on a site-potential tree height is useful. We worked with Plum Creek to develop riparian buffer and Interface Caution Area prescriptions based upon a 1.5 site-potential tree height distance from streams (out to at least 150 feet from streams).	E1-51, E9-8
498	The average site-potential tree height for eastside forests was estimated from Arno et al. (1985), Pfister et al. (1977), and experience of Plum Creek foresters in the area (see Appendix C of TR7). An average site-potential tree height of 120 feet could have been used, with marginal effect on the conclusions of the report.	E1-52
499	The Services believe that existing state forest practice rules, and additional NFHCP commitments, would significantly reduce risk of impacts to Permit species. However, some impacts would occur, and the Services would work with Plum Creek to further minimize those risks by adapting management to address such risks. Combined, the NFHCP riparian and adaptive management commitments would provide, "substantial riparian protection." This is true despite the fact that FWS and Plum Creek acknowledge some scientific and management uncertainties.	E1-54

Response Number	Response	Comment Number
500	Many HCPs focus primarily on minimizing risks to riparian function resulting from harvest through using riparian buffers. The NFHCP supplements these minimization approaches with a broad range of riparian restoration commitments in addition to the riparian buffers. These are described throughout the NFHCP (see NFHCP 3-2).	E1-57, F7-9, E18-11, E2-49, E8-7
501	The Services consider waters at or near the surface, including water in the hyporheic zone, to be surface waters for the purpose of this NFHCP. The Services' interest in protecting water in hyporheic zones is one of the main factors for working with Plum Creek to develop the Interface Caution Area commitment, as well as for seeking more conservative riparian buffers close to streams.	E1-59
502	See responses 552 and 32. The Headwaters HCP covered a wider variety of Permit species, including stream amphibians, and site-potential tree heights in the region are up to three times greater than in the NFHCP Project Area.	E4-100
503	The protective measures for seeps, springs, and other non-stream riparian areas are probably not as great as would be provided for in some management strategies, but is more than others.	E4-108
504	The commentor cites habitat features and characteristics needed by bull trout and states that bull trout need 300-foot riparian buffers on all streams. The Services note there is no evidence that bull trout require 300-foot buffers in all, or even many, cases. The majority of stream and riparian functions are addressed within a site-potential tree height of the stream. For most of the Project Area (east of the Cascade Crest), site-potential tree heights are expected to average less than 140 feet. West of the Cascade Crest, site potential tree height is expected to be greater, perhaps averaging 150 to 200 feet. Functions such as bank stability, nutrient input, and shading generally occur near the stream. Large woody debris recruitment generally approaches its maximum within a site potential tree height or less. Any further distance used in buffers beyond a site potential tree height clearly show diminishing returns. Microclimate is an effect that travels greater distance through buffers, but is not well understood. Many of the measured changes in past investigations would have little biological relevance. Most studies of microclimate where effects have been detected were conducted in situations of an abrupt change between forested buffers and clear-cut areas. Partial harvest should support microclimate effects provided by the buffer on the riparian area. The effect of a harvest occurring adjacent to a riparian buffer is much less if significant numbers of trees remain standing. These provide shade as well as protection from the wind. Another factor is that the effects of timber harvest upon microclimate have been most often measured, studied, and reported immediately following a clearcut harvest. However, even the effects of a clearcut are short-term and quickly subside as the young trees within the clearcut grow, and those trees begin to diminish wind speeds within the harvest unit and, therefore, within the adjacent buffer.	E4-125, E9-8
505	The Services agree that non-fish streams are also important for fish because of their downstream influence. Protections are proposed to be provided for these streams in the NFHCP. Amphibians are not a covered species under the NFHCP. See the NFHCP riparian commitments,	E4-178

Response Number	Response	Comment Number
	including some revisions to address concerns such as those raised by the commentor, and see Chapter 4 of the DEIS for more information on this protective measure, and for other measures committed to addressing the commentor's remaining points.	
506	The Services agree that any potentially suitable habitat within the historic range of species should be viewed as occupied. The Services and Plum Creek do not seek to try to identify occupied or unoccupied habitat or fish presence or absence for any of the Permit species in the Project Area within their historic distribution.	E4-188
507	Many previously harvested riparian areas on Plum Creek lands were not clearcut, and so the LWD recruitment function has been reduced but not eliminated. These forests will continue to provide LWD inputs and other functions as the stands regrow. Adverse effects of harvest within the remaining stands have been minimized. However, the Services and Plum Creek have acknowledged that LWD recruitment for many years will be affected by two factors: 1) Direct clean-out of streams which was believed to benefit streams and fish many years ago; and 2) Reduction in diameter and density of riparian trees from past harvests. The NFHCP proposes to address these situations in two ways: 1) Placement of LWD where such placement is critical. This is included as part of the Legacy aspect of the NFHCP. 2) Prescriptions developed for the riparian areas will be conservative enough to retain many of the trees needed for LWD recruitment in the short-term, but will also allow some harvest which will accelerate the rate at which large diameter trees will develop and eventually become LWD. Regardless of options selected, however, to address this issue across the landscape will take time. During that time instream LWD may continue to decline as a result of decay and attrition.	E5-68
508	The short discussion of fire ecology was included in the NFHCP by Plum Creek as contextual background and is not a part of any substantive commitments.	E5-70
509	See responses 493, 580, and 589. The canopy cover study of pre- and post-harvest riparian stands in Technical Report #12 also measured pre and post harvest tree heights and diameters and showed that, in actual practice for the stands studied, tree sizes did not materially decrease. Also, it showed that post harvest trees per acre were some 30 percent greater than the floor that was used for analysis.	E5-74, B2-14
510	The comment expresses the opinion that "site specific analysis " for buffers needs to be applied to stands in the Lochsa. Applicable forest type data were used to model riparian LWD dynamics in Technical Report #7 and Lochsa sediment budgets were used to model sediment reduction targets for the NFHCP. Pre- and post-harvest shade measurements used in the DEIS Section 4.6.6, and in Technical Report #12, included stands from the Lochsa and comparable forests.	E13-27

Response Number	Response	Comment Number
	Because of site-specific considerations, riparian harvest is deferred in parts of the Lochsa River basin for the first 10 years of the NFHCP, a detailed sediment analysis is planned for high risk portions, and road repairs in high landslide risk areas have been placed on an accelerated schedule.	
511	The DEIS states that the ability of the buffers to provide insulation during the winter is unknown since the buffers were designed to provide shade, which is not directly related to the insulating capacity of a riparian stand. The riparian prescriptions are expected to increase the ability of riparian stands to provide insulation during the winter, compared to existing state regulations, but the insulating capacity of stands harvested under NFHCP prescriptions is likely to be different from unharvested stands. The ability of the buffers to provide LWD is more predictable, and they are expected to provide nominal amounts of wood to provide for hiding cover, pool formation, and to enhance the ability of these areas to trap sediment. The buffers are being retained on smaller headwater streams as well and should therefore also benefit cutthroats. Smaller headwater streams used by cutthroat are provided the same sediment protection measures as larger, lower-gradient reaches. They should also be provided with the same LWD recruitment, even though LWD is less likely to be the principal structural element for habitat in these steeper streams. The SMZ guidelines are expected to protect the largest trees in most situations by limiting harvest in some situations where fewer than 88 trees per acre exist which are 8 inches or larger in diameter at breast height. In other areas where some removal is possible, it is expected to be representative of size and species. In addition, we expect logistics to dictate that trees will generally be removed from the outer edge of the buffer first. This may be the largest trees in some situations, but the trees with the greatest probability of serving large woody debris will have been retained.	E13-34
512	The commentor states that the NFHCP fails to provide functional habitat as defined by Pollock and Kennard 1998, USDA et al. 1993, WDFW 1997, NMFS 1998, and WDNR 1997. With respect to WDFW 1997, We assume that the commentor is referring to a document entitled *Management Recommendations for Washington's Priority Habitats: Riparian* (Knutsen and Naef 1997). These were generalized recommendations made on a statewide basis and were not intended as site-specific prescriptions, but as guidelines for planning. Consultation with fish and wildlife professionals is recommended when modifications are being considered. They also recommend that any application of variable width riparian zones must first include additional site-specific and watershed-level studies. These are the types of processes that watershed analysis addresses. These recommendations address all riparian wildlife and not just fish. Even so, they recognized that some species need even larger areas. The WDFW recommends a conservative approach, yet they state that the Riparian Habitat Areas are neither minimums nor maximums. These recommendations contain more than just buffer recommendations, but also contain guidance for wastewater, grazing, roads, and other factors. The recommendations are a good source to consult regarding accumulated science and advice in the absence of more refined information or scientific guidance. They represent a low-risk approach and the Services encourage all affected landowners and agencies to seriously consider those	E16-8

Response Number	Response	Comment Number
	recommendations for inclusion in their plans even if they are not requirements under state law or the ESA. The commentor also referred to WDNR 1997. Again, the Services had to make an assumption regarding which document the commentor was citing. In January of 1997, the WDNR was issued an incidental take permit. The HCP supporting that Permit was designed to address all vertebrate and invertebrate species across over 1.6 million acres of DNR-managed lands. Only a handful of then-listed species was covered on the east side of the Cascade Crest. Therefore, no riparian prescriptions are applied to east-side lands in that HCP. However, riparian prescriptions were instituted for the North and South Cascades, Southwest Washington, and the Olympic Peninsula. A comparison of the DNR HCP to the NFHCP is not relevant for several reasons: 1) It covers far more species; 2) It provided coverage for other activities beyond forest management; 3) DNR is a state agency with a different set of responsibilities and a different set of circumstances that define "practicality"; 4) The DNR HCP addressed lands with different climatic, geological, and vegetative characteristics (although there is some small amount of overlap in the south Cascades); and 5) the DNR HCP contained fewer provisions for adaptive management. It is worth noting that Plum Creek's Cascades HCP that addresses all vertebrate species is extremely similar to the DNR HCP in terms of buffer widths of various stream types and intended management within the buffers. The Services believe that is the result of applying the best available science in both cases. The NFHCP represents a completely different set of circumstances, and a comparison with either the Cascades HCP or the DNR HCP is therefore inappropriate. Many of the other responses address aspects of how the NFHCP will provide functional habitat for salmonids. The necessary elements of cold, clean, complex, and connected waters are expected to be provided by ensuring that natural processes continue to occur at their rates similar to natural regimes.	
513	The Services note that vegetative buffers are applied to all stream reaches where perennial waters exist. Vegetative cover will also be protected along intermittent streams by use of equipment-exclusion zones. This will be particularly important in western Washington where frost upheaval is less common and such buffers can assist ion the avoidance of soil compaction. Also, the provision for retaining vegetation along headwater streams (Rp7) has been expanded to include vegetation retention for seasonal streams east of the Cascade's crest. The Services have disclosed scientific uncertainties in the DEIS, and have used the best available information. The Services assume the commentor uses the term "scientific deficiencies" to refer to provisions in the NFHCP that do not completely maintain or restore all potential ecological functions. The ESA does not require HCPs to restore lands to a natural, pre-development state. The NFHCP is intended to minimize take to the maximum extent practicable, not to eliminate take. See response 534. See also Plum Creek Technical Report #7 describing the need for, and evaluation of, instream LWD levels through time as a result of various leave tree strategies.	E16-10

Response Number	Response	Comment Number
514	See responses 566 and 589. Compared with the old (1999) riparian regulations for non fish-bearing streams (perennial and seasonal) in Washington, the NFHCP riparian management commitments provide increased protection.	E18-3, E4-110
515	A provision that allows limited yarding corridor opportunities as a site specific cooperative management response in order to minimize road construction has been added to Commitments Rp2, Rp3, And Rp5.	E24-5
516	The commentor is opposed to no-harvest zones within riparian areas. They state riparian zones require management and that conditions supporting risk of fire will be detrimental to fish. The Services note that native fish evolved under fire regimes. The so-called “forest health” phenomenon is in itself an empirical example of ways in which forest practices have adversely altered environmental processes. There is no scientific information available to indicate that native salmonids in the Northwest were threatened by extinction from natural wildfire regimes. However, adverse effects of riparian harvest on fish habitat are well documented in scientific literature. The riparian prescriptions allow for harvest and other activities in riparian buffers except for the most sensitive channel types.	E26-4, E28-4, E32-5
517	NFHCP commitments supplement state rules on riparian buffer width by both adding width and adding retention within the buffers, including perennial headwater streams without fish. The conservation benefits associated with these commitments were evaluated in the EIS.	F4-1, F5-2, F9-2, F7-2,
518	Conservation with respect to sediment is related to only one of the 4 broad biological goals (clean). A number of conservation measures, including more rigorous streamside buffers, contribute toward accomplishing the other 3 broad biological goals.	F10-4
519	The Services could insist on Plum Creek providing riparian buffers as described in the Simplified Prescriptions alternative, but Plum Creek has clearly indicated that they would not accept such a Permit. Without a Permit future, Plum Creek actions would resemble either the No Action or Internal Bull Trout Plan alternatives.	F12-2

Stream Types

Response Number	Response	Comment Number
520	While the Washington water-typing model may be appropriate for Washington streams, its predictive value in Idaho and Montana is questionable because of obvious differences in geology and precipitation regime. All stream channels, regardless of size or fish presence, are afforded the same sediment protection measures. Throughout the Project Area (Washington, Idaho, and Montana), state law requires the retention of leave trees adjacent to some small headwater streams (including non-fish-bearing perennial and intermittent channels) so as to provide shade and LWD recruitment.	E5-72

Tier 1 Watersheds

Response Number	Response	Comment Number
521	The adequacy of the NCHCP for coverage of anadromous fish is evaluated in a Biological Opinion and the Services' findings documents. The Biological Opinion describes baseline habitat conditions in those basis that potentially support one or more anadromous ESUs, and it evaluates the potential for the NFHCP to jeopardize each of the covered ESUs. The Biological Opinion and the Services' findings documents conclude that anadromous ESUs covered by the NFHCP would not be jeopardized by the activities described in the plan. The full text of the Plum Creek NFHCP Biological Opinion is available on the internet at the following link: http://www.nwr.noaa.gov/1habcon/habweb/biops.htm.	B1-11
522	See response 566. In terms of watersheds that may be identified as bull trout spawning/rearing streams in the future, the final NFHCP delineates a mechanisms to identify, validate, and incorporate "new" Tier 1 watersheds within the planning area (see new commitment AM6). Tier 1 designation was based upon spawning and rearing use documented from a variety of data sources, including Plum Creek's exhaustive surveys.	C3-5
523	Tier 1 designation captures all Plum Creek lands within catchment areas tributary to stream reaches known to support spawning/rearing of bull trout. Hence, the referenced tributary streams are considered Tier 1 drainages. The Tier 1 designation will be clarified in the final NFHCP. NFHCP road management commitments (that is, commitments R-1, R-3, R-4, and R-5) are likely to rectify sediment delivery concerns.	C3-6
524	Tier 1 designation captures all Plum Creek lands within catchment areas tributary to stream reaches known to support spawning/rearing of bull trout. Since no Plum Creek lands occur downstream of those already designated, the Tier 1 designation cannot be extended.	C3-7
525	The purpose of Tier 1 watershed designations is to focus the greatest certainty of adequate conservation measures in those areas with the greatest likelihood to provide benefits to the most imperiled and habitat sensitive Permit species. The FWS and Plum Creek believe that bull trout could potentially occur anywhere in the Project Area, and do not seek to imply otherwise with Tier 1 watershed designations. The main benefits afforded to known spawning and rearing bull trout and other Permit species in Tier 1 watersheds are more conservative riparian buffer timber harvest prescriptions for small potions of the total stream network. The FWS agrees that basing Tier 1 watershed designations only on the known distribution of bull trout spawning and rearing at the time of Permit issuance may limit Plum Creek's ability to achieve the NFHCP biological goals should new spawning and rearing streams be identified in the future that are managed according to Tier 2 prescriptions. Therefore, the FWS and Plum Creek have agreed to include an additional commitment (AM6) that allows for additional Tier 1 designations as new bull trout spawning and rearing streams are identified, or as key watersheds are identified for other Permit species for which Tier 1 watershed management prescriptions are	D1-24, E5-45, C3-2, F8-6

Response Number	Response	Comment Number
	warranted. Also see response 208.	
526	An additional adaptive management commitment (AM6) has been added to the NFHCP which provides for the addition of tier 1 watersheds. Such additions may include potential bull trout habitat or habitat that is important for other Permit species.	E2-20, E2-41
527	The final NFHCP includes criteria whereby new Tier 1 watersheds may be added, to be reviewed on a 5-year basis. See new commitment AM6.	E34-3, E2-41
528	Tier 1 watersheds are those that contain streams that have been documented to support spawning and rearing of bull trout and contain Plum Creek lands. Designation of Tier 1 watersheds was based on bull trout presence data collected by both Plum Creek and state fish management agencies. At the time of designation, neither Plum Creek nor MFWP recognized Dayton, Glacier, Dog, or Cat Creek as bull trout spawning and rearing streams. The Fitzsimmons and Lost Creek watersheds do not contain Plum Creek lands. Logan Creek and Kraft Creek are designated as Tier 1 because they are known to support bull trout spawning and rearing. There are no Plum Creek lands in the Holland Creek watershed upstream of Holland Lake(the portion of the drainage occupied by a disjunct bull trout population). To address this issue, the FWS and Plum Creek modified the final NFHCP to include mechanisms to identify, validate, and incorporate “new” Tier 1 watersheds within the planning area (Commitment AM6). A majority of the NFHCP commitments are applied to all watersheds within the planning area to provide enhanced conservation for all Permit species. The additional/accelerated conservation measures applied to Tier 1 watersheds are provided in recognition of both the ESA listing status of bull trout and because of their more stringent habitat requirements. See response 208.	F17-10
529	See response 525. Implementation of the provisions of the NFHCP will be enforced equally throughout the Project Area.	F6-6
530	See response 525. If through the analysis supporting designation of critical habitat the FWS becomes aware of significant shortcomings in the conservation value of Plum Creek’s NFHCP, the FWS would have the opportunity to use such information to either renegotiate the adaptive management triggers, or request a cooperative management response from Plum Creek to ensure adequate conservation. Generally, Plum Creek would not have the opportunity to “refuse alterations to their management practices” unless they were willing to risk disagreement with the FWS, and ultimately Permit suspension or revocation.	F8-3
531	The FWS included the core area concept for bull trout by identifying Tier 1 watersheds in the Project Area.	G1-13

Headwaters (NFHCP Commitment Rp7)

Response Number	Response	Comment Number
532	See response to 534. See also Plum Creek Technical Report #7 describing the need for, and an evaluation of, in-stream LWD levels through time as a result of various leave-tree strategies.	B2-15
533	The commentor focused on a number of different functions that they believed were inadequately addressed. They claimed that downstream fish habitat would be inadequately protected. Water quality on most forested lands is addressed in several ways. Generally the first concern is keeping excess sediment out of the streams. See sedimentation (below) for additional details. In some cases, nutrient inputs from livestock grazing are a concern. This HCP addresses the effects of increased sediment and increased nutrients provided by livestock grazing, and contains measures to reduce both. The commentor claimed that the NFHCP will not meaningfully reduce sedimentation. The most important route for sediment delivery is through the road system and should be addressed by the enhanced BMPs for new roads as well as commitments to fix problems on legacy roads. Other sources of sediment delivery include mass wasting, grazing, and potentially other land management actions. Mass wasting is not nearly as frequent in portions of the planning area outside the Cascades and the Lochsa River basin. Within the State of Washington and the Lochsa River basin, mass wasting should be adequately addressed through the NFHCP commitment to follow the state of Washington procedures for identifying and operation on landslide-prone areas. The commentor believed that the NFHCP would not maintain normal flow regimes. Normal flow regimes require attention in several different parts of a conservation strategy. Disconnecting the road system and its ditches from the stream network is an important step to reduce elevated peak flows. Maintaining hydrological integrity of wetlands is another factor. Protecting wetlands with hydrological connections to the stream network, whether such wetlands are forested or non-forested, is another way the NFHCP will help maintain the natural flow regime. The riparian buffers are designed to protect water temperature. In addition, addressing sediment delivery through improving road conditions will help improve stream temperatures. Excessive sediment delivery fills pools and causes streams to become shallower. Shallow streams warm and cool more quickly than deeper streams. We believe that the NFHCP would address the range of human-induced factors that could affect stream temperatures on Plum Creek's ownership. The NFHCP should provide habitat in intermittent streams. Where fish are using intermittent streams, those streams will receive the protection of fish-bearing streams. Where fish are not present, the prescriptions that will be applied (equipment exclusion, inner gorges, etc.) are expected to provide the necessary structures and functions needed by other wildlife. While it is not a requirement of an HCP to protect habitat for other species to this extent, the Services do not anticipate degradation of habitat for any other species to a significant level. Should another species become listed, Plum Creek would not have any assurances under the NFHCP and could be	E4-107, F5-10

Response Number	Response	Comment Number
	required to provide additional minimization or mitigation. The NFHCP is expected to minimize human-induced erosion and mass wasting. The buffers have a minor role in this regard. The primary factors related to erosion and mass wasting rates are road placement and standards. The Services believe that erosion and mass wasting are important natural processes that contribute to salmonid habitats. We desire to see these processes operate at their natural levels. For instance, we do not want mass wasting to occur at higher than normal levels, and when those natural mass wasting events occur, we hope that there will be a natural level of large wood incorporated within the materials delivered to the stream system. We believe the NFHCP takes substantial steps in this direction. For instance, the lower 500 feet of nonfishbearing streams will have additional retention to address temperature concerns. This will also serve as a "run-out" zone for channelized debris flows or will contribute additional large woody debris in the event of such an occurrence. The NFHCP is expected to provide adequate large woody debris recruitment over time. As a result of past actions within streams as well as past management of riparian corridors, we occasionally find current conditions are already in a degraded state. In many places, the Services have found that multiple entries over the last 100 years have reduced the average diameter of trees in the riparian zone. This was often the case prior to Plum Creek acquiring those lands. As a result of ongoing large woody debris decay within streams and a lag time until large wood re-grows within the riparian zone, eventually dies, and then subsequently falls into the stream, we expect the condition of many of the streams will worsen with respect to instream wood prior to meaningful improvement. We expect to see more rapid improvement in some other areas, such as sediment reduction. However, large woody debris dynamics operate over long periods of time. For that reason, the active restoration projects where large woody debris is placed within streams are expected to remain an important tool to be used on a site-specific basis over the next several decades.	
534	The NFHCP provides buffers for all perennial streams whether fish are present or absent; and, in Montana, many seasonal streams that flow more than 6 months of the year are provided riparian protection for LWD recruitment. Additional leave trees are provided on larger non-fish-bearing perennial tributaries upstream of their confluence with fish-bearing streams specifically to address the influence of these tributaries on downstream water temperature. Seasonally intermittent streams are protected through the commitment to extrapolate watershed analysis as well as through the protection of inner gorge stability. Additionally, seasonally intermittent streams are buffered from the effects of ground-based equipment through the use of 30-foot, ground-equipment-exclusion zones that are expected to minimize the potential for entry of management-related sediment into the stream system. In the final NFHCP, a requirement to retain sub-merchantable trees and brush in non-fish seasonal stream streamside management zones has been added.	E14-2, E4-110

Other Streams (NFHCP Commitment Rp6)

Response Number	Response	Comment Number
535	The Services agree with the substance of the comment. The final version of the NFHCP contains provisions to retain bank-edge trees throughout the Project Area (see revised riparian commitments).	E1-42

Slope Distance

Response Number	Response	Comment Number
536	"Slope distance" is used for measuring widths of streamside management zones in eastern Washington to maintain consistency with commitments throughout the portion of the Project Area in the interior Columbia River Basin. "Horizontal distance" is used on the west side to maintain consistency with practices used there by Plum Creek foresters. Plus, for the vast majority of slopes in the Project Area, they are of sufficiently shallow pitch that there is little substantive difference between the measurements. For example, on a 30 percent slope, a horizontal distance measurement of 150 feet would equal a slope distance measurement of only 158 feet. Finally, there are requirements in state regulations already requiring reduced soil disturbance on steeper slopes.	B3-4

Channel Migration Zones

Response Number	Response	Comment Number
537	All fish bearing streams that flow within a CMZ require a retention zone measured from the outer edge of the CMZ (Commitments Rp2, Rp3, Rp4). See response 539.	B2-13
538	Where CMZs occur in perennial fish-bearing streams, prescriptions Rp2, Rp3, and Rp4 specify measurement from the outside of the CMZ.	B3-5
539	The DEIS examined the improvements to riparian function protection associated with the prescriptions that further limit activity within CMZs. The focus on CMZ protection that is specified in the bull trout interim guidance document is consistent with the focus placed on CMZ protection by the NFHCP.	B3-6, C3-19, E1-35
540	CMZ prescriptions are applied to all fish-bearing perennial streams that flow through a CMZ.	C2-17

Response Number	Response	Comment Number
541	See responses 46 and 15. The Services believe that there is a chance that streams could jump beyond NFHCP buffers, but are mostly likely to stay within the no-harvest buffers or the limited harvest buffers. The Services agree that it is difficult to monitor compliance with requirements to favor leaning trees, however, this particular requirement was included due to its potential benefit to fish, in spite of limited ability to monitor compliance.	E1-6
542	Maintaining well-distributed leave trees on terrace surfaces (floodplain and risers), with concentrations along active and relic channels is designed to provide the functions the commentors describe (bank stability, LWD recruitment, and flood flow amelioration [erosion reduction]). The commentors observations of channel margin migration rates (approximately 7 miles per decade) are certainly plausible, but migration rates that are so high are not probable for the majority of stream miles in the Project Area. These and other unusual situations could warrant special management considerations.	E1-37
543	"Concentrate leave trees closer to the stream…where feasible" occurred in Rp2, Rp3, and Rp4. In the final NFHCP, it has been replaced with more specific language to generally define the practice of near-stream retention (see commitments Rp6 and Rp7).	E1-38, E4-74
544	The Services believe that it is unlikely that any riparian prescriptions we evaluated could "ensure" adequate large woody debris is provided for fish habitat. Because of this uncertainty, the NFHCP includes provisions to monitor plan effectiveness and allow management to be adapted in the future.	E1-39
545	The Services believe the NFHCP commitments provide a reasonable likelihood of adequately protecting streams for fish. In addition, buffer widths can be adjusted to ensure adequate conservation.	E1-40
546	There will be trees and other vegetation within the CMZ for type D CMZs, just not as much as the other types of CMZs. The Services believe that soil compaction will not be factor in most areas subject to frost upheaval. While type D CMZs may be more sensitive to vegetation removal, all CMZs will have care used during harvesting to retain as much of the under-story vegetation and non-merchantable timber as is possible. This is consistent with Plum Creek's environmental principles, particularly the principle regarding soil conservation that directs Plum Creek to "maintain soil and site productivity by minimizing soil disturbance during harvest, and by recycling harvest residue for nutrient preservation."	E2-10
547	Management commitments for stream CMZs were designed assuming that, in the vast majority of cases, past logging has occurred. See riparian commitments in the NFHCP, and the Environmental Consequences discussion in Section 4.6 of the DEIS.	E11-25
548	The CMZ equipment exclusion rule has been modified to include an additional limited dry season exception (see riparian prescriptions).	E24-6

Interface Caution Areas (NFHCP Commitment R8)

Response Number	Response	Comment Number
549	Commitment Rp8 specifies that the minimum width of the ICA be a field measurement from the outside of the CMZ (100 feet). The average width is to be calculated by Planning Area basin and is measured using GIS mapping from the stream itself. This is because CMZs are not shown on Plum Creek maps.	C1-11
550	In the draft, the clearcutting limitation provision of the ICA was included as non-binding "additional conservation guidance" because of the difficulty in monitoring compliance. However, the Services requested that Plum Creek make the clearcut limitation a part of the binding commitments in the ICA. The final NFHCP limits clearcuts in ICAs to a maximum of 5 percent of the total acres harvested within ICAs (see response 554).	C3-17
551	The Services agree that the recommended action would further increase the ability of the "buffer to the buffer" to reduce risk of impacts from timber harvest to Permit species. However, the relative degree of risk reduction achieve could not be quantified meaningfully enough to warrant this addition to the proposed conservation commitments.	E1-44
552	The FWS agrees with the commentor that minimizing and mitigating impacts to interior forest microclimate values may be important to conserving native fish habitat by maintaining cold water temperatures in the summer and avoiding anchor ice conditions in the winter. Because of this, the Services worked with Plum Creek to include the ICA commitment (see NFHCP Riparian commitments), out to approximately 1.5 site-potential tree heights. As discussed in the DEIS, none of the studies cited by the commentor, nor any that the Services are aware of, demonstrate a predictable, quantitative relationship among stream water temperature and buffer distances, as a result of changes in microclimatic factors. However, the Services believe that the risk of such effects, although not currently measurable, is reasonably significant, since ambient air temperature alone is generally a strong predictor of stream water temperature. INFISH "standards" are highly variable, depending upon the outcome of site-specific analysis of land management requirements, so comparisons to the NFHCP prescriptions is not always simple. In general, however, federal land management prescriptions developed under INFISH, or PACFISH or Northwest Forest Plan standards result in more risk-averse actions than would occur under the NFHCP. This is consistent with the requirement of federal agencies to promote recovery of listed species under Section 7(a)(1) of the ESA, whereas non-federal entities are required only to allow for, or not preclude recovery. In addition, federal lands comprise a much greater proportion of habitat than non-federal lands for NFHCP Permit species, including bull trout, warranting even more conservative management prescriptions, as often occurs under INFISH and PACFISH guidelines. With any land management prescription, no matter how conservative the approach, there is risk of impact to species when land-altering activities occur. In general, land management prescriptions developed under the	E4-104, E4-105, E11-8, E11-18 E12-8, E20-5 E26-3

Response Number	Response	Comment Number
	ESA for both federal and non-federal lands are designed to minimize that risk as much as possible, while allowing for flexibility to revisit those prescriptions when necessary. The Services sought to ensure consistency with federal land management prescriptions by requiring cooperation on implementing road management prescriptions, requiring riparian buffers an average of at least 150 feet from streams, and providing an opportunity to use the known habitat conservation values in the NFHCP commitments to inform future federal land consultations under Section 7 of the ESA on a site-by-site basis. Also see response 196.	
553	The effects of changing microclimate are addressed through the ICA prescription, and through adaptive management provisions for cold water. One of the primary reasons for biologists to be concerned that changes in riparian microclimate will affect salmonids is through the effects to water temperature. If the management prescriptions fail to maintain cold water temperatures, they would be modified through adaptive management, regardless of whether the stream temperature increase was occurring in response to direct sunlight and warming because of lack of shade, or in response to increases in average air temperatures in riparian areas due to inadequate microclimate protection. In either case, the response would be similar; if there is biological relevance, so that the objectives are not being achieved, the prescriptions **would be modified** to achieve those objectives. The manner in which prescriptions would be modified would depend on the source of the problem—shade or microclimate.	E4-106
554	The NFHCP has been changed to include a requirement that clearcutting be avoided and limited to a maximum of 5 percent of the harvested area within ICAs (NFHCP Commitment Rp8). As a matter of practice (related to NFHCP Commitment EP1), Plum Creek rarely uses clearcut silvicultural prescriptions on the inland portion of the Project Area (see response 254).	E4-129
555	• The “averaging” approach to the ICA is intended to provide an incentive to exceed 150 feet where it can easily be done by providing for some incursions (no closer than 100 feet from the CMZ) where more intensive management opportunity is allowed. • “Seek to avoid concentrating activities” is an unmeasurable provision and considered “conservation guidance.” While it is not considered as providing measurable conservation in the effects analysis, it is thought to provide valuable implementation guidance. “Conservation guidance” has been added to the FEIS glossary. • Plum Creek has conducted field training of its professional foresters in the identification of CMZs each of the last two field seasons and has field-tested implementation of CMZ prescriptions. Commitment A2 requires Plum Creek to additional forester and logger training.	E5-75
556	Commitment Rp8 has been modified to specify which streams are used in the calculation of average ICA widths.	E24-7
557	See response 552. The FWS believes that the ICA commitments are an important tool for minimizing risk of impacts from forestry actions to Permit species' habitat.	E25-4, E26-3
558	ICAs are a proposal to enhance state forest practice regulations adjacent to	E28-6

Response Number	Response	Comment Number
	perennial streams that are connected to fish-bearing streams. They include such factors as limiting skid trails, mechanical site preparation, and road building, in addition to retaining additional trees during harvest activities. State forest practice regulations in Montana, Idaho and Washington provide for managed (i.e., some harvest and other activities are allowed) stream management zones of widths varying from as little as 50 feet to 100 feet. The scientific literature contains many studies that document the need to avoid ground disturbing and harvest activities within one site-potential tree height or at least 90 feet of stream banks in order to preserve the integrity of both the riparian system and stream channels. Some of these studies are cited in the DEIS and include, but are not limited to, Reeves and Sedell (1992); Hall and Lantz (1969); Moring (1975); Erman et al. (1977); Erman and Mahoney (1983); Kondolf et al. (1996); Beschta et al. (1978); Montana Bull Trout Study Group (1998); and Packer (1967). The ICAs are designed to further reduce potential adverse effects to aquatic species by extending riparian protection to a distance approximately equal to one site-potential tree height.	
559	See response 46. The FWS identified state forest practice rules as a possible threat factor to bull trout habitat in its final listing rule, and NMFS similarly identified state forest practices as a threat factor in final listing rules for salmon and steelhead. The additional conservation commitments in the NFHCP seek to help ensure minimization of those threats, or risks. The Services believe that the more timber harvest and associated activities occur closer to a stream, the greater the risk of impact to Permit species. NFHCP commitment Rp8 seeks to minimize those risks. The Services disagree that any forest management protection measures “eliminate risk” of harm to fish.	E32-3

Temperature

Response Number	Response	Comment Number
560	While it is widely recognized that many factors besides direct beam solar radiation have an influence on stream temperatures, canopy closure over the stream channel is the factor with the strongest relationship to timber management. In Washington, the existing “shade rule” that predicts the level of canopy closure needed to attain state water-quality standards has been found to be very accurate. To address tributary stream influences on temperatures in fish-bearing waters, a “thermal protection zone” has been included in the riparian commitments in the NFHCP. See response 493 regarding the ICA.	B2-12
561	Specific Habitat Objective #3 specifies that there will be a net increase in canopy closure. Canopy closure is important not only for protecting against temperature increases, but also in protecting against low temperature extremes that could cause anchor ice or other impacts.	B3-2

Response Number	Response	Comment Number
562	The NFHCP is expected to result in net increase in canopy cover and stream temperatures (see DEIS effects analysis in Chapter 4.6) as a result of minimal effects of future harvesting and natural recovery from legacy impacts.	C2-19
563	Tier 1 watersheds would receive the most conservative management prescriptions in the Project Area, specifically with the goal of providing the greatest minimization of risk of increased water temperature impacts to bull trout. In addition to greater temperature sensitivity, Plum Creek has collected data suggesting that bull trout key on very specific geomorphic features for their most sensitive life history stages and have developed the most conservative measures to provide lower risk to those reaches. The intent of all riparian management prescriptions is to not allow any statistically significant increase in water temperatures for streams where riparian timber harvest occurs in the Project Area. In fact, the FWS expects that overall stream water temperatures will decrease over the Permit period. Also see response 525.	C3-3
564	The statement “maintaining shade to moderate temperature extremes” on page NFHCP 1-16 is not a goal but part of the narrative discussion. It simply is intended to mean that riparian stands protect streams from getting too cold as well as too warm. See the response 562 and see biological goal for cold on page NFHCP 1-7.	C3-22
565	Shade is not specifically managed for under the NFHCP, but rather is a by-product of leave tree retention. Based on field measurement and riparian modeling, NFHCP riparian prescriptions are expected to result in little appreciable change in water temperatures following streamside harvesting (See DEIS Section 4.6.6 and Technical Reports #12 and #7). This will be validated in NFHCP effectiveness monitoring conducted under adaptive management (CAMP #3).	C3-23
566	The estimated overall (Project Area) reduction in water temperatures of 1°F under the NFHCP riparian management commitments and a narrow range of difference in results among the alternatives are consequences of several factors: 1) Existing base rules which provide a baseline of protection for stream temperatures results in less difference between alternatives as each alternative must comply with State regulations; 2) Minimal to no increase in stream temperature is expected in areas harvested under the NFHCP commitments. Stream reaches with spawning and rearing populations of bull trout will receive the greatest degree of protection to maintain or improve temperature; 3) Baseline conditions as a result of past activities provide limited opportunities for changing conditions during the next 30 years. Slowly improving trends in canopy closure and stream temperature are expected where past (pre-1993 in Montana) timber harvest has reduced canopy closure and contributed to stream warming; and 4) Other factors which are controlling stream temperatures at the landscape level. The NFHCP is not required to be “consistent” with each item contained in the FWS Bull Trout Interim Conservation Guidance. However, we believe the NFHCP is consistent with the intent of those guidelines. In the commentors' example, the guidelines recommend “no increase in temperature in bull trout waters.” The NFHCP is expected to result in a 1°F	D1-28

Response Number	Response	Comment Number
	reduction in stream temperatures during the Permit period. While individual streams may experience varying results as harvests and regrowth occur, the NFHCP is expected to result in improving conditions across the ownership. The Services believe that the riparian prescriptions in the NFHCP are as protective as the rules recommended by the Washington FFR. Additional conservation measures committed to in the NFHCP may provide more conservation than what the Washington rules could provide. See response 604 for a discussion of the adequacy of existing state forest practice rules. The Service acknowledges that the Simplified Prescriptions Alternative could result in a 2-degree reduction in stream temperatures and represents the maximum opportunity to achieve fully functioning stream habitat. The Services note that Plum Creek is not required to maximize the recovery of functioning habitat on their ownership. Instead, the Services seek to achieve the stated project purpose and need, consistent with the intent of Congress under Section 10 of the ESA.	
567	The Services encouraged Plum Creek to avoid use of a set temperature threshold. While these may have some utility in a very broad scale, regulatory context when more specific information is not available, it is generally used as a hurdle to determine “impairment” and identify when special provisions might be appropriate. The Services do not feel that it is necessarily wise to set a single temperature threshold project-wide, and instead prefers to see the special provisions applied to all streams rather than only those that exceed some threshold. See response 334.	E10-6, E11-7, E4-53
568	The Services agree that through effectiveness monitoring, Plum Creek and the Services can determine whether riparian commitments are sufficient to avoid the worst-case scenario described by the commentor, and whether the expected temperature reductions will be achieved. The Cold biological goal, specific habitat objectives, metrics, and triggers are designed specifically to capture whether Plum Creek’s NFHCP adequately protects cold water temperatures or not.	E1-34
569	The statement “larger perennial streams” is clarified as follows: In Montana, this statement applies to all perennial streams. These streams are considered Class 1 streams. In Idaho, this original statement is correct. Smaller non-fish-bearing perennial streams in Idaho are perennial Class II streams and do not have leave tree requirements. NFHCP Commitment Rp7 supplements Idaho and Washington regulations for temperature control on smaller streams. Temperature change associated with intermittent streams is not anticipated since these streams are typically subsurface during the summer. Regarding groundwater temperature, see response 252.	E1-53
570	Because there is a clearer cause-and-effect between streamside harvesting and increased summer temperatures, effectiveness monitoring under adaptive management is focused on this time of year. It is unlikely that winter temperatures would be affected if summer temperatures are not since both processes are effected by canopy cover (via longwave radiation loss in the winter or shortwave radiation increases in the summer).	E1-60
571	We are uncertain where confusion lies on the part the commentor regarding anticipated temperature changes as presented in the DEIS. Future timber	E1-61

Response Number	Response	Comment Number
	harvests under the NFHCP are anticipated to result in reach-scale temperature increases of less than 1°F. Net temperatures across the Project Area, however, are expected to decline by 1°F to 2°F by the end of the Permit period because of recovery from legacy impacts.	
572	Increased sedimentation was mentioned as a factor affecting stream temperature in DEIS Section 4.4. Sediment impacts associated with the analysis primarily involved spawning and rearing habitats and were discussed in Section 4.6.	E1-62
573	The estimated 1°F temperature reduction is an average for the entire Project Area. Streams where partial harvest methods were (or will be) used do not exhibit severely reduced canopy closure, and therefore do not have as much potential for temperature reductions. Some locations (e.g., lower elevation sites with past clearcuts) have the largest relative potential for temperature reductions.	E2-32
574	See responses 575 and 570. Because the SMZ law requires that leave trees be representative of the size and species of the pre-harvest stand, we do not expect the riparian stand composition to shift to more deciduous trees.	E5-71
575	The intent of the canopy cover removal study in Technical Report #12 was to measure reductions in canopy cover over streams following harvest. The direction given to Plum Creek's foresters was to harvest the SMZ to the requirements of the SMZ law. The average trees per acre following harvest was 117, while state law would have required an average of 102 trees per acre because in some cases the constraint was a 50 percent removal and in other cases the constraint was the minimum leave tree count of 10 trees per 100 feet of stream. The difference between 117 trees per acre and 102 trees per acre is 1 tree per 100 lineal feet of SMZ. Given that the SMZ law represents a minimum by which falling below means a violation of law, it would appear that these areas were harvested to a realistic minimum under state law given real-world operational constraints. As such, it is believed that DEIS estimates of how canopy cover change relates to stream temperature change are appropriate. No data were taken on the disposition of leave trees. The SMZ law requires that trees closer to the stream be favored for retention.	E5-89, B2-14
576	Intact tree canopies moderate water temperatures in streams. Removal of the riparian canopy has been shown to result in both increased summer maximum temperature and a greater daily range of water temperatures. Further, primary sources of LWD that recruit to function within headwater channels are adjacent riparian forests. Long-term reductions in the supply of LWD as the result of timber harvest can affect temporary storage sites for both sediment and fine particulate organic matter from the surrounding forest. Loss of sediment and fine particulate organic matter storage capacity in small streams caused by reduced debris frequency greatly lessens the capacity of the streams to biologically process organic matter and ultimately make the energy of terrestrial plant materials available to fishes. Because their storage and processing capacities are greatly diminished, streams with simplified channels route sediment and organic matter much more quickly downstream to larger streams. In some cases, rapid transport of sediment can overwhelm larger stream systems, resulting	F21-4

Response Number	Response	Comment Number
	in lower biological productivity and reduced diversity of species requiring clean gravel substrate for spawning. It is these natural processes that the NFHCP is seeking to maintain for the benefit of native fish. While some small-scale impoundment of stream waters is part of natural stream function (and generally benefits native fish), the dynamic nature of seasonal fluctuations in water levels and velocities will generally prohibit large scale impoundments that would influence water temperature, absent the introduction of unnatural barriers such as man-made dams.	

Large Woody Debris

Response Number	Response	Comment Number
577	See response 493.The NFHCP riparian commitments use existing Idaho State Streamside Protection zone rules as a starting point, and then add supplements (See Appendix Rp-3 of the NFHCP). These supplements (like CMZ protection) were designed to address specific Plum Creek lands and operational situations and are intended to reduce potential risks of habitat modification or "take" from applying state regulations. Adoption of Class 1 riparian prescriptions for all streams in Idaho was not economically viable for Plum Creek. Note that lands in the northern Idaho panhandle are no longer being considered in the NFHCP, owing to the recent sale of Plum Creek's lands in that area.	C2-18
578	LWD pieces of greater size are provided for explicitly in the combined no-harvest and thinning regimes in western Washington riparian areas and in the requirement to leave trees representative of the pre-harvest stand's size distribution in eastern Washington. The Services acknowledge the importance of "key piece" LWD.	C3-24
579	The Services agree that a range of LWD inputs is what should be provided for native fish habitat in this plan, and the basic state regulations (as evaluated under the No Action Alternative in the DEIS) provides a low likelihood of achieving highest recruitment rates of LWD among the alternatives.	E1-33
580	The Services believe that adequate presence of LWD is important for conservation of Permit species' habitat. We expect that much of the wood recruitment for lower, alluvial valley CMZs will come from upstream sources throughout a watershed. The Services expect that adequate LWD will be available from throughout most stream systems to allow for adequate recruitment. Plum Creek's Technical Report #7 emphasizes the importance of LWD throughout the channel network for a variety of functional roles. In some areas, such as Channel Migration Zones and plane-bed/forced pool-riffle channel types, the role of LWD is particularly pronounced. Pools are but one fish habitat feature that is influence by LWD, but in these highly sensitive channels, it is a critical feature.	E1-36, B2-14

Response Number	Response	Comment Number
581	The Services agree that it is uncertain whether the proposed NFHCP commitments will "ensure" adequate inputs of large woody debris. In fact, even with a complete "no harvest" approach to timber management in a watershed, large woody debris may not reach levels adequate to "ensure" the full compliments of riparian function can be restored within the Permit period. Because of this uncertainty, the Services have sought to include provisions within the NFHCP to monitor plan effectiveness and allow management to be adapted in the future.	E1-41
582	Empirical data from streams flowing through Plum Creek lands (Watson and Hillman 1998) suggest existing LWD loads are considerably higher than 39 pieces per 1000 feet. Also, LWD loads were not appreciably different in managed and unmanaged streams on Plum Creek lands.	E1-46
583	The commentors are correct; the reported 78 pieces of LWD per 1,000 feet of stream channel *does* represent the mean LWD load of the unmanaged stands from which the samples were drawn. The four studies used to calculate the average LWD load represent a wide geographical area, and were drawn from an even larger and more geographically diverse data set. It is expected that a range of natural disturbances, including fires, influenced the riparian forests that produced these LWD loads. The Huntington (1995) data were not used in the calculation of the "target" LWD load for unmanaged stands.	E1-47
584	It is legitimate to question the validity of a LWD target intended to apply to an area as large as the Project Area. Some measure of central tendency and range of variability in LWD loads for individual watersheds or sub-regions would be preferred, however there are insufficient data from unmanaged stands to make this feasible.	E1-48
585	Dimensions of LWD were selected to maintain convention with the scientific literature. Very large (that is, whole tree with root wad) "key piece" LWD are clearly important, particularly in large streams and rivers, however the minimum qualifying (and smaller) LWD pieces do have significant ecological merit (Bilby and Ward 1989, Montgomery et al. 1995, Beechie and Sibley 1997).	E1-49
586	The LWD forecasts from simulated management options were compared to LWD data derived from studies of unmanaged riparian forests in and beyond the Planning Area. In *Project Area* streams, a subset of the larger Planning Area context, there are some data regarding LWD loading levels, but no comprehensive survey of LWD loads within Project Area streams. The natural range of variability in LWD loads among stream reaches is considered at the larger Planning Area level.	E2-48
587	LWD recruitment was evaluated at the reach, watershed, and Project Area levels in Plum Creek's Technical Report #8. The Services and Plum Creek agree with the commentors that reach-level evaluations are important because this is the area most proximal to management disturbance. Watershed- and project-level assessments were conducted to provide important context for interpreting cumulative reach-level impacts. While cumulative effects are important for the context they provide to an effects analysis, the Services will be assessing the take that occurs as a result of Plum Creeks actions under the Permit. Plum Creek will not be	E5-69, F7-9, E18-11, E2-49, E8-7

Response Number	Response	Comment Number
	required to minimize and mitigate past activities conducted by them or past owners. However, the impact that Plum Creek may have from their actions may be greater as a result of the past activities and they will be expected to minimize and mitigate commensurate with that higher level of impact. Therefore, the Services do not believe that the statement that "only 3 percent of the riparian stands are likely to be harvested along Tier 1 streams during the first 10 years" is misleading, in fact, it is a very important statement.	
588	Artificial LWD recruitment was discussed early in the NFHCP development and has pros and cons. The Services are not comfortable that resources spent artificially placing LWD are productive or even appropriate. Because it is regarded to have some potential site-specific application, a "soft" (or non-binding) commitment (Lg4) was included so that the possibility of this approach is not lost to the NFHCP.	E5-77
589	As stated in Technical Report #7, LWD plays a variable but important role in all portions of the drainage network. Base-level riparian management commitments will ensure a continuous supply of LWD is available to provide pool quantity, quality, cover, and a number of other functions that support aquatic ecosystems. Type A, D, and E channel migration zones are afforded this base level of protection.	E5-88, B2-14
590	The NFHCP was developed considering the most up-to-date knowledge about large woody debris recruitment and persistence. We believe that the NFHCP will provide nominal amounts of LWD to support pool formation and in order to store sediment and maintain the quality of water in downstream reaches. The Services believe the NFHCP prescriptions will provide insulation in winter that will dampen rapid changes in temperature and the formation of frazil or anchor ice, however, the amount of insulation provided from riparian stands is unknown, and overwinter mortality might occur as a result low winter temperatures exacerbated by a reduction in riparian tree density or the riparian canopy. Sufficient large woody debris is expected to be present to provide cover for young fish during winter. Just as importantly, we believe the standards for new roads and the activities to address old roads will protect LWD sources and will ensure that sediment loads are reduced. Reduced sediment delivery will protect and enhance winter habitat by resulting in deeper pool depth, enhanced cover, and enhanced interstitial flows that are buffered from temperature fluctuations through groundwater interaction.	E14-8

Riparian Harvest Deferrals (NFHCP Commitment Rp9)

Response Number	Response	Comment Number
591	See response 594. This programmatic provision (which does not occur in FFR) is included as a "safety valve" intended to provide additional protection rather than "enough" protection.	C3-18

Response Number	Response	Comment Number
592	The Services agree that deferring harvest in some watersheds, and developing special riparian prescriptions in other watersheds where Permit species occurrence is high, can be effective tools for conserving native fish. See riparian commitments in the NFHCP for examples of both of these approaches to Permit species conservation.	E1-45
593	Riparian harvest is being deferred for 10 years in some watersheds that have been significantly impacted by past land management actions until at least two effectiveness monitoring reporting periods take place. The purpose of this commitment is to determine whether existing NFHCP commitments are sufficient to conserve fish across the Project Area, including more severely impacted watersheds, before allowing additional entry into riparian forest stands in those watersheds most impacted by past management actions.	E5-17
594	Riparian harvest deferrals occur under the NFHCP in two ways: site-specific and programmatic. The 88 trees per acre floor for the limited harvest rule is a site-specific deferral for stands that do not have the minimum number of trees. This includes some stands that have never been harvested. Rp9 is the programmatic deferral which is a broad approach to reduce risk further in watersheds that may have had a greater history of riparian harvest, based upon a broad data screen as described on page NFHCP 3-25 in the DEIS/NFHCP.	E5-76, C2-16

Forest and Fish Report (State of Washington)

Response Number	Response	Comment Number
595	While there are some differences in riparian prescriptions between Tier 1 watersheds and Tier 2 lands, the biological goals that the success will be measured against is the same for both. For most stands, the NFHCP limited harvest rule will result in similar tree retention levels to Washington's Forest and Fish Report (FFR). The NFHCP prescriptions provide improved protection of riparian function from existing state regulations. Ultimately, the FWS must be able to conclude that Permit issuance criteria are met for all Permit species, including species other than bull trout and in areas other than Tier 1 watersheds.	B3-3
596	The protocol "currently used" to define fish-bearing streams means the existing emergency water typing rule, and ultimately the habitat-based model.	C3-13
597	The NFHCP defers to Washington rules for delineating the upstream extent of fish-bearing streams. Until the habitat-based logistic regression model is developed under Washington's rules for determining the distribution of fish-habitat, the 175-acre and 50-acre minimum drainage areas and gradient combinations of the emergency water typing rule will continue to be used as defaults to define the boundary between fish-bearing and non fish-bearing waters (eastern and western Washington, respectively). Electrofishing to verify fish presence or absence will also be used. Once the habitat-based model is implemented, it will be used to define the limits of fish habitat.	C3-14

Response Number	Response	Comment Number
	The NFHCP does not defer to Washington's rules for delineating the point of initiation of perennial flow for non-fish-bearing streams. For defining this point, Plum Creek will use 300-acre and 52-acre drainage area default criteria for eastern and western Washington, respectively. These criteria will apply to situations where clear field evidence of the perennial-seasonal boundary is lacking.	
598	The Services agree that a lower standard should not be allowed with the NFHCP than with the new Washington emergency rules (FFR). It is important to recognize that the NFHCP development started prior to FFR development and therefore occurred independently. Many of the riparian prescriptions work differently while providing similar levels of tree retention and riparian function protection. Additionally, the Services believe that the NFHCP contains some conservation benefits that can be obtained in an agreement with an individual landowner are not included in the FFR. Examples include the following: • Range management commitments • Commitments that form a company specific management plan, ensuring a higher certainty of proper implementation • Landowner financed monitoring and adaptive management • Land Use Planning commitments • Legacy and restoration commitments • Watershed scale programmatic refinements, such as native fish assemblages, riparian deferrals, 2:1 upgrade requirement by Planning Area basin, ability to modify triggers and create management responses by Planning Area basin, and more. Amphibians are not proposed to be covered by the NFHCP or No Surprises.	C3-15
599	a. Horizontal vs. slope—The NFHCP was evaluated based upon expected effects of management on riparian function, not the method of measuring distances. b. Measure from CMZ—All perennial fish-bearing streams that flow through CMZs have a retention zone requirement that is measured from the outside of the CMZ under the NFHCP. c. No harvest zone—When harvests of typical east side Project Area riparian stands are calculated under the NFHCP limited harvest rule compared to FFR's no harvest zone with allowance for yarding corridors, there is virtually no difference in retention in the "core zone," or the first 30 feet. On the west side, the no-harvest zone is wider under the NFHCP. d. Size of retention trees—For east side stands, while FFR requires the 21 largest trees per acre, NFHCP requires 88 trees per acre representative of the original tree size distribution. A pre versus post harvest study conducted by Plum Creek of the 88 trees per acre limited harvest rule (see Technical Report #12) showed that average size after	C3-16, C3-19, E1-35

Response Number	Response	Comment Number
	harvest is not materially different than before harvest. For west side stands, the NFHCP requires the 70 largest trees per acre beyond 75 feet, while (calculated using typical Project Area riparian stands) FFR requires 58 or more of the largest trees per acre beyond 50 feet. e. Roads in RMZs—Commitment Rp8 provides an incentive to abandon roads near streams and prohibits road construction within Interface Caution Areas.	
600	The Services believe that the NFHCP does comply with the Washington State Forest Practices rules for several reasons. First, the State rules recognize the importance of plans developed to address particular landscapes and the Washington State rules include explicit exceptions to State rules where the species and functions are addressed through an approved HCP. Thus, once the Services approve an HCP, it essentially becomes *de facto* State rules. Second, the State rules allow any landowner to submit an alternate plan for consideration by the State agencies. Such a plan may achieve the same level of resource protection through less costly means by tailoring the conservation measures to the needs of the land on a site-specific basis. The NFHCP could qualify for such an approach. Lastly, we believe that in a side-by-side comparison of the riparian prescriptions, the NFHCP provides similar protection to the resources in question, without taking into consideration additional conservation commitments in the NFHCP. The Services note the substantial improvement in State Forest Practices Rules and Regulations within Washington State. These new rules are more protective of aquatic resources than the previous rules, which were in effect just 1 year ago. We agree with the commentor that the new rules will help ensure better stream shading, cooler temperatures, more-stable stream banks, and will provide more large woody debris than was provided previously under state rules. The Services do not believe that the new state rules will provide better protection of fish-bearing waters than the NFHCP. Protection of fish-bearing waters includes the buffers applied to fish-bearing waters as well as the protection of the stream network upstream of those waters. The NFHCP provides similar protection on west-side fish-bearing streams (no harvest within the CMZ and on the first 75 feet outside CMZ with retention of the 70 largest trees per acre from 75 feet to 100 feet. The new state rules would require no harvest in only the first 50 feet, and 61 of the largest trees per acre out to 94 feet. Alternatively, the new rules could be met using an 80-foot no-harvest zone. The NFHCP would provide continuous buffers on non-fish-bearing perennial streams, whereas the new state rules could buffer as little as 50 percent of a non-fish-bearing perennial stream. The NFHCP provides a minimum of 88 trees per acre within the buffers for the first 500 feet upstream of fish-bearing streams when such streams contribute more than 20 percent of the flow of the fish-bearing stream. The NFHCP provides different levels of protection to stream reaches, but provides buffers on all perennial streams. However, the new Washington State rules will leave many reaches of headwater streams without any buffer. Whether the buffered area will be merely 50 percent or substantially exceed 50 percent will depend on the number of special sites requiring buffers under the state rules and the percentage of the perennial non-fish-	C6-1

Response Number	Response	Comment Number
	bearing stream network that occurs within 500 feet of fish-bearing streams. The Services believe that these factors will result in buffers along substantially more than 50 percent of such streams, but will not achieve the complete (continuous) buffering approach utilized in the NFHCP.	
601	The Services do not believe the new forest practices rules in Washington will necessarily provide greater protection. The commentor used some comparison examples from eastern Washington. In some areas, the Washington rules require the retention of a larger number of trees, while in other areas, the NFHCP will provide more protection. Like the NFHCP, the new rules may preclude harvest in many eastern Washington riparian areas that do not currently have the required stocking level. In our evaluation of examples common to the east side of the Cascade Mountains, it appears that the real differences between the results obtained through the use of the two strategies are likely much smaller than indicated by the language contained in these strategies. In the example of H-9 riparian stands, (which comprise about 57 percent of the harvestable riparian stands in eastern Washington) and moderate slopes and site index, in a mixed conifer stand along a small stream; the differences are quite small. Because of the provisions for yarding corridors in the new rules, 5 trees can be cut in the first 30 feet of a 250-foot long segment, compared with 4 trees in the first 25 feet of the same 250-foot segment under the NFHCP. Total harvest in the first 50 feet is roughly equal: the NFHCP would allow harvest of an additional 13 trees while retaining 88 trees per acre over 8 inches. Whereas the new rules would allow the harvest of an additional 11 trees while retaining 91 trees per acre over 8 inches. For a T-15 riparian stand, NFHCP would retain 133 trees per acre over 8 inches in the first 50 feet and the new rules would retain 148 such trees. Beyond the first 50 feet, the new rules continue the requirement of 50 tree per acre for another 25 feet; while the NFHCP incorporates “feathering” at 30 trees per acre for another 50 feet. The new rules have an ”outer zone” from 75 to 100 feet which may or may not contain 10 trees per acre; whereas the NFHCP has an “interface caution area” from 100 to 150 feet. The commentor indicated that the new rules for eastern Washington require a 90-foot wide riparian management zone (RMZ) outside the CMZ and various levels of protection throughout both the CMZ and RMZ. The comparison above interprets that the new rules would require a 100-foot RMZ under the new rules and acknowledges the various levels of protection provided in each zone. We disagree that the CMZ and first 30 feet under the new rules preclude removal of trees as the new rules provide for yarding corridors. Additionally, while the new rules do specify basal-area targets, they also contain minimum tree counts that could allow harvest of trees down below the basal-area targets. We believe that the two strategies (NFHCP and the new Washington State rules) are similar and will depend on assumptions made during modeling (or on-the-ground, site-specific situations encountered during implementation) as to which strategy will retain greater numbers of trees. However, the Services believe these strategies are very similar and provide sufficient protection to the resources. Comparisons between the two strategies become more complicated when considering the non-fish-bearing streams. Both strategies provide additional protection to the lower 500 feet of major perennial non-fish-bearing streams, but differ more markedly in the upstream reaches.	C6-2

Response Number	Response	Comment Number
602	The Services believe the NFHCP riparian prescriptions provide a similar level of protection as the emergency rule. There are provisions of the NFHCP where riparian prescriptions provide greater protection than the emergency rule, and provisions that provide less, but on the whole, the level of protection is similar when based on comparison of buffers. The NFHCP provides additional benefits such as addressing grazing, land-use planning, and correction of problems caused by past activities on the landscape by other land managers and agencies. The NFHCP reserves additional flexibility for the future. For instance, the FWS does not propose to offer Plum Creek any assurances with respect to amphibians or non-salmonid fish under the NFHCP; whereas the Washington State rules are based on an understanding that all fish and stream-breeding amphibians are planned to be covered species and that regulatory assurances are forthcoming.	C6-3
603	The NFHCP riparian prescriptions are similar to the FFR riparian prescriptions, with each plan offering more or less protection in any given area, depending on the forest or stream types. Both plans contain different standards than those proposed or agreed to in other conservation plans, and are a result of compromise, as pointed out in the comments. The NMFS has prepared recommendations and proposals for development of HCPs, however, these documents do not establish "standards" that must be applied to subsequent HCPs. The criteria that guide the development of riparian and other conservation standards are more stringent for federal lands than the issuance criteria for incidental take permits on non-federal lands. Also, HCPs may differ in specifics because of a variety of factors, such as the species covered under the Permit, the level assurances or financial remuneration provided to the Permit holder, and the unique opportunities available to a specific landowner. See response 598.	E4-98, E4-103

State Rules (NFHCP Commitment Rp1)

Response Number	Response	Comment Number
604	As referenced in the DEIS, the FWS' listing rule determination for bull trout stated that current data (or lack of data) on effectiveness of existing state forest practice rules do not allow the FWS to determine whether these rules are adequate to remove threats to bull trout. It is unclear how these rules contribute to conserving other Permit species. Inadequacy of state forest practice rules was cited by NMFS in listing rules for salmon and steelhead as a factor contributing to declines in anadromous fish. The goal of the Services in helping Plum Creek develop their NFHCP is to reduce the risk, or management uncertainty, associated with the adequacy of existing state forest practice rules for conserving Permit species, especially for a 30-year period. Because of these uncertainties, Plum Creek will implement additional conservation commitments, as described in their NFHCP, in exchange for a Permit. In general, the Services believe that building additional NFHCP conservation commitments upon existing state forest practice rules is a practical approach because (1) they provide some baseline level of Permit species conservation, and (2) Plum Creek foresters	E1-31, E4-196, E11-26, E12-3, E13-6, E17-19, E17-20, E24-8, E5-11, E5-13, E1-5

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	and contractors are familiar with existing rules, and can implement such rules, and additional measures that are consistent with the rules, most successfully, as demonstrated by high BMP compliance audit rates. See response 605. The differences in effects between the No Action Alternative compared to the other alternatives analyzed is provided in Chapter 4 of the DEIS. A table describing and comparing effects among the four alternatives has been added to help the reader better understand the analysis results and conclusions. The Biological Opinion for the selected alternative will disclose the amount of take expected from implementation of that alternative.	
605	The state riparian rules for Idaho and Montana are chosen as a "starting point" in those states because Plum Creek will be obligated to meet them, even with an HCP, and because there has been large investments in logger and forester training for those rules.	E1-32
606	Commitment Rp1 serves the purpose of setting the stage for the supplemental commitments that follow as well as locking into the state rules dated in the commitment as a floor. If Idaho or Montana, for instance, should pass new rules that provide less conservation, the NFHCP will still require the rules of the specified date to be used as a floor or a basis for the supplements.	E5-15, E5-9

Adaptive Management

Response Number	Response	Comment Number
607	The Services agree that difficult decisions must be made now to implement adequate fish conservation. We also believe that sufficient flexibilities should be available in the future to adapt management in those instances where conservation commitments are inadequate.	B3-8
608	Thank you for your comments. Section 8, *Adaptive Management and Monitoring Commitments*, of the NFHCP (see Volume I of these final documents) has been revised to respond to a range of public comments regarding the adequacy and level of detail associated with this particular set of commitments. These revisions have been incorporated into appropriate sections of this FEIS dealing with adaptive management and monitoring. The Services believe these revisions will contribute to an enhanced understanding of the effects of the NFHCP conservation commitments on water quality, aquatic habitat, and fisheries, and will provide a sound basis for responding to and implementing future adaptive or corrective management actions if individual or cumulative adverse effects result from the NFHCP.	C1-2, E4-80
609	We agree with the commentor's characterization of adaptive management risks and opportunities. See responses 77 and 78.	C1-22
610	Please see the response 631 regarding adaptive management and monitoring commitments, and the response 803 regarding 303(d) listed water bodies and their TMDL status. Also, the DEIS contained analyses of	D1-12

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	the proposed 30-year Permit length and of shorter optional 10- and 20-year Permit lengths for each of the resource areas and for the Preferred Alternative and each action alternative. These analyses conclude that a 30-year Permit would generally provide greater benefits to Permit species than either a 10- or 20-year Permit. In addition, Section 1.5*, Regulatory and Planning Framework*, in Volume I of the DEIS, describes other federal, state, and private conservation efforts in the Project and Planning Areas. The extent and nature of these efforts, together with the integrated effects of the NFHCP, were considered in projecting the general magnitude and trend of cumulative effects on Permit species in the 17-million-acre Planning Area.	
611	See response 701 and 696. The NFHCP relies on the conservation commitments and prescriptions. Adaptive management provides a mechanism to improve the commitments if needed. Additionally, Section 10.3 of the Implementing Agreement, allows the Services to suspend or revoke Plum Creek's Permit if there is significant and unreconcilable disagreement over the need to adapt management to ensure the NFHCP biological goals and ESA Permit issuance criteria are met. Based on public comments, the Services believe that the DEIS did not completely convey the flexibility provided by the Implementing Agreement and adaptive management commitments together. The commitments of the NFHCP were constructed using the best science available and provide a reasonable level of certainty that biological goals will be met. Ideally, the plan will be successful and no management responses will be required. However, the Services believe that, should the NFHCP not achieve the stated biological goals or continue to meet Permit issuance criteria, we have the ability to ask Plum Creek to adapt management to ensure goals and Permit issuance criteria are met. Should Plum Creek refuse, and if the Services and Plum Creek cannot negotiate an acceptable agreement, then Plum Creek or the Services have the opportunity to terminate the agreement. However, in order to provide Plum Creek some measure of regulatory assurance in the face of such flexibility in the Implementing Agreement, the adaptive management requires the Services and Plum Creek to complete several review steps, and to then negotiate management changes with the other party, before any Permit relinquishment, suspension, or revocation decisions are made. These steps are intended to serve as checks, or safety valves, on any premature actions by either party to the agreement. The concern is that superfluous management change will be sought from Plum Creek without careful evaluation and documentation, and that the FWS might seek to terminate the Permit prematurely and lose the broad array of conservation benefits of the NFHCP. The Services believe they should use the same level of rigor to push for management adaptation or consider Permit suspension or revocation as was used to issue the Permit in the first place. The adaptive management process seeks to balance power over future management changes equally among the Services and Plum Creek. Neither party has "veto power" over the other party's decisions within the adaptive management framework. For example, if a trigger is pulled, and the Services demonstrate their belief the effects are "biologically relevant,"	E1-8, E1-18, G3-8, E4-80, E4-4, E12-5, F5-6, F5-7, F7-6, F7-7, G1-12, E1-26, E1-50, E4-44, E4-227, E4-245, E5-7, E5-28, E13-35, E4-41

Response Number	Response	Comment Number
	Plum Creek cannot summarily dismiss this assertion without risk of losing their Permit. Both parties can also use the latest, best scientific data available at any point during the process to inform their determinations of changes to adaptive management triggers, and biological relevance and causal linkage determinations. So even if Plum Creek's Core Adaptive Management Projects (CAMPs) fail to prove effective at measuring impacts or benefits to Permit species and their habitat in any way, the Services can ultimately use other scientific data to support arguments that management must be adapted. The goal of this approach to adaptive management and permitting flexibility is to create an agreement where the challenge that both parties face is how to maintain the creative partnership necessary to build the NFHCP and Permit and continue to gain the associated benefits; not how to get out of the agreement.	
612	All components of the adaptive management approach, including the proposed decision-making pathway and implementation framework, have been disclosed completely in the DEIS and NFHCP. The Services and Plum Creek have added some additional language to portions of the adaptive management section of the NFHCP to better clarify issues in response to comments received, including a more thorough description of monitoring that will occur. The CAMPs remain partially completed, and will not be fully completed until 1 year after Permit issuance (see NFHCP commitment AM-1), so that the first year's data collection may be treated as a "pilot project" to better guide development and implementation of the research. The Service and Plum Creek will rely on opportunities allowed for under revisions to adaptive management-6 and Section 8.3 of the Implementing Agreement to solicit independent scientific review of the pilot CAMP studies when revising them after year 1.	E1-19
613	See response 611. The Services agree with the characterization of risk in adaptive management processes in general, and that some type of monitoring and adaptive management feedback loop is of "fundamental importance." The commentor's characterization of the "burden of proof" being carried entirely by the Services is inaccurate; the Services believe the burden of proof that the NFHCP is properly functioning is shared equally between the Services and Plum Creek The wording of commitment AM2 was changed to clarify that a "mandatory collaborative management response" is required throughout the entire adaptive management pathway, as well as for changing triggers. It also references Section 10.3 of the Implementing Agreement to further emphasize the shared nature of future risk. As the commentors pointed out elsewhere, completion of CAMP studies and general data gathering to inform the adaptive management feedback loop is more an iterative process than a static process. Because of this concern that we share with the commentor, commitment AM-1 proposes to treat CAMP studies as "pilot projects" through the first year of the Permit, with more revisions made at that time. It should not be surprising, then, that the CAMP studies as described in the DEIS and NFHCP are not more	E1-88, E4-80

Response Number	Response	Comment Number
	complete than they were. However, to address the relative incompleteness of the CAMP studies, Plum Creek has provided more detail on CAMP studies in the FEIS and NFHCP. The FWS would be pleased to receive input from the commentors on how to better design the adaptive management process in general. We appreciate the criticisms, but hearing about all we did not achieve may not be as helpful as hearing how we could achieve more. We have sought to implement those changes we could identify as necessary based on this and other comments. However, it is unclear to the FWS if there is more opportunity to improve adaptive management beyond those changes already made. The Services acknowledge that "were the fundamental limitations [described by the commentor] amenable to classical scientific resolution… they would have been resolved long ago." The Services do not believe that this monitoring and adaptive management proposal is the "final answer" to how adaptive management should be done. Because of this fact, the Services have maintained their right to use other scientific information from any other source to inform the need to adapt management. We also acknowledge that "harmful change" is likely occurring with implementation of the terms of the Permit. That's why we're issuing an *incidental take* permit—to authorize those actions that will negatively affect, or possibly take, Permit species. However, another key assumption is that the minimization and mitigation measures committed to by Plum Creek will result in a net improvement in Permit species habitat and allow for recovery.	
614	See responses 611 and 613. The Services acknowledge that there are a host of assumptions and uncertainties upon which this, or any other conservation plan, are based. The Services chose to move forward in this creative partnership because the certainty of recovering listed species is greater than it would be without such efforts. Recognizing the fact of limited fish conservation resources, the Services have attempted to require that the applicant focus monitoring and adaptive management efforts on those uncertainties of greatest importance to success of the conservation commitments. In an effort to account for other uncertainties not specifically evaluated in CAMP studies, the Services can use scientific information from any other source to inform the need to adapt management.	E1-89
615	The principle of "shifting resources to meet new demands" is a conceptual approach that is designed to support the same concept of practicability in modifying conservation measures as was applied in developing them. This does not give Plum Creek any "hard assurance" but documents the intent of an ongoing creative partnership. The NFHCP business goals are not Plum Creek's overall business goals, but are business considerations specifically developed for the NFHCP to guide practicability.	E1-98
616	The sentence should say "relevance" instead of "significance." It has been changed in the final NFHCP.	E2-9
617	The NFHCP uses the best science available to establish relationships between management activities and impacts to habitat and create reasonable confidence in the conservation outcome of measures. The	E4-39

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	Services agree, however, that full certainty is limited by the existing science available. Because of this, the Services sought to include provisions within the NFHCP to monitor plan effectiveness and allow management to be adapted in the future. See response 611.	
618	The Implementing Agreement, in Section 6.2, clearly invokes the appropriate statutes reflecting the "No Surprises" rule. The Services believe that the adaptive management provisions of the NFHCP allow for increased or decreased conservation measures, as appropriate. As an example of the former, if a 50 percent reduction in sediment delivery from roads to streams is not achieved, then adaptive management will necessarily result in more restrictive measures that will achieve this NFHCP commitment. Plum Creek has committed to respond to changed circumstances including fire, floods, and landslides, even if these events are not related to land management activities. The Services do not think it is feasible to define a specific response and timeline for the variety of potential circumstances that could occur in the future. The adaptive management process is included to address, in part, such situations. Any perceived "veto power" that Plum Creek may have is equally balanced by the Services' ability to revoke the Permit(s) as identified in Section 6.2 of the Implementing Agreement. Provisions of this section also apply to unforeseen changing circumstances that are inconsistent with the requirement to not appreciably reduce the likelihood of the survival and recovery of Permit species. Finally, the implied procedural differences between the I-90 and NFHCP approaches relative to unlisted species is a direct result of adoption of the "No Surprises" rule. In order to provide assurances for unlisted species under this provision, they must be analyzed as if they were listed in the DEIS, NFHCP, and biological opinion. Therefore, their subsequent listing under the ESA is not considered a changed circumstance.	E4-59, E4-80
619	Required mitigation measures are defined in the NFHCP and evaluated based upon the best available science. Provisions for change are provided in the event the plan fails to meet the biological goals. If the Services and Plum Creek did a good enough job in developing a successful conservation plan, few changes should be expected.	E4-173, E4-217, E4-220
620	The FWS agrees that adaptive management should not be used in lieu of up front commitments and experiments should be small in scope and scale. Adaptive Management commitments in the NFHCP are but 6 of 56 commitments that address a broad range of conservation goals and 15 specific biological objectives. Design of adaptive management experiments follows the scale of monitoring and evaluation used in ICBEMP, FFR, Northwest Forest Plan, and other landscape-scale management or research programs.	E4-219
621	Under a typical HCP, the commentor's assertion about the flexibility for Permit adjustment might be true. However, the flexibility provided by the Implementing Agreement, in conjunction with the adaptive management framework, provides the opportunity for a wide range of adjustments as needed. See responses 355, 611, and 613.	E16-16
622	Adaptive management is ideally a two-way street and protects a business' need for business certainty equally to the public's need for conservation	E30-3, E2-6, E4-49, E4-50,

Response Number	Response	Comment Number
	certainty. In practical application that is difficult to devise. This use of habitat parameters as triggers means that the approach is one sided in favor of increased conservation (that is, there are no triggers set to reduce conservation). But the need to arguably demonstrate harm to the species before requiring change is a difficult hurdle and ensures that the land-owner will have the certainty that needed management change will be science based and limited in scope to those areas or species only where necessary.	E7-12, E14-6, E4-223, E8-10, E4-51, E4-46
623	The Environmental Principles are described on pages 1-33 and 1-34, Volume I, of the DEIS. Also, stream condition and fish habitat monitoring would occur under the Legacy and Restoration commitments and the Adaptive Management and Monitoring commitments listed in Table ES-2 of the DEIS and this FEIS.	F6-9
624	The best scientific data refers to results of recent, site-specific, and, where available, peer-reviewed studies by researchers for those resources affected by, or fields of science related to, the NFHCP. A trigger of 49 percent means that if sediment delivery from roads is not reduced by 49 percent as measured from the start of the Permit, the Services and Plum Creek would agree to implement one of the actions listed in the referenced text. Permit revocation and other terms and conditions of the NFHCP are contained in Appendix A, *Implementing Agreement,* of the FEIS.	F6-14
625	See response 611. We agree that our ability to measure forest management effects on fish habitat accurately and in a timely manner is equivocal. That is why, in addition to Plum Creek agreeing to make their best effort to make such measurements, the Services and Plum Creek agree that any party can use other outside data to inform the adaptive management process. The Services hope to do exactly as suggested; to build a better understanding of how to conserve fish while allowing for commercial forestry. We anticipate that a sufficient range of management alternatives will be available across the Planning Area, from the most conservative to the most liberal riparian buffer prescriptions, to the broad array of other conservation commitments. Finally, we expect that, with this broad array of commitments, the most conservative management treatments are applied to those areas with the greatest likelihood of benefiting the most imperiled, habitat sensitive Permit species (for example, widest riparian buffers where spawning and rearing for Permit species occurs).	F13-4

Monitoring (NFHCP Commitment AM1)

Response Number	Response	Comment Number
626	We agree with the commentor's point, and have worked with Plum Creek to ensure monitoring studies are designed to test for effectiveness of conservation commitments (see revised NFHCP appendix AM-1).	C1-4

Response Number	Response	Comment Number
627	While the initial CAMP study designs focused most research in a few Demonstration Watersheds, the revised study designs call for sampling watersheds across the Project Area. In addition, the revised CAMP studies (included in the final NFHCP) provide additional detail on the procedures for collecting biological data.	C1-9
628	Data collected in the CAMP studies will be collected throughout the Project Area, not just in Tier 1 watersheds. This is clarified in the revised CAMP study designs in the FEIS	C1-10
629	Fish will be monitored in the CAMP studies for use in making biological relevance determinations should an effectiveness monitoring trigger be tripped. Collection of these data will be clarified in revisions to the CAMP study designs (see also responses 627 and 628). The Services welcome external biological data collected by state agencies. These data can complement Plum Creek data in making biological relevance determinations should the adaptive management pathway be invoked.	C1-21, E4-58, E4-68
630	See revised NFHCP Appendix AM-1. It describes in greater detail sample size, sample location selection, and study design The Services are concerned about NFHCP commitments that require resources from agencies or organizations that are not signing parties to the agreement because of the uncertainty of budgets and manpower availability of those organizations. While Plum Creek is required to work cooperatively under broader monitoring efforts to streamline the fulfilling of a commitment, they will still be required to perform NFHCP monitoring if others cannot participate. Plum Creek and the Services have collaborated extensively with state agencies, universities, and other experts in the design and development of the NFHCP, including the adaptive management program. As exemplified by Plum Creek's Cascades HCP, which was approved in 1996, collaboration continues into the implementation phase of the plan. For example, some aspects of monitoring are being contracted to universities for graduate research projects; the results of which get the benefit of academic scrutiny and peer-reviewed publication. However, Plum Creek cannot obligate the participation of organizations outside the company for commitment of resources to fulfill its conservation obligations. Moreover, delay encountered acquiring this participation from outside organizations may delay implementation of studies and projects necessary to provide information in a timely manner.	C2-30, D1-53, E4-58, E4-68, E14-7
631	Section 8 of the NFHCP, *Adaptive Management and Monitoring Commitments*, has been revised to respond to a range of public comments regarding the adequacy and level of detail associated with this particular set of commitments. These revisions have been incorporated into appropriate sections of this FEIS dealing with adaptive management and monitoring. FWS believes these revisions will contribute to an enhanced understanding of the effects of the NFHCP conservation commitments on water quality, aquatic habitat, and fisheries, and will provide a sound basis for responding to and implementing future adaptive or corrective management actions if individual or cumulative adverse effects result from the NFHCP.	D1-2, E4-80, E4-70

Response Number	Response	Comment Number
632	In response to comments and agency input, the adaptive management Appendix AM-1 in the NFHCP was revised to put more emphasis on extensive (dispersed) monitoring rather than intensive monitoring in demonstration watersheds.	D1-43, E4-58, E4-68
633	Plum Creek used the nomenclature for monitoring described in the ICBEMP because it overlapped the NFHCP project area.	D1-44
634	Advice on the strategy of concentrating monitoring into representative watersheds came from Dr. Carl Walters, an adaptive management expert. However, in response to public comment, the NFHCP monitoring approach has been changed to move away from the "demonstration watershed" approach towards a more dispersed monitoring approach, with a decreased component of concentrated monitoring. To the extent that some monitoring must obviously be implemented site-specifically, results will necessarily be extrapolated to other portions of the Project Area. The NFHCP adaptive management strategy is designed to operate on a multi-scale level with some topics such as sediment approached at a road segment and watershed level and other topics such as temperature evaluated at a reach or sub-basin level. Extrapolation of monitoring results to other Planning Area basins is based on established similarities of geomorphology and management practices. Change of management within project areas can be effected not only by information obtained in CAMPs but also by information obtained in individual watersheds where operations will be implemented and evaluated. For example, road sediment reductions and grazing lease revisions will be evaluated at the project level. See response 664.	D1-45, E2-23
635	Plum Creek has and will continue to seek the advice of the Services in the placement of monitoring sites and location of the CAMPs in the Project Area, including through and beyond the first year after Permit issuance (see NFHCP commitment AM-1). Because of the large area envisioned for this NFHCP, the adaptive management approach was developed at a programmatic level with more details to be developed as the applicant and agencies gained more experience and exposure in the Project Area. The Services will continue to seek input from experts, including the EPA in refining monitoring efforts, especially relative to Clean Water Act needs that overlap spatially with Permit requirements.	D1-46, E4-58, E4-68
636	An important design feature of the "dispersed monitoring" component is to overlay this effort on project-level activities contemplated under the approved NFHCP, which is the concern of this comment and was developed in more detail as described under commitment AM-1 and the "CAMP" studies. Also see response to 664.	D1-47, E4-58, E4-68
637	The adaptive management component of the NFHCP was modified in response to comments like EPA's, and feedback from the Services. Information from the CAMP studies will be used in the following ways: to ascertain when "triggers" are exceeded; to modify triggers as necessary; to inform decisions on the biological relevance of statistically significant monitoring results; to aid in discerning the causal linkages between monitoring results and NFHCP actions; and to help develop cooperative management responses to address concerns.	D1-48, D1-59, E4-58, E4-68

Response Number	Response	Comment Number
638	We agree with commentor that levels of statistical significance need to be displayed with as much detail as possible. Revisions to the appendix AM-1 provide this detail.	D1-51
639	More details about the design of CAMP #1 in Appendix AM-1 have been included in the final NFHCP based on input from EPA, other agencies, and the public. One aspect of CAMP #1 that has been designed in more detail is a study to evaluate the downslope sediment travel distances from roads. Beyond the use of CAMP #1 results for "triggers," information derived from the study will be used to inform other decisions on biological relevance, causal linkages and cooperative management responses.	D1-56, E4-58, E4-68
640	Plum Creek and the Services have completed many more details of the monitoring plan, which are included in the final NFHCP. However, it is not possible to specify where management activities will be completed on Plum Creek land during the next 30 years. Selection of specific monitoring locations will be dependent on coordination with operations personnel, adjacent landowners and involved agencies to maximize coverage and economies of scale. Coarse grained analysis of geologic types and the scientific basis for aggregating riparian types and extrapolating to other drainages can be found in NFHCP Technical Report #8, *Synthesis of Watershed Analysis and Ecoclassification at a River Basin Scale for the Conservation and Management of Aquatic Ecosystems*.	D1-60, E4-58, E4-68
641	Additional detail on monitoring locations is provided in NFHCP Appendix AM-1. However, the exact map locations are not known at this time, and will not be finalized until after the first year of implementation of the NFHCP. Also see responses 636 and 637.	D1-61, E4-58, E4-68
642	The commentor suggests numerous parameters and measurements that should be included in adaptive management monitoring and research. The Services agree. Many of these parameters are indeed included. Nutrients will be indirectly measured through sediment research (delivery and instream conditions). Aquatic biota will likely be included in the grazing research under CAMP #4, as will channel cross sections, streambank stability and pool characteristics. Parameters selected for monitoring will be those that most directly relate to habitat impacts potentially caused by the covered activities. The Services will continue to seek input from other experts, including EPA, in refining monitoring design consistent with NFHCP commitment AM-1.	D1-62
643	See response 639. Plum Creek and the Services have revised the monitoring strategy to address this concern where applicable and appropriate.	D1-63
644	The Services agree that the integration of HCPs and TMDLs is a worthwhile goal. Successful completion of either the HCP or TMDL process individually will help promote the dialogue to make integration of the other process possible. and will allow for development of monitoring systems that will work for both. The Service seeks to continue to work with EPA, both on a broader scale and specifically with this Permit to achieve this goal. See responses 806 and 808.	D1-66
645	This comment addresses the range of topics addressed by the CAMP studies. The strategic objective of the CAMP studies was to focus on the	E1-93

Response Number	Response	Comment Number
	primary biological objectives of the NFHCP: temperature, sediment and instream wood for habitat as influenced by timber harvesting, road construction and grazing, the three most important activities covered under the Permit. There were many other threat factors that were cited as contributing to the need to federally list the bull trout, but many of these were not the primary focus of the HCP. The CAMP projects are designed to evaluate and verify the improvement trends anticipated in the HCP and displayed in the DEIS, as well as the habitat objectives displayed in Table NFHCP8—1B. Comparison of CAMP projects to hatcheries is not accurate because the NFHCP is based on habitat maintenance and improvement, not fish population augmentation. Also, the NFHCP is more flexible in its implementation, management and modification than a hatchery. The NFHCP and attendant CAMP projects recognize that many factors could affect the number of fish returning to a site. Counting fish is used as a site specific indication of habitat use, not a comprehensive metric of NFHCP success.	
646	A better description of the procedures used to collect biological data is incorporated into a revised NFHCP Appendix AM-1.	E1-94
647	The Services agree with this characterization of monitoring.	E2-21
648	"Effectiveness monitoring" according to the document's glossary is "monitoring conducted to determine whether the conservation strategies result in the anticipated strategies." Validation monitoring is a subset of effectiveness monitoring. Implementation monitoring is a tally of how much of the conservation measure has been implemented.	E2-22
649	Selection of the CAMP study locations will be based on similarity of geomorphological conditions and management activities that are representative of the NFHCP. This approach is being used as advised by experts in the field of adaptive management and monitoring as a means to effectively use staff and technical resources while enhancing the utility of information collected. Validation of LWD, sediment delivery and other models and assumptions will be achieved with more dispersed monitoring as described in Appendix AM-1.	E2-24, E4-58, E4-68
650	See the revised NFHCP Appendix AM-1. For CAMPs, it includes a more detailed discussion of sample size, how the data will be used to trip a trigger, and descriptions of biological information that will be gathered for "biological relevance" determinations.	E2-35, D1-40, E2-51, E4-55
651	Commentor cites steep boulder substrate channels as examples of where wood is not a major contributing factor for channel stability and thus is more resilient to past management. This is precisely why CAMP #2 is designed to focus Plum Creek's monitoring efforts on those stream segments (for example, CMZs and low gradient channels) where wood has a more dramatic effect on stability and where NFHCP prescriptions will be applied to match conservation effort with channel sensitivity.	E2-46
652	This concern was addressed in three ways during the preparation of the NFHCP: first, pre-plan data and analysis (for example, temperature monitoring and shade data) were gathered and used in the development of the plan; second, state and federal agency information (for example, ICEBMP) was consulted to obtain more perspective on existing conditions;	E2-47, B2-19

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	finally, the CAMP studies incorporate a BACI design (Before, After Control-Impact) to better discern treatment effects from effects imposed by other existing or external conditions, such as weather events.	
653	For reasons the commentor points out, the Services are reluctant to require basic research as a condition of Permit issuance and would prefer that resources be expended for real conservation. However, because of the opportunity provided in this agreement for cooperative management responses and because of the willingness of the applicant, a limited amount of basic research is included.	E2-50
654	Additional detail on monitoring has been added to the FEIS. See response 671.	E4-62, E4-67, E4-71
655	Plum Creek met with Services scientists, outside experts and other state and federal biologists to evaluate and include where practicable the most recent and relevant methodology for monitoring. Additional details are provided in the CAMP descriptions found in AM-1.	E4-64, E4-69, E4-67, E4-71
656	Extensive monitoring of population trends is conducted by numerous state and federal agencies, tribes, and tribal organizations. Portions of this monitoring occur in Plum Creek watersheds, providing a coarse assessment of population trends on Plum Creek lands. All of this information is available, and will be considered by the Services as appropriate. Additionally, the NFHCP provides biological data in areas of active experimentation and monitoring (CAMPs) as well as the Native Fish Assemblages; the Services will also get extensive information on habitat quality with validation studies on LWD, shade and sediment relationships in the NFHCP project area. See response 337.	E4-77
657	The Services believe that a habitat conservation approach for fish on private lands is an effective approach because “take” of native fish based upon habitat modification is difficult to establish or quantify and population levels vary because of a wide array of influences and threats other than just Plum Creek actions. See response 672.	E4-78
658	The use of aquatic biota other than fish as monitoring indicators has been considered and will likely be implemented as CAMP projects are refined in consultation with the Services. Specifically, use of macroinvertebrates will be considered in conjunction with grazing leases.	E4-135
659	See responses 654 and 655. EIS Section 4.6.5 discusses what is known about the biology and limiting factors for 18 Permit species; habitat changes in project area are discussed, described and modeled where possible in EIS Section 4.6.5, and tech reports; applicants consult ICEBMPs documentation to evaluate other assessments of ecosystem changes. Monitoring strategies for the NFHCP will contribute to a broader understanding of all these topics.	E4-212
660	Refer to table NFHCP 8-1B on DEIS page NFHCP 8-17 for display of triggers, metrics, response and other adaptive management details.	E4-218, E4-58, E4-68
661	The Services agreed with many of the comments, and the strategy has been revised to include the following: a) Use of demonstration watersheds have and will be discussed with	E5-87, E5-27, E4-58, E4-68, E5-10

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	state and federal agencies prior to implementation. Subsequent revisions to adaptive management CAMPs rely less on demonstration watersheds and more on dispersed monitoring. b) Plum Creek will not be monitoring fish populations at significant levels; rather they will be monitoring habitat response variables (for example, temperature) for significant changes. c) Revisions to CAMP forthcoming will define statistical triggers where applicable. d) Services can insist that monitoring be done by outside parties but cannot obligate others to do what the applicant must do under a Permit. Several projects lend themselves to university sponsored research and will completed in that manner if possible. e) The Services agree that some response variables such as LWD have long lag periods and CAMP revisions will adjust for these concerns. Other variables such as temperature should be evident soon into the Permit period. The process of using monitoring and CAMP data as well as outside research to help inform decisions on biological relevance, causal linkage and management response lessens dependence on absolute statistical "significance" and accelerates potential to make needed changes earlier. f) Grazing operations are examined internally by PC personnel and externally by third party auditor. g) The term "severe" has been replaced with "not functioning properly as defined in Lg1. h) The biological assumption is that if we are adequately addressing risk of high summertime temperatures in the Project Area, then through these same mechanisms—increased vegetative cover over streams, for example—we are likely addressing winter-time temperature risks. i) The 49 percent sediment reduction figure was developed as an initial objective for the Clean goal based on what Plum Creek thought they could reasonably provide for sediment reduction across the Project Area. Additional documentation for this figure can be found in Technical Report #3. Whether such a level of sediment reduction will be adequate to conserve Permit species across the project area will be continually evaluated under Plum Creek's monitoring commitments.	
662	In general, resolution of monitoring data is the goal of the NFHCP, both through Plum Creek's monitoring, and through the use of all other scientific data. However, there are 18 Planning Area basins in the HCP area. The approach suggested by the commentor would take time and likely delay implementation of conservation measures and the monitoring approach that allows Plum Creek to begin monitoring implementation immediately and helps inform decisions to be made by the Services on the efficacy of the NFHCP; Results of the monitoring will be applied to specific watersheds as they are identified to meet agreed upon criteria regarding geomorphology, management activities, and other environmental and operational considerations.	E7-10, E8-11, E9-12

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663	The NFHCP contains numerous “milestones” for evaluating NFHCP effectiveness. See the parameters and triggers in NFHCP Table 8-1, and the CAMP study Appendix AM-1.	E10-8
664	The monitoring design been modified to obtain a broader sample, and extrapolation of findings from references sites is explained in greater detail. Costs for the monitoring will be borne by Plum Creek and they will use a variety of methods to obtain the data including their staff, outside consultants, university researchers, and agency assistance.	E18-8, E22-7
665	Reporting monitoring results is a requirement of the NFHCP. If it is not done, the NFHCP must be brought into compliance or the Permit may be revoked.	E20-6, E4-210, E4-211, E14-7
666	The NFHCP will hold Plum Creek to a higher level of accountability with more specific implementation and enforcement procedures than currently exist under applicable state and federal law.	G1-4, E4-58, E4-68
667	A monitoring plan to be funded and implemented by Plum Creek was described in the DEIS. More detail has been included in the Final EIS (see Administration and Adaptive Management commitments, and CAMP study Appendix AM-1). The monitoring plan describes generally where and when sampling will occur. The first year’s monitoring efforts will be treated as a “pilot” project, with revisions made after the first year to ensure adequate implementation. The large size of the land ownership creates challenges for monitoring effects of the NFHCP. The monitoring plan relies on stratification of the landscape to provide a representative sample of the landscape that is statistically reliable. With this approach, a smaller number of samples can be used to monitor effectiveness.	G2-4
668	See response 313. The FWS encourages participation by affected state agencies in review of implementation and effectiveness of the NFHCP.	G5-5
669	See response 313. The Services agree that monitoring should include more than just ensuring compliance with initial commitments.	G6-1

Triggers

Response Number	Response	Comment Number
670	The NFHCP sediment reduction trigger is based upon the estimated effectiveness of the sediment reduction measures that were negotiated. This provides the Services with a quantity metric (that is, how much conservation is achieved?) but does not answer the question of whether that much conservation is adequate to prevent jeopardy. That information was determined to be unavailable. Because the trigger is somewhat arbitrary in terms of biological relevance, the Services reserved the opportunity to acquire a change in the trigger metric if biological relevance was shown to be a concern.	E1-77
671	More details on the CAMP designs are included in the revised NFHCP Appendix AM-1. Knowledge of how the NFHCP is functioning and	E2-26

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	information useful to making corrections is not limited solely to the CAMP projects. For example, other commitments (for example, R8—Road Inspections) require Plum Creek to continuously monitor conditions extensively that might undercut the conservation objectives of the NFHCP. Intensive monitoring of all 18 planning area basins in the project area is not economically feasible. A sampling design was devised to include a representative sample from all 18 basins, so that results of CAMP studies can be extrapolated. The rationale for selection of the CAMP watersheds (for example, representative geomorphology, etc.) were and will be discussed with knowledgeable biologists before and after the first year's pilot project implementation phase. Also, the Services may use other scientific information in evaluating whether the NFHCP continues to meet Permit issuance criteria.	
672	Habitat parameters were selected for triggers rather than fish populations because factors beyond Plum Creek's control might influence fish populations. These should not be the basis for suspending no-surprises assurances.	E2-42, E11-9, E4-210
673	The "Implementation Framework" (table NFHCP 8-1B) has been modified to include more specific requirements for mandatory management responses so that the action plan will be accountable to a prescribed level of compliance rather than merely "improved compliance."	E5-34
674	Where existing science shows causal relationships between forest management and changes in aquatic habitat, those relationships were considered in the development of the original commitments and in setting trigger levels. See response 696. While the conceptual development of the adaptive management pathway in the NFHCP describes statistical significance as a model, the use of statistical significance differs depending upon the individual trigger and the capabilities within the CAMP study designs. Statistical significance levels and triggers can be adjusted over time.	E5-84
675	If a trigger is pulled, the adaptive management pathway specifies that a causal relationship to Plum Creek activities be identified before a management response is invoked. Large events outside of Plum Creek's control, such as fire, floods, and landslides are foreseeable circumstances dealt with as "Changed Circumstances" under commitment adaptive management-3.	E25-9

Timing

Response Number	Response	Comment Number
676	The commentor raises a valid point about lag effects for both fish populations and habitat response and recovery. The long-lived nature of bull trout was one reason why the Permit period was proposed as 30 years (roughly five bull trout generations) in order to evaluate the biological impacts of the plan. Another feature of the adaptive management program is the use of multiple year study periods and repeated monitoring	D1-57, E2-25

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	timeframes throughout the 30-year Permit period to allow evaluation of temporally sensitive monitoring trends. See Tables NFHCP 8-1A and 1B for details by topic.	
677	A trigger is calculated based on data collected over 5 years. This is necessary because it is unlikely that a measurable response to management could be detected over any shorter time frame. Then 3 months is allowed to assemble the report. The timing specifications in the NFHCP then specify the maximum amount of time allowed for development and implementation of a response. In many cases it is expected that a management response could be applied within 6 months of the identification of a problem (i.e., the summer or fall after the 5-year report). See response 678.	E2-27, E34-4, E4-49, E4-50, E1-65, E8-10, D1-54, E9-11, E18-7
678	As described in response 677, there may be a time lag involved in identifying a variance from expectations; however, the time lag in evaluating and implementing a management response once a trigger is tripped is relatively short (6 months to 2 years rather than the 7 years identified by the commentor). Additionally, since the starting prescriptions were based upon an estimate of effectiveness using the best science available, it is unlikely that departures will be dramatic.	E2-28, D1-55, E1-65, E8-10, D1-54, E9-11, E18-7
679	The time periods were developed by the Services and Plum Creek to allow adequate time for the particular response. The Services believe that the time periods specified in the NFHCP and Implementing Agreement provide adequate time for the agencies to respond. See responses 677 and 319.	E4-225

Management Responses (NFHCP Commitment A2)

Response Number	Response	Comment Number
680	We agree that determining causal linkages could be difficult. For this reason, the Services and Plum Creek must mutually agree on whether negative effects of the Permit are caused by Plum Creek actions. Failure to come to agreement will result in the issue being elevated to dispute resolution, or possibly Permit suspension or revocation.	C1-23
681	The NFHCP commitment AM2 has been revised to make it clear that the determinations leading to a decision to adapt management are not hurdles the Services must clear to convince Plum Creek to change. Rather they are points of negotiation that must be mutually agreed to (see response 680). The Services agree with the idea of encouraging Plum Creek to make information available to outside scientists, and that the Services should consider recommendations from outside scientists in making adaptive management decisions. See changes to commitment A-6, and to the Implementing Agreement Section 8.3.	C1-24
682	The Services agree that triggers for the entire Project Area are less desirable than triggers established at finer scales. For this reason, the Services and Plum Creek have (1) already included more site-specific triggers for some metrics, and (2) included the opportunity to focus triggers down to individual Planning Area basins where data exists to allow such specificity.	C1-25

Response Number	Response	Comment Number
683	The Services agree that adaptive management should not be used to "make up for" weak up-front prescriptions. In fact, the Services have sought to gain significant up-front conservation with adequate flexibility to adapt management. The Services believe that permittee should not be required to change management unless there is some indication that conservation is inadequate. In the NFHCP, the Services can detect inadequacies either through Plum Creek's monitoring and adaptive management commitments, or through the use of any other scientific information, including from the state. The Services also believe that in order to ask a permittee to change management they have to know what aspect of the permittee's management is in need of change, and what management actions are needed to provide adequate conservation. The language of adaptive management-2 has been changed to reflect the fact that Plum Creek cannot dismiss the Services' request to adapt management without risking Permit suspension or revocation. In other words, Plum Creek does not have "veto authority" over decisions involving management adaptations, including causal linkage and biological relevance determinations. See response 611.	C3-32
684	See responses 611 and 625. As part of a negotiated adaptation to Plum Creek's management actions under the NFHCP, it is their responsibility to consider whether proposed management changes are economically feasible. The Services will work with Plum Creek and consider the NFHCP business goals as a context while developing additional measures to ensure that the NFHCP biological goals are met (also see our response 369). The consideration of economics does not relieve the burden of a management response to correct a deficiency in meeting the NFHCP biological goals.	E1-55
685	Plum Creek's activities can impact fish because of their potential impact on fish habitat. However, fish can be impacted by a variety of factors other than habitat. Therefore, the Services agree that it is not appropriate to measure success based upon those factors that cannot be influenced by the applicant. The biological relevance determination is not a conflicting standard but a nested standard that is required within a more rigorous inquiry initiated by the tripping of a trigger. Collection of biological data is included within the CAMPs that will be described more fully in the FEIS. The Services may also use any available scientific information to inform adaptive management.	E1-91, E11-9, E1-92
686	See response 637. The Services retain the opportunity to approach Plum Creek at any time monitoring data raises issues about HCP efficacy. The Services agree that statistically insignificant changes in a habitat metric can lead to biologically significant changes in fish populations. It is difficult to practically incorporate management for such uncertainty into a landscape-level management plan. However, the Services and Plum Creek have tried to allow for such a contingency by allowing adjustments to triggers that are determined to be set inadequately, and by allowing for use of outside scientific information in making such decisions. Concerns about delays in responses possible if the Services and Plum Creek cannot agree are addressed under "mandatory collaborative management response" (see NFHCP).	E1-95

Response Number	Response	Comment Number
687	The adaptive management provisions in the NFHCP are those that define the specific conditions under which the incentive of "no-surprises" is suspended. Therefore, if the HCP is unsuccessful at achieving biological goals in one geological type but successful in another, the management response is directed at correcting the failure. The Services do not intend to suspend "no-surprises" where it cannot be shown that the plan is failing.	E1-96, E4-51, E4-46
688	The NFHCP triggers are based upon identifying failures of meeting the biological goals, not on identifying surpluses. These triggers identify mandatory responses that increase conservation. The NFHCP does not provide for any mandatory responses that reduce conservation. This approach is a double standard, but it is in favor of increased conservation.	E1-97
689	Empirical observations are only one type of information used in development of the NFHCP. Display and analysis of sediment data and modeling output are found in the peer-reviewed Technical Report #3, while additional analysis and model output are displayed in Section 4.6.6 of the DEIS. Montana BMPs have been in place for nearly a decade and have been instrumental in reducing "observed" instances of resource damage (see Figure 4-6.2 page 4-154 of the DEIS). Plum Creek and the Services felt it would be more credible and prudent to interact and focus on the issue when it could be supported by data and information that could not be specified at this time. The alternative is to "hard-wire" decisions into the document, which may not make sense in light of information and new research obtained in the future.	E1-101
690	Statistical significance is a useful and necessary step to initiating discussions between the Services and Plum Creek regarding the interpretation and application of monitoring data. However, "cross-pollination" of new research and insights such as those offered in this comment have been provided by including the provision that new research findings from other sources outside the NFHCP, in addition to monitoring data, will help inform decisions on trigger adequacy, biological relevance, causal linkage, and management response.	E2-52, E4-58
691	The NFHCP does not limit the response that might be required by economic criteria; the limitations are within the bounds of biological relevance and causal linkage.	E4-61, E4-126
692	See Table NFHCP 8-1B. Proactive management response is the goal of NFHCP monitoring.	E4-214
693	If it is demonstrated that the NFHCP fails to meet biological goals, a corrective management response is required (see Adaptive Management section of NFHCP).	E4-222
694	Please see Table NFHCP 8-1B on DEIS page NFHCP8-17.	E4-250
695	If it is demonstrated that the plan fails to meet biological goals, a corrective management response is required (see Adaptive Management Section of NFHCP).	E4-255
696	a) Pre-defined responses; It would be ideal to create an adaptive management approach that leads to pre-defined responses. The	E5-35, B2-19, F10-2, E4-58,

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	Services and Plum Creek sought this approach initially, per guidance from the Draft HCP handbook addendum. However, when considering proposals for such responses, we realized that, rather than being based upon better science, they largely appeared to be punitive defaults based upon existing science or no science. The prescriptions specified at the outset of the plan are not guesses, they are based upon the best available science. Changes to prescriptions should be improvements and fine tuning based upon a better scientific understanding. b) Biological relevance; The "science based triggers" chosen for the NFHCP are measurable habitat parameters that should provide meaningful feedback in a reasonable time. In some cases, there are known and direct relationships to fish biology, but in others the link to biology may be less direct, and a subsequent inquiry into biological relevance is warranted. Using sediment as an example, instream sediment levels have fairly well know relationships with fish biology, but changes in these levels are not sensitive to changes in management on a time frame that is useful for this agreement. Therefore, sediment delivery from roads was used as an alternative. It has a more direct linkage to road management but a less direct linkage to fish biology. It provides meaningful feedback on a reasonable timeframe at the risk of choosing a trigger level that is not as clearly related to fish biology. Therefore, a subsequent inquiry into biological relevance is warranted. c) Preserving assurances; The adaptive management approach used in the NFHCP seeks a balance between providing incentives to attract and keep Plum Creek as a creative partner in providing conservation for fish while preserving certainty of conservation at an acceptable level. Because clear no-surprises assurances are eliminated by this approach, Plum Creek is provided with another kind of assurance; that changes to the plan will not be frivolous (i.e., that they will contain a reasonable certainty of improving the ability of the plan to meet the biological goals), that they will be based upon a high level of scientific rigor, and that Plum Creek can work with the Services to negotiate business-sensitive adjustments to changes designed to improve conservation. The plan is initiated with a large degree of certainty that conservation will occur. d) Determination of causal linkages; Continuing with the example of sediment input to streams, it is not only important to determine if fine sediment is continuing to enter streams at an excessive level, but also if input is due to actions authorized under the NFHCP; monitoring of roads and other upslope activities allows Plum Creek and the Services to better "connect the dots" between changes observed during monitoring and actions taken during implementation. For example, the road sediment source may have been from a specific drainage structure rather than due to surfacing problems on the road. Moreover, monitoring the stream at different points and at different times may indicate that unfavorable sediment input is caused by unauthorized public use of a road system rather than forest management operations that are the responsibility of Plum Creek. When causal linkages are identified, management responses can be	F3-5, E5-85, E4-221, E2-6, E8-4, F3-2, E4-49, E4-50, E8-10, E7-6, E4-53, E9-11

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	created that resolve the problems discovered.	
697	See responses 688 and 615. The only mandatory responses in the Implementation Framework (table NFHCP 8-1B) are based on triggers that might indicate a failure to meet biological goals. The "NFHCP Business Goals" are cited to provide sideboards of practicability, similar to those used in the development of the original commitments in the development of management responses. No responses are mandated by a failure to meet business goals. In this sense, adaptive management is "one-way" in favor of meeting biological goals.	E5-83, E4-58
698	The causal linkage question only needs to be investigated when a trigger is tripped. If the plan is successful because triggers are not tripped, then difficult query into causal linkages is not required. This minimizes the adaptive management process when it is not essential to the success of the plan. Also, see responses 696 and 611.	E5-86
699	The NFHCP starts with measures whose impacts and benefits have been evaluated using the best science available. While the Services expect scientific understanding to be refined over time, we do not expect that scientific understanding will advance sufficiently each 2 years to warrant the expenditure of resources on reevaluation. Also, since triggers are evaluated based upon the results of scientific study, 2 years is generally too short to obtain an adequate number of samples to provide clear and meaningful feedback. See response 678.	E10-7, D1-54, E9-11, E18-7, E4-51, E4-46
700	See responses 611, 246, and 77. The Services and Plum Creek do not seek to try to identify occupied or unoccupied habitat for any of the Permit species in the Project Area within their historic distribution, and prescriptions will not vary in this manner.	E13-26
701	See response 611. The Services intend to use adaptive management flexibility as a tool to fine-tune the balance between the assurance it receives from the up-front conservation commitment from an applicant, and the regulatory certainty of No Surprises assurances. The Services doe not believe there are any "zero tolerance" triggers in the NFHCP. There are triggers based on an observation of no statistically significant difference in habitat conditions before and after forestry actions occur. This does not equate to "no change" on the ground. It does equate to "no significant change," with significance defined in Plum Creek's Core Adaptive Management Project studies, agreed to up front by the Services and Plum Creek. The intent is to ensure that, if there is significant change in habitat conditions as a result of timber management actions, the Services and Plum Creek can evaluate the effects of those changes and jointly determine whether management should be adapted. The Services believe that implementation of existing state BMPs reduces potential negative effects of commercial forestry that might otherwise occur. However, even with implementation of these BMPs, forestry actions can still cause habitat degradation or inhibit recovery of impaired habitats, to varying degrees, depending on the environmental setting and history of development in a given area. HCPs are a tool to increase the certainty of adequate conservation while providing the applicant with greater certainty of a viable business opportunity.	E28-3, E4-4, E12-5, E33-2

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	The Services believe the NFHCP and proposed Permit offer regulatory assurances to Plum Creek. We view this proposed NFHCP and the regulatory assurances that would be associated with a Permit as allowing Plum Creek the certainty that the Services cannot independently dictate changes in forest management on their lands under the Endangered Species Act. If the Services seek change in Plum Creek's land management techniques, we must engage in and complete a process that has been agreed to by Plum Creek as part of the Permit.	
702	The adaptive management part of the NFHCP has been revised to provide greater certainty of outcomes for all parties. If assurances are not satisfactory to Plum Creek, they can voluntarily refrain from concluding the habitat conservation planning process and relinquish the Permit. See response 611.	E29-3
703	See response 611. The Services do not believe that Plum Creek is required to commit to "zero change" in habitat parameters as a result of their management actions. Instead, Plum Creek is committing to no significant change in habitat parameters from effects of their management actions, as measured in Core Adaptive Management studies. If significant change is observed, the Services and Plum Creek would then work together to determine if, when and where management should be adapted. The Services agree with the commentor that the level of scientific rigor that should be required in a renegotiation of management commitments should be comparable to that used in the original Permit issuance determination.	E32-7

Changed Circumstances (NFHCP Commitment AM3)

Response Number	Response	Comment Number
704	Reasonably foreseeable circumstances such as forest fires, floods, or landslides less than a specified size or magnitude are addressed in the NFHCP and the DEIS. For these categories, the NFHCP either provides specific conservation measures to minimize impacts from these events or provides a planning framework for addressing impacts should they occur. Effects to other resources are disclosed in Chapter 4 of the DEIS.	E4-199
705	The respondent asserts that additional natural and human-induced changed circumstances should be addressed in the proposed NFHCP and Implementing Agreement. The response to American Lands (618), above, partially addresses this response. To reiterate relative to the 500-year flood example suggested by the respondent, if the adaptive management and dispute resolution processes are unable to resolve a situation where the continued survival and recovery of proposed Permit species is in question, then the Services have the option of suspending or revoking the Permit and/or initiating action through Section 9 of the ESA, as appropriate. However, it is likely that an event of this magnitude would not be the sole result of Plum Creek's land management activities, or even the result of the combined land management activities of all landowners in the Planning Area, the	E5-36, E5-29

Response Number	Response	Comment Number
	majority of which are beyond the control of Plum Creek. Absent immediate threats to the continued survival and recovery of proposed Permit species, it is in the best interests of Plum Creek, the Services, and the proposed Permit species for all parties to work together to recover from any such calamitous event with the conservation needs of the proposed Permit species in mind. Relative to the respondents point that a large fire or disease outbreak would result in increased road building or harvest levels and should be included under changed circumstances, nothing in the proposed NFHCP or Implementing Agreement suggests that road-related commitments, sediment reduction commitments, water temperature commitments, or riparian harvest commitments will be altered by such an event.	
706	The Services generally agree with this comment, but we believe that the proposed response to changed circumstances in the NFHCP is functionally similar to adaptive management. The Services and Plum Creek developed changed circumstances to identify reasonably foreseeable circumstances, including natural catastrophes, that normally occur in the area, as required by the Habitat Conservation Plan Assurances ("No Surprise") Final Rule [FR 63(35):8859-8873]. In the case of the NFHCP, changed circumstances were identified as forest fires, floods, and landslides of a specified size or magnitude. The response, should any changed circumstance occur, would be for Plum Creek and the Services to develop and implement a management plan to minimize effects to Permit species from the changed circumstance. Changed circumstances are somewhat different than the NFHCP adaptive management program in that they are intended to respond to foreseeable, but not more routine or expected changes such as those envisioned under adaptive management. However, fundamentally they are similar in that both are intended to result in changes as a result of processes set up in the NFHCP.	E5-37, E5-29
707	The requirement for a site-specific action plan is a requirement under AM3 that creates an opportunity to use new information available in the future when developing a site-specific action plan. "No surprises" does not mean that these plans will not be mandatory, it places upper bounds on the types of responses that would be required under the HCP.	E10-10
708	The categories of changed circumstances that are identified in conservation measure AM3 of the NFHCP are, in the opinion of the Services, reasonably foreseeable. Should these circumstances occur during the Permit period a management plan will be developed by Plum Creek and the Services to address any impacts to Permit species. The Services generally agree with the commentor that a 100-year flood event should be considered a reasonably foreseeable circumstance, that is why flood events between 25 and 100 years are considered changed circumstances and would require a management plan be developed should they occur. Should events occur such as forest fires, flooding, or landslides that are greater in magnitude than those identified under changed circumstances, or should other events occur, such that the effects of further NFHCP implementation may affect Permit species in a manner or to an extent not previously considered, the Services can reinitiate Section 7 consultation, subject to the re-initiation criteria, to ensure that the NFHCP is not appreciably reducing the likelihood of the	E15-6, E5-29

Response Number	Response	Comment Number
	survival and recovery of any Permit species. If the Services find that as a result of further NFHCP implementation the likelihood of the survival and recovery of a Permit species may be appreciably reduced, the Services have the authority to revoke or suspend the Permit in whole or in part. Nothing in the NFHCP or the Implementing Agreement would prevent the Services from taking this action.	

Sediment

Response Number	Response	Comment Number
709	Plum Creek and WDNR are currently completing a Watershed Analysis in this drainage and treating road-related sediment issues on a project level with remedial action; Additional monitoring and management activities in the Ahtanum will be completed in a manner consistent with the watershed analysis when it is approved. Plum Creek is open to cooperative monitoring in the Ahtanum drainage with others for sediment and redd counts.	C3-33
710	The description of this trigger has been clarified in the final NFHCP. The intent of this trigger is to ensure that substantial reduction in sediment delivery to Project Area streams occurs consistent with EIS effects analysis projections. Instream triggers were not practical to employ because of the complexities of how instream fine sediment levels are affected by geology, geomorphology, channel type, and local climate. While instream targets were not used as triggers to effect change, CAMP1 will investigate how sediment delivery reductions across the Project Area translate to changes in fine sediment levels in spawning gravels, and will inform future management adaptations.	D1-52
711	Table NFHCP8-1B, under the “Clean” biological goal, lists performance metrics and associated triggers for eight implementation standards and three effectiveness standards. The implementation metrics provide an “early warning” metric based upon known relationships between manage-ment actions and riparian function. The effectiveness metrics provide for a process to consider improved understanding of those relationships.	E1-76, E11-8

Temperature

Response Number	Response	Comment Number
712	The temperature “trigger” referenced in this comment has been modified. A “power analysis” to ensure that sampling will be rigorous enough to detect difference at the alpha = 0.1 level will be incorporated in the CAMP 3 design. Response to additional concerns raised in this comment relative to temperature metrics being measured can be found under 713.	D1-50
713	A variety of temperature metrics can be calculated from the continuous temperature data that will be collected in the Core Adaptive Management	E2-33, E2-40

Response Number	Response	Comment Number
	Project #3. Mean Weekly Average Temperature is used to trigger initiation of the Adaptive management process. Once triggered, Mean Weekly Maximum Temperature or other temperature information (e.g., diurnal flux, starting temperature, species thermal requirements, etc.) will be used to determine biological significance.	
714	The FEIS provides a more detailed conceptual study design for CAMP #3. This study design describes the sample size needed to achieve power of at least 0.8. The Services recognize the additional rigor provided by a multiple-year, pre-treatment, data-collection period.	E2-34
715	The temperature increase trigger is a measurement of reach scale effects of an individual riparian timber harvest—a site-specific measurement of "minimization" effectiveness. The DEIS concluded that, in combination with riparian stand development in the majority of stream reach length that remains unharvested, the watershed scale result will be a reduction in stream temperatures.	E11-12, C1-12, D1-35
716	The trigger for temperature at the reach scale associated with active logging has been changed to accommodate measurement error and other statistical artifacts. See revised Appendix AM-1.	E26-6

Native Fish Assemblages (NFHCP Commitment AM4)

Response Number	Response	Comment Number
717	The list of NFAs was generated using the general biological criteria described on page NFHCP 8-29 and then finalized by agreement. Therefore, the commitment applies to the specific watersheds on the list rather than to the criteria. This provides some certainty to Plum Creek that new NFAs are not continually proposed. Determining the number of NFAs was a policy decision and not based upon biological criteria.	E2-11
718	Making all streams in any Planning Area basin "Tier 1" would defeat the dual purpose and need for this project. The intent of Tier 1 watersheds is to focus conservation where it will provide the most benefit. In fact, the bull trout population in the Swan River drainage is stronger than anywhere else in the Project Area, so one might argue that additional Tier 1 protections would be most productively applied elsewhere. Finally, Plum Creek has agreed to allow for adding more Tier 1 watershed designations in the future, should it be necessary or appropriate, so future Tier 1 designations may be made.	G1-10

Grazing

Response Number	Response	Comment Number
719	Performance standards specified in grazing BMPs are intended to improve habitat conditions over time in areas degraded by past management and	B2-17

Response Number	Response	Comment Number
	maintain proper functioning conditions where they already exist, regardless of channel sensitivity. CAMP #4 will provide feedback on how well Plum Creek's Grazing BMPs (and other more restrictive management strategies) lead to proper functioning conditions over time. In light of this research, the performance standards could be modified in the future. While fencing will be mandatory along severely impacted low gradient perennial streams in Tier 1 watersheds and along Key Migratory Rivers, fencing in any other biologically-important area could be implemented based on mutual agreement between the Services and Plum Creek (See NFHCP Commitment G-2).	
720	While a more "channel-type-specific" approach for managing grazing (and performance standards) could have been taken, Plum Creek felt that this was beyond their capability to programmatically implement. In lieu of this, performance standards were designed to be protective of all situations. Adoption of a more customized approach could be taken in the future, as part of a cooperative management response under adaptive management.	E2-5
721	The DEIS does not disclose the acres of riparian area grazed because that information is not available. However, Table 4.6-3 summarizes, by Planning Area basin, the acreage within grazing allotments and miles of stream within grazing allotments. Additional detail on monitoring has been added in the FEIS.	E5-21

Best Management Practices (NFHCP Commitment G1)

Response Number	Response	Comment Number
722	The NFHCP describes a programmatic approach for managing grazing impacts on over 700,000 acres of Plum Creek land (over 100 individual grazing leases). As such, the specific management actions for individual watersheds (such as Ahtanum Creek) are not described. Section 4 of the NFHCP would require that the Ahtanum Creek leaseholder(s) would be required to do four things: 1) Prepare an annual Range Management Plan that is approved by the Plum Creek lease administrator prior to turnout. 2) Where current riparian conditions in leased Project Area land in the Ahtanum drainage are not in compliance with the performance standards, the RMP must provide for steady improvement over time. 3) The leaseholder must monitor several sensitive locations on the lease twice during the grazing season. 4) The leaseholder must submit an End of Year Report. In addition, the fencing commitment (G-2) would also be implemented in applicable locations.	C3-31
723	The grass utilization standard has been changed in the NFHCP per the commentor's suggestion. See also response to 724.	C4-1

Response Number	Response	Comment Number
724	The “Performance Standards” in the NFHCP Appendix G-1 have been modified to include some of the recommendations provided by the commentor and to better represent them as a tool by which a trend can be established. For the final document, performance standards are now called “Environmental Trend Indicators” to better represent how they function in the grazing BMPs. Rather than being used as an absolute bar for compliance, they are used as an array of measurable indicators that function as an objective method for quantifying improvement trends.	C5-1, C5-2, D2-1
725	The annual Range Management Planning process described under the grazing BMPs does not preclude a landowner from preparing a long-term plan. Having a proper carrying capacity is a mandatory BMP and will be determined through an allotment analysis or local experience with the allotment.	D2-2
726	The grazing BMPs do not specifically prescribe a management response for noxious weeds. This will vary from area to area based on local—usually county—regulations.	D2-3
727	Effects from grazing-related erosion (via bank stability and riparian compaction) were considered in Chapters 4.4 and 4.6 of the DEIS. The NFHCP considers erosion from grazing through establishment of performance standards for bank stability, riparian compaction, and grass utilization. It also includes several BMPs targeted at reducing erosion and sediment delivery to streams (e.g., salting away from streams). Regarding adaptive management, grazing BMP triggers will be evaluated annually and should compliance rates lead to a tripping of a trigger, Plum Creek will have to develop an implement an action plan by the end of the next operating season (see Table NFHCP8-1B and NFHCP Commitment AM1).	E1-73
728	See response 724. The stubble height must be maintained throughout the growing season, not just be present at the end.	E3-2
729	This source of the illustration is the BLM.	E3-3
730	Shrubs can exist in most riparian areas in grazing allotments in the Project Area. However, there are some riparian/wetland habitat types where shrubs are rare or non-existent (Hansen et al. 1995).	E3-4
731	The term “weed,” where it is used in the DEIS, is analogous to “noxious weeds” as typically defined by state and federal agencies. A noxious weed is an introduced species that is pervasive, difficult to control, and has undesirable management or ecological effects.	E3-5
732	Mobile watering devices are a good idea that was incorporated as an “Optional BMP” in the grazing BMPs. Practically speaking, this would probably be difficult to implement in most leases because of the lack of upland water sources.	E3-8
733	Decreasing duration of use is indeed an important component in improving degraded conditions. This is captured through several BMPs (Season of Use, Rotated Pastures, and Riding).	E3-9
734	Temporary fencing has been added as an “Optional BMP.”	E3-10

Response Number	Response	Comment Number
735	The Services or Plum Creek are not aware of locations in the Project Area where overgrazing has promoted shrub communities. Local experience suggests that overgrazing has the opposite effect.	E3-11
736	This type of restoration would only occur where shrubs have been excluded due to grazing. Restoration would have to consider the ecological potential of the site.	E3-12
737	It remains to be seen if season-long grazing under Plum Creek's Grazing BMPs will lead to improved conditions over time. Other techniques, such as rest-rotation strategies, may have to be implemented to achieve the goals of the NFHCP. CAMP #4 research will provide this feedback. Fencing of any kind (permanent or temporary) is very difficult to use in the timbered mountainous terrain of the Project Area.	E3-15
738	Text describing the "Rotated Pastures" BMP was modified to state that the order in which pastures should be grazed should be periodically changed.	E3-16
739	Where performance standards are not being attained this could be a result of the inherent capability of the site. As was discussed in the response 730, site-based analysis could be undertaken to define potential.	E3-17
740	The performance standard for bank stability will require that conditions on grazing leases must improve over time. CAMP #4 research will determine the rate of recovery under the Grazing BMPs in comparison to complete exclosure.	E4-142
741	See response 724 regarding performance standards. The 1/10th acre monitoring area will occur in "weak link" or environmental sensitivity areas so this should represent a worst-case measurement for leases.	E4-143
742	Without grazing BMPs, grass heights are often utilized to much less than 8 inches in height. While greater retention may be more beneficial, the conservation benefit of this BMP is considered to be significant. See response 724.	E4-144
743	It is agreed that this performance standard is somewhat subjective, but justifiably so. Regarding the monitoring area, as with response 741, this should represent a worst-case scenario. Impact to tree regeneration will be visible whether the cause of damage was breakage or browsing. Subsurface damage resulting from compaction will also result in visible signs, although they will take longer to be evident. Should the 66-foot by 66-foot test area be determined to be too small for reliable results, the area would be increased or additional test areas distributed within the allotment to gain meaningful results.	E4-145
744	We agree with the commentor that shrubs can exist in most riparian areas in the Project Area. There are some areas where they cannot, however. See response 730. In many areas, beaver have been extirpated and this has caused water levels to drop. The end results are some areas have been left without the ability to support shrubs, even though they historically had that capability.	E4-146

Response Number	Response	Comment Number
745	Commentor is correct that the weed standard is not quantified. Plum Creek has included this in the BMPs for purposes of identifying problems for compliance with state and county noxious weed regulations. The Services note that the areas currently being grazed have already been subject to potential for weed introduction and in many cases may not seem as "pristine" as the commentor has indicated. Non-native plant species are quite common in many grazed riparian areas and the NFHCP would hope to eventually reverse this condition, or at least stabilize the situation at a reasonable level.	E4-147
746	Elimination of grazing was evaluated under the Simplified Prescriptions Alternative, and actually promises slightly less conservation than an actively managed approach to grazing on Plum Creek lands. While elimination of grazing shows substantial gains in fish habitat protection, the gains are not quite as dramatic as might be expected because of the difficulties in management presented by the open range laws and also because of the loss of participation by proactive ranchers. Also, an active grazing approach can extend conservation benefits to other, adjacent properties not owned by Plum Creek.	E4-150
747	Some modifications have been made to the grazing BMPs and monitoring forms to improve gains that can be expected from this commitment (see Range Management commitments and appendices in the NFHCP).	E4-151
748	See response 747. If application of BMPs more appropriately allocates conservation costs of ranching to the business of ranching, then economics (as opposed to regulation) can help to define where continued grazing is appropriate and where it is not.	E4-152
749	Many of the grazing BMPs are mandatory (e.g., salting away from streams). Other BMPs are included in a "tool box" that the leaseholder can draw from to meet specific goals (e.g., improving trends in fish habitat quality). See response 109 regarding take quantification.	E5-18
750	While historic timber harvest practices in some cases have resulted in grass-dominated riparian areas, streamside prescriptions under the NFHCP are not expected to do so because of the small fraction of the canopy that is influenced by riparian harvest. Additionally, Performance Standards under the BMPs require tree regeneration, allow only limited impacts on shrub communities or bank stability.	E5-73
751	Commentor offers several suggestions on improving the grazing performance standards that were addressed in revisions of the grazing BMPs for the FEIS. Also, see response 724.	E5-78

Exclosures (NFHCP Commitment G2)

Response Number	Response	Comment Number
752	The Services have suggested the possibility of a database that tracks grazing improvements such as fences. Plum Creek is amenable to the idea but is not prepared to commit to this at the current time.	C1-13

Response Number	Response	Comment Number
753	As was discussed in the rationale for G-2, lower gradient streams were selected for fencing because they tend to provide most fish habitat and tend to be most sensitive to grazing disturbance. The fencing requirement was prioritized for these areas to provide more accelerated recovery than what would occur under normal grazing BMPs. Fencing is not precluded any other location where it is deemed an appropriate management response. In G-3, Plum Creek will be examining the incremental benefit of fencing over other management strategies that could lead to a cooperative management response under adaptive management in the future.	D1-32, E2-30
754	Plum Creek would have 9 years to fully implement the grazing exclosure commitment (G2). Practically speaking, to accomplish this goal they will not be able to do all this work in Year 9 as commentor suggests. Plum Creek will be annually reporting the amount of fencing completed (see Table NFHCP7-1). The NFHCP Implementation Framework (Table NFHCP8-1B) will also trigger a management response if less than 50 percent of areas in need of fencing have not been fenced by 2005. However, Plum Creek will attempt to address areas in most urgent need of fencing early in implementation.	E4-148, E5-19
755	Milestones are put in place in Table NFHCP8-1B to ensure that all fencing does not wait until Year 9 (see response 754). NFHCP Commitment Lg1 (and G2) specifies a procedure for inventorying low gradient streams in Tier 1 watersheds and along Key Migratory Rivers to identify areas that are not functioning properly and in need of fencing. As a way to focus resources, Tier 1 watersheds were preferentially selected for this commitment. Fencing in Tier 2 lands is not precluded as a management response under the grazing BMPs.	E5-80
756	The NFHCP does not preclude grazing in riparian areas (except where exclosures are constructed in severely impacted areas under G2). The performance standards guide the level of grazing that will support attainment of the biological goals of the NFHCP. The Services agree that grazing management, when done properly, can often maintain or restore the riparian zone as well as provide adequate quality and quantity forage for livestock use. We agree that all management options, such as water access, fencing, and herd control, be considered. Furthermore, various grazing regimes should be considered to ensure the health of riparian vegetation, including rest rotation. The NFHCP endeavors to have many management options available to grazing leaseholders to meet the biological objectives of the Permit Species in concert with the meeting the business goals of Plum Creek and grazing leaseholders.	E25-7

Vacated Leases (NFHCP Commitment G4)

Response Number	Response	Comment Number
757	The caption the commentor references in Figure ES-1 only summarizes NFHCP Commitment G4. The detail of this commitment requires that the status of vacant leases be evaluated and will not be re-leased unless two conditions are met: 1) Plum Creek determines the lease area is suitable for grazing from a riparian-management perspective; and 2) an onsite assessment determines that substantially all riparian areas in the allotment are meeting performance standards in Plum Creek's Grazing BMPs. If riparian areas are not functioning (as evidenced by non-attainment of performance standards), the allotment will be rested until recovery occurs.	D1-29
758	Commitment G4 provides for retiring leases completely if riparian recovery cannot be achieved and indefinitely until it is.	E4-149

Training (NFHCP Commitment G5)

Response Number	Response	Comment Number
759	a. This commitment could be included within G1, but it is unclear what additional conservation value that would provide. The number or location of a commitment is less important to the Services than the benefit it provides. b. See responses 764 and 382.	E5-22

Monitoring

Response Number	Response	Comment Number
760	The grazing monitoring form has been changed in the NFHCP per the commentor's suggestion. See Appendix G1.	C4-2
761	As discussed in the Grazing BMPs, monitoring is to be targeted in "Sensitive Riparian Areas" that have been identified as environmental "weak links" in the Range Management Plan. In most cases, these will be areas with actively eroding banks or are otherwise in poor functioning condition as comment suggests.	C4-3
762	Presently, Plum Creek is hesitant to adopt a substantially different monitoring form from the one they have been using for several years and is incorporated in their BMPs. They believe their monitoring form is better suited to the abilities of their leaseholders. However, they will explore the possibility of using the Monitoring for Success approach with a few leaseholders and if it works, they may expand its use.	D1-30

Response Number	Response	Comment Number
763	The NFHCP implementation framework (Table NFHCP 8-1B) requires a periodic third-party audit of compliance with the four Grazing leaseholder requirements. One of these requirements is that there must be an improving trend where Performance Standards are not met. The monitoring documentation must be of suitable quality for the auditor to agree. If the auditor concludes the information is insufficient (as described in Table NFHCP 8-1B), Plum Creek will have to adapt management.	D1-31
764	The "self-monitoring" approach of requiring ranchers to perform their own monitoring is desirable because it requires the operator to make field assessments on their own, thereby connecting them to the desired outcomes. This approach is nested within a broader approach to monitoring, which includes the following: • Plum Creek approval of Range Management Plan that achieves improving trend • Annual implementation reporting of Leaseholder Requirements • Validation each 5 years by external audit • Effectiveness monitoring of grazing BMPs (CAMP #4) A description of this hierarchical approach has been added to the Introductory narrative of NFHCP grazing, Section 4.	E2-29
765	Plum Creek will be preparing a field implementation manual for the NFHCP within 3 months of permit issuance according to commitment A1. The services agree that a photo guide would be useful to assist in monitoring compaction/displacement levels and have encouraged Plum Creek to include such a tool in the manual. Also, Plum Creek has indicated that they intend to develop an audit form for the manual that will assist both internal and external auditors in making more quantitative assessments of performance metrics.	E3-1
766	Weak links in the allotment are defined by the Plum Creek lease administrator and the leaseholder. In most cases, these are the most severely impacted areas on the lease.	E3-6
767	As discussed in the Monitoring section of the grazing BMPs, monitoring is to be conducted at "weak link" or sensitive locations in the lease rather than trying to pick "average conditions."	E3-7
768	The primary intent of leaseholder-based monitoring is to allow leaseholders to make observations of conditions (pay attention) and adapt management over time to improve conditions. The monitoring form was developed to be something that Plum Creek leaseholders could realistically implement. More sophisticated monitoring will be conducted in CAMP #4.	E3-13

Response Number	Response	Comment Number
769	As simplistic as proper functioning condition monitoring is to range management professionals, it is beyond the capabilities of Plum Creek leaseholders to implement. The proper functioning condition protocols are intended to be implemented by an interdisciplinary team of professionals. Proper functioning condition monitoring would be conducted under the CAMP #4 study.	E3-14
770	Leaseholder-based monitoring will be reviewed by a Plum Creek lease administrator. It should be noted however that the primary value of leaseholder-based monitoring is to force them to make observations about conditions on the lease. Leaseholder training is provided under G5 and this will include how to conduct monitoring. The grazing BMPs specify that monitoring should be done in mid-July and just after the grazing season ends (see Appendix G-1). Commentor suggests that spring monitoring be conducted, but does not explain why. Monitoring is directed at sensitive areas in the allotments or "weak links" per the BMPs. In most cases these will be low-gradient stream reaches with unstable banks. Compliance monitoring will take the form of internal and third party audits.	E5-79
771	Monitoring under NFHCP commitment G3 (AM1) will be conducted in a framework of experimental management to evaluate the effectiveness of various range management strategies. The study design for this CAMP will be developed in consultation with local experts. Commentor's suggestions will be considered in the development of the study plan.	E5-81
772	Grazing BMP effectiveness monitoring will occur throughout the NFHCP Project Area, not just in Demonstration Watersheds. Research will be focused on the most heavily impacted areas.	E5-82
773	Plum Creek anticipates working with the University of Montana to develop a monitoring approach to measure the effectiveness of the program. The selection of meaningful triggers for this task is not aided readily by existing literature. The parties agreed that there would be desirable benefit in implementing the conservation measures now rather than later even though a clear way of measuring the benefit has not yet been devised.	E11-13
774	In addition to lease-based monitoring, more detailed experimental research will be undertaken in adaptive management (CAMP #4) to investigate the effectiveness of the BMPs at improving fish habitat conditions over time.	F17-8

Land Use

Response Number	Response	Comment Number
775	Thank you for you comments. Plum Creek's land use principles referred to in your comment represent *Commitment L1: Land Use Principles* in the proposed NFHCP.	C1-16

Response Number	Response	Comment Number
776	The Services agree with the commentor's concern over potential future uses of sold lands. The land use planning commitments will improve the chances of land transactions with conservation outcomes, such as conservation easements.	D1-33
777	The NFHCP land use section provides incentives for lands sold from the Project Area to be placed under a conservation easement. It also provides incentives for transferring NFHCP obligations and Permit coverage to willing buyers of Project Area lands.	E4-87
778	See response 795, paragraph a. The Services do not require that each commitment carry an mathematically equal weight of conservation value or evaluate them on that basis.	E7-11, E8-9
779	The Land Use Planning Commitments and their associated rationale are described in detail in the NFHCP. These commitments are structured to promote land transactions that create conservation opportunities and benefits. Commitments L2, L3, and L4 are specifically directed at conservation organization dispositions, conservation dispositions and the sale of development rights, and restricted dispositions of land use conservation areas. They provide alternative strategies for dealing with critical conservation areas.	E13-17
780	Real estate development is not a covered activity under the NFHCP. See responses 790 and 796.	E19-3
781	Section 4.8 discusses the impacts to land uses, including dispersed public recreation, for each of the alternatives. If higher and better use (HBU) lands are more likely to be sold to the federal government under the NFHCP, then there may some risk to dispersed public recreation, but it is considered less than the No Action alternative. Under the No Action Alternative, HBU lands are more likely to be sold to developers and would ultimately affect dispersed public recreation to a greater level.	E25-8

Land Use Principles (NFHCP Commitment L1)

Response Number	Response	Comment Number
782	The Services and Plum Creek recognize that merely stating principles has no substantive value that can be considered as conservation. Yet the Services encouraged Plum Creek to include them as a commitment because they state a philosophical predisposition to accomplishing land transactions with conservation outcomes. What qualifies as HBU is not a fixed list and is subject to change continually. However, it is not difficult for prudent observers to reasonably identify those lands that pose the greatest risk for land use changes. This approach is an incentive-based approach rather than a prescriptive based approach. Because the extended willingness of diverse parties is often necessary to succeed in conservation sales, an incentive-based approach is considered more effective.	E5-90

Sales to Public (NFHCP Commitment L2)

Response Number	Response	Comment Number
783	See responses 785 and 790. The Services worked with Plum Creek through a variety of detailed formulaic approaches to stratifying lands based upon relative conservation values but concluded that the added complexity did not increase the likelihood of success in obtaining successful conservation sales.	C1-18, F2-3
784	The Services do not have the authority under the ESA to prohibit land sales in any way. If the Services insisted that land sales be prohibited altogether in an HCP, potential applicants with high valued real estate targeted for disposition would either become disinterested in conservation planning or would exclude those portions from their proposal, eliminating the potential to minimize risk of impact to permit species from land sales by a permit applicant. The Services view conservation risks associated with a sale of land to the federal government because of potential future land uses as lower than the risk associated with an unrestricted sale to a developer.	E4-171
785	The comment makes a good point, but it is important to consider how finely stratified the proportionality approach should be in terms of effectiveness and practicability. For instance, if only the conservation sales that benefit streams receive a positive 1, should unrestricted land sales that warrant a negative 1 be limited to those that may impact fish? The level of detail in the programmatic approach was considered carefully in its development. L2 has been reworded to more clearly include sales to state agencies that have a specific conservation purpose.	E5-91, E5-23, C1-17, F2-3, C1-19

Conservation Sales (NFHCP Commitment L3)

Response Number	Response	Comment Number
786	Commitment L3 has been modified to specifically require that such a conservation easement be created under the auspices of an established land trust or organization for this purpose. Commitment L4 acknowledges the reduced certainty of implementation of deed restrictions without the requirement of an agreement with a land trust organization, but this uncertainty is reflected in the less favorable proportionality score.	C1-20
787	L3 has been reworded to apply only to parcels on streams with a demonstrated fisheries value, per commentor's recommendation. The density specifications are typical of what is often written into zoning requirements or conservation easements and do not appear to be vague to the Services. They do require just as stringent of a density requirement on both sides of the stream, but the Services had not considered why a more lenient standard might be developed for one side versus the other.	E5-92, E5-23

Land Use Conservation Areas (NFHCP Commitment L4)

Response Number	Response	Comment Number
788	L4 dispositions result in a negative proportionality factor when they occur in Tier 1 watersheds along Key Migratory Rivers, recognizing some loss of conservation certainty as compared to retaining those acres under the NFHCP. But the negative score is less than that for an unrestricted sale, recognizing greater conservation certainty for the L4 restricted parcels in comparison to the unrestricted parcels. L4 restrictions have been modified to be more restrictive.	C2-24, F2-9, F2-10, F2-11, F2-12, F2-13
789	L4 has been modified to incorporate additional restrictions such as a prohibition on cultivated lawns in the CMZ and tree harvest within the Land Use Conservation Area (LUCA). See response to 788. L3 is designed to be a more protective option among land use planning tools and results in a positive proportionality factor. Therefore, density requirements and third party conservation easements have been used for this commitment.	E5-93, E5-23, F2-9, F2-10, F2-11, F2-12, F2-13
790	The LUCAs are designed to increase the likelihood that lands important for fish will, if sold, be sold with a conservation outcome rather than to developers. This approach will result in less development and greater conservation certainty if lands are sold.	E18-9, E9-10, F2-2, F2-4, F17-9, C1-19
791	Lands disposed of under L4 require deed restrictions placed prior to disposition. See response 786.	F2-8

Neutral (NFHCP Commitment L5)

Response Number	Response	Comment Number
792	L5 has been amended to state that covered lands that qualify for a neutral rating will provide measures that benefit fish equally or better than the NFHCP, in the judgement of the Services.	E5-94, E5-23

Exchange (NFHCP Commitment L8)

Response Number	Response	Comment Number
793	Land exchanges in the Planning Area are relatively infrequent, difficult to accomplish, and generally widely regarded as an important land use planning tool. Additionally, when an exchange with the federal government takes place, the transaction is subject to its own independent NEPA process and ESA compliance intended to identify net impacts to the environment. L8 was designed with simplicity in mind and a broadly accurate scoring system that would avoid disincentives to exchanging lands.	E5-95, E5-23

Response Number	Response	Comment Number
794	See response 793. For exchanges conducted with other entities that are non-federal landowners and not subject to the NEPA analysis, the scoring system favors fish habitat protection. For example, if Plum Creek gives up 1,000 acres in an exchange to an unrestricted situation (-1000 points) and acquires 1,000 acres into the NFHCP (+500 points), the points show a net loss of conservation certainty (-500 points). In reality, road upgrades and other mitigation measures have been implemented under the NFHCP for lands that were disposed and now must be implemented for lands acquired. There is an increase of conservation certainty. The scoring system for exchanges is conservative in favor of increased conservation certainty.	F2-7

Proportionality Balance (NFHCP Commitment L9)

Response Number	Response	Comment Number
795	a. Pre- versus post-sale conservation easements—Plum Creek and the Services believe that if the option remains for Plum Creek to place conservation easements in advance or to sell to a conservation buyer who will place the easement after the transaction, that a greater number of conservation sales will succeed. In some cases, a conservation buyer is motivated by the tax incentives they will receive when placing a conservation easement. This would not be allowed if Plum Creek placed it in advance. b. Purchasing timber from sold land—If Plum Creek is prohibited from buying timber from lands sold with conservation easements, then there is a greater likelihood that timber purchased elsewhere instead would be harvested with fewer prescriptions. This prohibition could actually create a reduced conservation certainty for the Services if it occurred in areas with Permit species. c. Proportionality factor accounting time frames—A 5-year accounting cycle for this commitment is consistent with the major reporting period described in A6. Timing flexibility also allows for the use of a wider range of creative transactions and therefore increases the likelihood of a larger number of successful conservation sales.	E5-96, E5-24, F2-5
796	A straight “land sale cap” is common of other HCPs. The Services view the proportionality approach of the NFHCP as a desirable innovation because it preserves the incentive for Plum Creek to leave high value land within the NFHCP Project Area and it improves the likelihood that lands sold will have a positive conservation outcome for Permit species.	E13-21, E9-10, F2-2, F2-4, F17-9
797	See response 795, paragraph b. If land is sold unrestricted, it receives a negative proportionality factor. Timber harvested from unrestricted land that Plum Creek sold has no greater impact to fish than timber harvested from unrestricted lands that Plum Creek never owned.	F2-6

Legacy

Response Number	Response	Comment Number
798	The Services agree that Plum Creek's participation in designating stream resource maintenance flows would help native salmonids. However, the Services prefer "in-kind" minimization and mitigation efforts (for example, fix roads if roads are the problem), and do not feel that requiring such offsite mitigation is sufficient for Permit issuance.	C2-23
799	Engineered habitat restoration projects are not intended to substitute for habitat protection measures. Rather, these projects are anticipated to improve, or rectify, localized impacts to habitat that have occurred as the result of historic practices. All restoration projects will be carefully evaluated for their probability of success before implementation and follow-through monitoring to evaluate project efficacy will be conducted as a matter of course. The Services did not value highly the potential benefits of these conservation commitments because of the uncertainty of their effectiveness. However, we encouraged Plum Creek to apply creatively their ideas for restoring fish habitat where possible.	D1-34
800	The Services recognize that it will be difficult to measure success against a known trigger under these commitments because potential restoration projects are widely variable and expected results from likely treatments are unknown. Therefore, including them did not explicitly change the Services' expectations for conservation in other areas. However, the Services are interested in acquiring the potential conservation benefits of such commitments, particularly since these kinds of proactive actions would be difficult to obtain through some other forum. Some certainty for conservation was built into the commitments by developing a specifically defined programmatic approach for determining which sites would be candidates for restoration projects and by requiring Services technical input into project design. The monitoring portion will not only provide for continuous improvement adaptive management opportunities within the NFHCP but will contribute to a more measurable approach for future conservation strategies.	E4-138
801	The Services will work cooperatively with Plum Creek to participate constructively in watershed planning efforts. Ultimately, non-participation by Plum Creek could result in Permit non-compliance because of their stated commitment to participate.	E17-12
802	Under the NFHCP, Plum Creek has committed (Lg8) to working with local watershed groups wherever possible as a cooperator to promote healthy riparian ecosystems for native fish. Plum Creek would participate with neighbors and local groups to develop partnerships to work together in watershed basins where conservation can extend beyond the boundaries of Plum Creek's ownership.	G5-3

Clean Water Act

Response Number	Response	Comment Number
803	Table 4.6-5 in the DEIS identifies those water bodies in Montana, Idaho, and Washington within the Planning Area that support subpopulations of the Columbia River population segment of bull trout and that also appear on 303(d) lists. These listed water bodies, as well as water bodies that pose a water quality threat to bull trout, are noted under the column heading "Water Quality" in Table 4.6-5. The source document for this table is *Klamath River and Columbia River Bull Trout Population Segments: Status Summary and Supporting Documents Lists* prepared by the Bull Trout Listing Team, FWS (1998). In addition to this information, Section 4.4, *Water Quality and Contaminants,* of this FEIS has been revised, using current and readily available information from the EPA and the States of Montana, Idaho, and Washington, to identify water quality limited [303(d) listed] water bodies in the 1.7-million acre Project Area and the TMDL priority of each. While the commentor requested information on the entire Planning Area, we believe information on 303(d) listed water bodies in the Project Area is most relevant and potentially most helpful in assessing consistency between the ESA and Clean Water Act (CWA) since the Project Area is where the NFHCP prescriptions would be implemented. Also, it is noted that the draft and final EIS/NFHCP documents focus on an Incidental Take Permit and Permit issuance criteria rather than CWA requirements. The Services recognize that meeting ESA requirements through implementation of sound HCPs also may be helpful in meeting CWA and Total Maximum Daily Load (TMDL) requirements.	D1-10, D1-71
804	States are obligated to complete TMDLs for 303(d) listed waters under the CWA. The Services cannot hold Plum Creek accountable for obligations of states, or under other laws. However, any information generated from watershed scale TMDLs will be available to the Services to use in the adaptive management framework, which includes a “re-opener” mechanism through the cooperative or mandatory response pathways in AM-2.	D1-11
805	We interpret from the comment that a preferred approach would be for the impact analysis to be performed at a specific, water-body level. While a worthwhile goal, such detailed information does not exist for the majority of the Planning Area, and would require significant additional expenditures of time and effort to obtain. It was determined during scoping that a programmatic approach would be used for assessing potential impacts, and that the most appropriate scale of impact analysis would generally be at the basin level rather than at individual water bodies. These decisions were reached because of the extremely large size of the Project and Planning Areas that requires the examination of effects at a scale covering millions of acres, and because of the generic nature of many of the NFHCP management prescriptions that would be implemented over broad areas within the Project Area. The size and scale of a single map required for displaying Planning Area Basins and Tier 1 watersheds allowed labeling of major water bodies, but did not allow the depiction or certainly the labeling of every waterbody within Planning Area basins. Where specific drainages could be identified that have been adversely affected in the past and which would benefit from site-specific management prescriptions aimed at improving salmonid habitat, these drainages were named in the draft	D1-68

Response Number	Response	Comment Number
	document and in this final document. Regardless of scale, the overall focus of the NFHCP at the basin and drainage levels is to improve habitat and water quality conditions for native salmonids. These benefits would occur primarily within the Project Area, with little observable adverse effects and possibly some slight benefits anticipated in adjacent downstream Planning Area water bodies. We believe that providing information for each specific water body in the Project and Planning Areas would not have improved our understanding of the needs of native salmonids that was necessary to perform this analysis; would not have altered our assessment of the overall effects on native salmonids as evaluated through the Four C's of cold, clean, complex, and connected water; and would not have caused us to reach different conclusions regarding the relative benefits and limitations of the Preferred Alternative, other action alternatives, and the No Action Alternative.	
806	The NFHCP is a proposal aimed at meeting the conservation needs of aquatic species pursuant to the requirements of the ESA. The Services and EPA have been engaged in broader efforts to incorporate both ESA and CWA standards and requirements in habitat conservation planning activities. Currently, no specific provisions have been generated from these efforts that can be incorporated into this NFHCP. However, the Services and Plum Creek agree that ultimately, NFHCP conservation commitments should contribute to achieving CWA goals. Plum Creek is aware of their separate obligation under the CWA, and the fact that an ESA permit may or may not meet future requirements of the CWA. Also see 809.	D1-69, E1-21
807	As stated in the response 803, Section 4.4, *Water Quality and Contaminants,* of this FEIS has been revised. Information was presented in the DEIS and in this FEIS on 303(d) listed water bodies in the Planning Area that support subpopulations of bull trout. The revision to Section 4.4 uses current and readily available information from the EPA and the States of Montana, Idaho, and Washington to identify water quality limited [303(d) listed] water bodies in the 1.7-million acre Project Area and the TMDL status of each. Where data were available, specific parameters resulting in a 303(d) listing were identified, the magnitude and source of impairment described, and the likely effects of the proposed NFHCP and alternatives (which would be implemented within the Project Area) on these specific parameters noted. The DEIS and this FEIS both conclude that compared to existing conditions and the No Action Alternative, the proposed NFHCP and other action alternatives would result in overall improvements in water quality as measured through the Four C's of cold, clean, complex, and connected habitat. The Four C's consist of numerous parameters contributing to good water quality that were evaluated in these documents, including those of temperature, sediment, nutrients (phosphorus), and aquatic habitat that are listed in this comment. Overall expected improvement in the Four C's was determined to be somewhat greater under the proposed NFHCP than other action alternatives. Expected water quality improvement under the proposed NFHCP is not surprising since the prescriptions and conservation commitments were specifically designed and refined through negotiations between the Services and Plum Creek to accomplish this goal and benefit native salmonids.	D1-70

Response Number	Response	Comment Number
808	The NFHCP is a proposal aimed at meeting the conservation needs of aquatic species pursuant to the ESA. Although the Services and EPA have been engaged in efforts to incorporate both ESA and CWA standards and requirements in habitat conservation planning activities, these efforts have not resulted in a satisfactory process to this point. Also see responses 806 and 809.	D1-72, E1-21
809	See response 365. HCPs are required to be approved and implemented under the ESA and associated implementing regulations. While most of the prescriptions and commitments within the NFHCP are designed to result in improved water quality to provide for the enhanced conservation of proposed Permit species, attainment of specific CWA standards is not a requirement under the ESA, and is not within the authority of the Services.	E1-20, E13-4. E22-6, E1-23, E1-24
810	One of the factors to be evaluated in the Section 10 findings document is whether the "take" being proposed is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. The Services must make this finding before issuing the Permit. Furthermore, should the Permit be issued, it will be conditioned as follows: "The validity of this Permit is also conditioned upon strict observance of all applicable foreign, state, local or other federal law." Should Plum Creek violate this condition, their Permit would be subject to revocation or suspension. The Services understand and will carry out its regulatory responsibilities with respect to the proposed issuance of the Permit to Plum Creek.	E4-91
811	The respondent asserts that water quality standards for Oregon and Washington are likely to adversely affect bull trout. As expressed in responses 809 and others, the NFHCP is not linked to CWA requirements.	E4-121
812	HCPs are required to be approved and implemented under the ESA and associated implementing regulations. While most of the prescriptions and commitments within the NFHCP are designed to result in improved water quality to provide for the enhanced conservation of proposed Permit species, attainment of specific CWA standards is not a requirement under the ESA, and is not within the authority of the Services.	E5-41
813	Please see the response 803 by the EPA. Also, the seven basins listed on page 4-27 of the DEIS were identified specifically by FWS as having water quality conditions that may threaten some subpopulations of bull trout. This information was presented in *Klamath River and Columbia River Bull Trout Population Segments: Status Summary and Supporting Documents Lists* prepared by the Bull Trout Listing Team, FWS (1998). This FWS (1998) document was the source of Table 4.6-5 in the DEIS, which shows water quality in Whitefish Lake and Upper Whitefish Lake in the Flathead River Basin as a threat to bull trout. While the FWS recognizes that meeting ESA requirements through implementation of sound HCPs may also be helpful in meeting CWA and TMDL requirements, and recognizing that the FWS and EPA have been engaged in efforts to incorporate both ESA and CWA standards and requirements in HCP planning activities, the EPA has no authority relative to the approval of HCP planning activities under the ESA.	E11-6

Response Number	Response	Comment Number
814	There are several covered activities that are not specifically exempt from wetland permitting under CWA Section 404(f). Should Plum Creek pursue these activities (e.g., stream restoration), 404 permits would likely still be required.	G3-3

F.3 Written Comments

The written comments are provided in this section as they were submitted to the Services. For a list of the people and groups that provided comments, and the page number corresponding to those comments, please see the *Table of Contents* at the beginning of this appendix. The comments are identified on each letter, and these numbers correspond to responses in Section F.2, *Comment Response Matrix*.

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Letter A1

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
A1-1	1

OFFICE OF THE GOVERNOR
STATE OF MONTANA

MARC RACICOT
GOVERNOR

STATE CAPITOL
HELENA, MONTANA 59620-0801

March 17, 2000

Ted Koch
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise ID 83709

Dear Mr. Koch:

A1-1

Thank for the opportunity to comment on the Draft Environmental Impact Statement (EIS)/Native Fish Habitat Conservation Plan (NFHCP).

The State of Montana supports the adoption of the Plum Creek HCP in the final EIS. Over the years we have supported new and innovative ways to support threatened and endangered species. In the future, we need to encourage governmental entities and private landowners to foster agreements like those proposed within this EIS. The investments made by the U.S. Fish and Wildlife Service, the National Marine Fisheries Service and the Plum Creek Timber Company are substantial and should be commended. If implemented appropriately, we believe the NFHCP will lead toward conservation of bull trout and other native fish species.

Within the next week, the State of Montana may submit more technical comments to the EIS team for your review.

Sincerely,

MARC RACICOT
Governor

TELEPHONE: (406) 444-3111 FAX: (406) 444-5529

Letter A2

STATE REPRESENTATIVE
24th DISTRICT
JIM BUCK

State of
Washington
House of
Representatives

NATURAL RESOURCES
CO-CHAIRMAN
TRANSPORTATION

March 13, 2000

Ted Koch
USFWS
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, Idaho 83709

Dear Mr. Koch:

I am pleased to comment in support of the Native Fish Habitat Conservation Plan developed by Plum Creek Timber Company, USFWS, and NMFS. It is gratifying to see private landowners step forward and voluntarily take significant conservation measures that enhance our ability to protect valuable natural resources.

A2-1

The work done on the NFHCP has already significantly added to the scientific knowledge base about many fish species in Washington, and the public process has been extensive as well. I am also pleased that the Plan relates positively to Washington's Forest and Fish Plan.

It is important for us to maintain a vibrant business climate in Washington while we deal with important environmental issues, and creative solutions such as this one are a win-win for us all.

Sincerely,

JIM BUCK
Co-Chair, House Natural Resources Committee
24th Legislative District

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Responses

See Response to Comment Table or click on link provided below.

Comment	Response
A2-1	1

Letter A3

STATE REPRESENTATIVE
42nd DISTRICT
KELLI LINVILLE

State of
Washington
House of
Representatives

APPROPRIATIONS
AGRICULTURE & ECOLOGY
RANKING MINORITY MEMBER
EDUCATION

RECEIVED
MAR 20 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

March 17, 2000

Mr. Ted Koch
USFWS
Snake River Basin Office
1387 S. Vinnell Way, Room 368
Boise, ID 83709

Dear Mr. Koch:

A3-1

I want to add my support to the Native Fish Habitat Conservation Plan developed by Plum Creek Timber Company, USFWS and NMFS. This is the company's second major HCP in Washington, and I commend them for their commitment to protect riparian habitat for the long-term.

The plan represents over two years of peer-reviewed scientific research, and an extensive public process to communicate with stakeholders. The Plan is compatible with the recently enacted Forest and Fish Plan, but is tailored to the characteristics of specific landscapes. It is also broader, in that it provides management measures for grazing, land uses, and legacy issues such as old roads and water diversions.

Private landowners taking significant, voluntary steps on environmental issues is good news, and we should do everything possible to encourage others to follow the example of Plum Creek and the entire timber industry.

Sincerely,

Kelli Linville

Kelli Linville
Co-Chair, House Agriculture & Ecology Committee
State Representative
42nd District

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Responses

See Response to Comment Table or click on link provided below.

Comment	Response
A3-1	1

Letter A4

STATE REPRESENTATIVE
13th DISTRICT
GARY CHANDLER

State of
Washington
House of
Representatives

AGRICULTURE & ECOLOGY
CO-CHAIRMAN
NATURAL RESOURCES
TRANSPORTATION

March 15, 2000

RECEIVED
MAR 20 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

Mr. Ted Koch
USFWS
Snake River Basin Office
1387 S. Vinnell Way, Room 368
Boise, ID 83709

Dear Mr. Koch:

I wanted to add my support for the Native Fish Habitat Conservation Plan recently developed by Plum Creek Timber Company, USFWS and NMFS. The Plan is a rare example of the U.S. government working constructively with a private landowner to resolve a problem in a creative way.

A4-1

The Plan is the result of extensive scientific research and a public process that has effectively worked from the "bottom up" with many stakeholders. It is not "one size fits all," but, rather, it is tailored to the specific lands in Plum Creek's ownership and deals with a broad array of issues, such as grazing and land sales.

The 30-year Plan is a significant step in protecting habitat for salmon, bull trout, steel head, and many other fish species, and I commend Plum Creek's efforts.

Sincerely,

Rep. Gary Chandler
House Agriculture and Ecology Committee Co-chair

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Responses

See Response to Comment Table or click on link provided below.

Comment	Response
A4-1	1

Letter A5

Washington State Senate

Senator Ken Jacobsen

46th Legislative District
Majority Caucus Vice-Chair

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March 13, 2000

Mr. Ted Koch
United States Fish and Wildlife Service
Snake River Basin Office
1387 S. Vinnell Way, Rm. 368
Boise, ID 83709

Dear Mr. Koch,

I want to add my support to the efforts of Plum Creek Timber Company, USFWS, and NMFS in the development of the NFHCP. It is important for private property owners to voluntarily assume responsibility for habitat protection on their lands, and I commend Plum Creek for this effort.

A5-1

The public process has been particularly effective, including a wide variety of stakeholders in the process and a thorough dissemination of the scientific research that forms the basis of the Plan. The Plan builds on Plum Creek's existing HCP in the Cascades, and compliments the recently approved Forest and Fish Plan as well.

I look forward to visiting Plum Creek's lands in Washington to see both the Cascades and Native Fish HCPs in action.

Sincerely,

KEN JACOBSEN
Chair, Senate Natural Resources Committee

Committees: Natural Resources, Parks & Recreation, Chair • Higher Education • Environmental Quality & Water Resources
Transportation • Joint Committee on Pension Policy

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
A5-1	1

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Letter B1

Responses

See Response to Comment Table or click on link provided below.

Comment Response

COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION
729 N.E. Oregon, Suite 200, Portland, Oregon 97232
Telephone (503) 238-0667
Fax (503) 235-4228

February 17, 2000

Mr. Ted Koch
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, ID 83709

RE: Comments on Plum Creek Timber Company Native Fish Habitat Conservation Plan Draft Environmental Impact Statement

Dear Mr. Koch,

Thank you for this opportunity to provide comments on the Plum Creek Timber Company Native Fish Habitat Conservation Plan Draft Environmental Impact Statement (DEIS). As you may be aware, the Columbia River Inter-Tribal Fish Commission ("CRITFC" or "Commission") is composed of the Fish and Wildlife Committees of the Confederated Tribes of the Warm Springs Reservation of Oregon, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes and Bands of the Yakama Nation, and the Nez Perce Tribe. These four tribes possess rights reserved by treaty to take a fair share of the fish destined to pass their usual and accustomed fishing places. Among these fish are the salmonid species residing in the upper Lochsa River basin, the Ahtanum Creek basin, and the Tieton River basin. Our concerns regarding the DEIS focus primarily on the following issues: consideration of tribal salmon management plans and efforts, adequacy of mitigation measures, and assuring that Plum Creek bears its fair share of the salmonid conservation burden.

Letter B1

Consideration of Tribal Salmon Management Plan

The Commission and its member tribes have developed a salmon restoration plan: *Wy-Kan-Ush-Mi Wa-Kish-Wit, Spirit of the Salmon, The Columbia River Anadromous Fish Restoration Plan of the Nez Perce, Umatilla, Warm Springs and Yakama Tribes* (CRITFC, 1995).[1] We found no mention of this plan in our review of the DEIS nor did we find any reference to the plan in the literature cited section. The plan contains a carefully developed approach addressing "the 4 H's" of salmon mortality. The habitat management section is very detailed and is based on Rhodes et al. (1994).[2] We note that Rhodes et al. (1994) was not mentioned in the literature cited, either. Failure to consider *Wy-Kan-Ush-Mi Wa-Kish-Wit* and Rhodes et al. (1994) demonstrates either that Plum Creek's tribal coordination process is incomplete or that it has not listened.

B1-1

Meeting the Salmon Conservation Burden

While the listing of salmon pursuant to the ESA has been a new and traumatic event for some non-Indians, conservation of salmon has not been a new experience for the Commission's member tribes. The tribes have not had a commercial fishery on summer chinook since 1964 or on spring chinook since 1977. Since then, the tribes have harvested these fish for ceremonial and subsistence purposes only. Clearly, the conservation burden borne by the tribes continues to far outweigh that borne by Plum Creek. It is noteworthy that despite the tribes' sacrifices, spring and summer chinook continued to decline.[3] Obviously, harvest was not the problem.

[1] *Wy-Kan-Ush-Mi Wa-Kish-Wit* has been approved by the governing bodies of the Nez Perce Tribe, the Confederated Tribes and Bands of the Yakama Nation, the Confederated Tribes of the Umatilla Indian Reservation, and the Confederated Tribes of the Warm Springs Reservation of Oregon. It can be downloaded from: http://www.critfc.org/text/TRP_text.HTM (vol.I) and http://www.critfc.org/text/contents2.htm (vol.II).

[2] Rhodes, J.J., McCullough, D.A., and Espinosa Jr., F.A., 1994. A Coarse Screening Process for Evaluation of the Effects of Land Management Activities on Salmon Spawning and Rearing Habitat in ESA Consultations. CRITFC Tech. Rept. 94-4, Portland, Or, unpub. This document can be downloaded from: http://www.critfc.org/tech/94-4report.htm.

[3] NMFS has chosen not to list Clearwater River spring chinook because these fish do not meet NMFS' standards for genetic purity. Even so, Clearwater River spring chinook are a run of salmon of significant importance to the Nez Perce Tribe and are considered as valuable as wild fish in the eyes of the tribes' treaties.

2

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While fisheries restrictions in the name of conservation have been in place for decades, state and federal management of land and water have demonstrated little regard for salmonids. To the extent that states have mandated "best management practices" (BMPs) for forestry, these BMPs have not been adequate to protect water quality. After years of state and federal foot-dragging, Idaho and Washington have been compelled to develop lists of water quality limited streams and these number in the hundreds in each state. Nonpoint source pollution from forestry activities is one of the primary causes of water quality problems in these states. Both NMFS and the USFWS have identified the impacts of forestry activities as being factors in the decline of chinook, steelhead, and bull trout.

The impacts of forestry activities can last for centuries. Accordingly, the consequences of error are significant. While the capture of a fish harms that fish, degradation of habitat impairs the productivity of generations of fish. Plum Creek logging activities have already resulted in decades of decreased salmonid productivity in streams flowing through their lands. These impacts are not immediately reversible. Habitat impacts do not vanish just because degraded habitat resulted from "past management." Evaluations of the adequacy of the proposed management prescriptions must address the legacy of past mistakes and the biological needs of the species at risk. Increments of improvement are good, but they must be examined in the context of what the species need. What might appear to be a commendable improvement in management may do little more than briefly extend the decline towards extinction.

B1-2

The DEIS does not appear to contain a comprehensive consideration of the larger context in which Plum Creek's conservation efforts must be measured. What is the level of improvement in habitat productivity that must occur if listed salmonids are to reverse their slide to extinction and rebuild to harvestable levels? This issue does not appear to have been addressed. Instead, the DEIS focuses on comparing three alternatives with each other rather than with meeting the overall needs of listed populations.

B1-3

NMFS recognizes that as it proceeds to negotiate a biological assessment and biological opinion for the Federal Columbia River Power System (FCRPS), it must assure that the management of the FCRPS, along with the management of harvest, hatcheries, and habitat, all add up to

3

Responses

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Letter B1

survival and recovery of listed salmon.[4] To facilitate that analytical process, NMFS has chosen to draft an "All-H Paper" that purports to consider the survival levels from all sources of salmon mortality to see if survival improvements will add up to avoidance of jeopardy and eventual recovery.[5] The "All-H Paper" contains the results of NMFS' preliminary Cumulative Risk Initiative (CRI) analysis. It indicates that significant increases in habitat productivity are necessary to provide for the survival and recovery of Snake River spring/summer chinook and steelhead along with upper Columbia spring chinook and steelhead. All-H Paper at 7. We found no evidence that the DEIS addressed whether any of the alternatives were adequate to meet the productivity increases described.[6] We recognize that the emergence of the All-H Paper coincided with the release of the DEIS for comment. Still, examination of the DEIS and HCP must address the basic principle that habitat productivity must be sufficient to meet all of the various laws and policies that apply to the protection and management of salmonids.

B1-4

While the DEIS and HCP may represent an incremental improvement in private forestry, they still reflect a prejudice that should be excised from salmon management. In the list of issues eliminated from further analysis, the DEIS states:

B1-5

> The Services' decision on Permit issuance will focus on the NFHCP achieving fisheries habitat objectives, which are within Plum Creek's control, but will not contain population objectives because fish populations could be influenced by a variety of factors unrelated to Plum Creek's actions, such as effects of downstream dams on steelhead migration and the effects of land management activities conducted by entities other than Plum Creek.[7]

[4] We trust that soon NMFS will also recognize that it is legally obligated to manage not only for survival and recovery, but also rebuilding salmon to levels adequate to meet the tribes' treaty reserved rights to take fish.

[5] Federal Caucus, Conservation of Columbia Basin Fish: Building a Conceptual Recovery Plan (December 1999 draft).

[6] We recognize that there are significant problems with the CRI analysis. However, the All-H Paper contains the latest word from the federal government on the amount of improvement in habitat productivity that is necessary. To the extent that the federal government continues to subscribe to the CRI analysis, then it is bound to apply the results.

[7] This view is not unique to Plum Creek and the Services. It is broadly held by federal land managers, as well.

4

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B1-5	4

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B1-5 DEIS at 4-65. This is a luxury that the fish cannot afford. Moreover, it's a luxury that has not been offered to the tribes. The fact that the tribes have not had commercial fisheries on spring or summer chinook in over 20 years has not been because the tribes' management was in error. These fisheries have not occurred because of the low abundance of these runs. These runs have been low for a number of reasons, including impacts from the FCRPS, poor land management on federal and private lands, and poor water management. In any case, the tribes have constrained their fisheries because abundance was low. While we'd all like to live in a world where the acts of others do not in any way impair or limit our freedom, it is not possible. The actions of others that affect salmonid abundance affect all of us, not just the tribes. Proper land management cannot ignore the abundance of the creatures it purports to protect.

B1-6 The tribes have been conserving spring and summer chinook for decades while entities such as Plum Creek have reaped the benefits. This is unfair to the tribes and to the salmon and it must stop. The DEIS and HCP must be revised to become responsive to the needs of listed salmonids for increased productivity. There is no evidence indicating that salmon will continue to survive if state and federal land management merely slows the rate of habitat degradation or even mandates non-degradation. To the contrary, all the available information indicates that productivity must be increased to ensure the continued existence of salmon. In addition, this is not the only standard that must be met. The Clean Water Act requires FISHABLE and swimmable waters.[8] The runs must also be rebuilt to comply with the tribes' treaty rights to take fish. The Services' do not have the authority to shield private entities from their obligation to not impair the tribes' treaty reserved rights to take fish.

B1-7 In re-writing the HCP and DEIS, the Services and Plum Creek need to address the necessity of responding to changes in abundance. Given the condition of salmonids, the excesses that have been permitted by state and federal logging regulations, the long-lasting impacts of habitat degradation, and the need for increased productivity, there is no room for increased risk. Accordingly, management practices must be adjusted to avoid risk. While this will result in significant additional restrictions beyond those that Plum Creek has already agreed to, it is necessary because of the condition of salmon. As discussed earlier, the tribes' salmon restoration plan, *Wy-Kan-*

[8] The Clean Water Act clearly intends harvestable numbers of fish as an objective.

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B1-7	6

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B1-7 *Ush-Mi Wa-Kish-Wit* and Rhodes et al. (1994) contain extensive and detailed land management recommendations with citations to the technical literature. The recommendations provided there were developed in light of the known risks and incorporate safety factors sufficient to permit careful land management while still meeting the needs of salmon. We recommend that the HCP be re-designed consistent with the recommendations in *Wy-Kan-Ush-Mi Wa-Kish-Wit.*

Effectiveness of Management Practices

B1-8 The condition of rivers and streams flowing through forested landscapes provides stark testimony regarding the effectiveness of BMPs, state and federal. The DEIS attempts to paint a pleasant picture regarding the effectiveness of state-mandated BMPs: "Under the No Action Alternative, harvest-related effects on soil productivity would remain about the same as what currently exists. Short-term effects on soil productivity would occur, but generally would not persist." DEIS at 4-9. It is not clear to us how it was determined that additional "short-term" degradation is consistent with the needs of listed salmonids.[9] The objectives for the NFHCP are at least as revealing. These objectives include:

1) Minimize impacts on canopy closure and changes in channel morphology resulting from riparian timber harvest and grazing.
4) Minimize sediment delivery to streams resulting from the construction of new roads and timber harvesting.
6) Create a net reduction in sediment delivery to streams.
8) Minimize impacts on large woody debris recruitment and bank stability in harvested streamside stands.

B1-9 DEIS at 4-67. These objectives clearly contemplate additional incremental impacts to fish habitat and water quality. The objectives contemplate riparian logging and grazing; activities that are thoroughly documented to result in impacts to fish habitat and water quality. At best, only a net incremental improvement (in sediment) is sought. BMPs designed to

[9] According to NMFS, the near term risks of extinction for spring/summer chinook and steelhead are substantial. Because of the quasi-extinction level chosen by NMFS for its extinction analysis (1 fish in a brood year), we think that the actual risk of extinction is much higher than what NMFS opines. Additional short-term risk stemming from habitat management is inconsistent with the needs of the species as defined by NMFS.

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B1-9 achieve these objectives are not adequate to meet the biological requirements of listed salmonids.[10]

The survey of the technical literature contained in Rhodes et al. (1994) provides ample discussion of what kinds of land management activities are compatible (and incompatible) with protecting salmon habitat. A more direct discussion of the effectiveness of the State of Washington's BMPs is found in the Scientific Review of the Washington State Forest & Fish Report (Feb. 1, 2000), Administered by the Society for Ecological Restoration (with participation of expert biologists recommended by the American Fisheries Society).[11] This credible review raises concerns regarding the adequacy of

B1-10 Washington's new BMPs. To the extent that the DEIS and HCP assess or rely on these new BMPs, then the BMPs need to be examined in light of the Scientific Review.

B1-11 The HCP proposes a watershed designation system that allocates watersheds to either Tier 1 or Tier 2. It is not clear to us that this approach is consistent with providing the dramatically increased level of protection that salmonids need throughout their habitat. The Tier system should be examined in light of the concerns raised in these comments.

Conclusion

B1-12 Our review indicates that Plum Creek and the Services have failed to recognize Plum Creek's obligation to provide increased protection to the fish habitat and water quality affected by its land management. Our review also

B1-13 shows that the objectives of the HCP are not consistent with what NMFS states is necessary to prevent the extinction of several runs of Columbia basin salmon. It is also clear that Plum Creek's process for coordinating

B1-14 with the Commission's member tribes was not adequate to assure examination and incorporation of the sound principles contained in *Wy-Kan-Ush-Mi Wa-Kish-Wit*. As a result of the significant defects in the coordination process and the failure to recognize that Plum Creek's

B1-15 management must take into consideration the impacts and problems to salmon caused by other entities (just as the tribes have had to do for many years), we believe it is necessary to re-draft the HCP and accompanying DEIS.

[10] We do not concede that the BMPs proposed in the HCP are adequate to meet even these objectives.
[11] This document can be found at: http://www.halcyon.com/sernw/for_fish/for_fish.htm.

Responses

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B1-15	5

Letter B1

Again, thank you for this opportunity to provide comments. If you have any questions regarding these comments, please feel free to contact Jim Weber, Policy Analyst, at (503) 731-1288.

Sincerely,

Donald Sampson
Executive Director

Cc: Silas Whitman
Dave Cummings
Lee Carlson

8

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter B2

Confederated Tribes and Bands of the Yakama Indian Nation

Established by the Treaty of June 9, 1855

RECEIVED
MAR 20 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

March 15, 2000

Mr. Ted Koch
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinell Way, Room 368
Boise, ID 83709

RE: Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan

Dear Mr. Koch,

The Yakama Nation appreciates the opportunity to provide comments on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan (NFHCP) proposed by Plum Creek Timber Company (PCTC) to the U.S. Fish and Wildlife Service (USF&WS) and the National Marine Fisheries Service (NMFS). The NFHCP seeks to provide a permit for the taking of federally protected native fish species on PCTC lands. Fish species proposed for coverage or allowed take by the NFHCP include: bull trout, redband trout, coastal rainbow trout, coastal cutthroat trout, westslope cutthroat trout, mountain whitefish, pygmy whitefish, steelhead, chinook salmon, coho salmon and chum salmon. Our comments and recommendations are specific to the ability of the NFHCP to maintain and provide conditions suitable for healthy, productive and harvestable populations of native fish important to the Yakama Nation.

TREATY TRUST RESPONSIBILITIES TO THE YAKAMA NATION

The 14 tribes and bands of the Yakama Nation reserved through the Treaty of 1855 rights to fish, hunt and conduct other cultural practices throughout its ancestral lands. The treaty reserved lands of the Yakama Nation encompass the Cascade Mountains, the Columbia River, Snake River, and their tributary streams. The Traditional Use Area (TUA) and Usual and Accustomed (U&A) Area of the Yakama Nation covers a much larger geographical area that extends into other states and countries. Both resident and anadromous fish that occur in these areas have been essential to the life and culture of the Yakama People. Actions that could affect these tribal resources, such as this proposed NFHCP, are taken very seriously by the Yakama Nation. We hope that the USF&WS and NMFS (Services) will make every effort to insure that the tribal resources of the Yakama Nation are properly protected. In making determinations on this NFHCP, the Services need to consider requirements set forth by the Endangered Species Act and their trust responsibility to the Yakama Nation.

B2-1

The Services should be fully aware, and make every effort to meet its treaty trust obligations to the Yakama Nation and other Tribes. President Clinton's Memorandum of April 29, 1994 states, "As executive departments and agencies undertake activities affecting Native American tribal rights or trust resources, such activities should be implemented in a

Post Office Box 151, Fort Road, Toppenish, WA 98948 (509) 865-5121

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knowledgeable, sensitive manner respectful of tribal sovereignty." It goes on to state in section (c), "Each executive department and agency shall assess the impact of Federal Government plans, projects, programs, and activities on tribal trust resources and assure that tribal government rights and concerns are considered during the development of such plans, projects, programs and activities." Similarly, in Executive Order 13084 by the President, Section 2, it states, "In formulating policies significantly or uniquely affecting Indian tribal governments, agencies shall be guided, to the extent permitted by law, by principles of respect for Indian tribal self-government and sovereignty, for tribal treaty and other rights, and for responsibilities that arise from the unique legal relationship between the Federal Government and Indian tribal governments."

B2-2 The Yakama Nation requests and expects due consideration by the Services of our comments and recommendations regarding the NFHCP. Our concerns should be addressed prior to initiating a Final Environmental Impact Statement for the NFHCP. We would ask that the Services keep us apprised in a timely manner of any actions or decisions it is considering on the NFHCP. The Services should provide written response and direct consultation to the Yakama Nation if it can not address our specific concerns regarding the NFHCP.

COMMENTS AND CONCERNS WITH THE NFHCP

B2-3 Staff of the Yakama Nation have reviewed the NFHCP for its ability to provide suitable conditions for healthy, productive and harvestable fish populations. The NFHCP has a few positive elements, but mostly provides very weak protection strategies. We are quite concerned that the NFHCP has been formulated to provide only marginal habitat and water quality conditions. If this is the intent, the NFHCP fails to meet tribal goals and the trust resource responsibilities of the Services to the Tribes. After review of the document we have the following comments and recommendations concerning the NFHCP:

Tier 1/Tier 2 Stream Classification

The NFHCP classifies watersheds in the project area into two major categories. Tier 1 watersheds are "those that contain streams known to be important for bull trout spawning and juvenile rearing." Tier 2 lands are "those Plum Creek lands that occur outside of Tier 1 watersheds." Plum Creek lands in the Tier 1 watershed classification comprise approximately 18.6% of the project area in Plum Creek lands, while Tier 2 lands make up the remainder, or 81.4%. The NFHCP places greater protection measures on Tier 1 watersheds due to the sensitivity of bull trout spawning and rearing areas.

B2-4 **Comments:** We have concerns with the proposed watershed/land classification scheme. The classification method focuses all attention on known bull trout spawning and rearing, and defaults all other life histories and fish species to Tier 2 lands. This approach ignores many of the requirements of other fish species and bull trout life histories.

1. Tier 1 watershed status is only designated for streams known to have bull trout spawning and rearing areas. Information on bull trout distribution and habits is quite limited in some watersheds, and therefore will be given Tier 2 land status and less

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protection. As an example, the NFHCP designates the Oak Creek watershed (lower Tieton River) as Tier 2 lands. Historical information indicates bull trout use of the drainage, furthermore the U.S. Forest Service verified the presence of bull trout in the watershed during surveys conducted in 1999. From our understanding of the NFHCP and talking to the Services and PCTC, currently designated Tier 2 lands will **not** be reclassified even if new information does document bull trout spawning and rearing. This is a flawed approach that has no scientific, conservation or recovery basis. Watershed classification and protection measures should be adjusted accordingly with new information. Lack of complete information should not be a basis for less protective land management activities.

B2-4 ▸ 2. Other life history stages of bull trout (e.g. adult holding, foraging, migrating, over-wintering) and all life history stages of other fish species are placed in Tier 2 lands of lesser protection and priority under the NFHCP. While bull trout probably do need colder stream temperatures for spawning and rearing, and possibly less fine sediment delivery, most other riparian and stream functions are equally important for other salmonids and other life history stages of bull trout. Do other ESA listed fish in the NFHCP need less pool area, large woody debris recruitment, spawning gravels, overhead cover, nutrient delivery, bank and channel stability, velocity refuge, fine sediment abatement, interstitial space availability and protection from mass wasting events, than for bull trout spawning and rearing? In most cases the answer is no. The watershed classification scheme and protection measures must recognize all of the critical conditions important for the different life histories and fish species, not just a select few.

Road and Upland Management Commitments

The NFHCP acknowledges that roads can have a negative effect on salmonid species. The NFHCP seeks to address road-related impacts through the use of road and management commitments organized into three categories: Best Managment Practices (BMPs) governing active forest practices, management and upgrade of transportation systems and other measures. The commitments focus primarily on new road construction, evaluation of road delivery sources, implementation of BMPs and road maintenance. Upgrades of old roads are to be completed within 15 years, with work completed in high-priority watersheds (not to exceed 20% of project area roads) within 10 years. Additionally, Plum Creek intends to initiate research work on the effectiveness of the road BMPs.

Comments: The general approach of identifying and fixing poor road conditions may reduce current fine sediment delivery to streams. However, the commitments lack clear targets, definitions, and expected benefits to fish species. With the approach taken, important elements are missing and there is considerable room for error and interpretation. Several concerns have been identified with the NFHCP for roads and upland management.

B2-5 ▸ 1. The NFHCP outlines that Plum Creek has approximately 16,000 miles of road in the Project Area, with another 4,000 miles of access roads leading to Plum Creek land that the

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company has either direct or shared responsibility (page 2-1). Considering that the Project Area containing Plum Creek lands totals roughly 2,592 square miles, the average road density on Plum Creek lands in the Project Area is **6.2** miles of road per square mile of land. The Bull Trout Interim Conservation Guidance (USF&WS 1998) discusses road density information derived from (Quigley et al. 1997). The Guidance Document states: "Bull trout strongholds in the Interior Columbia River Basin showed a very strong (P=0.0001) negative correlation with road densities. The average road density in bull trout strongholds was 0.45 mi/mi^2, which is considerably less than the standard of 2-3 mi/mi^2 reported as adequate for populations of anadromous salmonids. Bull trout populations classified as "depressed" had an average watershed road density of 1.4 mi/mi^2 and bull trout typically were absent at an average road density of 1.7 mi/mi^2. Although some variability in these patterns was apparent the association was strong, suggesting that bull trout are exceptionally sensitive to the direct, indirect, or cumulative effect of roads." Plum Creek has dismissed road density as a good indicator of bull trout spawner abundance with its one study in the Swan River Basin. While we agree that road density does not capture all site specific factors of roads, it does serve as a good general indicator of human impacts. The NFHCP should not ignore road density patterns and should seek to substantially reduce road mileage, particularly in close proximity to streams. Generally, roads within 200 feet of streams should be abandoned unless improvements and relocations can be made that will prevent fine sediment delivery and loss of riparian function. We are curious why the Services appear to place more reliance on the one Plum Creek study rather than their own Guidance Documentation and the references contained in it.

B2-5

2. The road commitments and strategies for the NFHCP use ambiguous and unquantifiable language that gives little confidence in attainment of proper biological functions. The NFHCP uses terms such as "nearest practicable location", "as frequently as necessary", "road construction will be avoided...when road construction is unavoidable", "minimize sediment delivery", "or a suitable alternative", "reasonably practicable", "too close to streams", and "where possible". Such terminology gives little assurance that commitments will meet biological requirements, can be assessed, or enforced. The NFHCP road commitments must clearly define and describe planned actions rather than using vague terminology. The road commitments also must set clear biological targets and describe how the commitments will address them.

B2-6

3. The NFHCP dismisses many slope stability concerns on water quality and fish habitat without proper justification. The document mentions a lower frequency of landslide rates and the "rare" occurrence of timber harvest related landslides in the inland portion of the Project Area, compared to western Washington. The NFHCP then winnows the unstable features down to only, "principle slope stability concerns are found in what are described as inner gorge landforms". Through this dismissal and removal process for unstable areas, the NFHCP only attempts to address roads within inner gorge areas throughout the Project Area. This approach has serious flaws that are likely to permit substantial impacts to water quality and fish habitat. Does this mean that landslides caused by roads on other unstable landforms or due to timber harvest activities will have no adverse impact on fish

B2-7

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B2-7

species? The NFHCP also makes considerable mention of the high frequency of landslides in western Washington, but gives this portion of Project Area no further evaluation or protection measures. To properly address landslides, the NFHCP must evaluate the effects of roads **and** timber harvest on **all** potential unstable landforms (e.g. toes of landslide features, bedrock hollows, convergent headwalls, steep convergent and planar topography, avalanche chutes, open raveling slopes, debris flow prone zones, and inner gorges). Roads and timber harvest should be prohibited from these areas unless a complete evaluation and risk assessment has shown that the activity has a very low risk of initiating landslides.

B2-8

4. The NFHCP makes some very broad and misleading interpretations of the ability of existing State regulations to delineate and address unstable slopes and landslides. The NFHCP says, "... the state of Washington screens **all** forest practice activities for the presence of high hazard landslide areas. If any are found, they are designated a "Class IV Special," whereupon an agency and landowner inter-disciplinary team is formed, and site specific management practices are developed to address any hazards identified." In reality, forest practices in the State of Washington are not classified "Class IV Special" **unless** the area is identified by the State's TRAX system as containing very unstable soils, the site is field verified by the department, and the area is on uniterrupted slopes above a stream, wetland or capital improvement. Inter-disciplinary teams are also not formed unless the department decides one is needed. The system in the State of Washington identifies some land-slide terrain, but due to mapping inaccuracies, flagging only soils that are designated very unstable, limited personnel time and a shortage of qualified geotechnical staff, not all forest practices are adequately screened for unstable features. If this system was so effective, landslides due to roads and timber harvest should have been nearly non-existent in the last 10+ years. This is not the case. Although less frequent that decades ago, landslides due to recent timber harvest and roads are still quite apparent throughout the State of Washington. The NFHCP goes on to say, "As mentioned earlier, all forest practices in Washington are screened for slope stability. Plum Creek believes the existing regulatory approach is adequate and no further supplementation under the NFHCP is necessary." We strongly disagree that the Washington State system is fully adequate for identifying and preventing the initiation of landslides. The NFHCP must have requirements to evaluate **all** slide-prone areas, assess planned activities for risk of initiating landslides, and either avoid the area altogether or ensure that the activity will not elevate the frequency or magnitude of landslides delivering to waters.

B2-9

5. The NFHCP indicates that stream crossings will be designed to carry a 50-year peak flood event. In the State of Washington, the Hydraulic Code requires that stream crossings be designed to pass a 100-year peak flood event along with expected debris. This gives some assurance that stream crossings will not typically fail during flood events or scour inlet and outlet areas of the crossing. The NFHCP must require stream crossings to be designed to pass a 100-year peak flood event, along with expected debris, and provide unimpeded fish passage.

Responses

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Letter B2

B2-10

6. The NFHCP appears to have a target and trigger (Adaptive Management 8-23) for new and old roads of a pro-rated sediment reduction calculated across the Project Area of 30% or less, which is significantly less than the weighted average reduction of 49% calculated in the effects analysis. An overall sediment reduction of 30% from roads is an improvement from existing conditions, but has no scientific basis for protecting fish species. This approach also has no linkage to acceptable sediment conditions for fish species. In watersheds where roads are contributing substantial sediment, a 30% reduction can still allow adverse impacts to occur. As an example, some drainages in the Ahtanum watershed were determined to have road-related sediment delivery rates exceeding 300+% above background (natural) rates. A minimum 30% reduction as proposed in the NFHCP would still maintain road sediment rates at 210+% above background rates. Such reductions would continue impacts on fish, just at a slightly lower rate. Prescriptions developed for the Ahtanum Watershed Analysis (WDNR 1998) require sediment delivery rates from roads to be reduced down to less than 50% above background (natural) rates within 5 years (an 83+% reduction in existing road sediment would be required to reduce sediment delivery to 50% above background rate in some drainages). The NFHCP target/trigger is also very unlikely to meet State water quality standards and the Clean Water Act for protection of beneficial uses (i.e. fish). The State of Washington has a water quality standard for turbidity of no more 10% contributions from man-made activities above background rates. The NFHCP must set sediment reduction targets and means to achieve them that will provide water quality and habitat conditions conducive for productive, healthy and harvestable fish populations. We would recommend targets/triggers of no more than 10% fine sediment delivery from roads compared to background rates for compliance with State water quality standards. Another target/trigger for bull trout spawning areas would be no more than 10% fines less than 0.85mm diameter in spawning gravels. This is the average percent fine sediment found in McNiel core samples of spawning gravels found in relatively productive bull trout spawning areas (Yakama Nation 2000).

Riparian Management Commitments

The NFHCP mentions the importance of riparian areas to provide a suite of water quality and habitat conditions for fish species. The stated goal of the NFHCP Riparian Management Commitments is to, "...supplement existing state riparian management regulations in meaningful ways. These commitments will reduce the risk to fish by further minimizing impacts to three of the four C's and therefore provide an important conservation benefit." The outlined commitments fall into five categories: State riparian regulations as a basis, channel migration zones, other streams that support fish, headwater streams and riparian-upland interface.

B2-11

Comments: The approach taken by the NFHCP has many concerns. The stated commitments do not necessarily adhere to state regulations and the supplemental actions provide only marginal benefits. Overall, the riparian management commitments in our review do not provide the functions and conditions necessary for protection of fish species, nor the Tribal goal of healthy, productive and harvestable fish populations.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
B2-10	385
B2-11	492

Letter B2

B2-11

1. The NFHCP states, "Existing state riparian regulations currently preclude harvest along an estimated 65 percent (3,300 miles) of Project Area streams." We are very curious how this figure was derived. Considering that standard State riparian regulations allow some level of harvest along most fish-bearing streams and considerable harvest along all non-fish streams, it would seem that the NFHCP has erroneously inflated these numbers. In reality, state riparian regulations do not preclude harvest on the vast majority of fish-bearing streams as stated in the NFHCP. Nor do existing regulations preclude harvest on any of the non-fish bearing streams. The statement estimating 65% of streams preclude harvest should be stricken unless further explanation and justification can be provided.

B2-12

2. The NFHCP discusses stream temperature and factors affecting it. The plan outlines that maximum water temperatures are most influenced by direct beam solar radiation, and therefore canopy cover is the only important aspect of riparian areas to consider. While direct beam solar radiation can have a considerable effect on stream temperatures, it is not the only factor. Most temperature prediction models acknowledge and use several factors to calculate water temperatures. Actually, temperature prediction models typically place a higher emphasis on air temperatures, than shade, for regulating stream temperatures. As outlined in the scientific review accomplished on the Forests and Fish Report for the State of Washington (SERNW 2000), "Maintenance of shading alone will not assure attainment of Washington State water quality standards for stream temperature; maintenance of appropriate air temperature and groundwater temperature is also necessary. Temperature models show that stream temperatures are more sensitive to air temperature than to shading (Sullivan et al. 1990).". The approach taken by the NFHCP is over-simplified and does not capture all of the elements effecting stream temperatures, nor measures to protect temperature. In order to properly protect fish species, the NFCHP must consider and protect all factors affecting water temperatures (e.g. air temperature, wind speed, humidity, ground water and tributary stream influences, canopy cover). It is not appropriate to only consider canopy cover for protecting stream temperature. The Bull Trout Interim Conservation Guidance (BTICG) recommends that riparian buffer widths be one to two site potential tree heights from the edge of the 100-year floodplain edge. We agree with this guidance as a starting point. Entry into these buffers should be limited and only for the purpose of improving riparian function for stream temperature.

B2-13

3. The NFHCP discusses the importance of channel migration zones (CMZs) for bull trout. Channel migration zones are also highly valuable and critical for other fish species. The NFHCP takes the approach that only the most sensitive CMZ's deserve more restrictive protection prescriptions. We do not agree that only "some" CMZs should be protected. This is a recuring theme throughout the NFHCP that only the most sensitive sites or factors affecting fish deserve attention. Regardless of the type of channel migration zone, floodplain functions must be fully protected. We recommend that all riparian buffer widths be measured from the **outer** edge of the CMZ, not just the most sensitive ones. This corresponds with the recommendations of the Bull Trout Guidance. We also recommend that timber harvest activities within the CMZ be prohibited. This would follow the typical prescriptions developed under watershed analyses.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
B2-12	56
B2-13	537

Letter B2

B2-14

4. For most fish-bearing streams the NFHCP allows riparian timber harvest with its "limited harvest rule". The "limited harvest rule" allows trees to be removed until 88 trees/acre are left in the riparian buffer and the trees are greater than 8 inches in diameter at breast height (DBH). The rule also requires no more than 50% of the trees greater than 8 inches diameter can be cut and the trees retained must be representative of the pre-harvest stand. The NFHCP says the tree density of 88 is derived from the Montana Streamside Management Zone rule and that this represents a fully stocked stand if trees are large enough. Full stocking densities are highly variable and depend upon such things as tree species, tree size, site conditions, soils and water availability. The approach taken by the NFHCP is flawed. Generally, full stocking levels will not be attained until trees reach a considerable size at a stocking density of 88 trees/acre. By allowing trees to be thinned down to the 88 trees/acre and greater than 8 inches DBH as a minimum, riparian stands can be substantially opened and allow losses in stream temperature control, bank stability, wood recruitment, nutrient delivery, sediment filtration, etc. We recommend that timber harvest not occur within the riparian buffer width of one to two site potential tree heights for fish habitat, unless the activity is designed strictly to improve riparian function. No more than 20% removal is to be allowed even for riparian function improvement (see Yakama Nation Proposal for specifics). We believe these riparian buffers and their attendant functions are what is necessary for healthy, productive and harvestable fish populations. This also corresponds to riparian buffer widths described in the Bull Trout Interim Guidance Document (USF&WS 1998).

B2-15

5. The requirements set forth by the NFHCP for non-fish headwater streams is meager. Only perennial and connected streams receive minor tree retention buffers. This is contrary to the Bull Trout Guidance Document that states, "In watersheds containing bull trout, provide continuous buffer strips on all streams including intermittent and non-fish bearing headwater streams." We recommend that riparian buffers be established along non-fish streams of 66-100 feet width, dependent upon stream size. Timber harvest should only occur in the buffer for the demonstrated purpose of riparian function improvement.

B2-16

6. For the most part, the NFHCP uses a buffer width of 50 feet for the "limited harvest rule" and another 100 feet for the "Interface Caution Area" (ICA). The ICA requirements maintain 60 or more trees per acre larger than 20 feet tall **or** 30 trees per acre larger than 10 inch DBH **or** a prorated combination. The ICA will provide very few benefits for wood recruitment, as this system can allow a perpetual partial cut harvest pattern. The allowance for some, to substantial harvest entry into these buffers will severely reduce the ability of the riparian stands to supply proper functions. From our modeling, the proposed buffers will only provide 49% of total potential wood recruitment to the streams, **and then only if all trees in the first 50 feet have been retained** (modeling derived from calculations from Van Sickle and Gregory 1990, McDade et al. 1990, and Robison and Beschta 1990). Such limited wood recruitment will severely reduce habitat complexity and channel stability. The 50-foot buffer width distance also is contrary to the recommendations of the Bull Trout Guidance Document for widths of one site potential

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
B2-14	493, 509, 575, 580, 589
B2-15	532
B2-16	493

Letter B2

B2-16

tree height distance from the outer edge of the 100-year floodplain for woody recruitment. Again, we recommend that buffer widthS along fish-bearing streams be one to two site potential tree heights and timber harvest be prohibited unless designed to improve riparian function.

Range Management Considerations

The NFHCP includes commitments to modify grazing practices on Plum Creek lands where livestock may be adversely effecting fish species. The NFHCP has five commitments including: adherence to grazing BMPs, grazing exclosures, evaluation of BMPs, status of vacated leases, and rancher training. Included in the range management considerations is a set of performance standards.

Comments:

B2-17

Grazing activities without question can be highly detrimental to fish species if conducted inappropriately. It is important for landowners to recognize and address this land management activity. We are pleased to see the addition of this element to the NFHCP. This is also one of the few places in the NFHCP that has specific performance standards to be met by lease holders and will be evaluated. In general, the performance standards are a good starting point. However, the thresholds should be further restricted in areas of high fish use. Highly sensitive life history stages such as spawning and rearing for all fish species should be targeted for additional grazing requirements. We would recommend the proposed riparian performance standards be applied to the general Project Area. In areas identified for spawning and rearing of listed fish, the performance standards should be more restrictive. We would recommend performance standards of less than 5% of the stream area have bank disturbance, soil compaction or damage to trees and shrubs in these sensitive sites. In addition, areas used for spawning should not have livestock in them from the time redds are constructed until alevin emergence. This livestock exclusion is warranted to prevent direct damage to early life history stages. We would also recommend that grazing exclosures be considered for use on all perennial streams being negatively impacted by livestock, rather than the narrow definition of Tier 1 watersheds or a Key Migratory River. Other listed fish species can also be adversely effected by grazing impacts other than bull trout.

Changes to Hydrology from Management Practices

B2-18

The NFHCP does not directly discuss or address impacts that land management can have on hydrologic patterns. The Plan alludes to road drainage work being beneficial to runoff patterns, but says little else. Several studies have found elevated peak flows occuring in watersheds with timber harvest and/or roads (e.g. Cheng 1989, Troendle and King 1985, Troendle and King 1987, Megahan 1983, Golding and Swanson 1986). Elevated peak flows due to land management can have significant adverse impacts on fish species. We would therefore recommend that NFHCP include a discussion on hydrologic changes and measures needed to ensure land management practices will not impact fish species.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
B2-17	719
B2-18	253

Letter B2

Adaptive Management

B2-19

The NFHCP proposes a number of studies to determine effectiveness of protection measures and commitments. Monitoring is an important element of any conservation plan to evaluate whether prescriptions are adequate. The four main Core Adaptive Management Projects (CAMP) will evaluate the effectiveness of the NFHCP to address road sediment, large woody debris loading and habitat complexity, stream temperatures, and grazing BMPs. A major concern with the effectiveness monitoring is whether an adequate budget and staffing will be allocated to this work. Additionally, much of the discussion on the study designs and CAMPs focuses on comparing existing conditions to future implementation of the NFHCP. While this may supply information on improvements from existing conditions, the studies will not ascertain if conditions are being achieved for healthy, productive and harvestable fish populations. We recommend that the triggers and studies be based on biological functions or conditions. As outlined, most of the studies will only provide comparative information to existing conditions. In many watersheds, existing conditions have been degraded. Some reduction in degraded conditions does not necessarily equate to properly functioning streams and riparian areas. The NFHCP must set biologically based triggers and targets, and determine through adaptive management if prescriptions are meeting the objectives.

CONCLUSION

B2-20

In summary, we have found many elements of the NFHCP to be inadequate and inappropriate to meet the ESA and Tribal goals. In our assessment, none of the proposed alternatives satisfactorily provides the proper functions or conditions for imperiled fish species. Much of the rationale and justification used in the NFHCP is not supported by the majority of the scientific community. The riparian commitments of the NFHCP also are substantially less than recommendations deemed necessary for fish protection by the Services, Yakama Nation and other State and Federal agencies (see enclosed graph). We would request that additional alternatives be developed and added to the NFHCP which more closely reflect past recommendations made by the Yakama Nation and other Federal agencies (USFS 1983, Spence et al. 1996, USF&WS 1998, Yakama Nation 1999, NMFS 1999) and that these alternatives be seriously considered. We would request that Services not proceed with further approval or a Final Environmental Impact Statement on the NFHCP until our concerns have been addressed. Please keep us informed of any decisions you are considering and how our comments are being utilized.

Thank you for your time and consideration on this important matter.

Sincerely,

Carroll Palmer, Deputy Director
Natural Resources Division

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
B2-19	309, 652, 696
B2-20	1

Letter B2

C: (files)

Lonnie Selam, Chairman Tribal Council
Randy Settler, Chairman Fish and Wildlife Committee
Ross Sockzehigh, Chairman TFW Committee
Meredith Bruch, Office of Legal Counsel
Lynn Hatcher, Fisheries
Jim Matthews, Fisheries

William Stelle, Jr., NMFS
Bob Ries, NMFS
Anne Badgely, USF&WS
Thomas Dwyer, USF&WS
Robert Ruesink, USF&WS
Kalispel Tribe
Nez Perce Tribe
Couer d"Alene Tribe
Confederated Salish and Kootenai Tribes

Enclosures

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter B2

References Cited

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Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter B2

Yakama Indian Nation Department of Natural Resources. 1999. A tribal strategy for new forest practices regulation to provide sufficient habitat and water quality conditions necessary for healthy and harvestable populations of aquatic biota and riparian-dependent wildlife. Toppenish, WA. 36pp.

Yakama Nation. 2000. Monitoring data on spawning gravel conditions in the South Fork Tieton River, American River and Rattlesnake Creek from 1996-1999. Unpublished. Yakama Nation Department of Natural Resources, Toppenish, WA.

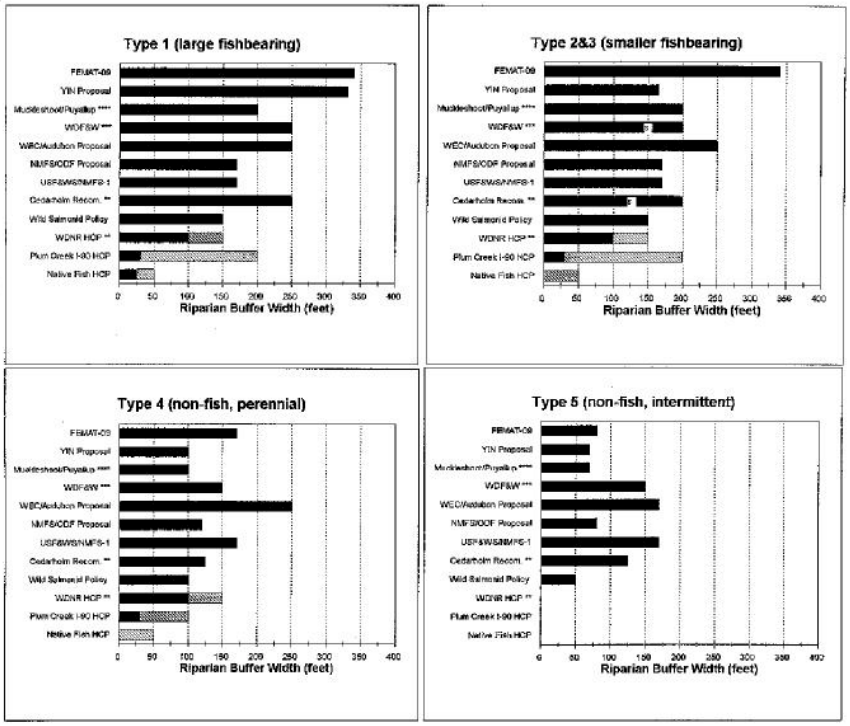
Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter B2

Recommended or implemented buffer widths to protect and restore salmonid habitat-summary of major studi
All buffer widths are essentially "no cut" or "cut-to-improve-function" zones except for HCP's, which allows for various levels of harvest in the zone that is lightly shaded.



Native Fish HCP * uses riparian buffer widths excluding ICA, CMZ sensitivity areas assumed to usually be type 1
WDNR HCP**, Cedarholm** does not include additional width for wind buffers
WDF&W *** S= small fish streams < 5' wide
Muckleshoot/Puyallup**** Assumes all streams 20-30% gradient are type 4 non-fish, streams > 30% gradient are type 5 non-fish

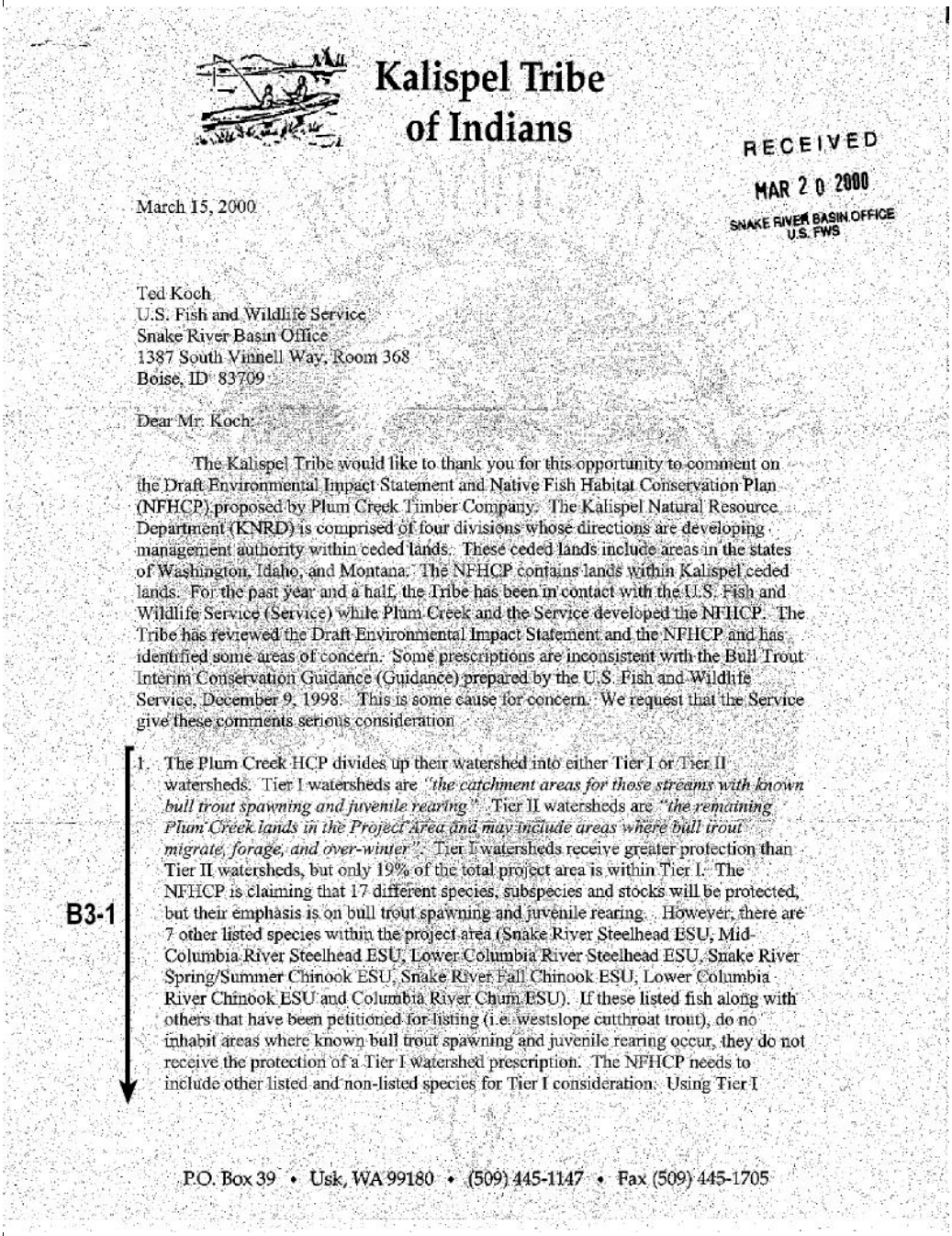
FEMAT-09 = Implemented U.S. Forest Service Northwest Forest Plan, 1994
YIN Proposal = Tribal proposal to the Forest Practices Board, February 1999
Muckleshoot/Puyallup = Tribal proposals to the Forest Practices Board, January 1999
WDF&W = Management recommendations for riparian priority habitats, 1997
WEC/Audubon Proposal = Environmentalists proposal to the Forest Practices Board, December 1998
NMFS/ODF Proposal = draft recommendations of the National Marine Fisheries Service to the state of Oregon, concerning needed improvements to state forest practice rules
USF&WS/NMFS-1 = conclusions reached by 1997 report commissioned by U.S. Fish and Wildlife Service and National Marine Service, known as the "Mantech Report"
Cedarholm Recom. = Recommendations of Jeff Cedarholm and others for WDNR HCP
Wild Salmonid Policy = Washington Department of Fish and Wildlife Wild Salmonid Policy 1997
WDNR HCP = Washington Department of Natural Resources Habitat Conservation Plan 1997
Plum Creek I-90 HCP = I-90 Corridor Habitat Conservation Plan 1996
Native Fish HCP = Preferred Alternative for DEIS to the Services, December 1999.

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter B3



Kalispel Tribe of Indians

RECEIVED
MAR 20 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

March 15, 2000

Ted Koch
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, ID 83709

Dear Mr. Koch:

The Kalispel Tribe would like to thank you for this opportunity to comment on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan (NFHCP) proposed by Plum Creek Timber Company. The Kalispel Natural Resource Department (KNRD) is comprised of four divisions whose directions are developing management authority within ceded lands. These ceded lands include areas in the states of Washington, Idaho, and Montana. The NFHCP contains lands within Kalispel ceded lands. For the past year and a half, the Tribe has been in contact with the U.S. Fish and Wildlife Service (Service) while Plum Creek and the Service developed the NFHCP. The Tribe has reviewed the Draft Environmental Impact Statement and the NFHCP and has identified some areas of concern. Some prescriptions are inconsistent with the Bull Trout Interim Conservation Guidance (Guidance) prepared by the U.S. Fish and Wildlife Service, December 9, 1998. This is some cause for concern. We request that the Service give these comments serious consideration

B3-1

1. The Plum Creek HCP divides up their watershed into either Tier I or Tier II watersheds. Tier I watersheds are *"the catchment areas for those streams with known bull trout spawning and juvenile rearing"*. Tier II watersheds are *"the remaining Plum Creek lands in the Project Area and may include areas where bull trout migrate, forage, and over-winter"*. Tier I watersheds receive greater protection than Tier II watersheds, but only 19% of the total project area is within Tier I. The NFHCP is claiming that 17 different species, subspecies and stocks will be protected, but their emphasis is on bull trout spawning and juvenile rearing. However, there are 7 other listed species within the project area (Snake River Steelhead ESU, Mid-Columbia River Steelhead ESU, Lower Columbia River Steelhead ESU, Snake River Spring/Summer Chinook ESU, Snake River Fall Chinook ESU, Lower Columbia River Chinook ESU and Columbia River Chum ESU). If these listed fish along with others that have been petitioned for listing (i.e. westslope cutthroat trout), do no inhabit areas where known bull trout spawning and juvenile rearing occur, they do not receive the protection of a Tier I watershed prescription. The NFHCP needs to include other listed and non-listed species for Tier I consideration. Using Tier I

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Responses

See Response to Comment Table or click on link provided below.

Comment	Response
B3-1	5, 208

Letter B3

B3-1 stream characters as a surrogate to cover the life-history needs of other species is scientifically flawed.

B3-2 2. *"Maintaining shade to moderate temperature extremes"* is not an adequate goal. There should be no increases in temperature in bull trout waters. The Guidance states the following: *"Maintain or restore optimal and preferred water temperatures by retaining adequate canopy and streamside vegetation through restricting harvest or management activities that reduce shade below 100% or below the level of shade necessary for maintaining cold water in both fish bearing and non-fish bearing streams, including headwaters"*. The Service should be consistent with its Guidance.

B3-3 3. The riparian prescriptions for Tier I and II are inadequate. Even within Tier I and II, the Plum Creek HCP makes a distinction between western Washington and east of Cascades crest. There is greater protection for western Washington than for east of the Cascades crest. However, western Washington Tier I watersheds make up less than 1% (0.87%) of the entire project area. Within high sensitivity channel migration zones (CMZ's) that support fish, there is a big difference between Tier I and Tier II. Within Tier I watersheds, no timber harvest will occur in the CMZ and a limited harvest (88 trees per acre [tpa]) will occur to 50 feet from the CMZ. Within a Tier II watershed, a limited harvest rule (88 tpa) will take place within the CMZ and for 50 feet outside the CMZ. This allows up to 50% of the timber to be harvested within the riparian area. This is even less than the Forest and Fish (F&F) prescriptions in the state of Washington. It is perplexing that the U.S. Fish and Wildlife Service will accept prescriptions less than F&F, when in Washington state, the Service has been heavily involved in the development of F&F. The KNRD does not support F&F and because prescriptions in NFHCP are less than F&F, the KNRD can not support the NFHCP.

B3-4 4. Eastside distances are *"slope distances"*. Westside distances are *"horizontal"*. The Guidance calls for: *"Measure riparian buffer strips beginning at the outer edge of the channel migration zone or 100-year floodplain, whichever is greater, and use horizontal distance measurements (not slope distance)"*. The Service should be consistent with its Guidance.

B3-5 5. Measurement for riparian buffers begin at the ordinary high water mark. Measurement should be measured from the channel migration zone (CMZ). The Guidance calls for: *"Measure riparian buffer strips beginning at the outer edge of the channel migration zone or 100-year floodplain, whichever is greater, ..."*. The Service should be consistent with its Guidance.

B3-6 6. Tier 2 watersheds east of the Cascades crest allow harvest within the CMZ. Even Tier 1 watersheds east of the Cascades crest that have moderate sensitivity CMZ's allow harvest with the CMZ and up to 50 feet from the CMZ. The Guidance calls for: *"Limit activities within the channel migration zone or 100-year floodplain those that have either a neutral or beneficial effect on floodplain functions. Protection of the*

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
B3-2	561
B3-3	595
B3-4	536
B3-5	538
B3-6	539

Letter B3

B3-6

CMZ will also provide protection to hyporheic and important groundwater interaction areas." It goes on to say: *"In watersheds containing bull trout, provide continuous buffers strips on all streams including intermittent and non-fish bearing headwater areas"*. The Service should be consistent with its Guidance.

B3-7

7. Plum Creek has insisted on economic sideboards that are not detailed within the document. They indicate that they are unable to implement certain prescriptions (e.g. larger stream buffers) because it wouldn't meet their business goals and it would be too expensive. But the document never details "why". There is not an economics table in order to determine if the alternatives are indeed practicable or not.

B3-8

8. Adaptive management is useful and necessary when developing prescriptions, particularly when there is a lack of information. Because of this, the prescriptions should be designed to be conservative enough to ensure adequate protection for endangered or threatened species. As information becomes available and alternative practices are developed, prescriptions would then be modified to reflect new information. The NFHCP takes the opposite approach.

B3-9

In developing protection and conservation measures, the Service must consider requirements set forth by the Endangered Species Act (ESA), but also its trust responsibility to the Kalispel Tribe. The Service needs to make every effort to ensure that trust responsibilities are met through its regulatory actions. While the NFHCP may satisfy requirements of the ESA, it does not adequately protect and enhance tribal trust resources.

The Kalispel Tribe looks forward to a continued dialogue with the Service on the subject of protection and recovery of aquatic resources that are important to the Tribe. The Service needs to recognize and seriously incorporate protection plans that will meet its trust responsibilities to the Kalispel Tribe.

Sincerely,

Glen Nenema, Chairman
Kalispel Tribe of Indians

cc:

William Stelle, NMFS
Bob Ries, NMFS
Ann Badgely, USFWS
Bill Shake, USFWS
Gerry Jackson, USFWS
Robert Ruesink, USFWS
Thomas Dwyer, USFWS

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
B3-7	373, 375, 377
B3-8	607
B3-9	97

Letter B3

Bob Hallock, USFWS
Yakama Nation
Nez Perce Tribe
Coeur d'Alene Tribe
Confederated Salish and Kootenai Tribes

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter C1

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C1-1	1
C1-2	608

OFFICE OF THE GOVERNOR
STATE OF MONTANA

MARC RACICOT
GOVERNOR

STATE CAPITOL
HELENA, MONTANA 59620-0801

RECEIVED
APR 17 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

April 14, 2000

U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise ID 83709

Dear U.S. Fish and Wildlife Service:

Thank you for the opportunity to more thoroughly comment on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan (NFHCP) for Plum Creek Timber Company Lands. We applaud Plum Creek Timber Company for taking this proactive approach to dealing with Endangered Species Act (ESA) regulations while striving to conserve native fish and their habitat. This is an important issue for the State of Montana because of the large area of land within our state that is covered by the HCP and our commitment to conservation of our native salmonids, as well as the precedent it sets for other similar conservation planning efforts. There is great interest in Montana for pursuing other HCPs for bull trout and other species, so it is important that this effort succeed.

C1-1

The State of Montana is very supportive of the HCP as a tool for addressing Endangered Species Act issues. Our technical comments are generally directed at the NFHCP alternative since that is the primary focus of Plum Creek and the EIS. As we stated earlier, we prefer this alternative because it should benefit native salmonids and their habitat while providing some long-term assurances to Plum Creek. The following comments are meant to strengthen the overall quality of the HCP so that both of these benefits can be assured. We encourage the U.S. Fish and Wildlife Service to carefully consider these comments as the agency moves forward with the final NFHCP and then issue the incidental take permit to Plum Creek as soon as possible. Our comments address three major categories: habitat, land use and monitoring.

GENERAL COMMENTS

C1-2

The basis for this NFHCP alternative is existing state practices (e.g., BMPs), with an adaptive management component included to enable adjustments based on new information. Because of the flexibility to adjust management practices as better

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Letter C1

C1-2 information becomes available, we are very supportive of the adaptive management process. Modifying management practices through an adaptive management process prevents the need for a one-size-fits-all approach, and increases the confidence that the habitat requirements of bull trout and other native salmonids will be met. It is important that the adaptive management process include enough flexibility to enable timely adjustments to management practices if warranted.

HABITAT PROTECTION/RESTORATION

C1-3 Within the document it is not clear how the differences in habitat protection standards on Plum Creek lands will be evaluated due to different state forest practices regulations among the states. While using existing state forest practices regulations as the foundation for management prescriptions is appropriate, it may be more difficult to sustain the EIS unless the scientific basis for doing so is explained more thoroughly, and it is clear how the habitat needs of the fish covered by the permit are being met.

Road and Upland Management Commitments

C1-4 Upgrading or removing existing roads as described in the NFHCP can reduce sediment delivery, and therefore benefit the aquatic habitat. It is important that the CAMP research described in the Adaptive Management section be completed, and any necessary changes be incorporated. This should include effectiveness monitoring to ensure road BMPs are meeting the desired goal of sediment reduction.

C1-5 We encourage the Service and Plum Creek to include a process that allows for the submittal of observation and information on road problems identified by outside experts. A database system may be appropriate and its use may increase the effectiveness of this commitment.

C1-6 This section could be improved by including benchmarks for road evaluation and improvement between year 1 and year 10.

C1-7 Plum Creek makes a commitment to install culverts on new or on existing bull trout streams to carry the 50-year peak flood. This may be inadequate in some situations, depending on slope, flows, and fish species needing to get past the culvert. For example, while they may be adequate for large, migratory bull trout, smaller culverts may form a passage barrier for cutthroat trout that spawn in the spring when runoff is largest.

C1-8 However, in some instances, it may not be desirable to restore fish passage at all. Those instances include where there are introgressing species such as brook trout or rainbow trout that are below a barrier, and pure native species above such as bull trout or cutthroat trout. We recommend that passage be addressed on a case by case basis. FWP would be willing to consult with the parties on these individual projects.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C1-3	115
C1-4	626
C1-5	470
C1-6	443
C1-7	389
C1-8	390

Letter C1

Riparian Management

C1-9 Riparian management described in the HCP is based on existing state law, and in Montana, upon Forestry BMPs. As acknowledged by Plum Creek, there is a high level of compliance with Montana's SMZ law. While measures in the SMZ law contribute toward conservation of bull trout and other native salmonids, they were not designed to address all fisheries parameters such as fish passage and water temperature. As a result, the monitoring program needs to be sufficient to evaluate effectiveness, and the adaptive management component needs to be flexible enough to enable timely adjustments. In addition to demonstration watersheds, effective monitoring should also occur in randomly selected watersheds where forest practices are being conducted. Also, the document should more clearly state how fish and fish population variables will be monitored. These types of variables are described in the monitoring strategy of the Montana Bull Trout Scientific Group's report titled *The Relationship Between Habitat Requirements of Bull Trout and Land Management Activities*.

C1-10 Because Tier 2 watersheds may be critically important to species other than bull trout, the effectiveness monitoring should also apply to Tier 2 watersheds, and should consider other species listed in the HCP, not just bull trout.

C1-11 We support Plum Creek's commitment to include additional measures such as the Interface Caution Zone described in Riparian Commitment 8. As described, it is not clear how the zone would be managed. This could be improved if the Interface Caution Zone was for example to be a minimum of 50 feet from the edge of the 100-year floodplain, and an average of atleast 150 feet from the edge of the 100-year floodplain, calculated within a basin rather than averaged over the whole project area.

Range Management

C1-12 We suggest consideration of an audit process of grazing BMP compliance and effectiveness in the HCP. This would ensure the BMPs are being implemented in much the same way that is proposed for timber management. Including personnel with range management expertise to evaluate effectiveness will also provide more meaningful recommendations to improve conditions where necessary.

C1-13 This process could also benefit from creation of a grazing database, similar to our suggestion for the roads database, to identify, track, and prioritize potential grazing problems, as well as progress towards addressing those problems. The analysis would benefit from including exclosure (fencing) needs in the database along with a schedule to address exclosure needs.

Species Other Than Bull Trout

C1-14 Bull trout are the primary consideration in the HCP. The State of Montana recently completed a Conservation Agreement for Westslope Cutthroat Trout in Montana. It is not

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C1-9	627
C1-10	628
C1-11	549
C1-12	323, 715
C1-13	752
C1-14	193

Letter C1

C1-14 clear if the provisions of that agreement, particularly ensuring all pure populations are protected, were considered in developing this HCP. Many of the other species included in the plan, such as westslope cutthroat trout and redband trout, occur in Tier 2 watersheds, and will not receive the higher degree of protections afforded to Tier 1 habitat. The agency should consider more thoroughly outlining within the document the commitments afforded all of the species covered by the HCP to ensure they are sufficient to provide the "No Surprises" guarantees afforded each through this plan. Also monitoring and adaptive management provisions to evaluate effectiveness of commitments for all species covered, particularly in Tier 2 streams should be considered.

C1-15 Legacy Restoration

Plum Creek is to be commended for making these commitments to address legacy problems.

LAND USE PLANNING

C1-16 The selling or trading of land does not constitute take under ESA. It is our understanding that land use commitments and assurances are being provided to offset uncertainties about the exact parcels of land that will be covered under this NFHCP over the next 30 years. The concepts used to develop the land use commitments are valid and useful. The plan intends to encourage Plum Creek to conduct a creative land sales program that has a net benefit to native fish species. Indeed, Plum Creek should be commended for past and current efforts that are guided by their Company's land use principles. Many important land transactions have recognized and provided the necessary time to work with government and private groups to achieve conservation outcomes.

C1-17 It might be advantageous for the formula to determine the net conservation benefit of land purchases, sales, and trades. Also the formula should recognize that not all of the lands that have conservation and public recreation values benefit native fish species. The land use commitments could be improved by applying the proportionality factor of 1.0 only to KEY lands that are important to native salmonids. For example, it could include lands that contain or abut perennial, fish-bearing streams. In our analysis, the key lands of primary importance to native salmonids are a relatively small portion of the total land base. If this measure is to have a net conservation benefit over time, the 8% cap described in the NFHCP would need to apply only to key lands for native salmonids.

C1-18 One scenario to do this using the proposed approach would be to track the transactions and net balance based on an 8% cap for each of three categories of land for their fisheries habitat value. Those categories could be: Tier 1 and key migratory streams, Tier 2 streams with documented pure strains of westslope cutthroat or redband trout, and finally other lands. We recognize that some of these "other lands" also contain important native fisheries habitats. The question is how to give priority to native species that have the greatest need for conservation. For example, pure strain westslope cutthroat trout or redband trout need more protection than species such as mountain whitefish.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C1-15	1
C1-16	775
C1-17	785
C1-18	783

Letter C1

C1-19 Another approach would be to maintain an accounting system based on quarter sections or other previously defined parcels (prior to issuing the permit) that contain fish-bearing waters. Then maintain a separate accounting for each planning area basin, irrespective of species benefit. This scenario would focus on conserving each basin with a limit set at 8% of the 160-acre waterfront parcels owned by Plum Creek in that basin. Either approach would improve incentives and promote conservation benefits while also providing Plum Creek with the flexibility to meet their business goals stated in the HCP.

C1-20 Deed restrictions and conservation easements provide effective conservation if potential buyers are clear about the restrictions and know that restrictions will be enforced. Annual monitoring of compliance of deed restrictions and easement terms, as well as meetings with new landowners and potential buyers to review and emphasize the importance of restrictions, would considerably strengthen the land use commitment section. Currently, the HCP only proposes to monitor the number of acres that are sold with deed restrictions. While it is unfair to ask Plum Creek to monitor compliance with deed restrictions, the Service should consider how this will occur. Otherwise, the conservation benefits may slip away over time.

MONITORING

See comments under the riparian management section regarding the need for effectiveness monitoring.

Adaptive Management and Monitoring

C1-21 We assume that monitoring of fish responses to management and conservation practices will be an integral part of this plan. The document should more fully explain how monitoring practices will determine the effectiveness of the plan. We face a similar challenge with our own management programs. The Montana Department of Fish, Wildlife and Parks currently conducts a variety of fish monitoring activities throughout the range of bull trout in western Montana, including redd counts, electrofishing, gill netting surveys, and juvenile abundance surveys. This information is and will be available to the Service and Plum Creek for evaluation.

C1-22 We support adaptive management. The challenge is to provide an appropriate balance between the data needed to determine statistical significance and causal linkage with the ability to respond to changes needed to ensure the health of the fish populations. For many variables, especially habitat variables such as large woody debris recruitment, sediment reduction, and canopy cover, it is extremely difficult to determine statistically significant differences in five, ten or even 20 years, although there may be observable differences. Similarly, it may take decades to determine statistically significant changes in population parameters of bull trout or other native salmonids.

C1-23 Determining causal linkage for most habitat variables can be difficult in areas with mixed ownerships and multiple uses. For example, an increase in water temperature could be

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C1-19	785, 790
C1-20	786
C1-21	629
C1-22	609
C1-23	680

Letter C1

C1-23 affected by flow, discharges, forest practices, or other land use practices on or off Plum Creek lands. Proving a causal linkage between increased temperature and, for example, canopy cover, would be difficult.

C1-24 While we support a scientifically rigorous process, the combined requirements for statistical difference, biological relevance, and causal linkage described in the adaptive management component of the HCP should be carefully considered. Along those lines, as a compliment to the adaptive management analysis, the Service and Plum Creek should consider appointing a science oversight team to regularly review monitoring data and provide professional guidance to meet the intent of the HCP. Use of such a team would lessen the regulatory role of the Service while providing flexibility to the adaptive management process.

C1-25 Use of average values for the whole project area to determine triggers is problematic due to differences between watersheds throughout the project area. A more localized, watershed approach would be more defensible, and would help ensure the requirements of local populations of bull trout and other native salmonids are maintained. This could be addressed if triggers were based on a smaller unit, such as each 4th code hydraulic unit.

CONCLUSION

Again, thank you for the opportunity to provide our technical comments.

Sincerely,

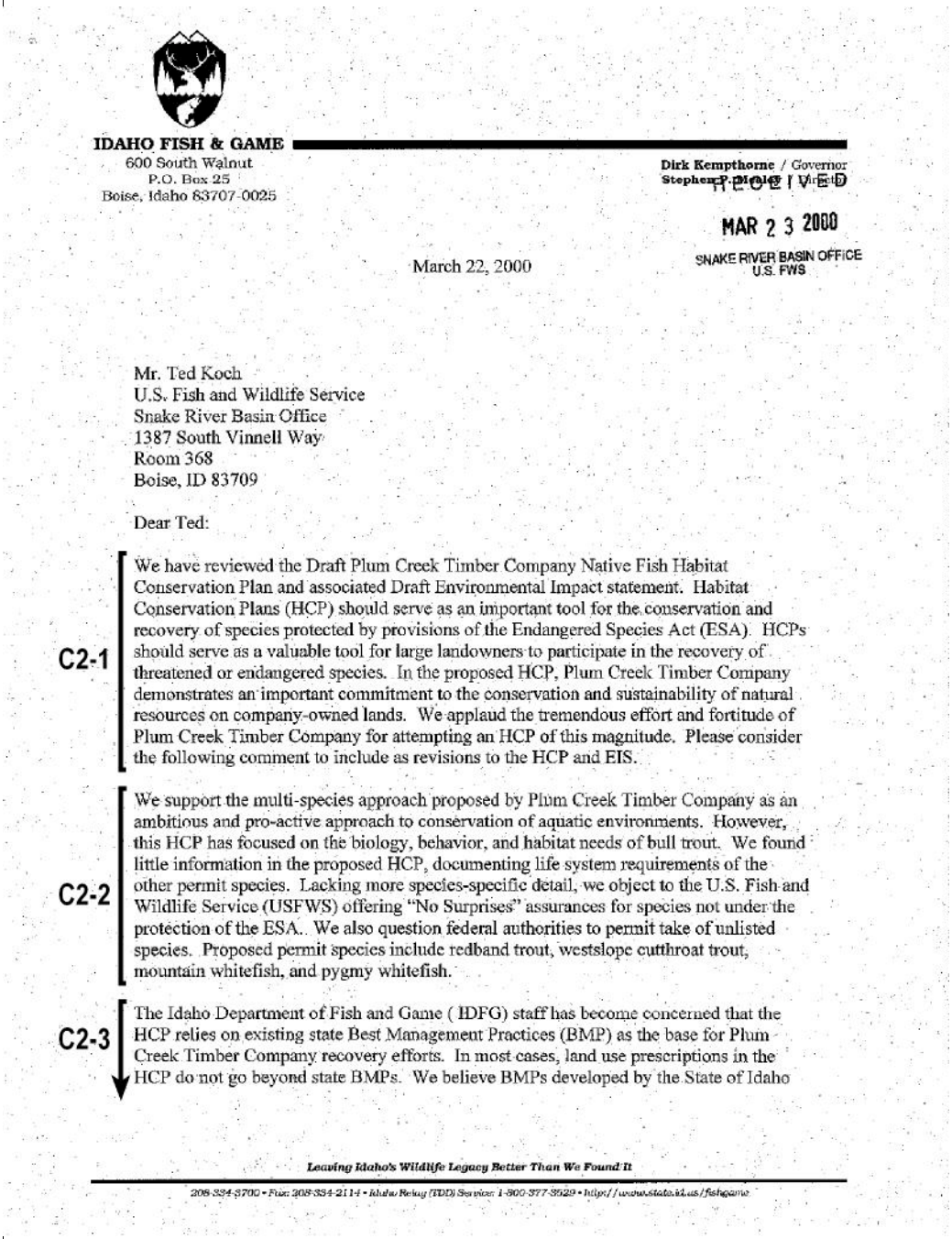
MARC RACICOT
Governor

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C1-24	681
C1-25	682

Letter C2



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Dirk Kempthorne / Governor
Stephen P. Mealey / Director

RECEIVED
MAR 23 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

March 22, 2000

Mr. Ted Koch
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way
Room 368
Boise, ID 83709

Dear Ted:

C2-1 We have reviewed the Draft Plum Creek Timber Company Native Fish Habitat Conservation Plan and associated Draft Environmental Impact statement. Habitat Conservation Plans (HCP) should serve as an important tool for the conservation and recovery of species protected by provisions of the Endangered Species Act (ESA). HCPs should serve as a valuable tool for large landowners to participate in the recovery of threatened or endangered species. In the proposed HCP, Plum Creek Timber Company demonstrates an important commitment to the conservation and sustainability of natural resources on company-owned lands. We applaud the tremendous effort and fortitude of Plum Creek Timber Company for attempting an HCP of this magnitude. Please consider the following comment to include as revisions to the HCP and EIS.

C2-2 We support the multi-species approach proposed by Plum Creek Timber Company as an ambitious and pro-active approach to conservation of aquatic environments. However, this HCP has focused on the biology, behavior, and habitat needs of bull trout. We found little information in the proposed HCP, documenting life system requirements of the other permit species. Lacking more species-specific detail, we object to the U.S. Fish and Wildlife Service (USFWS) offering "No Surprises" assurances for species not under the protection of the ESA. We also question federal authorities to permit take of unlisted species. Proposed permit species include redband trout, westslope cutthroat trout, mountain whitefish, and pygmy whitefish.

C2-3 The Idaho Department of Fish and Game (IDFG) staff has become concerned that the HCP relies on existing state Best Management Practices (BMP) as the base for Plum Creek Timber Company recovery efforts. In most cases, land use prescriptions in the HCP do not go beyond state BMPs. We believe BMPs developed by the State of Idaho

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Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C2-1	1
C2-2	354
C2-3	459

Letter C2

C2-3 afford regional protection for aquatic habitats but may require site specific modification to promote recovery of degraded habitats and improvement of native fish populations. The proposed HCP treatment of "Hot Spots" to promote recovery moves the plan toward recovery of habitats. We do not believe the current Plum Creek HCP contains the kind of assurances that would justify a 30-year agreement.

We suggest the following as items to better conserve and recover native salmonids on lands managed by Plum Creek Timber Company.

Road Construction

C2-4 Plum Creek proposes to construct 1,300 miles of new road in the first 10 years of the agreement. This new road construction is not excluded from Tier 1 watersheds. Primary constraints on construction are provided by enhanced BMPs in the HCP. While these BMPs include limited and practical efforts to control surface flow on roads, ditches, and sediment controls, there is little in the HCP to address broader road construction considerations. These might include parent material, landforms, elevation, aspect, and hillside steepness as they might reduce sediment delivery and landslide hazard potential. For example, in Belt Series watersheds, the largest risks come from modified water delivery (increased efficiency, resulting in higher peak flows) due to roads and debris torrents that deliver massive amounts of bedload material to streams, reducing surface flows and habitat complexity. We recommend these indicators be used to where new road construction would be directed and limited.

C2-5 One valuable measure in the draft HPC is the avoidance of road construction within inner gorge areas. However, we suggest this measure be further strengthened by consideration of any road construction within a floodplain. This construction can pose significant risk to watershed integrity by channelizing stream flow, changing hydrologic processes, reducing habitat complexity, eliminating sources of woody debris, and eliminating valuable riparian habitat. At the very least, we recommend criteria be added to R2#7 which states that roads can be constructed within inner gorges or floodplains only if they will not significantly impair channel morphology and function.

C2-6 The draft HCP proposes to remove or abandon surplus roads, at a rate of two miles for every mile of new road construction. This HCP measure should provide high value restoration benefits. Proper implementation of this measure should include complete assessment of the travel plan, and where necessary, removal of main-haul roads located in stream bottoms, such as the Fishhook Road or the Bluff Creek Road in the St. Joe.

C2-7 We also suggest the HCP more specifically identify the impacts of stream-side roads as opposed to hill-side and ridge-top roads, and state the priorities for dealing with stream-side and floodplain roads up front. R5#5 should be re-worded to recognize hydrologic

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C2-4	421
C2-5	422
C2-6	423
C2-7	444

Letter C2

C2-7 impacts beyond the potential for increased sedimentation and to trigger road relocation/abandonment where hydrologic functions are impaired.

Stream Crossings

C2-8 The document fails to note that providing fish passage, at least in Idaho, is a requirement of the Idaho Code (Sec. 36-906). We agree with the proposed measure to inventory stream crossings to evaluate fish passage but have several concerns about the methodology proposed for determining whether a culvert is a fish migration barrier or not.

C2-9 The document notes that measures to restore connectivity will be considered unsuccessful if less than 75 percent of the culverts are allowing fish passage. In a survey of 67 culverts on Plum Creek lands, the document notes that 24 percent were migration barriers--in other words, at a level which would not trigger additional effort to improve fish passage conditions if HCP guidelines were followed. Given that state law requires fish passage at all crossings unless specifically waived by the Director of the IDFG, and that merely meeting a percentage goal does not ensure that the most important barrier problems are fixed, the HCP does not adequately address this issue. As most culvert-caused migration barriers are relatively inexpensive to correct, we believe a much higher standard than the proposed 75 percent passable should be adhered to.

C2-10 A further concern is the methodology proposed for identifying fish migration barriers at culverts. Appendix R-6 fails to address the issues of jumps at the inlets of the culvert (only drop at the outlet is measured), date and stream flow conditions, and that many streams with greater than 30 percent gradient support fish (and especially those where only a relatively short reach is over 30 percent). It is not clear how much training will be provided to the foresters who are being asked to make determinations on fish passage. Without adequate training, results of these surveys may have little value other than to provide information, which may "red flag" problem culverts, if the information is reviewed by a fisheries biologist. Training of personnel and modifications to the data sheets are needed before this program can be considered reliable.

C2-11 No measures or discussion are provided on timing of instream work for culvert placement or other projects. As a general rule, in-channel work should occur at low flows, in dry weather, when target fish species do not have incubating eggs and fry using the stream substrate. This is usually between July 1 and August 15 in the Lochsa River drainage. We also noted that stream crossings will be seeded and mulched, but the effectiveness of this measure if culverts are placed late in the growing season is questionable. Other BMPs, such as rocking, should be included in the list of identified specific measures.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C2-8	391
C2-9	392
C2-10	393
C2-11	409

Letter C2

C2-12 The HCP calls for installation of culverts that can handle a 50-year flood and indicates that a 100-year event is not a reasonably foreseeable event. Use of 100-year capacity culverts would, in many cases, facilitate transport of debris that might otherwise plug culverts and result in debris torrents. This type of event is perhaps the most significant contributor to excessive bedload deposition in many Belt Series streams. As many streams have not experienced a predicted 100-year event in many decades, we believe it is reasonable to expect that in fact a 100-year flood is a foreseeable event in many instances. We recommend the HCP adopt the use of 100-year culverts as a matter of course. We also recommend the HCP establish and use criteria for when bridges should be used instead of culverts. Ideally, culverts should only be used in steep, confined channels where they will not impound stream flows or impair fish passage. Where they are used in situations where extensive fill is required, relief culverts should also be installed to maintain some dissipation of flows over the floodplain.

Road Maintenance

C2-13 The draft HCP calls for maintenance of roads and culverts every five years, unless severe flooding triggers earlier inspections. Idaho FPA rules call for regular preventative maintenance, keeping culverts and ditches functional, and drainage maintenance on a seasonal basis. We believe inspections and maintenance will have to be done more frequently than on a five-year basis. In particular, we believe culverts need annual or more frequent inspections, with maintenance as necessary.

C2-14 Identification and inventory of "Hot Spots" is a valuable component of the draft HCP. Thorough inventory and prioritization of treatments is a program that can lead to restored habitats and fish populations. We are concerned, however, that the HCP does not address treatment of hot spots with a watershed approach. Some of the treatments discussed are consistent with good watershed management practices (e.g., relocation of roads away from stream channels), but others appear to be a treatment of symptoms rather than causes of problems.

Road Abandonment

C2-15 The criteria for road abandonment presented in Appendix R-7 is generally good. Some recontouring may be appropriate not only where perched fills exist, but also where there is a need to restore subsurface flow of water.

Riparian Management

C2-16 The HCP calls for deferral of riparian harvest on some stream systems for up to ten years, designation of Channel Migration zones, and other measures. Deferred riparian harvest for a ten-year period represents a relatively short timeframe. We believe a better approach on streams is to develop site-specific riparian prescriptions, which will meet the needs of the stream and fish while providing management opportunities.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C2-12	410
C2-13	467
C2-14	454
C2-15	437
C2-16	594

Letter C2

C2-17 In general, we believe the implementation of Channel Migration Zone (CMZ) measure has substantial merit and is well thought out. By applying it more broadly to Tier 2 streams and streams which are intermittent but are important for fish, more progress would likely be made on recovery of bull and westslope cutthroat trout populations. Broader application of the CMZ concept would likely stimulate recovery of habitat and bull trout as opposed to maintaining existing habitat.

C2-18 Data on large woody debris recruitment are provided in the document but did not include data from the Idaho Panhandle National Forest for un-entered streams. Data we are aware of suggests debris loading is substantially higher than the figures provided in Table 4.6 and in moist environments with long intervals between riparian zone fires, that no-cut buffers are an effective management tool for restoring stream and riparian health. These conditions are common on Idaho lands covered in the document. In riparian areas where application of a CMZ, a no-cut buffer, or a site-specific management plan is not called for, we recommend at a minimum applying the leave tree requirements for large Class I streams. Retention of large woody debris and recruitment potential is particularly important in northern Idaho Belt series streams where large woody debris is the primary channel control feature (as opposed to bedrock), as well as a major provider of channel complexity.

C2-19 Idaho Department of Lands personnel and others have been working on establishing relationships between canopy retention and shading, with subsequent effects on water temperature. As bull trout are dependent on cold water for spawning, egg incubation, and early rearing, in some streams a difference of one to two degrees Celsius can make the difference between a stream being habitable or not. Many streams classified as Tier 2 within the project area formerly supported bull trout and are likely candidates for recolonization given their proximity to streams supporting bull trout. Where opportunities exist to cool streams down and restore bull trout habitat, we recommend avoiding riparian harvest except where it can be demonstrated that thinning will promote improved shading. The document notes that in fact, using measures described in the Simplified Prescriptions alternative, there are many opportunities to reduce temperatures by an additional degree.

Hydrology

C2-20 The document provides very limited information on the effects on watershed hydrology caused by timber harvest and road construction. A considerable body of scientific literature identifies the modification of stream flow (particularly in headwater streams) created by road construction and clear-cut timber harvest. While many of these headwater streams are not fish-bearing, peak flows exacerbated by clear-cut harvesting and high road densities can contribute to blowouts which leave thousands of cubic yards of bedload material deposited in downstream fish habitat. This problem occurs within

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C2-17	540
C2-18	577
C2-19	562
C2-20	254

Letter C2

Plum Creek ownership in Idaho and is primarily associated with rain-on-snow events. The problem becomes more acute if culverts are subjected to peak flows greater than their design rating because the efficiency of water delivery to stream channels is increased by roads and clearcuts. Increased peak flows during the bull trout egg incubation period (October though March), particularly in streams with channel stability problems, poses a significant threat of physical injury to incubating eggs.

C2-20 Road construction and upgraded BMPs proposed for use as part of the HCP implementation will address some of these concerns by providing more frequent cross drainage. However, in headwater systems with high road densities and lack of woody debris in stream channels, clearcutting may result in peak flows that overwhelm channels and deliver excessive bedload sediment downstream. Again, this is a significant issue in northern Idaho Belt Series streams where in-stream hydrologic controls are typically large woody debris. Watershed assessments should address the risk to stream habitat from timber harvest prescriptions on upland sites.

Poaching Mitigation

C2-21 IDFG welcomes the opportunity to work closely with Plum Creek or others that may partake of the HCP to provide protection for bull trout from illegal harvest. Road closure and access management programs may result in reduced availability of bull trout to poachers. At the same time, actions which Plum Creek takes may result in increased vulnerability of bull trout to harvest, requiring additional enforcement time. The HCP would have state fish and wildlife agencies increase efforts to enforcement harvest restrictions on lands covered by this HCP. Given existing funding sources for IDFG and the scarcity of enforcement personnel required to cover large areas of the state, Plum Creek Timber Company and the USFWS should consider funding a new enforcement officer within the IDFG.

Exotic Species

C2-22 We agree with Plum Creek's proposal to work cooperatively on exotic species removal. The document notes that exotic species are not an issue for which Plum Creek has responsibility. However, there is some evidence to suggest that land management activities have provided exotic species (such as brook trout) with a competitive edge over bull trout and westslope cutthroat trout. In some circumstances it is possible that Plum Creek activities in the past have indirectly benefited exotic species at the expense of natives.

Diversions

C2-23 Presently, diversions do not appear to be a significant concern on Idaho lands within the project area. However, we believe Plum Creek should take a more pro-active approach as the demand for diversions (for example, small hydroelectric plants) may change.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C2-21	488
C2-22	9
C2-23	798

Letter C2

C2-23 Participating in the designation of stream resource maintenance flows would be a significant demonstration of Plum Creek's commitment to conservation of native fish species. In Idaho, screens and fish passage are required at diversion structures.

Land Trades/Sales

We fully support the HCP's efforts to develop a land use planning approach. This is an essential part of species recovery through habitat protection with such an important landowner as Plum Creek Timber Company. The proportionality balance measured over five years appears to be a viable accounting scheme for determining the direction of habitat conservation related to land sales and exchanges.

C2-24 We are concerned that the land use categories are biased towards land development and habitat loss. In particular, the L4 category provides for unlimited road construction outside LUCA, modification of up to 35 percent of the LUCA, and unlimited stream crossing development in Tier 1 watersheds while still being conservation neutral. We recommend either the standards be made more restrictive in the LUCA for L4 or the proportionality measure be adjusted to show a negative for L4 dispositions.

Because conservation and recovery of bull trout and other native species requires a long-term approach and riparian lands are so valuable for fish, wildlife, and development, we recommend the HCP provide for early assessment of riparian lands and identification of appropriate easement terms for all of those lands. We believe that in many cases easements can be designed which will result in significant protections for riparian habitat while still maintaining value for sale or development.

General

C2-25 Many of the habitat objectives of the HCP lack clarity and could lead to inconsistent interpretation by different managers. While we recognize ongoing activities on Plum Creek lands are necessary and will have some impacts, it is relative and non-specific when the habitat objective is to "minimize" sediment delivery to streams, impacts to canopy closure, impacts to large woody debris, and impacts to overhanging streambanks. Achievement of these objectives can still result in a cumulative effect of declining fish habitats and populations. We recommend these objectives be replaced with more specific and measurable ones. We also found Habitat Objectives 2 and 7 vague and unmeasurable. We recommend these also be deleted from the HCP or restated.

C2-26 Some of the language in the draft HCP is incorrect and should be re-stated or dropped. In section 4.6.5, the document describes whitefish and bull trout as not being recognized as sport fish, or being considered as "trash fish." Whitefish are classified as a game fish in Idaho and have been for many decades. No documentation is provided that bull trout were considered a trash fish in the project area. In fact, in the portions of the project area,

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C2-24	788
C2-25	334
C2-26	116

Letter C2

C2-26 bull trout have enjoyed a long history of treatment as a game fish with significant social value. Perpetuation of the myths that these two species are only recently being recognized as valuable adds little to the document and distorts the historical record.

C2-27 We also noted that the St. Joe River is incorrectly classified as being a tributary to the Snake River drainage, when in fact it drains to the upper Columbia via the Spokane River. The same paragraph suggests that bull trout populations in the St. Joe are confined to a few headwater streams, when in fact they are highly migratory and use the entire watershed during different stages of the life cycle. Discussion of the St. Joe is missing from tables 4.6-4,5&10. Because Plum Creek lands in the St. Joe were recently sold to Crown Pacific, it may not be important for this document unless Crown Pacific chooses to participate in the HCP. Other corrections needed include listing westslope cutthroat trout as native in the Spokane River basin and redband trout as native in the Little North Fork Clearwater drainage.

C2-28 Also, the map showing Tier 1 watersheds does not appear to show the areas of Rock Creek and Spruce Creek in the upper Lochsa watershed. These areas are identified in the Tier 1 table but does not appear to show up on the map.

C2-29 The HCP proposes to use an adaptive management approach for measuring the effectiveness of the draft HCP's conservation measures. This includes development and use of GIS databases on road conditions (although skid trails are not included in this database), riparian condition monitoring, tree retention, riparian canopy cover, plus information developed through four core adaptive management projects. What is the disposition and availability of these databases? Will they be available to the public and/or management agencies? Will the information collected under the HCP be compatible to existing information collected by adjacent landowners and other management agencies?

C2-30 To address these questions and provide for consideration of scientific design that includes stratification of treatments and controls across and outside Plum Creek ownership, we recommend that the CAMPs be identified by location within the HCP prior to the USFWS accepting the HCP. We also recommend that survey protocols and methodology be developed and implemented by a collaborative technical team including state fish and wildlife management agencies. This will increase the scientific objectivity and information compatibility of the HCP with management and research information outside Plum Creek ownership. We recommend this collaborative approach to monitoring and adaptive management be written into the HCP.

C2-31 Finally, we note that analysis of the other alternatives is somewhat flawed by the lack of recognition that existing laws and rules (such as Idaho's fish passage law) will still be in

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C2-27	117
C2-28	118
C2-29	304
C2-30	630
C2-31	174

Letter C2

C2-31 C2-32

place no matter what alternative is chosen. The issue of fish passage alone, if compliance with state laws is considered, results in the Simplified Prescriptions alternative providing more benefits to fish than the document discloses (as an example). We have attempted to identify these issues and believe that modifying the analysis of the alternatives to more accurately reflect pros and cons of each one is appropriate. Plum Creek and the USFWS are to be commended for undertaking this effort. However, it will be important that the HCP be modified based on our suggestions. We believe incorporating these suggestions and making recommended modifications will improve the probability for success in maintaining and recovering anadromous fish and bull trout in Idaho.

Sincerely,

Tracey Trent, Chief
Natural Resources Bureau

TT/CCGS/tlv

Cc: MDFWP

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C2-32	10

Letter C3

State of Washington
DEPARTMENT OF FISH AND WILDLIFE

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March 15, 2000

Ted Koch
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, Idaho 83709

Dear Mr. Koch:

The Washington Department of Fish and Wildlife (WDFW) appreciates the opportunity to provide comment on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan (NFHCP) proposed by Plum Creek Timber Company. This HCP is of great importance to us, as it proposes to cover all native salmonids, many of which are listed as threatened or endangered in the State of Washington, and within the project area. It is critical that the prescriptions contained within this HCP adequately provide for the needs of these species. The following are WDFW concerns for your serious consideration.

Covered Species

C3-1

1) There appears to be little justification in providing coverage for all salmonid species, as the NFHCP is primarily focused on bull trout, as evidenced with the Tier 1/Tier 2 approach. This approach focuses on bull trout spawning and rearing alone, and does not take into account the needs of the other salmonid species.

2) The NFHCP covers all native salmonid species known or suspected to occur. There is little indication that Plum Creek actually knows where species such as redband trout, westslope cutthroat, and pgymy whitefish are distributed throughout their lands, what their specific life history requirements are, and how they are protecting those life history requirements. This is supported by the statement in Volume I, p. 1-16 (1st paragraph): "Other permit species are either less widespread on Plum Creek lands, or less is known about their distribution and habitat needs in the Project Area, although habitat needs of other permit species are generally similar." The ending statement "habitat needs of other permit species are generally similar" is unsupportable. Because of so little certainty that adequate protection is provided for the needs of the other species (i.e., redband trout, westslope cutthroat, pgymy whitefish), these species should not be included as "covered

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C3-1	194

Letter C3

C3-1 species" within this HCP without a strong adaptive management program which has the ability to incorporate new biological information.

Rationale/Justification for Tier 1/Tier 2:

The rationale/justification for the Tier1/Tier 2 breakout is not biologically sound because:

C3-2 3) Tier 1 protections only apply to bull trout spawning and rearing. The levels of protection designated for Tier 1 areas, especially pertaining to CMZs (and no-harvest zones designated for Tier 1 areas without CMZs), are critical for **all** of the covered species, as well as **all** life history stages, not just for bull trout and not just for spawning and rearing bull trout. Riparian functions associated with CMZs (floodplain protection, LWD recruitment, shade, bank stability, side channels, habitat complexity, cold groundwater upwellings, etc.) provide important habitat for adult migration and holding, foraging, as well as spawning for salmon, steelhead, cutthroat, and bull trout.

C3-3 4) The primary need bull trout have, which sets them apart from other salmonids, is "colder" water. The Tier 1 and 2 designations do not address this need. Furthermore, though spawning and rearing bull trout need even colder water, adult bull trout also need cold water. Water temperatures should be maintained and restored (no increases allowed) in all bull trout waters. (Within Washington, the Forest & Fish (F&F) Forest Practices Rules protects against temperature increases in all bull trout potential suitable habitat by requiring retention of "all available shade".)

Bull Trout

C3-4 1) The NFHCP focuses on known spawning and rearing habitats (Tier 1). It does not adequately address migratory corridors, which is one of the more important limiting factors contributing towards bull trout decline.

C3-5 2) Tier 1 areas are those "known" to be important for spawning and rearing. There is too much we don't know about spawning and rearing areas. What was the basis of this information? If information was taken from SASSI maps for bull trout (spawning and rearing), these maps were not intended to describe all known spawning and rearing areas. They were more intended to define the "distinction" or "uniqueness" of different stocks.

3) Volume 2, Chapter 4, Bull Trout Section 4-74 to 4-90 & Map Pg 4-77. The following updates should be made:

C3-6 a) The Tier 1 designation, which applies to the North, Middle & South Fork Ahtanum Creeks, needs to be expanded to include permanent, seasonal and intermittent tributary streams that flow into these Tier 1 spawning and rearing areas. Currently, high sediment loads are entering these main stem spawning areas from adjacent streams and from roads on Plum Creek land.

C3-7 b) The Tier 1 designation also needs to be extended well into the main stem, at least down to the Bachelor Creek ditch intake (RM 18.9). Rearing bull trout have been encountered in this area.

C3-8 c) It is not known if rearing bull trout extend below RM 18.9, but at the very least, the area downstream to the confluence of the Yakima River should be designated as a migratory zone.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C3-2	208, 525
C3-3	563
C3-4	292
C3-5	522
C3-6	523
C3-7	524
C3-8	293

Letter C3

C3-9 d) The NFHCP does not include bull trout in the Tieton drainage (map pg 4-77 & text). Bull trout are distributed throughout the main stem Tieton River, Naches River, Rimrock Lake and tributaries.

C3-10 e) Just as the authors reflect the distribution of cutthroat in the map on page 4-97 (within and outside of the planning area), they should also reflect an accurate distribution (migration corridor) of bull trout on page 4-77.

C3-11 f) This correction needs to be applied to Oak Creek as well; a tributary of the Tieton River in the NFHCP planning area. Bull trout have been found in Oak Creek three miles above the confluence with the Tieton. Although it is not known if bull trout spawn in Oak Creek or in tributaries of the Tieton River it seems prudent to adopt strong conservation standards in this area.

Not only does this information need to be corrected in the map on page 4-77 (a scale that is already difficult to read), it also needs to be reflected in all of the text and tables. Contact Eric Anderson (WDFW) for further details pertaining to distribution.

Steelhead

Volume 2, Chapter 4, Steelhead Section 4-90 to 4-95 & Map Pg 4-93.

The NFHCP does not include steelhead in the Ahtanum drainage or in Oak Creek (Tieton drainage). This is a critical omission, especially considering the threatened status of steelhead in the Yakima basin. Steelhead distribution in the Ahtanum and Tieton drainage can be obtained from the WDFW Streamnet database (a GIS based product). That information needs to be reflected in the map on page 4-93 and also needs to be reflected in the text and tables. The Tier 1 designation (though considered to be unjustified) should also be extended to include steelhead (and other species) just as it does for bull trout. Doing so would provide greater credibility that the NFHCP is a "Native Fish Habitat Conservation Plan" and not just a bull trout plan.

C3-12 Redband Trout

Volume 2, Chapter 4, Redband Trout Section 4-101 to 4-105 & Map Pg 4-103.

The designation of redband trout in the Tieton and Ahtanum drainages (map pg 4-103 and text discussion) is arbitrary and premature without current information that describes the genetic composition of rainbow populations inhabiting the area. Behnke (1992) arbitrarily defines the distribution of Columbia River redband trout to include the Columbia River basin east of the Cascades to barrier falls on the Kootenay, Pend Oreille, Spokane, and Snake Rivers; the upper Fraser River basin above Hell's Gate; and the Athabasca headwaters of the Mackenzie River basin. Behnke (1992) elaborates further to say that "in the Columbia basin the original genetic diversity of resident and anadromous stocks of redband trout has been impoverished by land and water use practices and the stocking of nonnative forms of rainbow trout". Hatchery rainbow trout derived mainly from coastal steelhead have been stocked throughout the range of western trout and have led to the hybridization with most populations of resident redband trout in much of the Columbia River basin (Benhke, 1992). This hybrid influence extends to the resident redband populations native to the Yakima River drainage (Campton and Johnson, 1985.) The NFHCP should include this more complete portrayal by Benhke in its discussion on redband distribution within the planning area and should not just simply call these fish redband trout.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C3-9	294
C3-10	294
C3-11	119. 295
C3-12	195

Letter C3

Stream Typing

C3-13 1) Page RP-2-2. "Fish bearing streams will be identified using protocol in *current use* in the State of WA." Does "*current use*" mean using the emergency rule in place now, then moving on to the habitat-driven model when that comes into place? Or, *current* only at time of HCP development?

C3-14 2) Page RP-2-2. Use of 300 acre basin size for perennial non fish-bearing streams. Remember that with the Emergency Rule for Stream Typing in Washington, the 175 acreage for fish bearing (16-20% gradient) precedes or overrides the 300 acre designation for perennial non fish-bearing streams. Same for 52 on the Westside.

Riparian

C3-15 1) In Washington, Industry, Feds (including USFWS and NMFS), Tribes, and State agencies have spent over 2 years developing a package that would provide riparian functions and resource protection. While the resulting Forest and Fish (F&F) agreement may also have its own shortcomings, we should not be accepting HCPs (within Washington State) which provide a lower level of protection than the F&F agreement. Since Washington State is now working within the F&F framework, the "older" rules (prior to F&F) should no longer be used for conservation comparisons.

C3-16 2) NFHCP p. 3-7. "State requirements must be adhered to regardless of HCP commitments and therefore must continue to be well understood and implemented. For these reasons, the NFHCP Riparian Management commitments are not developed as replacement rules, but rather as supplements to existing rules." This is not true for Washington, because it does not apply to F&F. Because current rules were undergoing change, Plum Creek designed a new rule set to use as a basis. This rule set is not consistent with State Rules (F&F), and in fact, provides less protection than State Rules in the following ways:

a) Eastside distances are "slope distances"; Westside are "horizontal". Why? Both should be horizontal. "Horizontal"distance is required within the Washington F&F rules, and also called for within the Bull Trout Interim Conservation Guidance (USFWS 1998).

b) The RMZ should be measured from BFW or CMZ, whichever is greater, NOT OHWM. Riparian functions (shade, LWD recruitment, habitat complexity, side channels, etc.) should be protected for the channel wherever it might move within the CMZ, not just where it might be presently. In the NFHCP, harvest is allowed within the CMZ; the F&F rules allow no harvest within CMZs. This "no-harvest" requirement is also consistent with the Bull Trout Interim Conservation Guidance (USFWS 1998).

c) Eastside prescriptions do not include a no-harvest zone, which reduces protection of bank stability, LWD recruitment, shade, and sediment retention. F&F rules require a 30 ft no-harvest core zone on the eastside.

d) Minimum 50 feet RMZ for eastside (slope distance); if slope is > 35%, then 100 feet. The new Washington standard (F&F) has minimum 75 feet (< 15') and 100 feet (> 15').

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C3-13	596
C3-14	597
C3-15	598
C3-16	599

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C3-16

e) Eastside prescriptions have no criteria to leave the largest trees, which are most needed within the channel. NFHCP leaves trees representative of the stand, which reduces LWD recruitment potential for larger trees and slows down habitat recovery.

f) Page RP-2-2. "Where existing roads, railroads, or powerlines are located within the riparian area, these features will be the outer limits of the RMZ." This is less protection than the F&F, where you have to meet basil area and shade in spite of existing roads. The NFHCP gives little incentive to discourage roads within RMZ, because having them reduces RMZ commitments.

C3-17

3) P. 3-23. "ICA additional conservation guidance". "Clearcutting in the ICA will be avoided" THEN "When clearcutting occurs in the ICA, it should be kept to a minimum". This is totally contradictory. What is really meant here?

C3-18

4) Riparian Harvest Deferrals (p. 3-24). What good will 10 years really do in High Risk watersheds? 10 years would be enough "to provide an opportunity for these watersheds to develop their streamside stands."??? Really?

CMZs

C3-19

1) Overall, CMZ protection is inadequate, because harvest is allowed within the CMZ. Within the Washington F&F Rules, riparian functions are protected by starting the RMZ measurement at the outer edge of the CMZ, and by prohibiting harvest within the CMZ. Harvest should be prohibited in order to protect the riparian functions providing shade, LWD recruitment, bank stability, side channel development, habitat complexity, etc. for the channel, wherever it might potentially move within the CMZ. CMZs provide important spawning, overwintering, migration and holding habitats for salmon, steelhead, and bull trout. The NFHCP allows harvest within all CMZs, except for high sensitivity CMZs within Tier 1 areas. Within Tier 1 CMZs with moderate sensitivity, there is only a 25 foot no-cut zone from the OHWM.

C3-20

2) Rationale for Rp2 Tier 1 High Sensitivity CMZs (p. 3-13, 2nd paragraph). As mentioned earlier, this rationale should apply to all fish (including fish other than bull trout, and to adult rearing and migratory life stages.) Furthermore, even if other channel features also contribute to pool formation and off-channel habitats, wood also continues to play a role, and cutting back on LWD recruitment (in areas not designated as "high" sensitivity) will likely result in fewer shallower pools, less complexity in off channel and mainstem habitats. This is all important to migratory bull trout, and other anadromous salmonids.

C3-21

Key Migratory Rivers

(p. 6-3): There are no "key migratory rivers" listed in Washington. Why?

Shade

C3-22

1) Under Riparian Management category of commitment (NFHCP p.1-16): "Maintaining shade to moderate temperature extremes" is not an adequate goal. We do not want **any** temperature increases in bull trout waters. Allowing any removal of shade in bull trout waters can result in temperature increases, which could prove to be

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Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C3-17	550
C3-18	591
C3-19	539, 599
C3-20	494
C3-21	296
C3-22	564

Letter C3

C3-22 significant for bull trout. EVEN in adult migratory areas, we should not have forest practices contributing towards temperature increases. This, along with other cumulative factors, would be degradation of migratory corridors.

C3-23 2) Removal of shade trees. Can't determine how much shade is actually allowed to be removed.

LWD

C3-24 1) Under Riparian Management category of commitment (NFHCP p.1-16): There should not only be a "continuous supply of LWD to streams", but "**key piece**" sizes that will remain stable during peak flows, and a sufficient quantity of wood.

Roads and Slope Stability

C3-25 1) NFHCP p. 2-8. New roads should be avoided in inner gorges. Geotechnical experts should be used if there is any possibility of instability (including placement of roads in inner gorges), not just if Plum Creek decides to deviate from their own recommendations (for constructing roads in inner gorges).

C3-26 2) New roads should also be avoided within 200 feet adjacent to stream. NFHCP did not address construction of new roads adjacent to the streams.

C3-27 3) NFHCP p. 2-8 and 2-14; Appendix R-1#5 and R-3#3. In Montana, culvert installations will be designed for 50 year flows. What about Washington? Within Washington, culverts must meet 100 year flows (see hydraulic codes.)

C3-28 4) NFHCP p. 2-8 #6 & 8; p. 2-14 #2. Eastern Washington roads produce a lot of fine sediments. Native surfacing is often inappropriate. All roads should be surfaced with rock using material that does not break down so quickly. On sections of road that contribute a lot of sediment to streams (such as stream crossings, close adjacency) paving should be strongly considered.

C3-29 5) NFHCP p. 2-13. "All roads in high priority watersheds will be upgraded by end of 2010". There should be evidence that progress is being made towards that goal, such as 20% each five years.

Fish Passage

C3-30 1) Appendix R6 - The appendix for fish passage does not meet Washington State Hydraulic Code (See WDFW WAC 220-110-070):

- Velocity may need to be as low as 2.0 fps for adult trout, depending on length of culvert.
- Criteria must cover weakest fish. Redband trout and bull trout, especially juveniles, will often be the weakest fish.
- 1b - stream gradient must "**remain**" >20% for a stream to be considered non-fishbearing (See Section 13, Washington Forest Practices Board Manual). Merely below and above culvert is not an adequate distance for 20% gradient.
- 4c - WDFW criteria is ≥ 0.8 ft (9.6") = barrier. Outfall drop is downstream end of culvert to water surface.
- 5a &b may work, provided culvert slope is <1%, there are no interior grade breaks, and culvert has bedload throughout.
- 9a&b - water velocity (See WDFW criteria WAC 220-110-070).

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C3-23	565
C3-24	578
C3-25	424
C3-26	412
C3-27	460
C3-28	425
C3-29	443
C3-30	394

Letter C3

C3-31

Cattle Grazing

The NFHCP needs to specifically address how it will deal with cattle grazing impacts on bull trout in the Ahtanum drainage. This issue was addressed in WDFW comments two years ago (letter dated March 6, 1998 to Robert G. Ruesink, USFWS, Snake River Basin Office, pertaining to review of Plum Creek Timber Co. EIS & HCP from Timothy Quinn, WDFW HCP Coordinator). This is a major concern as cattle are currently causing direct effects on bull trout; these effects are in the form of direct (trampling redds, spawner displacement) and chronic effects (trampling in spring seep areas that furnish cold water, collapsing undercut banks, etc.).

C3-32

Adaptive Management and Uncertainty

Volume II, P. 4-192. "Certainty of effectiveness of the riparian conservation commitments, related to riparian timber harvest, under the proposed NFHCP is less than for several other aquatic HCPs approved by the Services because the number of trees left close to streams is generally less." The NFHCP states reasons why they can offer less certainty in riparian prescriptions, but the justification is insufficient because:

1) Too much in this HCP depends on adaptive management. Adaptive management should deal more with "what we don't know"; it shouldn't be used to make up for weak prescriptions which don't adequately provide for functions and unjustifiably increase risk. For species at risk, the balance should be more conservative.
2) The ability to detect negative biological responses necessary to prompt change is risky because there is often a delayed reaction to disturbance, and by the time a negative response is realized, too much has been lost and turn-around time will take too long.
3) Causal linkages are hard to determine because of cumulative effects and variability.

The NFHCP needs to have enough flexibility to incorporate new information or knowledge of the fish community and to adjust land management/development activities accordingly. For example, if additional spawning/rearing areas are identified and additional protection standards are needed, how will that information be incorporated into a plan that we are locked into for a 30 year period? How can recovery actions be implemented? Adaptive management which the NFHCP promulgates is meaningless without the flexibility to adapt to new information.

C3-33

Monitoring

The NFHCP needs to include some specific monitoring plans for the Ahtanum drainage. Currently, the system is fraught with high sediment loads from adjacent riparian and upland areas. What type of monitoring will occur in the drainage to comply with state water quality standards and assure that sediment loads are being reduced? Also, per conversation between Eric Anderson (WDFW) and Greg Watson (Plum Creek), it was mentioned that assistance or funding might be provided for monitoring fish populations (e.g., bull trout redd counts) in the Ahtanum drainage. Does Plum Creek plan to provide some assistance, funding or monitoring in this area?

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C3-31	722
C3-32	683
C3-33	709

Letter C3

C3-34 Again, the NFHCP is of great importance to WDFW. We realize that a tri-state HCP can be quite difficult to develop, considering the regulatory, conservation, and geographical differences between the various states. Because Washington State has spent the last 2 years heavily involved in development of a forest practices regulatory package which will adequately address riparian functions and protection of aquatic species, provide ESA and Clean Water Act assurances, as well as ensure a viable timber industry, we do have a standard or level of protection which we strongly believe should not be compromised. Therefore, we hope that the above comments will be seriously considered and that they will help to strengthen the proposed NFHCP.

If you have questions or need further clarifications, please don't hesitate to contact Terry Jackson (360/902-2609) or myself at 360/902-2847.

Very Sincerely,

David Whipple
Forest Habitats Section Manager

cc: John Mankowski (WDFW)
Gerry Jackson (USFWS)
Eric Anderson (WDFW)
Terry Jackson (WDFW)

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Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C3-34	1

Letter C4

MISSOULA COUNTY
CONSERVATION DISTRICT

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RECEIVED
FEB 10 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

Date: February 2, 2000

To: Ted Koch
U. S. Fish & Wildlife Service
State River Basin Office
1387 Vannell Way, Room 368
Boise, Idaho 83709

From: Tara Comfort, Resource Conservationist
Missoula Conservation District/NRCS

RE: (Draft) Native Fish Habitat Conservation Plan
Appendix G-1 Grazing Best Management Practices
Plum Creek Timber Company
February 1999

I have worked extensively with the Natural Resource Conservation Service since 1977 on development and implementation of woodland grazing guides and coordinated woodland grazing management plans for Western Montana. I have worked with Plum Creek Timber Company and local ranchers on woodland grazing leases, implementation of grazing best management practices, and monitoring stream sites as set out by the grazing BMP standards set by Plum Creek beginning in 1995 to the present.

The following comments are on the Plum Creek Grazing Best Management Practices:

C4-1

1. Performance Standards: Grass Utilization: Riparian grasses, sedges, and rushes may be utilized to no less than 8 inches in height. Upland grasses may be utilized to no less than 4 inches. This is the only performance standard stated in a direct measurement rather than as a percent. It does not account for variation in heights between species, between sites, between years. An 8 inches height may exceed the total height of several riparian grass and sedge species, making no grazing possible. (Examples: *Agrostis, Deschampsia, Poa, and Carex spp.* – Range in Heights: Riparian Dominance Types of Montana – Hanson, Chadde, Pfister, June, 1988).

Suggestion for Revision:

Grass Utilization: Riparian and upland grasses, sedges, and rushes may be utilized to no more than 50% of the current year's growth. This would take into account variation in heights between species, between sites, and between years. See below:

Responses

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Comment	Response
C4-1	723

Letter C4

C4-1

Equating grazing utilization to grazing heights: NRCS recommended grazing stubble heights are based on 50% utilization of the plant by weight, or the take-half-leave-half concept. Up to half the leaves of the grass can be grazed off without impairing root growth and thus plant regrowth (Harland E. Dietz, Soil Conservation Service, 1988). This percentage can be correlated for each plant species to a specific stubble height remaining after grazing. **For example, on an average year, 50 percent use on bluebunch wheatgrass correlates to about a 4-inch stubble height. However, variation in height among grass and sedge species, between sites, and between years is great.**

The following grazing heights were determined from, "A Photographic Utilization Guide for Key Riparian Graminoids"-John W. Kinney, Warren P. Clary-USDA-FS-Intermoutain Research Station-General Technical Report INT-GTR-308, June 1994. This study has many of the species we have in our riparian areas around Western Montana. By taking the **50% utilization** point for Percent Weight Removed and finding the corresponding Percent Height Remaining (multiplied by mean height), the follow grazing heights were determined: **(Note the wide variation in heights between species)**

Redtop (*Agrostis stolonifera*) – 6 inches
Bluejoint reedgrass (*Calamagrostis canadensis*) – 8 inches
Water sedge (*Carex aquatilis*) – 7 inches
Smallwing sedge (*Carex microptera*) – 3 inches
Nebraska sedge (*Carex nebrascensis*)– 7 inches
Beaked sedge (*Carex rostrata*) – 7 inches
Tufted hairgrass (*Deschampsia cespitosa*) – 2 inches
Baltic rush (*Juncus balticus*) – 10 inches
Kentucky bluegrass (*Poa pratensis*) – 3 inches

(Average – 6 inches…grasses – 5 inches, sedges/rushes – 7 inches)

Recent studies on grazing heights: I do not find evidence in the literature that an 8-inch stubble height is needed for stability or stream health. In reviewing the standards of the USFS and BLM, this stubble height exceeds their standards. For intermountain riparian areas, Clary and Webster (1989) recommended that a minimum herbage stubble height be present on all streamside areas at the end of the growing season, of at least **4 to 6 inches in height** to provide sufficient herbaceous forage biomass to meet the requirements of plant vigor, maintenance, bank protection, sediment entrapment. This recommendation was implemented widely by the USDA Forest Service (Clary 1995). (Management Practices to Change Livestock Behavior in Grazing Watersheds, Melvin George-Standards and Guides-42)

The USDA, NRCS has set a standard of a minimum of 2 to 4 inches of stubble height to remain on riparian herbaceous species at the time of year protection is needed for peak runoff, such as springtime flows or summer storms.(USDA-NRCS-Prescribed Grazing, Montana Standard MT528A-8, February, 1996).

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter C4

2. Monitoring Form: Grazing in Riparian Areas (2/99):

In their present form, the Plum Creek grazing monitoring forms are very subjective, and do not give Plum Creek much information. Answers of YES or NO are absolutes and do not give a clear picture of what condition the monitoring site is in. (Example: 1. Do hoof prints occupy more than 10% of the riparian area? The rancher checks YES for any amount over 10%, yet the riparian area would be in much different condition if there are 15% hoof prints as opposed to 50%, etc.)

C4-2 **A suggestion to improve the monitoring form would be to request further information for any answer of YES on the form…if yes, how much…if yes, please explain…**

Enclosed is a copy of the monitoring form adapted from "Stream Channel and Riparian Area Monitoring Guide" in Monitoring for Success, J. C. Mosley, MSU-Bozeman 8/97 called Health Checklist for Riparian Areas, for your consideration. After using both monitoring forms in the field, I find that the MSU form gives more valuable information on the health of the stream site, and the trend in condition. Perhaps the best of both forms could be combined.

C4-3 **3. Picking a Monitoring Site:** Areas which should be considered of high concern are those with actively eroding banks, or high erosion potential; those that contain sensitive fish or plant species habitat; and those in poor functioning condition. (USDA, NRCS Prescribed Grazing, Streambank Stability, MT528A-8, February 1996) (Guidelines For Managing Livestock in Riparian Areas, USDA, Forest Service, Beaverhead National Forest, USDI, BLM, Butte District June, 1993)

Thank you for the opportunity to comment on this section of the draft Habitat Conservation Plan. If you have any questions on these comments, please contact me.

Submitted by:

Tara L. Comfort

Tara L. Comfort,
Resource Conservationist

Enclosure

C: Art Pencek, Plum Creek Timber Company, Clearwater Unit
Ron Hilmo, Plum Creek Timber Company, Rocky Mountain Region
John Blaine, USDA, NRCS, Clark Fork Team
Mike Odegaard, USDA, NRCS, Clark Fork Team

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C4-2	760
C4-3	761

Letter C5

MISSOULA COUNTY
CONSERVATION DISTRICT

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February 23, 2000

Ted Koch
U. S. Fish & Wildlife Service
State River Basin Office
1387 Vanneil Way, Room 368
Boise, Idaho 83709

RE: (Draft) Native Fish Habitat Conservation Plan
Appendix G-1 Grazing Best Management Practices
Plum Creek Timber Company
February 1999

As a follow-up to comments submitted February 2, 2000 and a meeting with Plum Creek and BLM in Missoula on February 8, 2000, I would like to offer the following additional comments:

C5-1 The Performance Standards as they are presently written are overly restrictive and non-sustainable as minimum environmental standards to be met throughout the grazing lease. As stated on Page G-1-2: **Performance Standards** "The intent of **Performance Standards** is to provide a benchmark by which we can ensure that Plum Creek's corporate environmental objectives (such as clean water and healthy fisheries) are met. We believe that for the vast majority of cases, the standards will maintain or improve conditions over time."

Enclosed is an alternate set of grazing performance standards along with a proposed revised grazing monitoring form for consideration. The former comments I made on February 2 are incorporated into these plus the concerns expressed by BLM at the meeting of February 8 with Plum Creek. These proposed alternatives are submitted at the request of Mike Jostrom, Plum Creek.

C5-2 If the performance standards are to be set as the minimum requirements to be met across the lease, they need to be attainable and sustainable. The proposed performance standards (enclosed) are both attainable and sustainable, will maintain or improve conditions over time, and would meet accepted grazing standards of NRCS.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C5-1	724
C5-2	724

Letter C5

Thank you for the opportunity to comment on these grazing BMPs. If you have any questions, please contact me.

Submitted By:

Tara L. Comfort

Tara L. Comfort,
Resource Conservationist

Enclosures

C: Mike Jostrom, PCTC
Brian Sugden, PCTC
Art Pencek, PCTC
Ron Hilmo, PCTC
Larry Newman, BLM
John Blaine, NRCS
Mike Odegaard, NRCS
Larry Holzworth, NRCS
Steve Pilcher, MT Stockgrower's Assoc.

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter C5

Responses

See Response to Comment Table or click on link provided below.

Comment Response

PLUM CREEK TIMBER COMPANY

GRAZING BEST MANAGEMENT PRACTICES

Performance Standard	Description
Streambank Stability	Livestock-caused bank disturbance will affect no more than 25% of streambanks. This will be measured as the number of feet of livestock-altered bank divided by total number of feet of measured bank.
Riparian Compaction	Less than 25% of riparian soils will be affected by livestock hoof displacement/compaction (Riparian soils occur in the lush, damp area around streams and ponds).
Grass Utilization	No more than 50% of the current year's grass, sedge, and rush growth may be utilized. An illustration demonstrating 50% grass utilization is shown in Appendix 2.
Shrub Utilization	No more than 25% of the current year's shrub growth (including willows and trees) can be damaged/utilized by livestock. An illustration demonstrating 25% shrub utilization is shown in Appendix 2.
Shrub Regeneration	When they can exist, shrubs, must be present along stream and in riparian areas, with all age classes represented. This is to be measured by noting presence, size, classes, and numbers.
Tree Regeneration	Less than 10% of tree seedlings and other trees can have physical damage caused by livestock. This includes damage to the terminal bud and leader, or by scarring/scraping. In addition, compaction caused by livestock must not inhibit tree regeneration.
Weeds	Note presence and species (no standard – monitor and note).
Condition Trend	Streambanks, riparian areas, and uplands must be maintained in their present condition, or improved over time.

Letter C5

MONITORING FORM: Grazing in Riparian Areas.

Leaseholder Name _____ Date _____

Stream Name _____ Plot No. _____

	YES	NO
1. Is more than 25 % (within 100 feet) of streambank disturbance caused by livestock? (If yes, how much? _____)	____	____
2. Do hoof prints occupy more than 25% of the riparian area, within the monitoring site? (If yes, how much? _____)	____	____
3. Does grazing of grasses, sedges, and rushes exceed 50% of the current year's growth? (If yes, how much? _____)	____	____
4. Does shrub browsing exceed 25% of the current year's growth? (If yes, how much? _____)	____	____
5. Are multiple age classes of shrubs absent along the streambank? (If yes, which age classes? young ____, mature ____, old____)	____	____
6. Are more than 10% of the tree seedlings damaged by livestock within the monitoring site? (If yes, how much? _____)	____	____
7. Are weeds present within the monitoring site? (If yes, which ones? knapweed___, thistle___, mullein___, houndstongue___, _____)	____	____
8. Did the condition of this site worsen since your last visit? (If yes, please explain…increase in weeds? ___, increased bank erosion? ____, stream widening? ____, _____)	____	____
Total:	____	____

[ ] PHOTO TAKEN AT THIS POINT

Other Observations: _____

_____

_____

_____

_____

_____

_____

_____

Responses

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Comment Response

Photo Guides for Estimating Utilization

Figure 1. Photo guide for "even" utilization.

Unmunched | Slight Munch (0-20%) midpoint 10% | Light Munch (20 -40%) midpoint 30% | Moderate Munch (40 - 60%) midpoint 50% | Heavy Munch (60 - 80%) midpoint 70% | Severe Munch (80 - 100 %) midpoint 90%

Figure 2. Photo guide for "uneven" utilization.

Slight Munch A (seedheads clipped off) 10% | Slight Munch B (20% nubbed off close) 10% | Light Munch (40% nubbed off close) 30% | Moderate Munch (70% nubbed off close) 50% | Heavy Munch (the whole plant nubbed off close) 70%

Figures taken from McKinney. 1997. Rangelands 19(3):4-7.

Letter C6

WASHINGTON STATE DEPARTMENT OF
Natural Resources

JENNIFER M. BELCHER
Commissioner of Public Lands

March 13, 2000

Ted Koch, Project Manager
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, ID 83709

RE: Draft EIS and HCP for Plum Creek Timber Company Inc. lands in Washington State

Dear Mr. Koch:

After review of this document, it appears that Plum Creek's proposed NFHCP does not comply with the minimum protection measures called for under new emergency Washington State Forest Practices rules which go into effect March 20, 2000. Though most of this HCP is geared towards Plum Creek lands in Idaho and Montana, portions of their ownership in Washington State are under this proposed HCP as well.

C6-1

Our forest practices emergency rules are being enacted as an interim step towards new permanent rules designed to meet the need for protection of recently listed threatened and endangered fish stocks in Washington's waters. These new rules are more restrictive than the current forest practices rules and regulations. They cover a multitude of subjects including additional riparian management zone protections, unstable slope and land form identification and protection, treatment of forest roads and wetlands, new pesticide use protection measures and other rules as well. All of these are geared towards adequate protection of T&E species. For instance, under riparian management strategies, the rules not only preserve current conditions of streams and riparian functions so they will not decline in quality with ongoing timber management, the rules also provide mechanisms to create a desired future condition. These riparian leave tree rule strategies address attaining larger trees for larger LWD, better stream shading and temperature control, better sediment control and bank stability. The rule strategies also deal with nutrient and litter inputs and wind throw.

C6-2

The new forest practices rules call for greater protection of fish bearing waters than is called for under the proposed NFHCP. This is especially true for 'Tier 2' waters. For example, the HCP would maintain only a fifty foot wide RMZ outside the CMZ. Within both, it would allow timber harvest while leaving all trees less than 8" dbh and at least 88 trees greater than 8" dbh. The new forest practices rules for RMZs in Eastern Washington require a ninety foot wide RMZ outside the CMZ and various levels of protection throughout both the CMZ and RMZ. The entire CMZ

SOUTHEAST REGION ▮ 713 E BOWERS RD ▮ ELLENSBURG, WA 98926-9341
FAX: (509) 925-8522 ▮ TTY: (509) 925-8527 ▮ TEL: (509) 925-8510

Responses

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C6-1	600
C6-2	601

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Page 2.

C6-2 is a no harvest area as is the first thirty feet of the RMZ that is closest to the CMZ. The next 45 feet of the RMZ is a partial harvest area with a basal area target that must be met before any harvest can take place. There are other differences as well where it appears the proposed HCP protection measures are less than what is required by the emergency rule.

I realize this comparison is difficult especially since the new emergency forest practices rules are basal area driven and the proposed HCP is based upon trees per acre. However, I believe you can see in the example that the proposed HCP offers less protection for a fish stream than the forest

C6-3 practices rules. It is the position of the department that the proposed NFHCP should be modified to provide at least the same level of riparian protection as is found in the new emergency forest practices rules. Even though this is an emergency rule subject to change in the future with the permanent rule that will follow about July 2001, I have been assured the permanent rule will build upon the emergency rule and incorporate much of the emergency rule language as well as possibly more restrictive riparian protections.

If you have any questions or need a more detailed description of other areas where it appears the NFCHP falls short of the riparian protections in the forest practices rules, please contact me through our Southeast region office at (509)-925-8510. Thank you for the opportunity to comment.

Sincerely,

Martin Mauney

Martin Mauney
Forest Practices Forester

c: Joe Blazek
Gary Berndt
Charlie McKinney

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
C6-3	602

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Letter D1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8, MONTANA OFFICE
FEDERAL BUILDING, 301 S. PARK, DRAWER 10096
HELENA, MONTANA 59626-0096

RECEIVED
MAR 20 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

Ref: 8MO

March 16, 2000

Mr. Ted Koch
U.S Fish & Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, Idaho 83709

Re: DEIS and Native Fish Habitat Conservation Plan for Proposed Permit for Taking of Federally Listed Native Fish Species on Plum Creek Timber Company Lands

Dear Mr. Koch:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the Environmental Protection Agency, has reviewed the above-referenced Draft Environmental Impact Statement (DEIS) and Native Fish Habitat Conservation Plan (NFHCP).

The EPA appreciates and supports the efforts by the U.S. Fish & Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and Plum Creek Timber Company (Plum Creek) to develop a conservation plan to protect habitat and aquatic ecosystems of native salmonid fish in Montana, Idaho and Washington. The NFHCP represents the beginning of a process that we find encouraging. D1-1

The success of the NFHCP in terms of achieving biological goals, avoiding "take" of listed species, assuring species viability and sustainability, and protecting and restoring water quality and aquatic habitat, depends to a great extent upon the effectiveness of the monitoring and adaptive management program. It is important that the monitoring and adaptive management program assure that all effects, particularly cumulative effects, of Plum Creek activities over the 30 year period of the Permit are identified and properly mitigated. While the proposed adaptive management and monitoring program is a good start, we have concerns that this program lacks the necessary scope and detail to assure that effects from Plum Creek's management activities upon water quality, aquatic habitat and fisheries will be fully identified and mitigated. Further explanations and more detailed and specific information regarding Plum Creek's adaptive management and monitoring program should be provided. It is also important that monitoring reports and information be available for review by the public and interested agencies. Without D1-2

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Responses

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D1-1	1
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Letter D1

more detailed monitoring information and public access to monitoring reports we do not believe the EIS will include adequate information to fully assess effects of the management actions.

D1-3 It may be appropriate for the Services to assemble an independent science review panel consisting of agency, company, and accredited academic representatives to review the monitoring and adaptive management program, particularly relating to ecological thresholds and triggers. We believe such a panel would improve the adaptive management program and lend credibility to the program. Independent scientific oversight of the adaptive management program also may better assure that Plum Creek management actions remedy problems in a manner that truly provides protection to fish.

D1-4 The EPA also has concerns about the level of protection provided by the proposed NFHCP harvest prescriptions for Tier I and Tier II watersheds, and about the disaggregation of project area watersheds into Tier I and Tier II watersheds. The level of protection proposed in the NFHCP for both Tier I and Tier II watersheds is less than that provided for by the Washington State Forest & Fish Program, and may be inconsistent with USFWS Bull Trout Interim Conservation Guidance. We are concerned that the riparian prescriptions of the NFHCP will not adequately protect riparian resources and aquatic habitat. We recommend that the Services negotiate with Plum Creek to achieve more protective riparian management prescriptions.

D1-5 We also note that Plum Creek only owns approximately 10% of the approximately 17.3 million acres of land in the planning area. Success of overall efforts to protect and restore native fish species viability and sustainability will require habitat protection on other land ownerships in the planning area. The DEIS does not include a description of the overall viability and sustainability of the habitat and aquatic ecosystems for native salmonid fish within the planning area. We recommend that the FEIS provide an overview of the overall efforts to conserve and protect habitat of native salmonid fish in the planning area; the status of these efforts; and the short and long term implications for overall species and habitat viability and sustainability. It is also not clear how Plum Creek's efforts will be integrated or coordinated with the overall habitat protection efforts on other land ownerships in the planning area. A coordinated and integrated watershed conservation strategy on all land ownerships is needed. The FEIS should provide some description of efforts to coordinate or integrate Plum Creek efforts with the other habitat protection efforts in the planning area.

D1-6 The DEIS indicates that the NFHCP hopes to minimize and mitigate "to the maximum extent practicable" the effects of potential Take of Covered Species (e.g., NFHCP page 1-8; Appendix A, Section 2.1.4, etc.,). There appears to be much subjectivity in the determination of whether mitigation efforts are implemented "to the maximum extent practicable." The Services should clarify the standards by which this "maximum extent practicable" determination will be made. We are concerned that needed mitigation actions (i.e., actions that would avoid, minimize, and compensate for impacts to fisheries) may be rejected primarily due to business or cost considerations. We recognize the need for a reasonable return on investment, but have concerns that cost concerns may override environmental or biological concerns in such determinations.

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D1-3	316
D1-4	495
D1-5	246
D1-6	369, 373, 375, 377

Letter D1

D1-7 Also, the DEIS provides little information on USFWS/NMFS inspection, monitoring and consultation regarding Incidental Take Permit and NFHCP implementation. EPA recommends that the Implementing Agreement more clearly describe roles and responsibilities of the Services, Plum Creek, and auditors for inspections and consultations, and schedules for inspection and consultation, and consequences and remedies in the event of NFHCP or Permit non-compliance. Consequences and remedies for Permit and NFHCP non-compliance should be established in the Implementing Agreement, and such remedies and consequences should be strong enough to deter violations.

D1-8 We are also concerned that the USFWS and NMFS may lack adequate resources to properly oversee implementation of this 30 year Permit and NFHCP covering 1.7 million acres in three States. We are particularly concerned that the USFWS in Montana (where 88% of the Plum Creek land is located) lacks resources to effectively carry out this oversight responsibility. Other agencies presently provide resources to allow the USFWS to carry out its ESA responsibilities in Montana (e.g., US Forest Service and Montana Dept. of Transportation provide resources to the USFWS in Montana). The resources that the Services will be able to provide to inspect, monitor and oversee Permit and NFHCP implementation on the 1.7 million acres of Plum Creek land over the 30 year Permit period should be described in the FEIS. Will adequate resources be available to the Services to provide needed oversight of the Permit and NFHCP?

D1-9 The concerns EPA has regarding the adequacy of the NFHCP prescriptions and commitments to address aquatic degradation (e.g., riparian prescriptions, lack of road density commitment, etc.,), and concerns about the adequacy of the monitoring and adaptive management program and implementation reporting and oversight, lead us to believe it would be prudent for the Services to consider a duration of shorter than 30 years for the Incidental Take Permit. We recommend that the Services consider issuing a Permit for a period of 10 to 20 years, perhaps with an option to extend the Permit to 30 years if monitoring reports provide adequate documentation that prescriptions are successful in improving water quality and aquatic habitat.

D1-10 In regard to Clean Water Act (CWA) and Endangered Species Act (ESA) consistency, the EPA believes that Habitat Conservation Plans (HCPs) prepared in response to ESA species survival and recovery needs should be consistent with present and future Total Maximum Daily Loads (TMDLs) prepared to satisfy CWA requirements. The FEIS should identify water quality limited water bodies in need of a TMDL within the planning area (i.e., 303(d) listed streams), and identify the TMDL status for these 303(d) listed water bodies. This will facilitate assessment of NFHCP-TMDL consistency, and efforts to integrate and coordinate TMDL requirements with the NFHCP. The NFHCP has many watershed restoration elements that may be incorporated into TMDLs at a later date if they prove to be effective.

D1-11 We also recommend that a caveat be included in the NFHCP that watershed scale TMDLs will need to be completed at a future date by the States to cover all land ownerships in watersheds of 303(d) listed waters. A "reopener" statement may also be needed and/or adaptive management process established to allow for NFHCP habitat protections to be reassessed when the larger watershed scale TMDLs are completed at a later date. We urge that the lead agency and Plum

Responses

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Comment	Response
D1-7	316, 319
D1-8	309
D1-9	278
D1-10	803
D1-11	804

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D1-11 Creek coordinate the NFHCP closely with EPA and the State water quality agencies in meeting Clean Water Act mandates.

The EPA's more detailed questions, concerns, and/or comments regarding the analysis, documentation, or potential environmental impacts of the Plum Creek Timber Company Native Fish Habitat Conservation Plan and Incidental Take Permit DEIS are included in the enclosure with this letter. Based on the procedures EPA uses to evaluate the adequacy of the information and the potential environmental impacts of the proposed action and alternatives in an EIS, the Plum Creek Timber Company Native Fish Habitat Conservation Plan and Incidental Take Permit DEIS has been rated as Category EC-2 (Environmental Concerns - Insufficient Information). A copy of EPA's rating criteria is attached.

D1-12 The EPA has environmental concerns regarding the adequacy of the proposed monitoring and adaptive management program to fully assess all aquatic effects of Plum Creek land management activities, particularly cumulative effects, and about the adequacy of proposed riparian management prescriptions. We recommend a shorter duration 10 to 20 year Permit. We believe additional information should be provided regarding: integration of the NFHCP with overall conservation efforts in the entire project area; USFWS and NMFS resources for oversight and evaluation of the Permit & NFHCP; and NFHCP-TMDL consistency.

The EPA appreciates the effort that went into the preparation of this DEIS, and we thank you for the opportunity for review and comment. If we may provide further explanation of our concerns please contact Mr. Steve Potts of my staff in Helena at (406) 441-1140 ext. 232.

Sincerely,

John F. Wardell
Director
Montana Office

Enclosure

cc: Cynthia Cody/Yolanda Martinez, EPA, 8EPR-EP, Denver
Elaine Somers, EPA, Region 10, Seattle
Don Martin, EPA, Idaho Office, Boise
Brian Sugden, Plum Creek Timber Co., Columbia Falls
Tim Bodurtha, USFWS, Kalispell
Stuart Lehman, MDEQ, Helena

Responses

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Comment	Response
D1-12	610

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Comment Response

SUMMARY OF RATING DEFINITIONS

ENVIRONMENTAL IMPACT OF THE ACTION

LO--LACK OF OBJECTIONS

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC--ENVIRONMENTAL CONCERNS

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO--ENVIRONMENTAL OBJECTIONS

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU--ENVIRONMENTALLY UNSATISFACTORY

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

ADEQUACY OF THE IMPACT STATEMENT

CATEGORY 1--ADEQUATE

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

CATEGORY 2--INSUFFICIENT INFORMATION

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

CATEGORY 3--INADEQUATE

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information,data, analyses, or discussions are of such magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From: EPA Manual 1640, "Policy and Procedures for the Review of Federal Impacting the Environment."

Letter D1

Responses

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Comment Response

EPA Comments on Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan for Proposed Permit for Taking of Federally Protected Native Fish Species on Plum Creek Timber Company Lands

Brief Project Description:

The U.S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS) have prepared a Draft Environmental Impact Statement (DEIS) to analyze alternatives and impacts for issuance of a 30 year Permit under the Endangered Species Act (ESA) to authorize the Incidental Take of Federally listed fish species that would occur with implementation of a Plum Creek Timber Company (Plum Creek) Native Fish Habitat Conservation Plan (NFHCP). The NFHCP covers approximately 1.7 million acres of Plum Creek lands in the States of Washington, Idaho and Montana (88% or 1,462,000 acres of lands are in Montana; 8% or 134,000 acres in Idaho; and 4% or 85,000 acres in Washington).

Plum Creek lands covered in the NFHCP comprise a significant percentage of the Flathead, Thompson, Kootenai, Swan, and Blackfoot River drainages in Montana. The NFHCP project area includes Plum Creek ownership the Lochsa, Little North Fork Clearwater, and St. Joe River Basins in Idaho, and the Tieton and Ahtanum and Lewis River Basins in Washington. Plum Creek's land ownership is partially intermingled in a checkerboard pattern with approximately 15.6 million acres of lands managed by the Forest Service, State, Tribal or other private owners. Thus the planing area for the NFHCP encompasses approximately 17.3 million acres, of which approximately 10% is owned by Plum Creek and approximately 60% owned by the Federal government.

The 17 salmonid fish species covered in the NFHCP include 8 listed species (Columbia River Basin Bull Trout, Snake River Steelhead, Mid-Columbia River Steelhead, Lower Columbia River Steelhead, Snake River Spring/Summer Chinook Salmon, Snake River Fall Chinook Salmon, Lower Columbia River Chinook Salmon, Columbia River Chum Salmon); and 9 non-listed species (redband trout, coastal rainbow trout, westslope cutthroat trout, mountain whitefish, pygmy whitefish, coastal cutthroat trout, Upper Columbia chinook salmon, Mid-Columbia chinook salmon, and Lower Columbia River coho salmon). Three of these 17 fish species are present in Montana (redband trout, bull trout, westslope cutthroat trout); six of the fish species are present in Idaho; ten are present in Washington.

The purpose of the proposed action is to authorize incidental take of the covered Permit species by Plum Creek and provide the Company with reasonable assurances consistent with the "No Surprises" Final Rule which was effective March 25, 1998 (FR 1998b). Thus, there is a dual purpose for this project of assurance of conservation of native salmonids and assurance of long term regulatory certainty for Plum Creek.

Four alternatives for management of Plum Creek lands are analyzed in the DEIS including, No Action, Plum Creek's NFHCP Alternative, an Internal Bull Trout Conservation Plan Alternative, and a Simplified Prescriptions Alternative. The No Action Alternative would provide compliance with Federal and State laws and forest practice regulations but no Incidental Take

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Permit would be issued and the NFHCP would not be implemented.

The NFHCP Alternative involves implementation of the NFHCP prepared by Plum Creek to conserve habitat for bull trout and other native salmonids (including unlisted species) and allow recovery of listed species by seeking the Incidental Take Permit. Plum Creek prepared the NFHCP to ensure greater economic viability and increase regulatory certainty and flexibility through productive long-term forest management. The NFHCP establishes four basic biological goals (with fifteen specific habitat objectives and 53 individual conservation commitments) and four business goals (with eleven specific business objectives), and is intended to integrate and balance biological and business goals. The Plum Creek activities covered in the NFHCP include road management, commercial forestry activities, fire suppression, grazing, conservation activities, recreation, and miscellaneous activities such as mining gravel or landscape stones.

The Internal Bull Trout Conservation Plan Alternative consists of a package of defensive science based land management practices and conservation measures that could be developed and implemented by Plum Creek. This alternative could potentially be used to authorize incidental take for a single species or listed species only habitat conservation plan, as contrasted to the NFHCP multi-species approach that also includes unlisted species. This is the likely fall back alternative if the NFHCP alternative is not selected.

The Simplified Prescriptions Alternative involves a general approach to road, riparian buffer, and grazing restrictions, with either no or minimal commitments to other practices that conserve fish, that would be adequate for Permit issuance. This general approach is contrasted to the NFHCP focused site-specific conservation approach.

Comments:

Overall Species and Habitat Situation:

D1-13

1. We appreciate and support the efforts of Plum Creek and the Services to develop a conservation plan to protect habitat and aquatic ecosystems of native salmonid fish in Montana, Idaho and Washington. The NFHCP represents the beginning of a process that we find encouraging. Plum Creek, however, only owns approximately 10% of the approximately 17 million acres of land in the planning area. Success of overall efforts to protect and restore native fish species viability and sustainability will require habitat protection on other land ownerships in the planning area.

D1-14

The DEIS does not include a description of the overall viability and sustainability of the habitat and aquatic ecosystems for native salmonid fish within the planning area. We understand that the Services are preparing recovery action plans for bull trout and other listed species. How do bull trout (and other listed species) populations and habitats on Plum Creek lands fit into the bigger picture of recovery? **We recommend that the FEIS provide an overview of the overall efforts to conserve and protect habitat of native**

2

Responses

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Comment	Response
D1-13	1
D1-14	120

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D1-14 **salmonid fish in the planning area; the status of these efforts; and the short and long term implications for overall species and habitat viability and sustainability.**

D1-15 2. It is also not clear how Plum Creek's efforts will be integrated or coordinated with the overall habitat protection efforts on other land ownerships in the planning area. **A coordinated and integrated watershed conservation strategy on all land ownerships is needed.** We believe the FEIS should provide some description of efforts to coordinate or integrate Plum Creek efforts with the other habitat protection efforts in the planning area.

D1-16 3. It would also be helpful if the FEIS more clearly disclosed the extent to which past Plum Creek timber cutting, road construction, and other management activities have contributed to degradation of water quality and aquatic habitat and fisheries in the planning area as compared to activities on other land ownerships in the planning area (i.e., effects to stream structure and channel stability, streambed substrate including seasonal and spawning habitats, woody debris, streambank vegetation, and riparian habitats). Comparison of aquatic habitat degradation resulting from Plum Creek's activities vs. activities on other land ownerships would provide perspective on the contribution of the Plum Creek NFHCP toward achieving overall species viability and sustainability within the planning area (i.e., Is the aquatic habitat degradation on Plum Creek's 10% of land in the planning area more or less than that on other land ownerships? Is it known how many acres of Plum Creek land has been logged and miles of roads constructed vs. adjacent Federal ownership? To what extent will the Plum Creek NFHCP contribute to overall restoration and recovery of fisheries?).

D1-17 Particular attention should be directed at evaluating and disclosing the **cumulative effects** of increased water yield, and increased levels of erosion and sedimentation on Plum Creek land and within the overall planning area. A good cumulative impacts assessment for Plum Creek activities and activities on adjacent lands within the planning area is needed to allow evaluation of the overall context of the NFHCP within the planning area. This will also enable more informed judgements to be made regarding the overall future outcome relative to species viability and sustainability.

Alternatives:

D1-18 4. It is stated (page ES-10) that only the NFHCP Alternative would serve to reduce impacts and multiple threats to Permit species and their habitat, while allowing Plum Creek to achieve their business goals. Does this mean that only one of the four alternatives evaluated in the DEIS will meet the purpose and need (i.e., both reduce threats to Permit species and allow Plum Creek to achieve their business goals)? If that is the case it brings into question whether an adequate range of reasonable alternatives have been considered (see the Council on Environmental Quality's regulations for implementing NEPA, 40 CFR 1502.14). Does the FWS and NMFS believe that an adequate range of reasonable

Responses

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D1-15	247
D1-16	233
D1-17	255
D1-18	175

Letter D1

D1-18 alternatives has been considered if only one alternative can meet the project purpose and need?

D1-19 5. We are also concerned that even the more protective action alternatives (NFHCP Alternative and Simplified Prescriptions Alternative) do not provide full restoration of all aquatic functions and conditions adequately protective of fish habitat. **We believe that it would be appropriate to evaluate an alternative that is fully protective of aquatic functions and conditions**. Such a Pro-Fish Conservation Alternative would combine the best options for Native Fish Habitat Conservation from the three action alternatives. This alternative may not be "practicable" from Plum Creek's business standpoint, but its inclusion, discussion and evaluation would allow a more enlightened basis for comparison of aquatic protection needs vs. business goals, and for making determinations of mitigation "to the maximum extent practicable," which is another concern of EPA (as discussed in the following comment number 6).

NFHCP:

D1-20 6. Much language in the DEIS indicates that the NFHCP hopes to minimize and mitigate "to the maximum extent practicable" the effects of potential Take of Covered Species (e.g., NFHCP page 1-8; Appendix A, Section 2.1.4, etc.,). There appears to be much subjectivity in the determination of whether mitigation efforts are implemented "to the maximum extent practicable." The Services should better clarify the standards by which this "maximum extent practicable" determination will be made. We are concerned that needed mitigation actions (i.e., actions that would avoid, minimize, and compensate for impacts to fisheries) may be rejected primarily due to business or cost considerations. We recognize the need for a reasonable return on investment, but have concerns that cost concerns may override environmental or biological concerns in such determinations.

This concern seems to be substantiated by the statement on page 8-15 of the NFHCP (in the box on AM2-Adaptive Management Commitment 2), regarding commitment of resources to maintain biological goals, which states, "the Services and Plum Creek will utilize the NFHCP business goals to guide the development of a response." This statement seems to imply that business goals will guide management response in the adaptive management program. It is not clear how biological goals or considerations will be balanced with business considerations when determining management responses. We believe a balance of business and biological considerations should guide management responses. **We are concerned that if business considerations override biological considerations, a reduction in the success of efforts to restore species viability and sustainability is likely to result.**

How will the Services assure proper balance between biologic and economic considerations with determinations that mitigation has occurred to the "maximum extent practicable"? How will biological goals be considered relative to business goals in

4

Responses

See Response to Comment Table or click on link provided below.

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D1-20 determining management response to monitoring results? How are determinations made that more protective management prescriptions are too expensive or "not practicable"?

D1-21 7. The NFHCP fails to include the endangered White Sturgeon in the Kootenai River system. This fish has habitat requirements that are different from the Bull trout and consequently could require other Best Management Practices (BMPs) or modified monitoring to detect White Sturgeon effects.

D1-22 8. The NFHCP also does not appear to address protection of bald eagle nesting sites, listed plants (e.g., water howellia) or measures to identify and maintain grizzly migration paths. How will the USFWS/NMFS evaluate whether the NFHCP may impact or harm other listed species not included in the plan. Of particular concern is the position taken that Plum Creek can destroy listed plants anyway, without the NFHCP, so the USFWS doesn't see a need to add provisions to protect them. This position is inconsistent with Section 7(a)(2) of the Endangered Species Act in that the USFWS is authorizing, through approval of the HCP, an activity that may affect a listed species.

D1-23 9. We do not see much in the NFHCP in regard to use of chemicals (pesticides, herbicides, fertilizers, fire retardants, fuels, lubricants, etc.,). Chemical usage can affect water quality and fisheries. Plum Creek's use of chemicals should be addressed in the NFHCP. In addition the monitoring and adaptive management program should allow for detection of chemicals used by Plum Creek in carrying out their management actions (i.e., water quality and biological impacts from chemical usage).

We also note that the EIS uses the Bull trout as the surrogate for all salmonids. This may be appropriate where sediment and water temperature are the primary concerns, since bull trout are sensitive to sediment and temperature. The Bull trout, however, is not an appropriate surrogate for toxicants since other salmonids, especially Rainbow trout, are more sensitive to toxicants.

D1-24 10. In regard to Tier I and II watersheds (DEIS page 2-20; NFHCP, page 1-10), Tier I is defined as spawning and rearing habitat for bull trout; Tier II is migratory habitat and all other habitat types. Tier I watersheds receive greater protection than Tier II watersheds, but only 19% of the total project area is within Tier I. We have concerns regarding the simple disaggregation of all watersheds into Tier I and Tier II watersheds, and the levels of protection provided to all salmonid species.

First of all Tier I appears to include only <u>known</u> occupied bull trout habitat. Bull trout are difficult to sample, and there is a lot of uncertainty regarding presence/absence. Also, bull trout may become extinct in some local habitats and recolonize others. Therefore, management based exclusively on patterns of occurrence can produce a misleading view of habitats that may be key to bull trout populations. The USFWS (to our understanding) is currently managing known occupied *and* potential habitat under identical guidelines.

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<u>Responses</u>

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D1-24

We suggest that potentially occupied habitat also be included in Tier I watersheds. One of the major reasons for listing bull trout was a decline in distribution. Therefore, an expansion of distribution is needed, and habitats outside of the current distribution of bull trout should be restored. Determination of potential distribution should involve detailed review of historical records of occurrence and modeling of habitat potential (similar to TMDL process).

We are also concerned that the listing of Tier I watersheds is based only on bull trout spawning and rearing habitat, yet the NFHCP is intended to provide protection for all habitats for 17 salmonid species, including 7 other listed species in addition to bull trout. It is important to protect the spawning and rearing habitat of all 17 species, and to protect the migration, holding, and overwintering habitat (not just the spawning and rearing habitat) of all 17 species. Separation into Tier I and II watersheds based only on bull trout spawning and rearing habitat may over simplify what is needed to protect important habitats for all species. It will likely be necessary to expand protective coverage of Tier I watersheds beyond 19% of the planning area in order to protect important habitat for all 17 species, particularly the important habitat of all 8 listed species (not just bull trout), and the westslope cutthroat trout which has been petitioned for listing.

As described in comment number 14 below, we also have concerns about the level of protection provided by the proposed NFHCP harvest prescriptions for Tier I and Tier II watersheds. The level of riparian and aquatic resource protection provided by the Tier II watershed prescriptions are significantly less than protections provided for Tier I watersheds. Thus, by the NFHCP proposal 81% of the project area will get this lesser level of Tier II protection. The level of protection proposed in the NFHCP for both Tier I and Tier II watersheds is less than that provided for by the Washington State Forest & Fish Program. We are concerned that the riparian prescriptions of the NFHCP will not adequately protect riparian resources and aquatic habitat.

NFHCP Roads:

D1-25

11. We are pleased that the NFHCP includes BMPs that exceed the protections provided in some State voluntary BMPs (e.g., culvert replacement sizing for 50 year flood, increased road cross drainage, etc.,), although descriptions of BMPs sometimes use vague or unclear language such as "cross draining where possible", "to the extent practicable", "minimize sediment delivery". Wherever possible explicit BMP language should be used, and quantitative measurable targets and standards should be established to evaluate the efficacy of BMPs, and provide a basis for adjusting management.

Improvements to forest road systems and reduction in road density are especially critical to protecting aquatic health and wildlife resources for the project area. As you know road construction greatly increases the possibility of erosion and sediment transport, and roads can direct runoff to streams impacting channel hydrology and stability. Areas of

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concern regarding roads include the number of road stream crossings; road drainage; culvert sizing and potential for washout; culvert allowance of fish migration and effects on stream structure; seasonal and spawning habitats; large organic material supplies; and riparian habitats. Undersized culverts should be replaced and culverts which are not aligned with stream channels or which present fish passage problems and/or serve as barriers to fish migration should be adjusted.

Additional information in regard to road impacts upon streams would be of interest. How many road stream crossings exist on Plum Creek land, and what percentage of roads within 300 feet of streams that are present on Plum Creek land? Reduction in the number of stream crossings and relocation of roads further away from streams as well as reduction in road density would reduce impacts of roads upon aquatic habitat.

In regard to BMPs for road construction, the section on stream crossings talks about sizing requirements for culverts. We note that culverts and fill material, while they may be the easiest and cheapest way to build the road crossing, can be damaging to aquatic habitat. We encourage Plum Creek and the Services to consider use bridges that provide a clear span of the channel, with no associated fill in waters of the U.S., instead of culverts on Tier 1 streams. This would be one way to demonstrate a clear resolve to protect and recover the species. We also note that inner gorges are not the only unstable geological features that should be avoided when building new roads (page 2-8). Other unstable areas such as highly erodible soils, steep slopes, and bedrock depressions should also be avoided.

D1-25

We also support inspections and evaluations to identify existing road conditions that cause or contribute to nonpoint source pollution and stream impairment. We recommend that the FEIS describe necessary inspection and non-traffic-generated maintenance activities for closed, but unobliterated, roads, and describe obliteration and rehabilitation methods and their effectiveness for roads whose road prisms will be physically removed. **We recommend that the NFHCP and FEIS describe the frequency of maintenance activities for roads and whether adequate funding is anticipated for road maintenance**. Road blading should focus on reducing road surface erosion and sediment delivery. Blading of unpaved roads in a manner that contributes to road erosion and sediment transport to streams and wetlands should be avoided.

12. We note from review of Table 4.6-7 (page 4-129) that road densities on Plum Creek lands are high relative to typical road densities on Forest Service lands (i.e., average road density of 4.3 miles per square mile reported on Plum Creek land). We do not agree with the discussion in the NFHCP (Section 2) that attempts to justify reduction in this high road density on Plum Creek lands. The Upper Columbia River Basin Scientific Assessment correlated road densities to the aquatic integrity of watersheds. This Assessment stratified road densities indicating that densities over 4.7 mi./sq. mi. are extremely high; 1.7 to 4.7 mi./sq. mi. are high; 0.7 to 1.7 mi./sq. mi. are moderate; and 0.1

D1-26

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to 0.7 mi./sq. mi. are considered low road density). Watersheds with higher road densities were considered to have reduced aquatic integrity, and roads were identified as being a major long-term contributor of sediment in a watershed.

The road density on Plum Creek land of 4.3 mi./sq. mi. would fall into the high category by this stratification. It is also stated in the DEIS (NFHCP page 2-1) that approximately 20,000 miles of roads occur on Plum Creek land, and that 1,300 miles of new road would be constructed in the first 10 Years [although for each new mile of road built at least 2 miles of existing road will be upgraded or abandoned, (page 3-17)]. **It would appear that a reduction in road density on Plum Creek land will be required if a sincere effort to protect aquatic habitat and fisheries is to be achieved.**

D1-26

While the road management commitments in the NFHCP look like they will result in watershed improvements, we believe that Plum Creek and the Services should also target reductions in road density for sensitive watersheds and/or high road density watersheds as a means to address sediment delivery and channel habitat objectives. We believe high road density contributes to aquatic degradation, and we believe a road density reduction commitment is needed if aquatic habitat is to be improved to the extent necessary for protection of habitat for bull trout and other salmonids. Road density would then be another parameter to monitor and assess over time.

D1-27

13. On page 2-1 of the NFHCP it is stated that an estimated 1,300 miles of new road would be constructed during the 30 year period of the Permit for commercial forestry activities. Yet in Table 3.3-1 (page 3-17) of the DEIS it is stated that 1,300 miles of new road would be constructed in the first 10 years. This apparent inconsistency in time period during which the 1,300 miles of new road would be constructed should be corrected.

NFHCP Riparian Management:

D1-28

14. We are concerned about potential effects of Plum Creek forest practices within riparian areas which may result in adverse impacts to water quality and aquatic habitat. It is stated (page 5-5) that a reduction of only 1 °F is expected on average in response to NFHCP riparian harvest prescriptions. This seems like a relatively minor improvement in addressing existing elevated temperature regimes. It is our understanding that the USFWS Bull Trout Interim Conservation Guidance recommends no increase in temperature in bull trout waters. This Guidance also appears to provide for wider riparian buffer strips. Proposed Plum Creek NFCHP riparian harvest prescriptions do not appear to be consistent with this Guidance.

EPA's Region 10 reviewers indicate that proposed NFHCP riparian prescriptions are less protective than the those proposed in the Washington Forest and Fish report. The NFHCP states that within Tier 1 watersheds, no timber harvest will occur in the channel migration zones (CMZ's) and limited harvest (88 trees per acre [tpa]) will be allowed

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upslope for 50 feet outside the CMZ (NFHCP page 3-12). Within Tier II watersheds, limited harvest (88 tpa) will be allowed within the CMZ and for 50 feet outside the CMZ (NFHCP page 3-16). This allows up to 50% of the timber to be harvested within the riparian area. The Washington State Forest and Fish (F&F) prescriptions are more protective than this. Although we also have concerns about the degree of aquatic protection provided by the State Forest Practice rules.

The NFHCP commitment Rp1 (NFHCP, page3-7) indicates that the State Forest Practice Rules will be used as the NFHCP basis for riparian management. While this may satisfy the State laws, we want to indicate concern regarding the level of aquatic protection provided by the State rules. As an example, the Montana SMZ rules do not provide adequate protection for headwater streams. For non-fish bearing, low order streams there is little protection. They allow removal of 50% of trees in riparian areas, with loggers basically being on their honor to leave representative sizes and composition, however, this is not enforced and it is not enforceable. The largest and most desirable trees are generally taken irrespective of aquatic ecosystem needs. The SMZ rules requires very little large woody debris (LWD) to be provided for. This is one of the most glaring problems. By removing 50% of the trees in the SMZ, they are allowing 50% of the future instream LWD supply to be removed. In addition, the 50% cutting allowed in SMZs can be applied repeatedly. There is no waiting period for the longevity of the residual buffer. Each time a logger returns to cut again, he can take 50% of the SMZ trees. There is no requirement that they be left permanently. For salvage logging, there are even lower leave tree requirements in the buffer. Therefore, if you leave a buffer and some, most or all of the remaining trees are blown down, it is permissible to salvage the windfall with no LWD leave requirements. It is our understanding that you could, consequently, end up with no buffer at all and still be in compliance with the rules. SMZ is a very complicated law. The width of the buffers are variable.

D1-28

Wetlands, bogs, etc. are often not protected, since they must fall within or touch the boundary of the SMZ to be given SMZ treatment of 50% cutting. If the delineation boundary is near but does not touch the SMZ boundary, no protection is given, and it can be clearcut. This can affect ground water connectivity.

The SMZ Law doesn't apply to land conversion. Where land is being converted to other uses, no buffer is required. Apparently, there is a qualifier to the effect that no buffer is required as long as you don't sell the wood. So a logger can do a commercial harvest, leave the buffer, convert the land, and then cut the buffer.

We note that the riparian prescriptions with the Simplified Prescriptions Alternative appear more protective of riparian and aquatic resources than the NFHCP It is stated that the Simplified Prescriptions Alternative would provide a temperature reduction of 2 °F, improved bank stability, more large woody debris loading, and overall improved complex aquatic habitat, and represent the maximum opportunity to achieve fully functioning

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habitat (pages 4-207, 5-5). **We recommend that the Services negotiate with Plum Creek to achieve more protective riparian management prescriptions that provide for retaining adequate canopy cover and streamside vegetation to provide for more meaningful levels of stream cooling and clean and complex habitat.**

D1-29

15. One of the examples shown for the NFHCP for Shroeder Creek in Figure ES-1 (page ES-11) indicates that leases will not be renewed until assessment indicates that riparian areas are functioning properly. The riparian functional assessment procedures to be used to determine whether riparian areas are functioning properly should be more fully described in the monitoring and adaptive management section. We note that monitoring will be critical to the evaluation of the protection provided by riparian prescriptions. As noted in our comments on monitoring and adaptive management below (comments 30 and 31) we believe the monitoring and adaptive management program should be clarified and/or improved to assure full identification of potential impacts of management activities in the riparian zone to aquatic ecosystems (e.g., effects to percent fines in spawning gravel; substrate cores; stream temperature; woody debris; pool habitat; channel stability; aquatic biota, etc.,).

NFHCP Range Management/Grazing:

D1-30

16. Since it is stated that 98% of Plum Creek's grazing lands are in Montana, we are pleased that Plum Creek's grazing prescriptions are stated to be consistent with the Prescribed Grazing BMP system developed by the Montana Grazing Practices Work Group (White Paper on Livestock Grazing on Plum Creek Land in the NFHCP Area, page 7). We want to draw Plum Creek's and the Services attention to the Montana grazing monitoring program entitled, "Monitoring for Success." This program, assembled cooperatively by the Montana Dept. of Natural Resources & Conservation-Rangeland Resource Program, Montana Riparian Wetlands Education Committee, and Montana Grazing Lands Conservation Initiative, provides guidance for upland and stream channel and riparian monitoring for evaluation of aquatic effects of grazing. We believe Plum Creek's proposed grazing monitoring system could be improved with inclusion of components from the "Monitoring for Success" grazing monitoring program. We also draw your attention to the document, "Effective Cattle Management in Riparian Zones: A Field Survey and Literature Review" Montana BLM Riparian Technical Bulletin No. 3, November 1997 for additional guidance on limiting grazing impacts water quality and aquatic habitat.

D1-31

17. The current approach is to have grazing permittees "self monitor" their allotments. This approach has the potential for a conflict of interest, and relies to a large extent on relatively subjective and potentially unrepeatable field measurements. Periodic validation would be helpful to provide some measure of quality control and assurance. Detailed quantitative measurements of habitat conditions made by an independent party could be compared to assessments using the established protocol. If the two differ substantially,

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D1-31 revision of the protocol will be needed. This would be the "adaptive" approach to monitoring (an important part of adaptive management).

D1-32 18. Use of grazing exclosures in strategic locations is a good idea. However, locating exclosures only in streams <6% gradient ignores upstream influences. While fish may be found only in larger, lower gradient streams, it is obvious that impacts from grazing influences can originate far upstream. A more experimental approach to use of grazing exclosures would be useful to learn more about how and why exclosures may or may not work. This keeps with the philosophy of experimental management advocated in other parts of the plan.

NFHCP Land Use Planning:

D1-33 19. The EPA appreciates the development of land use planning commitments in Plum Creek's NFHCP. We remain concerned, however, that high value Plum Creek lands, particularly lands adjacent to water bodies are being sold to land developers. Transfer and development of lands adjacent to water bodies will continue to adversely impact fisheries habitat. We encourage use of conservation easements and similar mechanisms to protect aquatic and other habitat when lands are transferred..

NFHCP Legacy and Restoration:

20. The EPA appreciates the development of legacy and restoration commitments in Plum Creek's NFHCP (e.g., assess riparian conditions, vegetation and habitat restoration, manage impacts of irrigation diversions, brook trout suppression, cooperation in watershed groups).

D1-34 21. In regard to the Engineered Fish Habitat Restoration commitments on page ES-25, we believe it is important to establish an explicit set of criteria to guide the decision of whether or not to employ in-stream restoration techniques for engineering fish habitat restoration. It is important to focus on the larger watershed, its processes, and how human alterations have affected those processes rather than just the in-channel situation. This allows the cause of a problem to be treated rather than just the symptom. If the decision is made to install in-stream structures, the project proponent should commit to evaluating the ability of the in-stream structures to achieve their desired effect and to report the results to the public.

In regard to in-stream fish habitat structures, we have reproduced below some excerpts from *"An Ecosystem Approach to Salmonid Conservation,"* by B.C. Spence, G.A. Lomnicky, R.M. Hughes, R.P. Novitzki, December 1996.

"During the past two decades, increasing effort and resources have been committed to in-stream artificial structures intended to improve fish habitat....Frissell and Nawa (1992)

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surveyed artificial structures in streams of western Oregon and Washington and concluded that "commonly prescribed structural modifications often are inappropriate and counterproductive." They reported frequent damage to artificial structures, particularly those located in low-gradient reaches and in streams with recent watershed disturbance. When evaluated for 5-10 year damage rates, overall median failure rate was found to be 14% and median damage rate (impairment plus failure) was 60%. They concluded that streams with high or elevated sediment loads, high peak flows, or highly erodible bank materials are not good candidates for structural modifications."

"Beschta et al. (1991) surveyed 16 stream-restoration projects in eastern Oregon and found that instream structures frequently had negative effects on aquatic habitats (e.g., altered natural biotic and fluvial processes), were inappropriate for the ecological setting (e.g., boulders or large wood placed in meadow systems that historically never had such structures), or did not address the full suite of riparian functions that contribute to habitat quality. They concluded that in most instances in-stream structures are unwarranted and should be eliminated as a restoration method; re-establishment of riparian vegetation through corridor fencing or rest from grazing was determined to be far more effective in restoring habitats."

D1-34

"Restoration of fourth order and larger alluvial valley streams, areas identified as having the greatest potential for fish production in the PNW, will require natural watershed and riparian processes to be re-established over the long term. Reeves et al. (1991) described numerous structure and habitat manipulations (gravel cleaning, gabions, weirs, log sills, cedar baffles, fishways, boulders, log structures), and provided an evaluation of their use and applicability for variable life history requirements and differing watershed settings. They cautioned that much work has been done with very little pre- and post-evaluation of the results, and that successful future projects will depend upon careful evaluation of existing projects. Reeves et al. (1991) concluded that 1) habitat rehabilitation should not be viewed as a substitute for habitat protection, 2) prevention of initial habitat degradation is more economical of total resources than repairing that degradation, and 3) some damage to streams is simply irreversible."

NFHCP Administration and Implementation:

22. The audit process (NFHCP page 7-3) is a good approach to evaluate NFHCP implementation, however, it will be important for audits to be viewed as independent and objective evaluations of compliance with NFHCP commitments. **We believe the Services should have a role in selecting the auditors, and should have an active oversight role in the audit process and reporting.** The Administration and Implementation section of the NFHCP should be expanded to better define and describe the specific protocols for the audit process and the process for selecting the auditors. Only with active oversight of the audit process and follow through by both Plum Creek and the Services will successful conservation of native salmonids occur.

D1-35

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D1-36 23. We note in our comments on the monitoring and adaptive management program below that implementation and effectiveness monitoring reports, audit reports, and results of oversight by the Services should be made available to the public and interested agencies (see comments 30(j) and 31(E) below). We recommend that the Implementing Agreement (Appendix A) explicitly describe where and when these reports can be obtained. The Incidental Take Permit should be suspended or revoked if the monitoring program, audit reports, etc. are not made available to the public within 3 years from the date of Permit issuance.

D1-37 24. The Implementing Agreement does not appear to include strong language regarding Permit or NFHCP compliance or enforcement. EPA recommends that the Implementing Agreement more clearly describe roles and responsibilities between the Services, Plum Creek and the independent auditors for inspections and consultations. We believe consequences and remedies for Permit and NFHCP non-compliance should be established in the Implementing Agreement, and such remedies and consequences should be strong enough to deter violations. The process for monitoring and assuring compliance should be as clear and expeditious as possible.

D1-38 25. We also believe the USFWS and NMFS needs to establish schedules for inspections and consultations, and milestones for its and other agencies involvement as the implementation phase moves forward. This is necessary to insure adequate oversight, and follow through with the commitments made by Plum Creek.

D1-39 26. **We are concerned that the USFWS and NMFS may lack adequate resources to properly oversee implementation of this 30 year Permit and NFHCP covering 1.7 million acres in three States.** We are particularly concerned that the USFWS in Montana (where 88% of the Plum Creek land is located) lacks resources to effectively carry out this oversight responsibility. Other agencies are presently providing resources to the USFWS to allow the Service to carry out its ESA responsibilities in Montana (e.g., US Forest Service and Montana Dept. of Transportation provide resources to the USFWS in Montana). The resources that the Services will be able to provide to inspect, monitor and oversee Permit and NFHCP implementation on the 1.7 million acres of Plum Creek land over the 30 year Permit period should be described in the FEIS. Will these resources be adequate to provide needed inspections, evaluations, and oversight of the Permit and NFHCP?

D1-40 27. The success of the NFHCP in terms of achieving biological goals, avoiding "take" of listed species, assuring species viability and sustainability, protecting and restoring water quality and aquatic habitat, depends to a great extent upon the effectiveness of the monitoring and adaptive management program. As described below in our comments on monitoring and adaptive management (see comments 30 and 31) we have questions and concerns regarding Plum Creek's proposed monitoring/adaptive management program. We have

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concerns that the monitoring and adaptive management program lacks the necessary detail and specificity to assure that all effects from Plum Creek's management activities will be identified and mitigated. It will be important that the monitoring and adaptive management program be improved and/or further explanations provided to assure that all effects of Plum Creek activities are identified and properly mitigated.

D1-40 It is not clear in the draft Implementing Agreement (shown in Appendix A of the DEIS) just what will happen if Plum Creek's NFHCP prescriptions do not allow attainment of biological goals, species viability and sustainability, and/or water quality and aquatic habitat protection and restoration. Adaptive management has not been fully realized as a success in most cases (Walters, C. 1997, "Challenges in adaptive management of riparian and coastal ecosystems," Conservation Ecology [online] 1(2): 1 URL: http://www.consecol.org/v11/iss2/art1). As Walters points out, one of the biggest failures of the approach is a general lack of ambitious and innovative commitment on the part of agencies and industry.

D1-41 28. The document appears to provide an excellent forum for the formation of creative conservation partnerships, but it is not clear how this will be evaluated and measured.

D1-42 29. It is stated on page 1-16 of the NFHCP that Plum Creek can request termination of the permit if it elects to do so. How are ESA requirements met if Plum Creek unilaterally requests termination of the permit? Can the Services unilaterally terminate the Permit if land management prescriptions are found to provide inadequate protection?

NFHCP Aquatic Monitoring and Adaptive Management:

D1-43 30. The EPA believes that the water quality/aquatics monitoring and the adaptive management program is a crucial element in identifying and understanding the consequences of Plum Creek management actions, and identification of impacts is necessary for effective mitigation of impacts of management activities. Generally in reviewing EIS's for silvicultural activities on Federal land the EPA considers the collection of baseline water quality and aquatic habitat data at the project level to be important to provide a comparison with projected impacts as well as to identify actual project impacts. Project specific monitoring information best assures that the effects (i.e., physical, chemical and biological effects) of proposed silvicultural activities on water quality and the aquatic ecosystem will be determined.

Also, it is important that quantifiable, measurable resource protection goals be developed and that monitoring be focused at assessing attainment of such goals. It is through an iterative process of monitoring effects of land management, evaluating monitoring results relative to goals, and revising management appropriately, that resource protection goals are attained. Monitoring validates and documents BMP effectiveness in protecting water quality, beneficial uses, and State Water Quality Standards, and assists with TMDL

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development. Monitoring can also measure and document improvements in water quality and watershed recovery, which would be of value to guide future conservation efforts.

Plum Creek's proposed NFHCP monitoring and adaptive management program appears to rely to a great extent on monitoring demonstration watersheds in the four Core Adaptive Management Projects (CAMPs), rather than on project specific monitoring. These demonstration project areas will receive intensive monitoring and experimental treatment of different land uses to evaluate the effects of Plum Creek's activities.

D1-43

CAMP 1 focuses on sediment delivery off roads. CAMP 2 focuses on woody debris, pool frequencies and undercut banks as measures of fish habitat diversity. CAMP 3 focuses on stream temperature and biological data. CAMP 4 focuses on channel attributes, riparian conditions, and biological community responses to grazing BMPs (NFHCP page 8-13). Two additional demonstration projects are also proposed; an assessment of the effectiveness of riparian restoration on key migratory rivers; and the Gold Creek experimental brook trout suppression project. "Dispersed effectiveness monitoring" is proposed (NFHCP, page AM1-4) to sample conditions that may not be found in the demonstration watersheds. In addition "continuous improvement monitoring" and "implementation monitoring" are proposed.

While we appreciate the effort that went into the development of Plum Creek's proposed monitoring and adaptive management program, and we think it is a good start, we have questions and concerns regarding the adequacy of the program. These questions and concerns are described below:

D1-44

(a) "Effectiveness" monitoring as described in the NFHCP (page 8-3) is closer to what others would define as "validation" monitoring (Kershner, J. J. 1997,. Monitoring and adaptive management, pages 116-134 *in* J. E. Williams, M. P. Dombeck, editors,. Watershed restoration: principles and practices. American Fisheries Society, Bethesda, MD.). Validation monitoring is conducted to test the validity of basic assumptions that underpin effectiveness monitoring. Effectiveness monitoring is conducted to determine if management actions (whose implementation on the ground is verified determined through "implementation" monitoring) were effective in achieving management goals.

D1-45

(b) We agree that the proposed CAMP and other demonstration projects will provide useful information, however, **we are concerned that it will be difficult for the conditions in all 5,000 miles of perennial and intermittent streams in the planning area (page 4-20) to be adequately represented by only four to six demonstration watersheds.** A critical assumption of the "effectiveness" monitoring program is that effects observed in CAMPs and other demonstration projects can be extrapolated to other project areas (i.e., non-demonstration watersheds). There is no real assurance in the plan that this assumption is valid. We are concerned that the demonstration project watersheds may not adequately represent the conditions and circumstances in the many non-

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demonstration watersheds where Plum Creek activities will take place over the 30 year life of the Permit.

It is stated that monitoring in the demonstration watersheds can be "confidently be extrapolated to that portion of the planning area that is geologically, geomorphically, and climatically similar to the demonstration watershed" (NFHCP Appendix AM 1, page 3). We ask how many watersheds are present in the 1.7 million acres of Plum Creek land in the planning area in which Plum Creek will carry out management activities during the 30 year period of the Permit? How do these watersheds compare (geologically, geomorphically, and climatically) to the 4 to 6 demonstration watersheds? What are the type, level or intensity of management activities in the demonstration watersheds vs. non-demonstration watersheds in the project area? How will monitoring in demonstration watersheds be used to allow adequate assessment of effects of activities occurring in non-demonstration watersheds if the type, level or intensity of activities and/or watershed characteristics (e.g., geology, soils, slopes, channel types, climatic regimes, vegetation and riparian conditions, etc.,) are significantly different in the demonstration watersheds vs. the watersheds where Plum Creek management activities are conducted?

D1-45

Extrapolation from CAMPs to the individual project areas is a problem. Significant degradation of habitat and fish populations may occur outside of CAMPs, yet not be detected. Detection of environmental impacts using habitat or population surveys is already difficult enough without the problem of extrapolation. **The question of extrapolation from CAMPs to the many individual Plum Creek project areas needs to be explicitly addressed.** Further discussion should be provided to validate or better explain how monitoring in the demonstration watersheds will be extrapolated to assess all effects of Plum Creek activities, particularly from activities in non-demonstration watersheds that are not geologically, geomorphically or climatically similar to demonstration watersheds, or where the type, level or intensity of activities is different.

D1-46

(c) While the four CAMPs are described in NFHCP Appendix AM-1, the specific locations (or likely locations) of the monitoring stations relative to the locations of Plum Creek's likely activities over the 30 year Permit period, and the specific parameters to be monitored, and frequency of monitoring for the CAMP projects are not clearly disclosed. Without more understanding of these specific details of the monitoring program, the adequacy of the monitoring and adaptive management program cannot be assured.

D1-47

(d) "Dispersed effectiveness monitoring" and "continuous improvement monitoring" appear to be proposed to monitor conditions outside demonstration watersheds. However, little specific or detailed information is provided regarding this monitoring. The monitoring proposed in watersheds where individual Plum Creek activities will take place to measure impacts of specific individual Plum Creek projects should be more fully and clearly disclosed (e.g., locations of monitoring stations relative to location of management activities, parameters to be monitored, frequency of monitoring, etc.,). **Will monitoring**

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Responses

See Response to Comment Table or click on link provided below.

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D1-46	635
D1-47	636

Letter D1

D1-47 **be available to measure and detect all aquatic and hydrologic effects of management actions?**

D1-48 (e) In regard to this dispersed effectiveness monitoring, it is stated (NFHCP, page AM1-4) that monitoring results "may suggest that NFHCP biological goals are not being met in a subset of the project area", and that this will be used to adapt effectiveness monitoring through time. As noted above, the specific details of proposed dispersed effectiveness monitoring are unclear. How will monitoring results, particularly dispersed effectiveness monitoring results, be used to adapt management over time? How will monitoring activities be used to validate assumptions that Plum Creeks activities will protect water quality and water resource integrity and allow recovery of listed fish species in all watersheds?

D1-49 (f) Table NFHCP 8-1B (NFHCP page 8-17 to 8-22) identifies the proposed adaptive management process, including habitat objectives, management actions, performance metrics, triggers and management responses. The presentation and disclosure of information regarding the adaptive management program in this Table is good. Review of the Table, however, leaves questions and concerns regarding the adequacy of the adaptive management program for complete assessment of water quality, aquatic and hydrologic effects, particularly cumulative effects, of management actions. The performance measures and triggers do not appear comprehensive enough to fully assess all effects to aquatic biota, nutrients, stream sedimentation, water yield or channel condition.

-How will effects of increased water yield from timber harvest be assessed (i.e., effects on hydrology, runoff patterns, peak flows, channel stability, etc.,)?

- Are percent fine measurements or stream substrate coring or other means on measuring stream sedimentation proposed?

- Are channel cross-sections or channel stability measurements proposed to monitor effects on channel morphology?

- If so, where are channel measurements proposed in relation to the location of management activities?

- It is not clear how effects of management activities on nutrient levels and nutrient transport will be assessed (i.e., nutrient transport related to soil and vegetation disturbing activities, fertilizer use, etc.,)?

- While it is stated that fish species diversity, age-class distribution, and population density will be measured (NFHCP, page AM1-2) it is not clear how frequently or where these fish measurements will be made. It is not clear if any monitoring of aquatic biota other than fish is proposed (e.g., periphyton, macroinvertebrates).

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Responses

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D1-49	256

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D1-49 - How will aquatic effects from chemical usage be monitored (i.e., pesticides, herbicides, fertilizers, fire retardants, fuels, lubricants, etc.,)?

- In regard to the temperature trigger it is stated (NFHCP, page8-17) that the temperature trigger is "a statistically significant change in temperature for a given stream gradient/width class relative to pretreatment conditions." How is this determined? How does this trigger relate to "ecologically significant" temperature conditions? The trigger and its use are unclear. We are concerned that elevated stream temperatures may still occur without adequate response. We recommend that ecologically based temperature requirements or thresholds of the fish species be identified, and that triggers be directed at achieving the ecological thresholds.

D1-50 The use of temperature metric Maximum Weekly Average Temperature (MWAT) does not adequately represent the impact of maximum temperatures on the aquatic community. Temperature metrics such as, Maximum Daily Maximum Temperature (MDMT) or Maximum Weekly Maximum Temperature (MWMT) have been identified in the literature, as being more biologically relevant in identifying the actual thermal load and stress on the fish. The literature in support of this is cited in a recent USEPA-Region 10 peer review done on the State of Idaho's proposal to replace the federally promulgated temperature criteria of 10°C for bull trout spawning and juvenile rearing waters in the State of Idaho (available upon request). The State of Idaho's proposal was a temperature criteria of 12 °C Maximum Daily Average Temperature (MDAT), which equates to 13.3 °C MWMT, and could result in a MWMT of 16 °C.

Use of mean weekly average temperature dates back almost 30 years to the National Academy of Science review of water quality standards for EPA. We suggest using more up-to-date metrics that are more likely to be linked to biological responses. Use of several criteria, including a daily maximum temperature, weekly maxima, and time of exposure to critical temperatures would seem more realistic, in the biological sense. Revision of regional temperature criteria is currently being supported by EPA, and better advice on appropriate criteria should be available within two years.

The before/after design to detect effects of management activities on temperatures is not the most rigorous approach. With only one year of "before" data, you may have relatively low statistical power for comparisons with "after" data. It would be difficult to statistically reject the hypothesis of no impact, when in fact a biologically relevant (but not statistically significant) impact may have occurred. One remedy would be increased replication of experimental units to overcome the shortage of "before impact" data.

D1-51 Some specific clarification regarding biologically significant effects, sample size, and statistical "significance" (Johnson, D. H. 1999, The insignificance of significance testing. Journal of Wildlife Management 63:763-772) should be included in the Plan. Sometimes a

Responses

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D1-51	638

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D1-51 biologically significant effect is realized *without* statistical significance. Levels of biological significance need to be spelled out in addition to statistical significance.

D1-52 - The sediment reduction trigger and its use are also unclear. It is stated that this trigger "will be observed if the pro-rated sediment reduction calculated across the Project Area is 30% or less, which is statistically less (at approximately 1 standard deviation) than the average weighted reduction of 49% calculated in the effects analysis" (NFHCP, page 8-23). This language is confusing, and we are concerned that it may still allow adverse sediment effects to occur. We recommend in-stream sediment measures for triggers directed at achieving clean stream substrate adequately protective of fish spawning and rearing needs.

D1-53 - It may be appropriate for the Services to assemble an independent science review panel made up of agency, company, and accredited academic representatives to review the monitoring and adaptive management program, particularly relating to ecological thresholds and triggers. We believe such a panel would improve the adaptive management program and lend credibility to the program. Such independent scientific oversight of the adaptive management program may better assure that Plum Creek management actions remedy problems in a manner that truly provides protection to fish.

D1-54 (g) It is also not clear where "triggers" will be monitored or how or when they will be used to change management. As we understood it, triggers to initiate the adaptive management can only be pulled through effects detected in CAMPs, or by lack of implementation. When a trigger is pulled, there are a lot of filters the adaptive management process must pass through before something on the ground is done to remedy the situation (see NFHCP page 8-8). **This delay could take over 7 years** (NFHCP page 8-16). A lot of adverse impacts to fish could occur while deliberations take place. While it is important to be rigorous in making decisions, the cost of inaction should also be carefully considered. There may be some situations that have relatively low cost of action, but immediate benefit to a pressing threat (e.g. removal of recently invading non-natives). In some cases, if changes in management practices are not implemented immediately, the long term costs can increase dramatically ("a stitch in time…"). This works both ways for the resource and business goals. In some situations, the cost of inaction is lower because the immediate threat is lower. Some clarification of the cost of delayed vs. immediate action is needed.

D1-55 The current adaptive management cycle is "reactive" in the sense that nothing is done to correct a potential problem until a lengthy evaluation is completed. A perhaps more proactive alternative would be to temporarily halt timber harvest, grazing, etc. (adopt a very protective and precautionary strategy) until a reasonable alternative is identified. This avoids further and potentially irreversible degradation while the adaptive cycle is implemented. This is particularly relevant if time lags in responses are important. Again this may be a good business decision as well (e.g. take the short-term precautionary

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Responses

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D1-52	710
D1-53	316, 630
D1-54	677, 678, 699
D1-55	678

Letter D1

D1-55 measure to avoid a more larger and uncertain long-term cost).

D1-56 (h) The extent of and details regarding in-stream (or in-channel) monitoring of water quality/aquatic habitat parameters vs. upland (hillslope or road) sediment transport monitoring vs. riparian condition monitoring proposed by Plum Creek are not entirely clear. An integrated in-stream, upland, and riparian monitoring program is recommended to fully assess and mitigate effects of forest practices upon aquatic ecosystems. It is not entirely clear how all these components are integrated in Plum Creek's monitoring program. It is also not clear how all the monitoring results will be complied, analyzed and interpreted for reporting, and for revising or adapting management if monitoring results evidence water quality, aquatic habitat or fisheries degradation.

D1-57 (i) Another issue not directly addressed in the NFHCP (but perhaps in the minds of the authors) is the issue of lagged responses of habitat to changes in land management and lagged responses of fish populations. For example, populations of relatively long-lived fishes, such as bull trout, may not respond immediately to changes in habitat. Consider the effect of changing juvenile survival. We may observe large numbers of adults and juveniles (those alive before they die) for sometime until it becomes clear that juvenile survival is an issue. By the time the effect is detected, correction may be more complicated. Perhaps an explicit treatment of time lags should be included as a priority goal for validation monitoring.

D1-58 (j) It is implied on NFHCP page AM-1-4 that monitoring and research information will be presented to the public. It is very important that verification be provided that Plum Creek implements their NFHCP and meets their commitments, and that interested agencies and the public have access to this information. Access by interested agencies and the public to monitoring reports is critical to the success of the program.

We note that staff in EPA's Region 10 Office in Seattle have made requests to the USFWS and NMFS to obtain monitoring information regarding the Plum Creek's earlier HCP for their patchwork land ownerships along the Interstate 90 corridor in the State of Washington. This information, however, has not been provided to EPA, and EPA has not been able to verify that Plum Creek implemented and reported on the results of their HCP monitoring commitments. Without access to monitoring information, Plum Creek's NFHCP will be highly dubious as a legitimate mechanism to ensure species recovery. There must be an open and transparent forum to examine monitoring information and a fair and impartial system to guide its interpretation and application to making future management adjustments. What are the mechanisms and time lines by which monitoring and adaptive management information will be provided to interested agencies and the public?

D1-59 31. While we realize this EIS is for an Incidental Take Permit and HCP on private land rather than silvicultural activities on Federal land, it is clear from the questions and comments

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D1-58	312
D1-59	637

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above that EPA is concerned that the conceptual monitoring and adaptive management plan provided in the DEIS does not contain enough detail or specific information to assure that proposed monitoring will identify and measure all aquatic and hydrologic effects, particularly cumulative effects, of Plum Creek land management activities likely to take place during the 30 year period of the Permit.

D1-59 We believe that more detailed and specific information for the CAMPs and other demonstration projects, and the dispersed effectiveness monitoring and continuous improvement monitoring should be provided to assure that all aquatic/hydrologic effects of Plum Creek land management activities are properly identified and documented. Without this information we do not believe the EIS will include adequate information to fully assess and mitigate effects of the management actions. We believe additional information should be provided to address the questions, comments and concerns identified in comment 30 above. This should include:

D1-60 (A) Identification or discussion of the locations (or likely locations) of the monitoring stations and the specific parameters to be monitored and frequency of monitoring for the CAMP and other demonstration projects. Identification of demonstration watersheds on a map also showing Plum Creek land ownerships where management activities are likely to occur during the 30 year Permit period is recommended. Discussion of the type, level or intensity of activities and/or watershed characteristics (e.g., geology, soils, slopes, channel types, climatic regimes, vegetation and riparian conditions, etc.,) in the demonstration watersheds vs. other watersheds should be provided as much as possible to better validate the concept of extrapolating monitoring results from demonstration watersheds to assess effects from management activities in non-demonstration watersheds.

D1-61 (B) Similarly, the dispersed effectiveness monitoring and continuous improvement monitoring proposed to assess effects outside of demonstration watersheds should be more fully and clearly described. The locations (or likely locations) of the monitoring stations and the specific parameters to be monitored and frequency of monitoring for these dispersed locations should be disclosed. Disclosure of monitoring locations relative to the location of Plum Creek management activities should be provided (maps would be helpful). Will monitoring be available to measure and detect all aquatic and hydrologic effects of management activities? We suggest that detailed and specific water monitoring objectives, parameters, frequencies, and locations be included in the adaptive management plan. This is necessary to describe where project specific monitoring will be carried out to evaluate activities that cannot be assessed by the demonstration projects.

D1-62 (C) We recommend that habitat objectives that address nutrient transport and aquatic biota (periphyton and macroinvertebrates), stream sedimentation, and hydrologic-water yield effects from management actions be added to or clarified in the adaptive management program. Channel cross sections; pool habitat; channel stability; percent fines in spawning gravel; substrate coring; riffle stability index, and rapid bioassessments (e.g., periphyton,

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D1-62	642

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D1-62 macroinvertebrates) are suggested for consideration as additional monitoring metrics. Monitoring of the aquatic biological community is desirable since the aquatic community integrates the effects of pollutant stressors over time and, thus, provides a more holistic measure of impacts than grab samples.

D1-63 (D) We would like to emphasize the importance of explicitly defining the components of an integrated (in channel, riparian, and upland) monitoring program for the aquatic components.

D1-64 (E) The mechanism to assemble, compile, analyze, and interpret aquatic and riparian monitoring information, and to allow access to this information by interested agency staff and the public should also be described. Timelines for implementation and review of monitoring output should be defined, and perhaps periodic open-forum presentations could be planned to allow both the applicant and the Services to showcase monitoring results and to better inform a public discussion of adaptive management.

We recommend that the Implementation Agreement state that the implementation and effectiveness monitoring reports, audit reports, and results of oversight by the Services be made available to the public and interested agencies. It should be made explicit in the Implementation Agreement where and when these reports can be obtained. The Incidental Take Permit should be suspended or revoked if the monitoring program, audit reports, etc. are not made available to the public within 3 years from the date of Permit issuance.

D1-65 (F) As noted in comment number 12 above, road density should be another parameter to monitor and assess over time. Information about road construction and maintenance effects on sediment delivery to streams, their location with respect to water resources and unstable slopes, types of mitigation measures to be used, and mitigation measure effectiveness should also be monitored and reported.

(H) We often recommend use of the following reference materials in designing and disclosing a monitoring program for assessing aquatic effects of silvicultural activities:

"Monitoring Guidelines to Evaluate Effects of Forestry Activities on Streams in the Pacific Northwest and Alaska", Lee H. McDonald, Alan W. Smart, and Robert C, Wissmar; May 1991; EPA/910/9-91-001.

"Rapid Bioassessment Protocols for Use in Streams and Rivers", James A. Plafkin; May 1989; EPA/444/4-89-001.

Montana Forestry BMP's; Extension Publications; July 1991, Montana State University; EB0096.

"Montana Stream Management Guide: for Landowners, Managers, and Stream Users",

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D1-64	312
D1-65	414, 420

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Montana Dept. Of Environmental Quality; December 1995.

D1-66

We believe an improved and more detailed monitoring and adaptive management program will better assure EPA and the States that the NFHCP will minimize impacts to water quality and aquatic habitat and be fully protective of State water quality standards. The monitoring programs associated with this and future HCPs are needed to assure that of water quality, aquatic habitat, and fisheries concerns are resolved. A comprehensive monitoring program will assist in the integration of NFHCP components into TMDLs on water quality limited water bodies in the planning area. Discussions on the integration of HCPs and TMDLs will continue at our respective agencies, and comprehensive monitoring information will facilitate future efforts to integrate TMDLs and HCPs.

Permit Time Period:

D1-67

32. Since the EPA has concerns regarding the adequacy of some of the commitments to address aquatic degradation (riparian prescriptions, lack of road density commitment, etc.,), and concerns about the adequacy of the monitoring and adaptive management program and implementation reporting and oversight, we believe it would be prudent for the Services to consider a duration of time shorter than 30 years for the Incidental Take Permit. We recommend that the Services consider issuing a Permit for a shorter period of 10 to 20 years, perhaps with an option to extend the Permit to 30 years if monitoring reports provide adequate documentation that prescriptions are successful in improving water quality and aquatic habitat adequate to restore salmonid fisheries.

Clean Water Act - Water Quality Considerations:

D1-68

33. The EIS should more clearly identify the water bodies (i.e., rivers, streams, lakes) in the planning area which may be impacted by Plum Creek activities. It is stated that there are approximately 5,000 miles of perennial and intermittent streams and 1,400 miles of fish bearing streams within the project area (page 4-20). However, only major rivers appear to be identified in the DEIS, although Table 4.6-10 (page 4-145 to 4-149) identifies bull trout sub-population basins in the planning area. It is not clear if the water bodies identified in Table 4.6-10 comprise all the approximately 5,000 miles of perennial and intermittent streams in the planning area. In any case, water bodies potentially affected by Plum Creek management activities should be identified. Identification of water bodies on maps that also show Plum Creek land ownerships is recommended, since this will help to convey their relationship with project activities.

The EIS should also include at least a summary description of the existing physical, chemical, and biological conditions of the water bodies in the planning area. Where water quality and aquatic habitat information for individual water bodies exists it should be presented. This would include summary information from stream or water quality inventories such as; baseline water quality data- temperature, sediment, turbidity,

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D1-67	281
D1-68	805

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D1-68

nutrients; aquatic communities; channel morphological conditions; the condition and productivity of aquatic habitat; riparian conditions; the presence of toxic substances; the condition or status of fisheries in the planning area; the existence of any known point or non-point pollution sources or other problems: and the potential for water quality to affect resources and species of concern. The EIS should reveal what data is available and the condition (reliability, gaps in data, etc.) of that information.

This information is necessary to allow the EIS reader to better understand the status of existing water quality and aquatic habitat in the planning area, and help the EIS reader evaluate whether the proposed NFHCP will adequately address water quality and aquatic habitat problems to avoid incidental take and allow compliance with water quality standards.

D1-69

34. As stated in the DEIS (page 1-23), the Clean Water Act (CWA) is the principle federal legislation designed to protect water quality. Section 303 of the CWA includes provisions for establishing Water Quality Standards and Total Maximum Daily Loads (TMDLs). Existing Water Quality Standards applicable to the affected water bodies in the planning area should be presented to allow evaluation of whether beneficial uses will be protected and Water Quality Standards met. The expectation of the NFHCP is that it should protect and fully support designated uses and meet Water Quality Standards in all three States. The FEIS should provide a quantitative basis to judge whether and how this will be achieved with respect to physical, chemical, and biological parameters, such as organic, microbial, and nutrient loading, temperature, turbidity, and sediment accumulation, aquatic biota, and aquatic habitat.

D1-70

35. It is stated (page 4-27) that most water bodies in the planning area have water quality that meets State Water Quality Standards, but it is also stated that **about 8 to 12% of the stream miles are water quality limited**, either by temperature (3 to 6%), nutrients (0 to 4%), sediment (9 to 10 %), or flow impairment 3 to 6%). We recommend that 303(d) listed streams in the planning area be identified, with information on the magnitude and sources of impairment. Ideally the EIS should identify the specific parameters resulting in a 303(d) listing and how Plum Creek's activities or proposed NFHCP and other alternatives might affect these parameters (e.g., temperature, sediment, phosphorus, aquatic habitat). An explanation of how the NFHCP would address these impaired water bodies so that they would meet State Water Quality Standards, fully protect and support designated uses, and achieve antidegradation of water quality (EPA Antidegradation Policy found in 40 CFR 131.12) should also be included.

D1-71

Each 303(d) listed water needs preparation of a TMDL. The TMDL process identifies the maximum load of a pollutant (e.g., sediment, nutrient, metal) a water body is able to assimilate and fully support its designated uses (aquatic life or fisheries uses are often one of the most sensitive uses); allocates portions of the maximum load to all sources; identifies the necessary controls that may be implemented voluntarily or through

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D1-71

regulatory means; and describes a monitoring plan and associated corrective feedback loop to insure that uses are fully supported. We recommend that the status of TMDL development be presented for 303(d) listed waters within the planning area (for listed waters in all three States).

D1-72

The EPA believes that Habitat Conservation Plans (HCPs) prepared in response to ESA species survival and recovery needs should be consistent with present and future TMDLs prepared to satisfy CWA requirements. Identification of 303(d) listed streams and TMDL status in the EIS will facilitate assessment of NFHCP-TMDL consistency, and will facilitate efforts to better integrate and coordinate TMDL requirements with the NFHCP. The NFHCP has many watershed restoration elements that may be incorporated into TMDLs at a later date if they prove to be effective.

We also recommend that a caveat be included in the NFHCP that watershed scale TMDLs will need to be completed at a future date by the States to cover all land ownerships in watersheds of 303(d) listed waters. A "reopener" statement may also be needed and/or adaptive management process established to allow for NFHCP habitat protections to be reassessed when the larger watershed scale TMDLs are completed at a later date. We urge the lead agency and Plum Creek to coordinate the NFHCP closely with EPA and the State water quality agencies in meeting Clean Water Act mandates.

Tribal Trust Resources:

D1-73

36. It is stated (page 2-29) that nearly 1.3 million acres of Tribal lands occur within the planning area. We are pleased that it is stated in Chapter 6 of the DEIS that the Services have consulted with 14 Native American Tribes. As you know the U.S. has a unique relationship with Tribal governments which requires that Federal agencies assess and disclose the impacts of their actions on Tribal Trust resources. Trust resources are located both within the boundaries of reservations and outside the reservation in Usual and Accustomed fishing and hunting areas. The environmental document should fully disclose the potential environmental impacts, both negative and positive, on Tribal Trust resources. We ask if all impacts upon Tribal Trust resources are adequately disclosed in the DEIS? Have the Tribes provided comments or expressed any concerns about the NFHCP and proposed Permit? Does the NFHCP and Permit adequately address Tribal concerns?

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Responses

See Response to Comment Table or click on link provided below.

Comment	Response
D1-72	808
D1-73	97

Letter D2

USDA NRCS
Natural Resources Conservation Service

United States Department of Agriculture

Federal Building, Rm 443
10 East Babcock Street
Bozeman, MT 59715-4704

Office: (406) 587-6838
Fax: (406) 587-6761

February 29, 2000

U. S. Fish & Wildlife Service
Attn: Ted Koch
State River Basin Office
1387 Vannell Way, Room 368
Boise, ID 83709

Subject: (Draft) Native Fish Habitat Conservation Plan
Appendix G-1 Grazing Best Management Practices
Plum Creek Timber Company
February 1999

I would offer the following comments on Appendix G-1, Grazing Best Management Practices:

D2-1 The Performance Standards as they are written are to restrictive to facilitate reasonable multiple land use. As stated on page G-1-2: Performance Standards "The intent of Performance Standards is to provide a benchmark by which we can ensure that Plum Creek's corporate environmental objectives (such as clean water and healthy fisheries) are met." As such, the standards should set a goal of maintaining or improving the ecological condition over time with proper management. The Missoula County Conservation District provided an alternate set of grazing performance standards for consideration. Their standards are both sustainable, attainable and reasonable. With proper management, these standards will maintain or improve range conditions over time while protecting water quality.

D2-2 The BMP's require an annual Range Management Plan that describes the management system that will be implemented during the grazing season. There needs to be a long term range management plan that includes a property resources inventory and the corresponding suggested carrying capacity. This inventory would provide a scientific basis for grazing management. The site conditions and plant use would have to be monitored each year as a basis for adjusting stocking rates annually dependent on the livestock impact and growing season variability. This would comprise the annual plan, which would be very flexible and would change the number of AUM's, timing and duration of grazing annually.

D2-3 The Weed Control section states "To prevent the spread of noxious weeds, grass seed can be applied in areas that have been stripped of vegetation." There also needs to be a control objective that would provide for the mapping of existing noxious weed infestations and encourage treatment with labeled herbicides.

Thank you for the opportunity to comment on this section of the draft Habitat Conservation Plan. If you have any questions on these comments, please contact me.

Responses

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D2-2	725
D2-3	726

Letter D2

Sincerely,

LARRY K. HOLZWORTH
Plant Materials Specialist

Cc:
Art Pencek, Plum Creek Timber Company, Clear Water Unit
Ron Hilmo, Plum Creek Timber Company, Rocky Mountain Region
Mike Jostrom, PCTC
Brian Sugden, PCTC
Larry Newman, BLM
John Blaine, USDA, NRCS, Clark "Fork Team
Mike Odegaard, USDA, NRCS, Clark Fork Team
Steve Pilcher, MT Stockgrower's Assoc.

Responses

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Comment Response

Letter D3

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Idaho State Office
1387 South Vinnell Way
Boise, Idaho 83709-1657

In Reply Refer To:
6840-(930)

January 14, 2000

Memorandum

To: Supervisor, Snake River Basin Office, U.S. Fish and Wildlife Service

From: Deputy State Director, Resource Services

Subject: Plum Creek Incidental Take Permit Draft Environmental Impact Statement

We have reviewed the Draft Environmental Impact Statement/Native Fish Habitat Conservation Plan on the proposed Incidental Take Permit for Plum Creek Timber Company. The subject privately owned timber lands, for the most part, do not overlap with BLM-administered lands in northern Idaho. In only one instance are we involved with them through a road right-of-way. In that situation, Plum Creek is required to meet the federal standard that applies to road management for a short segment of road that crosses federal land.

D3-1 We do not see any conflict between the implementation of the proposal and continued management of BLM-administered lands. If you have further questions, please contact Lew Brown, Natural Resources Specialist, at 208-769-5040. Thank you for the opportunity to comment on this draft document.

for J. David Brunner

cc:
Lew Brown

Responses

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Comment	Response
D3-1	1

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Letter E1

PACIFIC RIVERS COUNCIL

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Bob Ries
National Marine Fisheries Service
500 South Asbury Street, Suite 2
Moscow, Idaho 83843

Re: Plum Creek Native Fish Habitat Conservation Plan

Dear Gentlemen:

Pacific Rivers Council is a private, nonprofit organization dedicated to the protection and restoration of aquatic ecosystems in the west and nationwide. It is our view that the proposed approval of an Incidental Take Permit based on the Plum Creek Native Fish Habitat Conservation Plan has policy implications of national significance. We have therefore devoted considerable resources to review of this action. With this letter we are transmitting a critical review prepared with assistance from three independent experts, for whom vitae are attached.

On the basis of this review, Pacific Rivers Council finds that the proposed habitat conservation plan does not meet the criteria for issuance of an incidental take permit under the Endangered Species Act. E1-1

While the applicant is not currently seeking validation of this plan as a means of meeting state water quality standards promulgated under the Clean Water Act, we are cognizant of the likelihood that it will be reviewed during the plan's term for its adequacy to meet future Total Maximum Daily Loads. Given this scenario, we find it appropriate to comment on the adequacy of this plan to meet water quality maintenance and restoration requirements..

PO Box 10798 • Eugene, OR 97440 • (541) 345-0119 • Fax (541) 345-0710

1

Responses

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E1-1	1

Letter E1

➢ **PRC Perspective on Habitat Conservation Plan Policy**

The original regulations of the Fish and Wildlife Service indicated that take permits and associated plans should only be used in "limited circumstances." 50 Federal Register 189 (9/9/85). For protected species dependent on northwest industrial forestlands, these circumstances should be limited to cases where landowner desire for regulatory certainty motivates a firm set of conservation commitments commensurate with a parcel's capability to contribute to (or impair) the recovery of covered species. A landowner's desire to gain the kind of certainty not generally provided by the political processes surrounding forest practices regulations should not outweigh the needs of species facing extinction or minimum water quality requirements which protect all aquatic life.

E1-2 In sum, "no surprises" style assurances must be configured in such as way that the public natural resources at stake get a fair deal. There is clearly a need for incentives to promote non-federal landowners to restore habitats and fish and wildlife populations above and beyond the levels explicitly required by current state and local regulatory programs. But it is not a fair bargain for the public if plans perpetuate the status quo. They must exact an appropriate level of landowner commitment to reduced management-related risks and the restoration of habitat degraded by the business of logging.

➢ **Riparian Protection Framework for Plum Creek Plan: Tailored Approach too Risky for Aquatic Resources under Current Conditions**

E1-3 The proposed management guidelines for riparian areas do include some significant improvements over protections currently in place under Montana and Idaho rules. However, whether these changes are sufficient to ensure their effectiveness in attaining a take or recovery standard is a question that is not resolved in the DEIS and supporting documents. We can

E1-4 suggest many shortcomings of logic and science in the present analysis, and as many reasons why stricter protections would be justified to attain a recovery standard with some degree of certainty, many of which are touched on the attached detailed comments. The effectiveness of

E1-5 the riparian protection rules in Montana and Idaho has never been formally tested or otherwise demonstrated, and their provisions are clearly less protective of aquatic resources than the recently adopted rules adopted in Washington State under the Forests and Fish Report. The Washington approach delineates riparian areas based on a site-potential tree height, measures the area from the edge of the channel migration zone, if any, and accords the first 50 feet of all zones a no-harvest status. Vegetation retention standards include in addition to a tree per acre minimum, a basal area metric, and largest trees per acre requirement. It appears the proposed plan approaches but does not attain the same functional standards, and the difference in logic between Forests and Fish and the present DEIS are not readily apparent.

E1-6 It is our view that riparian rules that are tailored to present-day channel and wetland locations are risky and cannot be adequately justified, given the extended time frame of impact that timber harvest causes (many decades). This is especially the case where streamside zones include alluvial fans, potentially unstable hillslopes, or an alluvial channel migration zone of any type. For example, direction to foresters to "favor" leaving trees in particular locations does not constitute a management standard capable of being monitored for its implementation. Future channel location changes commonly obviate the supposed gains of such choices.

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E1-4	349
E1-5	604
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E1-7

Existing watershed conditions on Plum Creek lands do not reflect the conditions under which salmonids evolved. There is a need to move riparian forest conditions across much of the landscape toward those of a mature forest as fast as possible with a minimum of risk of creating additional management-related risk to aquatic resources. In general, we are concerned that Plum Creek's data and analyses that are the basis of most riparian recommendation in this DEIS draw from a data set that includes few examples of naturally functioning stream systems. This bias may result in myopic or incorrect expectations and targets for riparian condition that are inconsistent with the long-term recovery needs of the target species. It is not at all clear from available information that bull trout, for example, can persist indefinitely under riparian conditions extant in any but the least-disturbed watersheds in the planning area, where the extent of riparian alteration has been relatively limited.

➢ **Over-reliance on Adaptive Management a Key Pitfall**

As stated in the overview from the attached review:

E1-8

"The Plum Creek Native Fish Habitat Conservation Plan proposes to place an unprecedented and unjustifiable level of reliance on Adaptive Management mechanisms. The ability of these mechanisms to respond to the biological needs of the covered species is not demonstrated, given the extent to which response pathways are underdeveloped and permeated with non-biological decision criteria designed to limit economic impacts on the applicant. Yet, adaptive management is not only expected to account for scientific uncertainty about the biological implications of proposed management measures, it is even offered as a replacement for more risk-averse riparian protection approaches adopted in equivalent forested habitat conservation plans and forest practices regulations in the West. But major parts of the mechanism are still missing, such as the

E1-9

actual physical and biological metrics that will be used to assess performance of the proposed measures, as well as other key components of the Adaptive Management framework. Thus, while the applicant seeks approval of this plan now, the safeguards to ensure the plan actually does what it promises will be developed at a future date." Haas, Frissell, Purser and Scurlock at 1.

➢ **Key Decision Criteria Under the Endangered Species Act**

Applicant's Duties. According to Section 10(a)(2)(A) of the Endangered Species Act, an applicant for an incidental take permit must submit a habitat conservation plan that specifies:

(1) the ***impact*** which will likely result from the taking;
(2) the steps the applicant will take to ***minimize and mitigate*** such impacts and the ***funding*** that will be available to implement such steps;
(3) the ***alternative actions*** to such taking the applicant considered and the reasons why such alternatives are not being utilized;
(4). such ***other measures determined to be necessary and appropriate*** by the FWS or NMFS to achieve the purposes of the plan.

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E1-8	611
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Action Agency Duties. According to Section 10(a)(2)(B) the FWS and NMFS may only issue an incidental take permit if they find that:

(1) the taking will be ***incidental***;
(2) the applicant will, ***to the maximum extent practicable, minimize and mitigate*** the impacts of the taking;
(3). the agencies find that the applicant will ensure ***adequate funding*** is provided for the plan'
(4) ***the taking will not appreciably reduce the likelihood of survival and recovery of the [covered] species in the wild.***

"Take" is defined in the ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C. §1532(19). Congress intended the term "take" to be defined in the "broadest possible manner to include every conceivable way" in which a person could harm or kill fish or wildlife. S. Rep. No. 307, 93rd Cong., 1st Sess. 1, reprinted in 1973 U.S. Code Cong. & Admin. News 2989, 2995. NMFS has recently defined "harm" to mean "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering." 50 C.F.R. 222.102. Numerous cases have held that habitat modification can cause take in violation of Section 9.

In addition, those measures, if any, required by the action agencies must demonstrably be met and FWS and NMFS must have received such other assurances as they may require that the plan will be implemented.

Under Section 7, the federal action agencies must find during consultation on this action that permit issuance "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification "of designated critical habitat." 7(a)(2). Because jeopardy is defined as any action "that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of the species in the wild by reducing the reproduction numbers, or distribution of that species," this standard is functionally equivalent to the standard express in Section 10 (4 above) for incidental take permits. Internal consultation analysis in support of this finding must include: direct and indirect effects of the action; the cumulative effects of other activities on the listed species, and; effects of the action on critical habitat, if applicable (50 CFR Part 402).

After issuance of an incidental take permit the agencies have an implied responsibility to monitor the implementation and success of the plan.

➢ **Brief Evaluation of Compliance with Selected Decision Criteria**

The following is a brief review of how the proposed plan fails to meet certain selected criteria from those listed above:

1. Failure to Specify Impact

E1-10 A full presentation of impacts requires adequate baseline information. The plan does not clearly describe the current environmental condition of Plum Creek lands relative to those in the area, or

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E1-10 the extent to which harvest, roads and other activities has caused species declines and water quality degradation. Likewise, it is not clear how much the NFHCP will contribute to restoration and recovery of these resources. Little analysis is provided about cumulative effects of past and proposed activities on hydrology, erosion and sedimentation which is needed to allow evaluation of the overall context of the plan. Overall there is no clear assessment of the level of "take" anticipated either in terms of habitat impacts or specific populations of covered species. (PRC Review, Section I.A). A clearer description of take is required in order for the desired permit to issue.

E1-11

2 Failure to Prevent Actions which Could Appreciably Reduce Survival and Recovery of Covered Species in the Wild

E1-12 The proposed plan and its supporting documentation do not present a compelling demonstration that the recovery of protected fishes will not be significantly impaired under the proposed management scenario. Not only is there no meaningful evaluation of impacts or benefits to these species, there is no provision for effective protection of critical biological refugia. Rather, "[t]he HCP appears to allow development in watersheds where it stands to have the largest biological effects (i.e., where the most timber is, least roads are, and fewest past impacts are evident.) (PRC Review, Section I.B).

E1-13 Moreover, it is not clear that the management goals for reduction of sediment, protection of riparian canopy cover, and provision of large wood sources to the aquatic system are adequate to meet the needs of the covered species, even if the proposed management measures are adequate to meet these goals.

3. Failure to Analyze an Adequate Range of Alternatives

E1-14 It appears that the applicant believes only the chosen NFHCP would meet the purpose and need of the proposed action to reduce threats to covered species and allow Plum Creek to achieve business goals. (See e.g. ES-10). The attached review finds that the No Action alternative is not tenable because it does not demonstrably meet the ecological standards for an HCP regarding impacts on covered species and their habitats. (See PRC Review, Section IV.A). Therefore, it seems that an adequate range of reasonable alternatives may not have been considered under either the ESA or the National Environmental Policy Act (see CEQ regulations at 40 CFR 1502.14). The agencies must find that an adequate range of reasonable alternatives has been considered.

4. Failure to Minimize and Mitigate Impacts to the Maximum Extent Practicable

E1-15 It seems clear that an overly narrow determination of "practicability" has been made which permeates all aspects of this proposal. Although the exact criteria by which the applicant made this determination are not revealed in these decision documents, there are serious unreconciled issues regarding the limitation of conservation commitments by fiscal concerns even in cases where biological goals may not be demonstrably met. See, for example, the attached discussion of adaptive management in Section V of our review.

E1-16 As discussed above and in the attached review, it appears that the proposed management plan would pose significant logging-related (PRC Review, Section II) and road-related risks (PRC Review, Section III) to covered species and their habitat. There is provided no clear basis for a

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E1-13	77
E1-14	177
E1-15	369, 373, 377
E1-16	356, 371

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E1-16 finding of compatibility with recovery needs of the covered species is provided. Moreover, in light of recent forest practices reform efforts in Washington and other western states, the proposed riparian protection measures appear relatively weak and improvements appear at first glance to be "practicable" given the adoption elsewhere of statewide rules more stringent that the proposed plan measures.

5. Capability of Agencies to Oversee this Plan not Demonstrated

E1-17 Given the critical importance of the Adaptive Management Framework and the protocols to be developed under the CAMP studies, this plan would require rigorous oversight by the action agencies. There is no reason to believe that these agencies are staffed at the level required to provide this oversight. We suggest that some framework for independent oversight by a standing audit team be created, and funded at the time the plan is approved.

6. Balancing Interests in Striking No Surprises Compromise

E1-18 The "Five Points Policy" recently promulgated by the Services seek to use better enunciation of biological goals, monitoring and adaptive management to provide assurance that biological needs are balanced with the need for regulatory certainty. We find that this plan does not strike an appropriate balance between conservation of the 17 covered native salmonid fishes and assurances to Plum Creek of long-term regulatory certainty. While it is arguable that either side of the scale got certainty (so much of the plan is technically open for change), the level of conservation provided for certain at the outset has not been demonstrated to satisfy biological tests. Yet any potential improvements to this protection are speculative and dependent on a showing of resource degradation, both physical and biological.

7. Assurances of Implementation

E1-19 Many parts of the adaptive management framework cannot be evaluated because they have not yet been developed. But because the implementation of this framework is a substantive part of this plan's mitigation and conservation provisions, we find that there is no basis for a finding by the Services that they care reasonably assured the provisions of this plan will be implemented. There are simply too many unanswered questions about the feedback loops and decision criteria, many of which are addressed in Section V of our review.

E1-20 Additionally, the terms of the Implementation Agreement does not fully allocate agency and applicant duties regarding inspections, consultations, associated timelines and the course of events that may be expected in cases of applicant non-compliance.

➢ **Compliance with Clean Water Act**

E1-21 For many of the same reasons stated above, we have concerns with regard to the adequacy of this plan to meet water quality maintenance and restoration requirements under the Clean Water Act.

The decision documents do not specify the current water quality status of water bodies which may be impacted by Plum Creek activities. Full disclosure of the water quality conditions and data availability for all water bodies in the planning area is needed to assess the current proposal's impacts on chemical, physical and biological integrity. At page 4-27 it is stated that most water bodies in the planning area meet state standards, but that at least 8 to 12% of the

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E1-17	313
E1-18	355, 361, 611
E1-19	612
E1-20	809
E1-21	806, 808

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E1-21 stream miles are water quality limited, either by temperature, nutrients, sediment, or flow impairment. The plan does not offer an explanation of how it will address these impaired water bodies so that they meet all aspects of water quality standards, including full protection of all protected uses and antidegradation of water quality under 40 CFR Section 131.12.

E1-22 Of particular concern is the extent to which the plan averages effects across watersheds in discussing overall goals, such as those for road reduction and even for reach specific effects such as canopy closure. Although overall improvements are expected at the end of 30 years, it is clear that short-term reductions in canopy cover and spikes in sedimentation due to roadbuilding are expected.

E1-23 But degradation of water quality in specific reaches as a result of management is presumptively prohibited under the Clean Water Act for all streams, particularly impaired ones. No public interest in allowing such degradation to occur has been shown by these decision documents.

E1-24 If the applicant intends to use this plan to demonstrate compliance with water quality restoration goals in the future, it must provide watershed-specific analysis on the amount and cause of current water quality impairment. It will also be called upon to demonstrate how Plum Creek activities relate to maintenance or restoration of specific criteria (e.g., temperature, sediment) in specific watersheds and impaired stream reaches. This cannot be done by extrapolating from results done in comparable watersheds under the proposed monitoring model.

- **A word on Legacy Roads: Legacy Roads pose a present-day Risk of Harm to Protected Species that could Appreciably Reduce Survival and Recovery in the Wild**

E1-25 The applicant claims that its commitments to the treatment of legacy roads is a "contribution to recovery over and above" the requirements for HCP approval. We believe that this may mistakenly imply that harm caused by these roads is not cognizable as a take under the ESA.

Legacy roads may have been built according to then-legal standards, but the risk they pose to aquatic resources is a present-day risk. Therefore, liability for "take" caused by failure of legacy roads, which degrade critical habitat, and/or harms fish accrues to the current owner of the land. For example, if an old road fails and smothers a spawning bed, and it can be shown that but for the road the failure would not have had the harmful effect, hasn't a cognizable "take" occurred under the ESA? Any other result would remove a potentially powerful landowner incentives to address current remediable threats posed by enduring scars of past management. Under this scenario, it would seem to be a reasonable and prudent course of action from a purely business perspective to address those roads posing the most direct risks to protected fish (i.e. hotspot treatment).

Likewise, if the risk from legacy roads is high enough (a risk that should be assessed by watershed) we see no reason why this risk should not be considered capable of significantly reducing the likelihood of survival and recovery of protected species in the wild. Thus, failure to adequately address legacy roads could provide a valid reason for disapproval of the Incidental Take Permit.

Thank you for the opportunity to comment on this important proposal. We would be happy to discuss any of the issues we have raised with the either applicant or the Services. Pacific Rivers Council looks forward to receiving copies of future documents associated with this proposal, including any biological assessments and opinions that are produced during consultation.

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E1-23	809
E1-24	809
E1-25	445

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Sincerely yours,

Mary Scurlock
Senior Policy Analyst

Cc: Mike Jostrom, Plum Creek Timber Company

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Comment	Response
E1-26	611
E1-27	335
E1-28	1

An Ecological Assessment of the Plum Creek Native Fish Habitat Conservation Plan[1]

Chris Frissell, Ph.D
Gordon Haas, M.S.
Michael Purser, M.S.
Mary Scurlock, J.D.

17 March 2000

OVERVIEW

E1-26 The Plum Creek Native Fish Habitat Conservation Plan proposes to place an unprecedented and unjustifiable level of reliance on Adaptive Management mechanisms. The ability of these mechanisms to respond to the biological needs of the covered species is not demonstrated, given the extent to which response pathways are underdeveloped and permeated with non-biological decision criteria designed to limit economic impacts on the applicant. Yet, adaptive management is not only expected to account for scientific uncertainty about the biological implications of proposed management measures, it is even offered as a replacement for more risk-averse riparian protection approaches adopted in equivalent forested habitat conservation plans and forest practices regulations in the West. But major parts of the mechanism are still missing, such as the

E1-27 actual physical and biological metrics that will be used to assess performance of the proposed measures, as well as other key components of the Adaptive Management framework. Thus, while the applicant seeks approval of this plan now, the safeguards to ensure the plan actually does what it promises will be developed at a future date.

E1-28 Our overall conclusion is that the current proposal does not demonstrably prevent significant harm to the aquatic species whose habitat it claims to protect and restore.

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E1-29	105
E1-30	14

I. ECOLOGICAL EFFECTS ANALYSIS

A. The Proposal Does Not Meaningfully Evaluate and Describe the Anticipated Level of Take

The Plan is unclear about the expected level of adverse impacts or "take" of the covered species. It notes the ESA requirement for an ITP to "specify the impact that will likely result from such taking" (1-18). Yet, it concludes that the NFHCP will not result in any "take"; "that is direct mortality." (1-18). At the same time, "Plum Creek acknowledges that some of its activities may affect fish habitat" (1-18) [and] "while Plum Creek activities covered in the NFHCP may continue to impact fish habitat, implementation of the NFHCP commitments will minimize and mitigate for those impacts and allow for recovery of permit species."

It would seem highly unlikely that there would be no direct mortality at any time anywhere at any life-history stage of any of these species. Even if this point was supported, it is our understanding that the definition of "take" extends to impacts on habitat and does not require "direct mortality" to be demonstrated. Indeed, why apply for a "take permit" if there will be no take?

E1-29 In any case, there will certainly be indirect mortality, and Plum Creek essentially acknowledges this as quoted above. The magnitude of these impacts should be described in order to meet the ESA *requirement* that take be specified. However, there is no discussion or analysis indicating what level of take is to occur, even for acknowledged indirect impacts.

At worst, an educated best guess is possible. At best, a modeling exercise based on likely changes forecast under this NFHCP could provide some numbers for examination. Either way, the estimation and its numbers would provide assessment that is now not possible. The data for this presumably exists at least at some levels in the Plum Creek evaluations and study, and could also be derived from general historical practices and instances.

We note that in some severely impacted systems when fish numbers have reached the limits of viability, actions that may not seem significant elsewhere could result in much more serious consequences or even in the extinction of an entire populations, many bull trout populations have reached this level. Such events cannot be compensated for elsewhere in the NCHCP. [See e g. Idaho (1996); Washington DFW(1992)]

B. No recovery standards are offered, and actions known to be inconsistent with recovery are not prohibited

E1-30 No estimate of potential improvement in Permit species is provided. It is proposed that "this would be allowed because Plum Creek would implement the terms of the Permit such that the amount of mitigation provided would exceed the amount of take authorized at any point over the life of the Plan." Given the absence of analysis on level of take, it will be difficult for the applicant to provide this information since the applicant will not be directly monitoring fish but rather only habitat , as discussed below.

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An evaluation of this action for consistency with the ESA requires not only that the applicant define the level of take, but that the applicant also define a recovery standard against which to judge consequences of take. We recommend that at the very least, it is necessary to define a strategy that is robust, with respect to uncertainty. Risk must be allocated in a logical way:

- Protect strong populations and healthy ecosystems from adverse change
- Identify weak populations/impacted system where biological resources are at most threat of imminent loss and where causes of problem can be addressed

The HCP appears to allow development in watersheds where it stands to have the largest biological effects (i.e., where the most timber is, least roads are, and fewest past impacts are evident.). In fact, as far as we can discern the net effect of the agreements in the plan will be to actually increase the incentive and capability for rapid logging of watersheds least impacted by prior activity. Because of the so-called "flexibility" of the plan this issue is not addressed and the potential exists for the future squandering of resources in ineffective ways similar to the past. The DEIS does not disclose where these less impacted areas are, but we know they exist within the planning area because they have been identified in earlier studies (e.g., Elk in the Swan River Basin, Frissell et al. 1995, Baxter et al. 1999), The crucial conservation issues that argue for highly conservative protection of these watersheds are at least four-fold:

E1-30

1. We have limited ability to predict the site-specific outcomes of risky activities, thus some level of adverse impact is likely under any management that involves ground disturbance, logging, and other land use (Frissell and Bayles 1996);
2. For a given increment of realised alteration of habitat, impacts in previously undamaged watersheds are likely to have proportionately large biological consequences, first because there are a lot of fish there to lose, and secondly because populations residing in those systems have not been "through the bottleneck" and may not be adaptively adjusted to altered and simplified habitat states (ibid);
3. The depletion of remaining productive populations is likely to be of disproportionate consequence to the regional status of the species of as a whole, and thus can severely constrain or diminish the likelihood of recovery (ibid, Baxter et al. 1993, many other sources)
4. These relatively intact and functional watersheds serve as crucial benchmarks for monitoring and research programs; for example, if natural background variation is to be accounted for in the proposed CAMP studies and other monitoring and research efforts, it will require measuring conditions in relatively undisturbed to discriminate natural from. human-caused variation. There is no scientific replacement for least-disturbed benchmark watersheds, well-distributed across geoclimatic zones within the planning area.

Watersheds so reserved can always be logged at a future time after the wisdom and safety of "new" management measures has been ascertained. It is unclear why the logical value of such a reserve-based strategy has not been considered in any of the alternatives in the DEIS. Plum

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Creek is among the few single HCP applicants whose land holdings are large and diverse enough that such an approach is feasible within a private ownership.

E1-30

Refugia can also be used as controls or reference sites for monitoring purposes (esp. to ascertain variability caused by natural events) (Baxter et al 1999).

II. EVALUATION OF RIPARIAN PROTECTION COMMITMENTS

A. Conservation of Riparian Functions Relies on Minor Augmentations to Presumptively Adequate Existing BMPs and State Forest Practices Rules

The Plan relies on the existing regulatory baseline as the foundation for its conservation program, directing the reader to company technical reports assessing their adequacy. (1-11). The strength of these baseline programs is used to justify only minor augmentations to the already required measures (1-11). Simultaneously, the Plan concedes that the effectiveness of these measures in conserving species is "uncertain" (2-29) or even (with respect to bull trout) "generally not adequate to conserve and recover. (3-2). It appears that the applicant is trying to have its cake and eat it too.

E1-31

Analysis of the plan's management commitments reveals obfuscation on several key issues including: the ecological adequacy/inadequacy of existing riparian protection measures; the increment of conservation benefit that can reasonably be expected from the suggested augmentations; and the level of take or ecological risk associated with the proposed measures (see above).

B. State Forest Practices Rules as an Adequate Conservation Baseline is Unsupportable

The EIS indicates a general finding that "habitat conditions related to forestry management activities for native salmonids are expected to improve" under the currently prescribed management rules for forest practices and voluntarily applied Montana measures, although the improvement could be "slight." (4-165). The magnitude of changes is stated to be "unknown," and improvement "may or may not be adequate to reduce or eliminate all threats" to permit species. (4-165). It is stated that "fish habitat would be restored to conditions more similar to what these species evolved with." (4-165), though the basis for this statement is not provided. Overall, the significance of habitat improvement trends on Plum Creek lands is minimized based on the assumption that conservative management of federal lands will ensure that fish habitat changes will improve over time regardless of how the private lands are managed. (e.g. 4-165).

Fish-bearing streams constitute an estimated 827 miles in the project area on Plum Creek lands (16% of all stream miles). We estimate that at most 20% of these are in Tier 1 watersheds, where the most substantial 3 of the 8 riparian enhancements are offered. Perennial non-fish waters constitute 1051 miles or 21% of all stream miles. Intermittent channels are 3185 miles, or 63% of all stream miles. We note that no riparian enhancements are offers on intermittent channels. Except for Rp7, which applies to perennial nonfish streams, all enhancements apply only east of the Cascades (which makes sense, given the significantly stronger baseline rules in western Washington).

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The enhanced prescriptions proposed in the plan are intended to be tailored to account for site variability in the relationship between riparian conditions, instream habitat conditions and fish use. For example, low-gradient streams are presumed to be the most "sensitive" to instream large wood (Technical Report #7, (hereinafter TR7) at 18). In addition, priorities are assigned for protection such that fish-bearing streams in Tier I watersheds are deemed the highest priority for protection of LWD recruitment and other riparian functions. (TR7 at 21).

Rp1: State Best Management Practices and Forest Practices Rules

- The only thing new about this commitment is the inclusion of Montana's voluntary BMPs as a mandatory part of this plan. We note that although high compliance with these measures may in fact be the case, Montana's Bull Trout Restoration Team has recommended effectiveness testing. MDFW, (1999), which the applicant also concedes is necessary by virtue of its CAMP studies.

E1-32

- The baseline riparian prescriptions for streams not eligible for "enhanced" treatments in the other commitments vary between the states. We suggest that the baseline prescriptions for all streams east of the Cascades should be made consistent and uniformly applied.

- The effectiveness of the riparian protection rules in Montana and Idaho has not been demonstrated, and their provisions are clearly less protective of aquatic resources than the recently adopted rules adopted in Washington State under the Forests and Fish Report, which delineates riparian areas based on a site-potential tree height, measures the area from the edge of the CMZ, if any, and accords the first 50 feet of all zones a no-harvest status. Vegetation retention standards in Washington include in addition to a tree per acre minimum, a basal area metric, and a ten largest trees per acre requirement.

- Current prescriptions in Montana may be summarized as:
  - 100 foot riparian area on slopes over 35% for fish-bearing/connected streams;
  - 50 foot area on slopes for fish-bearing connected streams under 35% grade;
  - Vegetation retention of 88 trees per acre over 8 inches with a removal floor of 50% of trees over 8 inches for perennial fish streams;
  - Vegetation retention of 44 trees per acre over 8 inches with no removal floor for either perennial on non-perennial streams not connected to fish streams;
  - A 50 foot equipment limitation zone on streams flowing less than 6 months per year; no mandatory retention of vegetation

- Key provisions of current prescriptions in Idaho may be summarized as follows:

  - 75 foot zone for important fish-bearing streams
  - 50-foot vegetation retention zone: 57 trees per acre (37 8-12" dbh; 18 over 12" dbh); 75% shade retention
  - equipment exclusion

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- 30-foot zone for nonfish stream with surface flow to fish streams; watersheds less than 240 acres
  - > retention of nonmerchantable trees for shade/soil integrity
  - > equipment exclusion
- 5 foot zone for headwater streams without surface connection to fish streams.
  - > retain shrubs needed for shade/soil integrity
  - > equipment exclusion

➢ The applicant's own analysis underlying the state riparian management measures suggests that these rules are inadequate in several respects, particularly in Idaho. However, this critique is limited and the identified shortcomings are not fully addressed by the proposed improvements in the plan.

> "Results of the management simulations suggest that for streams east of the Cascade Mountain Crest, Montana's existing riparian protection measures will provide LWD loads in fish-bearing streams that are will within the range of natural variability. This range is wide, however, and makes for a large target. Furthermore, the LWD loads at the lower end of this range are not necessarily sufficient to maintain high quality habitat. (TR7 at 81) .

E1-33

➢ Perhaps a more accurate way to state why rules that provide LWD at the low end of the historic range is inadequate is: what is needed is provision for a range of inputs, and minimal riparian protection areas are not capable of providing inputs at the upper end of the range. The report implies that Idaho's rules would go even below this range.

➢ As noted, the applicant's technical report also finds that "in the majority of cases" existing riparian protection guidelines in Montana and Idaho, or a 50-ft no harvest buffer in western Washington are sufficient to result in little appreciable change in canopy closure on [fish-bearing] streams after harvest. The Montana results suggest that in some cases, current harvest guidelines within 50-ft of the stream can reduce canopy closure levels. These appeared to be instances with the greatest amount of harvest (> 30%) in the SMZ. (As cited in TR7; Sugden et. al. 1998). Yet both Montana and Idaho rules would allow over this level of vegetation removal, with Idaho's having no floor on vegetation removal. The low level of protection provided by the state rules as well as the differences between the Washington, Idaho and Montana rule sets are both underplayed.

Additional effectiveness monitoring work is needed to better quantify how often this situation occurs, and its effect on stream temperatures." (TR7 at 82). Moreover, the analysis goes entirely to canopy closure, not to stream temperature, which is affected by other factors, including sediment and microclimate. (Additional questions and concerns about the Riparian Technical Report are treated below).

E1-34

It is rather the basis for the EIS finding that baseline prescriptions would result in a 1 degree decrease in temperature in 30 years from existing conditions, although canopy cover would rise

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Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E1-33	579
E1-34	568

Letter E1

E1-34 and fall in various locations throughout the life of the permit. (4-161).

C. Riparian Augmentations in Rp2-9 are Minor and Limited: Site Potential Tree Height Protected Area Recommended for All Perennial Streams

Rp2: 50 foot limited harvest on High Sensitivity Channel Migration Zones in Tier I Watersheds. Where stream segments with CMZs are considered "high sensitivity" and occur in Tier 1 watersheds, and the stream is both fish-bearing and perennial, harvest is limited to 88 trees per acre or 50% of trees for the extent of the CMZ or upslope for 50 feet to the top of the terrace slope, whichever is less. If the terrace slope is within 25 feet of high water, there is a 25 foot no harvest zone. (On small CMZ segments further than 500 feet from a confluence downstream the no-harvest prescription within 25 feet of the high water mark does not apply). Trees are to be concentrated "closer to the stream or base of the terrace slope where feasible."

- We commend Plum Creek for recognizing the ecological importance of managing CMZs for mature forest conditions. However, this is a very targeted and very limited extension of riparian protection a very small portion of very few stream miles in the planning area. We recommend that at **all** CMZs on all fish-bearing stream should be protected from harvest within them. In addition, these should be buffered by a substantial protected riparian area of at least 50 feet/half a site potential tree where maintenance and restoration of mature forest conditions is the management priority. Limitations on vegetation retention should include retention of some number of the largest trees on site to ensure that larger trees are retained and mature forest conditions reached at the fastest possible rate.

E1-35

- The DEIS and Plum Creek provide little or no convincing evidence that some alluvial channel types are insensitive to depletion of large woody debris. This claim is the basis for conferring increased protection to certain categories of CMZ's only. Although roughness elements other than coarse wood may play a role in forming pools, the critical, larger-scale process of channel switching and branching and the formation and hydrology of off-channel habitats important to salmonid fishes are still strongly tied to large woody debris dynamics. It is misleading to use the relatively rapidly-changing metric of pool formation in main channel threads as the sole or even primary measure of fish habitat value and condition in alluvial stream systems. It is unclear whether Plum Creek's data draws from an appropriate array of sites representative of a range of natural and managed conditions, but recognizing the global rarity of fine-grained alluvial valleys in undisturbed states, we are almost certain they are not properly represented in the data, analysis, and subsequent protection proposal.

E1-36

- Terrace surfaces are not immune from channel erosion; indeed where channels shift and erode the margins of nonforested terraces, huge volumes of sediment can enter stream channels. Presence of mature forest cover provides resistance that slows terrace back erosion and recruits coarse woody debris that ameliorates some effects of sediment input. Because of uncertainty about future channel locations within any functional CMZ, tying vegetation protection to the present channel locations is foolhardy and invites future problems. It seems to us the only way to guard against aggravating the effects of future

E1-37

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E1-35	539, 599
E1-36	580
E1-37	542

Letter E1

E1-37

terrace erosion is to retain forest over a 50-100-foot buffer zone around the margin of the CMZ, regardless of whether the surfaces inside that zone lie on alluvial fans, hillslopes, terrace slopes, or terrace top surfaces. Personal experience also suggests that Plum creek's estimation of potential channel margin migration rates are biased low. Unless the period of measurement and estimation includes infrequent , large floods such downward bias is inevitable. We are familiar with many sites along moderate- to –large-sized streams in the planning area where the extent of terrace bank erosion has exceeded 20 m in the past 30 years.

E1-38

- Direction to locate trees in vaguely specified locations "where feasible" is not a provision which lends itself to implementation monitoring or enforcement. If trees are desired in the near-stream area of the terrace, they should be required to be left there. Moreover, the unpredictability of future channel locations within the CMZ makes any timber removal based on present channel location fundamentally infeasible and potentially damaging.

Rp3: Moderate Sensitivity CMZs in Tier I. The no harvest area includes only the first 25 feet of a CMZ measured from high water, with an 88 tpa limited harvest rule in the remainder of the CMZ, if any, and to the terrace slope for 50 feet upslope, unless segment is further than 500 feet from a confluence downstream. Where terrace slope is within 25 feet of high water, no harvest applies. Equipment exclusion applies to CMZ with exceptions. It is estimated that because many of the CMZs are small, the entire CMZ will be no-harvest "in most instances." (3-15). Trees next to relic channels are to be favored for retention.

E1-39

- Again, this prescription is limited to small segments of Tier I watersheds and does not provide no-harvest protection beyond 25 feet of high water, beyond which harvest down to 88 tpa is allowed. It is unclear how this level of protection ensures adequate large riparian source wood. Direction to foresters to "favor" leaving trees in particular locations does not constitute a management standard capable of being monitored for its implementation. Future channel location changes commonly obviate the supposed gains of such choices.

Rp4: High and Moderate Sensitivity CMZs on Tier 2 Lands). This rule applies the limited harvest rule allowing down to 88 tpa or 50% removal of trees over 8 inches in diameter in CMZs and upslope for 50 feet or to the top of the terrace slope, whichever is less. Trees adjacent to active or inactive channels are to be "favored" for retention.

E1-40

- If effective CMZ protection is desired for shade and large wood, then a no harvest zone should be established. Again, direction to foresters to "favor" leaving trees in particular locations does not constitute a management standard capable of being monitored for its implementation.

Rp5: High Sensitivity Streams without CMZs (forced pool riffle/plane bed morphology) on Tier I Lands. This prescription applies a 25 foot no cut above the ordinary high water mark, and applicable state rules beyond that.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E1-38	543
E1-39	544
E1-40	545

Letter E1

- This no cut area would to provide some certainty that timber harvest will not destabilize banks and that canopy cover will not be drastically reduced, while some additional large wood could be provided. We concur that these types of reaches are very sensitive to large wood inputs, but not that the suggested measures will ensure adequate inputs or that the full complement of riparian functions needs will be provided at they scale necessary to support healthy fish populations.

E1-41

Rp6: Other Perennial Fish-Bearing Streams, i.e. those without CMZs/High Sensitivity Reaches in Tier 1 all Streams Without CMZs in Tier 2 . These streams receive "conservation guidance" to retain trees with roots integrated into the stream bank, to "favor trees that lean toward steams for retention" and to directionally fall trees away from streams.

- The effect of this "guidance" is unclear and its provisions direct minimal additional conservation even if they are interpreted as mandatory. If bank stability is desired to be conserved, no harvest should be called for within about ½ crown width of a mature conifer. Again, "favoring trees" for retention is not a standard that lends itself to compliance monitoring, and should be rewritten.

E1-42

Rp7: Headwater Streams that are Both Connected and Perennial. These streams, in all parts of the project area are given a 50 foot streamside zone from ordinary high water where equipment is excluded and 35 trees per acre over 8 inches is required, with submerchantable retention and "favoring" of trees close to stream channels. Openings created for yarding will be allowed as necessary but compensation for vegetation removed must be made.

For streams contributing more than 20% of instream flow to streams that may support fish (according to drainage area criteria) the 500 feet of stream above the confluence will receive a 50-foot harvest restriction of 88 tpa with retention of size of the pre-harvest stand.

- These streams comprise 21% of all stream miles, so additional protections on potential significance of these additional protections is large. However, these streams are being given minimal additional protections in the form of various levels of vegetation retention. To its credit, there is proposed to be some buffering of all portions of perennial streams – an improvement over the discontinuous buffer approach being used for small nonfish streams in Washington state. However, it is unclear whether 35 trees per acre or even 88 tpa in 50 foot zones is capable of ensuring that water quality standards will be met.

E1-43

Rp8: Interface Caution Areas are created for all fish-bearing perennial streams east of the Cascades. The area is at least 150 feet horizontal distance from the high water mark, and at least 100 feet from the CMZ or to the nearest existing road. Average width must be 150 feet overall. Within this area, the following prohibitions apply:

1. No constructed skid trails
2. No mechanical site preparation or slash treatment with tractors on slopes greater than 20%;
3. No broadcast burning
4. No new roads unless needed for a stream crossing

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E1-41	581
E1-42	535
E1-43	496

Letter E1

Additionally, supplemental tree retention is provided for the 50 feet adjacent to the SMZ: 60 or more tpa larger than 20 feet tall; 30 or more larger than 10 inches dbh, or a prorated combination of these. If adjacent post-harvest stand exceeds these levels, this requirement is met. Conservation guidance provides for: avoidance and minimization of clearcutting; design of skid trails to minimize soil and vegetation disturbance and a high priority on road abandonment in ICAs.

E1-44

- This provision correctly recognizes that the riparian protection provisions of state rules and the proposed enhancements do not provide adequate protection from all forest management activities likely to adversely affect aquatic habitats. This provision would ensure that any new roads are outside riparian areas. The concept of buffering streamside buffers is sound, and will provide some protection against windthrow and potentially some large wood sources. However, we recommend that a retention of largest trees (e.g. the 10 largest per 1000) requirement be added.

RP9: ***Harvest Deferrals*** are provided for in the first ten years in specific watersheds in order to provide "an opportunity for these watersheds to develop their streamside stands."

E1-45

- It appears that this conservation commitment offers little enhancement given that most of these stands could not legally be entered even under existing forest practices rules due to low stocking. However, to the extent that these streams are water quality limited to temperature, it is a step in the right direction. But 10 years is not long enough to move these stands very far toward maturing. Of perhaps greater ecological benefit would be to defer harvest in watersheds of critical importance to certain fish populations.

Questions and Comments on Technical Report #7: "Design of Effective Riparian Management Strategies for Stream Resource Protection in Montana, Idaho, and Washington"

- The large wood modeling in this report depends on three inputs about which we have concerns regarding validity.

E1-46

- First, the assumption is made that half the average load in unmanaged systems of "large" wood (at least 10cm diameter and 2m long) or 39 pieces per 1000 feet of stream obtains at the start. What evidence is there to demonstrate that this level approximates current conditions on Plum Creek lands?

E1-47

- Second, it is unclear that the 78 pieces per 1000 feet of stream target is a valid target against which to measure the success of riparian protection proposals. It appears that the target is intended to reflect the average inputs of large riparian source wood that would occur in an unmanaged landscape. But it is not clear that the data used to develop the target would reflect this. Data from "unmanaged stands" is used to develop LWD targets used to evaluate effectiveness of various riparian management prescriptions. This approach seems reasonable, but we caution that if roadless areas were used (as per the Huntington data) there should be a correction made for natural disturbance effects. (Huntington, personal communication). Existing roadless areas were disproportionately

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Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E1-44	551
E1-45	592
E1-46	582
E1-47	583

Letter E1

E1-47 subject to catastrophic fires about a century ago and would not represent average, unmanaged mature forest conditions, thus explaining why large wood levels aren't significantly higher in these areas as compared with managed stands. These fires are, part of the reason these areas are roadless/unmanaged today – they were burned out during the early heydays of federal timber harvest.

E1-48 ➢ In addition to questions about whether the appropriate data were used, the development of a "target" number for each 1000 feet of stream in all watersheds in the region is probably inappropriate given natural variability. Rather, a range and a mode for these inputs could be developed for application at the watershed level.

E1-49 ➢ Third, if the intent is to establish a rough management guideline for large wood that is ecologically significant for fish habitat, the small size chosen does not seem appropriate. We note the federal proposals for guidance on large wood in forested systems counts wood that is many orders of magnitude larger: pieces over 12 inches diameter and 35 feet in length. USDA/USDI, UCRB DEIS (1997); USDA and USDI (1997).

E1-50 The Services observe that the "certainty of effectiveness of the riparian conservation commitments, related to riparian timber harvest, under the proposed NFHCP is less than for several other aquatic HCP's approved by the Services because the number of trees left close to streams is generally less" (4-192). We concur and do not find that adequate compensation for this uncertainty is made with the proposed adaptive management actions. Therefore:

E1-51 ➢ We recommend that Plum Creek adopt an approach that delineates a riparian management area for most streams based on at least the size of a site potential tree, an area widely supported in the literature as capable of providing near natural inputs of riparian-source instream wood and temperature controls, among other riparian functions. *See .e.g.* Spence et. al. (1996); NMFS, (1998) and other sources.

E1-52 ➢ According to the Riparian Technical report a site potential tree height in the Interior Basin is about 100 feet. TR7 at 44. No reference is provided for this contention, so we cannot evaluate its merits. However, the work done for the Interior Columbia Basin Ecosystem Management Project produced approximate tree sizes for dry forests, moist forests and cold forest in the region of 120, 150 and 90 feet, respectively. If an average of all three were used, SPTH (at 200 years) would be 120 feet.

Existing watershed conditions on Plum Creek lands do not reflect the conditions under which salmon evolved. There is a need to move riparian forest conditions toward those of a mature forest as fast as possible with a minimum of risk of creating additional management-related risk to aquatic resources.

D. Adequacy of Riparian Protection is uncertain with regard to temperature and other aquatic functions; Adaptive Management Offered as a Replacement for Reduced Risk

The analysis of the effectiveness of riparian management temperature is equivocal:

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E1-48	584
E1-49	585
E1-50	611
E1-51	497
E1-52	498

Letter E1

- "temperature needs are met in large part by the streamside forest canopy" (page NFHCP 3-1);
- "although canopy cover should be maintained at very close to pre-harvest levels and canopy cover has been shown to be a dominant factor influencing water temperature, uncertainty exists about how this exactly translates to stream temperature maintenance" (3-5)

E1-53 - "substantive changes in temperature patterns are not expected under existing regulations for larger perennial streams" (3-5). We note that this finding is appropriately not made for smaller streams. Are substantive changes expected for smaller and/or non-perennial streams, and how will these impact the larger systems?

The only cited riparian area studies were not temperature studies and did not measure stream temperature, but rather considered stream canopy cover. (See e.g., page 3-5). The plan additionally suggests this lauded study was for another purpose, and that very little directed work on temperature is available for assessment and for some of the conclusions drawn in that regard.

Nonetheless, it is apparent that management prescriptions are proposed which the applicant concedes may not be adequate to protect stream temperatures on smaller streams:

- "where biologically significant changes in stream temperature are discovered, prescriptions will be modified" (3-5);
- "certainty of effectiveness of the riparian conservation commitments, related to riparian timber harvest, under the proposed NFHCP is less than for several other aquatic HCP's approved by the Services because the number of trees left close to streams is generally less" (4-192).

E1-54 These statements directly contradict the intended goal of this plan – to provide effective and substantial riparian protection.

E1-55 Given that the first temperature study is proposed under the adaptive management approach it seems likely that significant time will pass before any protocol for establishing "biologically significant change" is produced. Further open questions include: How will prescriptions be modified? What role will economics play in the decision to modify prescriptions? What will and can actually be done for those streams already impacted by the time the study is complete?

E1-56 We note that only 20% of streamside forests will be assessed in the first 10 years" (4-193) what happens after the first 10 years in this 30 year plan? The Plan's analysis states that that "some unquantifiable level of impacts may occur on the 10 to 20 percent of the Project Area for the first 10 years of the Plan" (page 4-195). It also states that "Plum Creek could enter as much as an additional 56 percent of streamside riparian stands in the Project Area between years 10 and 30" (4-195)

E1-57 In light of this information, although the company claims it is "offering significant additional conservation commitments" (4-193) the extent of this commitment is not fully explained, nor are these commitments fully supported as meeting the stated critical temperature objectives and

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E1-53	569
E1-54	499
E1-55	684
E1-56	15
E1-57	500

Letter E1

goals. Instead, aquatic systems are expected to benefit from "significant adaptive management flexibility to accommodate increased uncertainty" (4-193) Yet this is not what the plan states elsewhere in the document (see infra at _____). The explanation for this approach is that "most other HCPs with wider riparian buffers cover a larger number of aquatic and riparian-dependent species, and in some cases, offer increased regulatory certainty" (4-193). But this is not a valid excuse: this NFHCP establishes a presumption that the proposed measures are adequate unless monitoring demonstrates otherwise for a large number of important forest dependent fish. Other organisms not formally covered by the permit will suffer if these provisions are not adequate. The fact that the parties promise to change provisions through adaptive management does not overcome the reality that the specific management measures committed to in this document on the date it is signed are the most likely measures to be implemented in the near-term, if not the full life of the permit.

E1-58

E. Groundwater influences are not considered

The area of influence for this plan is specified as "surface waters" (4-66). Like many other riparian studies, Plum Creek's does not address hyporheic zones and groundwater influences that could require much more than the immediate stream forest canopy to be maintained. These non-riparian areas have been repeatedly demonstrated to be critical for bull trout (and other species). [Baxter et al (1997); Baxter (1999); Frissell (1999); Fraley, Shephard (1989)]

E1-59

- This is especially the case where temperature requirements for bull trout are already pushed to their limits. Here the species often seems to survive by utilizing often small cold-water infiltration sites. As well, groundwater zones can be very site-specific and may not be adequately addressed in (or extrapolation may not be possible from) any smaller scale studies such as those proposed here.

F. Winter Temperature Needs of Bull Trout are Not Addressed

Plum Creek is not planning to monitor or address winter temperature in spite of good and published evidence that this is also critical to bull trout survival, particularly for the hatching of eggs and rearing of juveniles. The importance of winter temperature effects is acknowledged in Technical Report #12 as summarized on page B-26. These critical winter temperature areas are also often strongly linked to groundwater zones. [Baxter, McPhail(1999); Haas (1998); Cannings, Ptolemy (1998)]

E1-60

G. Bull Trout sensitivity to Water Temperature Needs to Be Incorporated

The applicant claims that "potential differences among alternatives for meeting the cold water biological goal are small" [and] "none of the alternatives would affect temperature, on average, more than 1°F or reduce canopy cover more than 5 percentage points" (4-180). This statement ignores the fact that a one degree temperature change can be very important depending on what the background temperature is that the change is occurring from and on what other species are present. This statement is not reconciled with the statement that "NFHCP harvest prescriptions would be similar for three of the four alternatives, with an expected average reduction of about 1°F" (4-178 and 4-179).

E1-61

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E1-58	77
E1-59	501
E1-60	570
E1-61	571

Letter E1

E1-62 In any case, an average measure of temperature does not suffice to protect fish from short term spikes, and the unit of averaging is never mentioned in the document. (Does the applicant mean the mean weekly average temperature? If so, this is not directly specified). What data is the temperature shift based on, and if a model for this is available why is it not used for other predications such as a more certain description of the extent of take (See discussion in Part I, infra.)

Additionally, since differences in the proposed alternatives are already acknowledged to be small (4-180), it will be difficult for Plum Creek to meet its explicitly stated objectives to maintain and even improve stream temperature under its adaptive management format?

H. Sedimentation Impacts on Stream Temperature Are Not Addressed

E1-63 Another issue regarding temperature impacts that is not mentioned is sedimentation. Increased sedimentation can also increase temperature by decreasing stream depth and increasing its surface area.

III. ROADS, SEDIMENT AND HYDROLOGY

A. Cumulative effects of roads, harvest, mass wasting and grazing are not adequately considered; a sediment budget approach should be adopted which accounts for all sources

E1-64 There is a need to adopt an overall sediment budget approach. Measuring road erosion is not adequate because it does not capture other sources of sediment. A more conservative (of aquatic resources) approach needs to be adopted. Studies are cited in the HCP which detail the high level of impacts from new road construction. (See also King and Tennyson, 1984; King, 1989; Berris and Harr, 1987; Cheng, 1989; MacDonald and Ritland; 1989;a et al., 1991a; Marvin, 1996 for studies in areas where streamflow is dominated by snowmelt which *consistently* indicate that peakflow is increased by roads and logging). This is contrasted with 1300 miles of new road construction in the first 10 years. This will be in addition to unknown number of miles of skid trail, temporary roads, landings, and other road/site disturbance (e.g., restoration projects, culvert replacements, grazing) which will be fresh each year and whose impacts will be similar to new road construction. None of these impacts, nor the impacts from landslides are accounted for in the accounting of road – sediment impacts. We note that roads will be built in highly erodible soils and in inner gorge areas (2-8).

1. HCP components which purport to address accelerated sediment delivery from road erosion are inadequate.

E1-65 The majority of harvest (clearcut) and roadbuilding (1300 miles of new road construction) will take place in the first 10 years. Monitoring may not pick up negative impacts (especially cumulative) or set off triggers until year 15 (after 5 years of monitoring the cumulative effects of activities which occurred in years 0-10). Plans would be developed by year 20 and actions will be taken to rectify by year 25-27. The proposed roadbuilding combined with tens of thousands of acres of clearcut logging in the next ten years will have an unquestionably negative affect on sediment delivery in the Project Area.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E1-62	572
E1-63	380
E1-64	386
E1-65	677, 678

Letter E1

E1-66 To ostensibly address the known increased sediment delivery impacts of road construction it is proposed that 2 miles of road be upgraded or abandoned/1 mile new construction. This is clearly inadequate compared to the 10 times in advance mitigation which was required for South Fork Salmon River TMDL. Further, roads will be inspected, not measured ("inspect condition and BMP status"). This yields a problem setting off trigger(s), and in determining significance of improvements or problems. The Plan states that if abandonment were to occur it would happen concurrent with a road upgrade. But when an upgrade need is determined, the applicant has 10-15 years to upgrade.

E1-67 Road drainage will only be provided as frequently as necessary to control road tread erosion (*ex post facto)*. Impacts are not specified, modeled, monitored, or designed. A standard rule, developed from a simple model and not field-tested, is applied for the calculation of distance between drainage structures to prevent concentration of runoff and consequent erosion resultant from long slope length (The Universal Soil Loss Equation/Soil Conservation Service runoff curve approach to rainfall-runoff modeling and erosion is not appropriate for use in riparian or upland situations). Yet, standard rules are not outlined in any other situation where such rules are available. Standards that limit the number of road/square mile of watershed, more ecologically driven buffer sizes, and limits on equivalent clearcut areas would slow down rate of environmental degradation resultant from the Plan. Known limits to activities are avoided even in those situations where so little is known about the performance of the activity-specific BMPs that Plum Creek wants to perform effectiveness testing of these BMPs *during the HCP* (e.g., CAMP studies).

E1-68 *2. Erosion from Harvest is not Considered*

E1-69 a. Clearcuts are inappropriately expressed as a proportion of the whole Project Area.

The ecologically relevant question, however, is: What is the clearcut area on a basin by basin basis? An approach like that outlined in NMFS (1996) would be preferable to having a sediment *reduction* target, which as currently outlined in the Plan has: no hydrologic maturity standard; no standard for streambank stability; variable buffer widths; and no limit to road density. Specific standards (see section IIB below) would be preferable because it would be easier to implement, would cost less to implement, and would base aquatic resource conservation on information we already know, rather than on yet to be determined management practices.

b. Data on soil disturbance are not available

E1-70 While the Plan states there will be "less soil disturbance from skidders", there will be more disturbance and compaction from feller-bunchers (40-60% of harvest unit disturbed from feller-buncher harvest,(Radek and Purser), unpublished data from Okanogan National Forest, 1989). There is no data presented to explain why skidding whole trees be less disturbing. Overall assessment of impacts from harvest (Table 1) of Findings is misleading as there is no data provided for review; it contains a summary of observations which may be recorded or may just be in someone's memory. Too often, "assessments" such as these are the result of a single field trip during fair weather.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E1-66	427
E1-67	428
E1-68	248
E1-69	249
E1-70	16

Letter E1

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E1-71	475
E1-72	308
E1-73	727
E1-74	226

3. Erosion by Mass Movement in not considered

E1-71

Without presenting data, it is suggested that old roads are the main hazard for mass wasting. Interestingly enough, a current timber harvest Best Management Practice (BMP) reads: "[l]imit the grade of skid trail on unstable, saturated, highly erosive, or easily compacted soils to *…30%* " (emphasis added). The contribution of roads to mass wasting hazard is illustrated through the use of a parameter called "events/mi2."

This approach is not relevant to construction of does not help us construct a sediment budget since we do not know the volume and time frequency of the mass movement events. They are also not compared to surface erosion in any meaningful way. This does not allow us to confirm that the overwhelming means of accelerated (and natural for that matter) sediment delivery is from the failure of fill slopes and road crossings, nor does it facilitate us measuring sediment transport since there is not common units.

E1-72

Landslides are considered a changed circumstances – that is, an anticipated change but one not in specified management measures, outside the current Plan responsibilities. The applicant would be allowed up to five years to design a plan to respond to the landslide, another five years to develop an action plan, then more time to implement action plan. This is ecologically unacceptable, since after a landslide what may be required is inaction up front, that is, less disturbance, especially in known risky areas.

4. Erosion from Grazing is not considered

E1-73

Annual plans rely on BMPs, however, BMPs have been in use for six years with no data on conditions or results of using BMPs available. To rely on an output (e.g., installed BMP) rather than an outcome (e.g., bank stability standard) assigns risk to the aquatic resources. The current proposal to start riparian monitoring now and measure implementation of BMPs will unintentionally allow the masking of unmet physical, biological and chemical needs of depressed and ESA-listed aquatic species. An approach similar to that suggested for sediment above should be employed. *Monitor habitat and watershed attributes to compare to quantitative performance criteria; if not stop all actions known to exacerbate the problems; and implement a restoration action plan.* This is in contrast to the current proposal which is to monitor BMP implementation. If BMPs not implemented or triggers are set off, seven years are given to complete an assessment, eight more years to develop restoration plans, and another seven to implement the plans ("When grazing is found to continue to be a problem for riparian habitat, sediment… Plum Creek will develop and implement an action plan for improving compliance").

We note that, in the Plan of the term "unauthorized cattle use" contradicts the circumstance in Montana where open range still is the law and the use to which the applicant is referring is de facto "authorized." We note that 25-50% of riparian areas, including Key Migratory Rivers, Tier 1 watersheds, and Native Fish Assemblage (NFA) areas exhibit impacts from grazing (See NFHCP Chap 3).

5. Other Sources of Erosion are also not addressed

E1-74

We note that pit run gravel quarries are a significant, yet unreported source of sediment due to the typical location of them in floodplains and near streams.

Letter E1

6. ***Without calibrating and validating the models used to show how building roads will actually reduce sediment delivery, and without doing a sediment budget (even on paper), there can be no confidence in the ability of the model to fairly represent on-the-ground conditions.***

Risk is assigned to the fish populations such that severe and potentially widespread harm may be done to ESA-listed species before an adaptive management response is required. (See Adaptive Management discussion in Section V).

E1-75

When the proposed activities are taken in together and the risk of degrading resources is added across all the decision points, the sum of the risks is substantial. Watershed processes are interrelated and if, for instance, skid trails or roads are built on unstable slopes and the drainage design or the implementation is wrong, severe surface erosion or mass wasting will occur. Any small miscalculation on Plum Creek's part (some of the data actually presented in the HCP/EIS shows that it is almost a certainty that it will occur), there could be severe and potentially widespread harm done to the species, particularly on at the basin scale.

B. Performance criteria for maintenance of sediment and hydrologic regimes are generally lacking

We recommend that this Plan incorporate an approach based on existing and new data related to specific, measurable performance criteria such as standard protective buffer widths *(e.g.* , "a specific number of feet plus") limits to road density (e.g., < 0.7 mi./square mile), and performance standards for instream fine sediment (e.g., < 7%) and streambank stability (e.g., > 90% stable streambank) to provide adequate protection from the negative impacts of proposed activities. These criteria can be applied now. The Triggers would be less ambiguous, resulting in less disagreement between Plum Creek and the Services, and the Action Plans could be developed to directly address known contingencies.

E1-76

C. Standards for the reduction of sediment must be quantifiable and in the context of current conditions.

The use of a sediment *reduction* target when there is no context is inappropriate. Fifty percent of levels that are likely 10 to 100 times the natural sediment delivery levels only reduce sediment delivery to levels which are still five to fifty times of background levels (Rhodes, et al 1994). The biological needs of the covered species should dictate the approach. Therefore, we recommend the following: 1) allow no degradation of current high quality conditions as per the (Anti-Degradation Policy of ther Clean Water Act); 2) calculate pre-disturbance (background) sediment levels; 3) Set a standard target of 7% surface fines (Spence et al., 1996); 4) When standard not met, only sediment reduction activities can occur in subwatershed ; 5) activities must be designed to move the system toward the standard in the shortest amount, or at the fastest rate, of time plausible; 6) Include all sources of sediment (road erosion, quarries, mass movement, skid trails, grazing…) 7) Monitor actual sediment delivery. Use similar units of measurement so the total sediment delivery can be assessed. 8) Provide advance mitigation for new roads (and other activities) - current 2/1 is not enough for net reduction (e.g., 10X advance mitigation in South Fork Salmon River sediment TMDL).

E1-77

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See Response to Comment Table or click on link provided below.

Comment	Response
E1-75	429
E1-76	711
E1-77	670

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D. A Goal for Hydrologic Maturity Should Be Established

E1-78 There is no goal of hydrologic maturity. Without such a goal, the combination of proposed and ongoing activities will contribute to increased peakflows. In the Idaho Batholith, King and Tennyson (1984) found that there was a statistically significant increase in annual water yield or baseflow when 5% of the watersheds were disturbed by roads. Increases in the 25% excedence flows were significant. King and Tennyson (1984). After 25% to 36% of these same watersheds had been logged and roaded statistically significant increases in peakflow[2] occurred in all of the treated watersheds King (1989); Rhodes and Purser (1998).

E1-79 This condition is especially troublesome in combination with denuded streambanks (as a result of past riparian harvest, roadbuilding, and unrestricted grazing) which lead to increased bank erosion and accelerated sediment delivery. A precautionary approach, especially less disturbance in known risky areas, is required where imperiled species are at risk. If Plum Creek is granted a 20 or 30 year permit, how can an event, such as flood which is statistically known to occur within the permit period be outside the topics for analysis and management?

E. The claim that areas at high risk for landslides and surface erosion are not representative of the area is unsubstantiated.

E1-80 The claim is made that areas which are high risk for landslide hazard and surface erosion are not representative of the area. However, the Project Area is large and diverse; there is clearly a need to manage for complex environmental conditions such as is done when prescribing harvest for a particular stand.

F. Road management priorities should be based on ecological effects as well as transportation needs

1. Roads are to be managed based only transportation needs.

E1-81 There is a need to manage roads based on avoiding increases in peakflow and based on reducing instream fine sediment loads to below standards needed for productive aquatic resources, not simply for "short-term and lon-term transportation needs"[3]. The current proposal assumes that 1) we need to reduce sediment delivery, 2) high levels of disturbance can be controlled through the use of BMPs; 3) the applicant will study, *during the implementation of the high level of disturbance,* the types of BMPs which are appropriate; 4) sufficient resilience exists in the systems to absorb the shock of new sources of accelerated sediment delivery while the applicant figures out which BMPs, if any, will actually reduce sediment delivery; and 5) that the impacts from new sources of accelerated sediment delivery are reversible through the use of "enhanced" BMPs (these are not specified).

2. Commitments to address hotspots are not specified using all available information on the road system.

E1-82 Significant resources are to be focused on the identification and reduction of ecological effects from hotspots in the road system. The HCP needs to illustrate the use of the concept/word "hotspot". As active land managers, Plum Creek (and the Services) have knowledge of things that need fixing right now. This knowledge, however, is not specified (i.e. mapped) in the

Responses

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Comment	Response
E1-78	257
E1-79	258
E1-80	476
E1-81	381
E1-82	455

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document. There should not be a delay in implementing hotspot treatments. Also , decision making criteria are lacking, For example, "where the water quality impact of upgrading an old road would exceed the conservation benefit, upgrading will be postponed until the road is needed for forest management activities" (2-14). How will this be assessed, and how does it match the NFHCP "pledge to upgrade old roads"? In discussing roads, how much if anything will be done for shared roads that presumably are often the most used and unregulated as a result of the sharing?

E1-82

G. Fish Passage Activities Should Consider Historical Passage, Presence of Exotic Species and Known Behaviors

The discussion of improving bull trout passage for Schroder Creek implies that the removal of the barrier will return the system to a natural state. We note that some naturally isolated populations should not be impacted by any attempts to provide them with fish passage that they did not have in the first place. More importantly to this example, is this isolated bull trout population at any risk of brook trout (figure 4.6-15 on page 4-189 indicates that invasion by brook trout are present in that general drainage) or other exotic species as a result of this barrier removal? If so, it should not be attempted.

E1-83

Furthermore, it is not clear that passage will be provided in all man-blocked areas where it is appropriate. The plan indicates that "[o]ne [bridge or culvert] was on a stream gradient exceeding 20 percent where fish passage was deemed unnecessary" (4-184). However, Bull trout have been found and documented in streams well above 20 percent gradient. Haas (1998).

E1-84

IV. CONSIDERATION OF ALTERNATIVE MANAGEMENT OPTIONS

A. No Action Alternative: Assumes Adequacy of Existing BMPs and State Forest Practices Rules

The plan states that "the package of conservation commitments outlined in this HCP begins with the premise that BMPs and FPA rules are generally effective" (1-11). "Plum Creek assessed this through several technical reports" (1-11). The "technical reports also identify opportunities to augment [minimum state practices] where needed" (1-11) Plum Creek BMP compliance is deemed excellent, but BMP "effectiveness at conserving Permit species is uncertain" (2-29) and, with respect to bull trout, "generally not adequate to conserve and recover. (3-2).

Yet, still the No Action alternative is considered. If existing regulations were effective, the NFHCP proposal and this exercise would have been unnecessary. Other audits, and the ESA listing itself discussed in this document, indicate these assessed rules are not effective enough. This would seem to indicate that one of the supposed defaults, the "No Plan" option, is not capable of meeting ESA or other standards and criteria, creating an internal inconsistency—Why is the No Action option and related parts of it in its kin then considered at length?

E1-85

B. Alternative Permit Lengths are not Seriously Considered

The plan indicates that shorter permit lengths "would be less likely to provide benefits to Permit species because of the shorter period of time" (4-193) and that "optional Permit lengths of 10 or 20 years would not offer the same opportunities to assess and improve on prescriptions" (4-193).

1

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E1-83	395
E1-84	396
E1-85	178

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Comment	Response
E1-86	281
E1-87	179

However, a shorter term would also offer considerably less risk as is explicitly stated in the NFHCP: "a shorter Permit term would reduce the Services' concerns about uncertainty associated with longer-term commitments" (4-199). If a permit were issued for the initial 10-15 year "experimental" phase of the project, it would seem to be an opportunity to evaluate its conservation commitments and adaptive management. It could be explicitly stated in advance, that if a certain level of impact and/or improvement is demonstrated then the permit would be automatically renewed for another 10-15 year period. If not at that level, the permit would be de facto revoked.

The Plan states that "a 30-year Permit has a higher risk from unknown factors that cannot be anticipated at this time, but is also more likely to have beneficial effects by allowing more time for effects of restoration activities and improved management practices to be realized" (4-193). However, there is also a risk that the restoration activities and management practices will not produce the desired positive outcome. Many of these programs have not been well evaluated, particularly across longer time frames. On balance, it seems that a 30-year Permit is associated with greater risk to the resource than is a shorter one.

E1-86

This is particularly true when considered in light of statements such as: "Plum Creek would be allowed to relinquish the Permit at any point during the Permit period should it choose to do so without any post-termination mitigation obligation" (4-197) [and] "Services will not require any conservation and mitigation measures beyond those in the HCP without the consent of the permittee" (1-19).

The need to fully consider a shorter permit is not vitiated by the argument that the "[p]ermit length was specifically selected based on the biology of bull trout, a concept that also generally applies to the other Permit species" (4-193) Clearly, a longer permit length was considered as the initial application was for 50 years. Moreover, the life-history, life-spans, ecology and biology of the various Permit species do not all match the "specific selection" of a 30 year Permit time-frame.

C. A "Full Protection for Strongholds" or "Refuge Option" Was not Meaningfully Considered

Another seemingly reasonable option is not explored in the decision documents. That option would be completely setting aside the areas where the healthiest species concentrations are. This option is not explicitly or completely examined. The possibility of taking this approach, at least for bull trout and their strongest subpopulations is mentioned (e.g. table 4.6-4, and "native fish assemblages"). The regions inhabited by these populations is relatively small in comparison given that "bull trout strongholds persist in a greater percentage of watersheds experiencing little or no past timber harvest" (4-90).

E1-87

A potential no-harvest policy on a limited area is not thoroughly discussed but is dismissed, and such a policy is given a stated low or minimal risk status by Plum Creek. "[A] simple no-harvest strategy for riparian forests east of the Cascades, while considered to be a low or minimal risk approach, may actually increase risks to riparian function in certain cases" (3-4). This statement is used to support harvest on all Plum Creek lands east of the Cascades. Yet, the issue treated in the text preceding this statement is fire suppression, not no-harvest. The applicant further states

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that "heavy regulation can negatively impact species recovery" (5-2) This statement is not substantiated and in any case the proposal is not regulatory in nature, but is a negotiated, voluntary agreement between the parties.

A full-protection approach on critical portions of this managed landscape would represent a precautionary or risk averse approach which would largely equate to leaving at least the best alone until we know more or better. Such an approach essentially applies "no surprises" assurances to the biological resource interest rather than the business interest. It holds that levels of caution in decisions and actions should be directly related to biological uncertainties and impact time-frames. Stricter biological requirements should therefore be implemented when potential impacts are unknown, large, or long-term.

E1-87

Given that "Plum Creek managers are willing to invest in conservation if there is reasonable scientific certainty of a conservation benefit" (1-9) an investment in certain protection of the areas most valuable for conservation seems consistent with the applicant's philosophy. However, we also note that an overly narrow focus on the extremely few and more functional areas should not be taken to the exclusion of conservation work needed in those more impacted watersheds with characteristics that permit possible and effective recovery.

V. ADAPTIVE MANAGEMENT

A. Role of Adaptive Management

Adaptive management is considered a major component of the proposed HCP. The DEIS acknowledges substantial uncertainty about many of the key assumptions justifying the specific requirements or "commitments" in the proposed HCP, but the Services indicate they believe the proposed research and monitoring program contained within the plan will lead to satisfactory resolution of those uncertainties. In our view neither history nor the contents of the DEIS and HCP provide reason to be optimistic about this. Presumably the approval of the permit depends on successful implementation of the adaptive management program to resolve uncertainties that pertain to take and impairment of recovery. Yet it is not specified nor otherwise is it clear how the proposed course of research and monitoring will lead to specific conclusions about these core questions.

Even if one is optimistic that the Services and Plum Creek have accurately targeted key questions and identified a means to resolve them, the time fame for detection and remediation of shortcomings will likely far exceed the duration of the agreement. The time frame of cause and effect, or the "loop" from activity to ecosystem response and thence back to remedial activity, is made very long by the following inherent limitations:

E1-88

There are inherent biophysical lags between activity and ultimate response. The statistical requirements of time-series tests of most environmental data limits the power to detect a trend until the time series is long (typically 5-15+ years for the kind of data we are talking about here).

There are also intrinsic, sometimes insurmountable challenges in the separation of historical from current causes and effects, and the discrimination of "natural background" from treatment-caused effects; as a result the fundamental linkages between activity and response are likely to resist resolution and remain the subject of interminable debate.

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Comment	Response
E1-88	613

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Comment Response

Perhaps most importantly, *once they occur and can be successfully measured, many of the most important adverse changes cannot be effectively reversed through any known management intervention*; the time frame for key natural recovery processes (e.g., for re-growth of older conifers on floodplain surfaces, or for natural flushing if fine sediments from stable gravel beds) is commonly on the order of many decades.

These inherent ecological and operational limits mean that even if human institutional and scientific processes operate with maximum (i.e. unheard of) efficiency, most potential damage to the protected and target species and their habitats (e.g., mostly those caused by removal of mature trees and triggering or acceleration of various erosion processes) should be considered fundamentally irreversible within the 30-year span of the plan. Thus the claim or implication that the adaptive management program itself can lead to amelioration of unanticipated or unquantified negative consequences within the span of the permit is untenable. In fact, in our view the uncritical and false sense of optimism about the benefits of the proposed adaptive management-related activities that pervades the DEIS seriously undermines the public's ability to meaningfully compare the alternatives.

It is important to recognize (and the DEIS and HCP and supporting documents apparently do not) that *were the fundamental limitations listed above amenable to classical scientific solution (e.g., the sort of methodologies described in the descriptions of the CAMP studies), they would likely have been resolved long ago*. Instead of acknowledging this fact, the Services and Plum Creek appear to have created a mythological assumption that Plum Creek's own scientists will resolve these problems, or otherwise make them go away, in the near future, if only the Applicant is granted a permit for unspecified take. While we do not mean to discourage the sort of research the CAMP proposals represent (and indeed we believe in its fundamental importance), we have no confidence the specified set of studies, or any likely variation on them, is likely to resolve more than a handful of the fundamental uncertainties soon enough to ensure that impairment of recovery does not occur under the permit.

E1-88

This problem magnified in its consequence by the way the Services have chosen to accept the burden of proof, and how this choice shapes the research and monitoring that has been proposed. The proposed plan appears to hinge on the assumption that all prescriptions and commitments should be implemented at will—across the entire permit area—until the science demonstrates that the overall objectives and goals are not being met. Therefore the *scientific questions revolve around the hypothesis that harmful change is not occurring in the ecosystem*. The statistical requirement is for the scientists to take a very noisy and structurally complex system, with a relatively small sample size, and demonstrate some "undesirable" trend in the data before remedial management action will be considered. For the reasons described above and many others, this quest is fundamentally problematic, and history is fraught with the failure to detect major ecological effects that have in fact occurred. There are many reasons for failing to detect an effect that has little or nothing to do with whether or not a real effect has occurred. These reasons (and they are very familiar to all scientists) include various forms of data error, insufficient sample size, faulty design with improper 'controls', miscasting the hypothesis, and inappropriate scaling of samples, measurements, or analytic units—to name only a few.

A detailed analysis of the proposed CAMP studies is a major scientific task and is beyond the scope of this review. We are somewhat puzzled why the development of such study designs and

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their linkage to specific hypotheses and decision criteria-- in a formally specified and complete adaptive management framework—was apparently not accomplished from Plum Creek's considerable investment in science to support this plan. Because the consequences of implementing the proposed alternative cannot be known with certainty unless the appropriate studies can be and are in fact done, it seems to us at a minimum that the DEIS needs to describe these studies in detail so their feasibility can be assessed. Fundamentally this DEIS and HCP prescribe an "adaptive management program" as a generic mitigation measure; it accepts near-term risk to the biota and habitat with the presumption this will contribute to reduction of long-term risk (i.e. through learning and adaptation). Yet this mitigation measure is certainly not standard, nor has it been described in available manuals as a generic or routine practice, nor been specified in enough detail that its feasibility and appropriateness to the intended application can be judged adequately.

E1-88

In addition to these concerns, which are intrinsic to the adaptive management concept and the CAMP proposals as they are sketched, we believe there is a raft of debatable and problematic assumptions underpinning the HCP and the DEIS that have not been recognised as such. Many of these are discussed in our specific comments elsewhere in this report. They include the assumptions diverse and wide-ranging as the hypothesis that bull-trout-focused prescriptions can provide appropriate coverage for all of the various target species, that the level depletion of future coarse wood recruitment which results from 50% removal of trees from the streamside management zone is not a level that will result in excessive take or impair recovery; that the proposed level of reduction of sediment supply is sufficient to allow recovery even in the face of sediment gains from new roads; that road-surface-generated sediment estimates alone are sufficient to quantify overall sediment sources and impacts; that forested buffers are not necessary to protect the upper slope break of floodplain margin terraces; that the morphology and dynamics of fine-grained alluvial channels are relatively "insensitive" to levels of coarse woody debris; and many more. In each of these cases, we have grave reservations about the defensibility of the scientific assumptions made in the HCP and DEIS, and it is not clear that these assumptions are meant to be or even could be validated in the context of the proposed CAMP studies. *A complete adaptive management program should consider and address the full spectrum of critical uncertainties*, not just a small subset that is arbitrarily selected or for which the rationale and criteria for their selection and prioritisation have not been provided. The literature on adaptive management of ecosystems prescribes ecological modelling and sensitivity testing of carefully specified models as the appropriate set of methods for determining what subset of critical uncertainties/hypotheses should be the priority for treatment and tests. There is no evidence such an integrated analysis has been performed to justify the selected studies in the proposed plan.

E1-89

B. Specific Comments on the Proposed Adaptive Management Approach:

Overall, adaptive management is too heavily relied upon to correct for an unconservative conservation approach, placing too much risk on the resource. Plum Creek appears to make its commitments to adaptive management in good faith, reciting the intended effect of this approach: "adaptive management is designed to acquire monitoring and research data needed to evaluate the success of the NFHCP" (1-16) and "adaptive management provides assurances of conservation effectiveness" (3-15)

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Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E1-89	614

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As noted above, there is a general and unjustified assumption that detected problems can be corrected and are not permanent, even in the locations where they have occurred. But from a conservation perspective, until more information is available, the best conservation action would be following the 'precautionary principle' or a 'risk averse approach."

Moreover, even as it commits to change measures that are not effective, the applicant's intention to pull out of the plan if it ends up tying up too much timberland is clear:

E1-90

- "Plum Creek would be allowed to relinquish the Permit at any point during the Permit period should it choose to do so without any post-termination mitigation obligation" (4-197);
- The "Services will not require any conservation and mitigation measures beyond those in the HCP without the consent of the permittee" (1-19).

The end result is a program that provides greater certainty for business interests than conservation interests.

1. *Monitoring is Limited to Habitat Metrics but Adaptive Management Triggers Will Require Biological Data, Creating A Double Standard*

E1-91

Fish habitat metrics are assumed to be a complete proxy for fish conservation. The plan emphasizes physical measures and goals over biological ones: "if habitat objectives are being achieved, then it is assumed that the biological goals are being met" (8-5) The proposal states that "effectiveness monitoring is primarily focused on the measurement of fish habitat components" (8-3) and that "monitoring is focused on fish habitat rather than the fish themselves. (AM 1-1). Yet the "over-riding objective" is "conservation of native salmonids" (8-5). But habitat is measured because "measuring habitat variables is more practical than counting fish and is more directly related to Plum Creek's management activities" (8-7)

But despite the assumption that habitat metrics serve to measure fish survival and recovery, Plum Creek's adaptive management will not respect these metrics alone as enough to trigger a management response: "simply observing a trigger based on habitat variables does not automatically infer that fish utilization of that habitat will decline or that fish are adversely affected" (8-7)

E1-92

The stated "reason for making a determination of biological relevance after observing a trigger is to ensure that the observation of a trigger is really detrimental to fish before requiring a costly management change" (8-7). The plan proposes to make a "biological relevance determination" based on "habitat utilization" (8-9).

This approach sets up a double standard: habitat conditions are all that Plum Creek will monitor and set objectives for, yet it will not agree to key management responses to changes in these conditions.

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See Response to Comment Table or click on link provided below.

Comment	Response
E1-90	327
E1-91	685
E1-92	685

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See Response to Comment Table or click on link provided below.

Comment	Response
E1-93	645
E1-94	646
E1-95	686

2. The CAMP studies are of Limited Scope

The four NFHCP studies considered here are for roads, riparian, temperature and grazing. It seems that there are many other issues that need to be addressed and examined, most notably including those listed in the federal register notice listing the bull trout.

We note that there is not necessarily habitat improvement and better conditions for native salmonids. No study is proposed to test this relationship, although it is critical to the findings of biological significance required for implementation of key adaptive management measures. **E1-93**

An analogy to this situation might be the way hatcheries were originally evaluated, in that what counted in their case was output not return. Subsequent evaluations have demonstrated a serious problem with this perspective, and one that might explain several failings of supplementation programs. Even counting fish may not be the best evaluation of any management activities. Other measures of fish could be equally and even more important.

Many items that are to be assessed presently have "no specific metric" for evaluation. (7-2) These items are also generally those that have longer evaluation reporting times.

3. Not clear How Achievement of Biological Objectives Will be Assessed if Only Physical Habitat Conditions is Measured; Commitment to Biological Data Unclear

It is unclear how is the measurement of fish habitat will be reconciled and evaluated in terms of actual direct conservation objectives for fish because the conservation status of the fishes themselves is not being assessed. Although "some biological data will be collected to improve understanding of the relationships between measurable habitat components and the well-being of the fish themselves," (8-3) this is not the applicant's intended emphasis. **E1-94**

However, "Plum Creek will incorporate new fish presence data, including reintroductions" (8-13) and there is reference to "Plum Creek fish surveys performed as part of CAMP studies" (8-13), But how will this new fish information be collected, since they are seemingly not planning to collect such biological data at this stage? Are they or are they not doing direct fish work? We note that reintroductions are not discussed anywhere else in the document. Are they are real and considered part of this NFHCP, and if so they warrant much more evaluation?

4. Relationship of Biological Significance and Statistical Significance to Adaptive Management Triggers Not Specified

It seems unlikely that adaptive management will accommodate at least some new information given the strict criteria of "statistical significance" for triggers and of "causal linkages" for explanations (8-8). What should really be of relevance is biological significance. It is definitely possible that something shows a biologically significant trend without being statistically significant at their $p<0.1$ level. **E1-95**

- If statistical significance is not reached in this first step of their "adaptive management pathway" (8-8) then there will be no assessment of biological significance.

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One example would be measures of temperature increase. It is possible that a small temperature increase would not be statistically significant in relation to temperature but it certainly could be biologically significant in relation to the fish. Furthermore, how is the following quote reconciled with those preceding it here: "where biologically significant changes in stream temperature are discovered, prescriptions will be modified" (3-5). Causal linkages can be difficult to concretely establish and are often only correlative. What then happens if there is dispute over any causal linkages?

E1-95

After much discussion of rigorous statistics and approaches, this NFHCP does itself then not adequately address other important and rudimentary aspects of statistical and experimental design (e.g. pseudo/replication? and pseudo/controls?)

The "adaptive management pathway" would also necessitate relevance, documentation, and determination using the criteria mentioned in the NFHCP so any response time will not be fast. What will then happen while these determinations are being made? What can be done in areas already impacted?

5. Scale of Biological Linkage Determinations Unclear

To add to the above-referenced uncertainty about the application of adaptive management decisions, it is unclear the extent to which the applicant is committing to establish determinations of biological significance which apply throughout the planning area:

- "it is possible that a linkage could be made specific to a particular Planning Area Basin" (8-10);
- "causal linkages will most likely be made for a given geology, landform, or channel type" (8-10)
- "effects of forest practices vary throughout the Planning Area among different geomorphologies" (4-90)

E1-96

These seem nothing more than Plum Creek providing themselves with an 'out' while at the same time elsewhere explicitly stating and employing the double standard that their CAMP studies will be representative and used for extrapolation (but maybe only where useful for Plum Creek to do so). (e.g. "extensive monitoring" [and] "careful selection of effectiveness monitoring sites, will allow effectiveness monitoring results to be extrapolated with confidence" (AM 1-2)

Again, the applicant's business motivations are apparent: "because economic predictability is a fundamental incentive offered to Plum Creek through No Surprises, management responses cannot be arbitrary and should meet certain economic considerations" (8-11). It appears that there is nothing in the plan's commitments which prevent Plum Creek from replying that the factor(s) causing the conservation problem are not simply an "unforeseen circumstance" and/or invoking "No Surprises". What happens if and where any adaptive management dictates that more must be done than Plum Creek is willing or can afford to?

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E1-96	687

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E1-96 When the plan notes "a dynamic tension exists between the need to change management based on valid new information and the "No Surprises" policy" (B-28) is it essentially saying that No Surprises wins?

6. Monitoring that Is Inadequate to Trigger Better Conservation is Deemed Adequate to Relax Conservation Commitments

E1-97 To complete the double standard, "monitoring data that demonstrates targets and trends have been met or exceeded could be the basis for adoption of relaxed practices" (8-10). Apparently any data that is in their favor is to be used and capable of broad application. Similarly, Plum Creek will accept information that is peer-reviewed and published in the primary scientific literature. However, they do not adhere to these same standards for their own data usage and publications.

7. Management Changes Could Depend on Finding of a "Conservation Surplus" in Other Areas and Result in a Trade of Conservation Benefits from Another Part of the Project Area

The applicant proposes that if adaptive feedbacks "require an additional commitment of resources, they will first be financed by reallocating conservation from other areas where it can be demonstrated that Plum Creek is exceeding conservation goals, to the extent that such a conservation surplus is available" (8-11). But the Plan also states that even "if a surplus is not available, Plum Creek will still fulfill its commitment to change management in order to meet biological goals" (8-11)

E1-98 Despite this promise, the adaptive management response is not at all certain, because the extent to which Plum Creek is committed to conservation goals over business goals is never fully explained. Rather, "if conservation surplus is not available and additional resources must be committed to maintain biological goals, Plum Creek and the Services will utilize the NFHCP business goals to guide the development of a response" (8-15). This would seem to comport with the company's intent to offer a plan "allowing for business management flexibility into the future" (page 1-19).

Yet the plan states elsewhere that that "if the rate of improvement – or the magnitude of the trend of decreasing water temperature – must be greater, Plum Creek has committed to adapt management to ensure canopy cover increases and water temperature decreases are achieved" (4-179)

- We further note that a goal of "maintaining" biological goals is not adequate when in most cases they have not yet been achieved. Similarly, with regard to the goal of canopy closure, what consideration is given to the fact that canopy cover is not the only consideration in regards to temperature?

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E1-97	688
E1-98	615

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Responses

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Comment	Response
E1-99	242
E1-100	243

VI. USE OF DATA AND OTHER SCIENTIFIC INFORMATION

A. Almost all of the data used and that will become available from further study and evaluation is representative of already impacted bull trout populations.

For example, the sampling for bull trout is only from 2nd to 4th order watersheds which were selected based on bull trout generally being found in smaller watersheds) (B-3). At least some of this bias towards bull trout only being found in smaller watersheds is a present-day (and operational – hard to sample larger rivers) one.

E1-99

Sampling for bull trout is also discussed at length in relation to statistical significance, but at no point are issues mentioned such as when sampling was and should be conducted (page B-4) Such biased discussions may be justified if only from a United States perspective, but we believe there is a great deal of worthy Canadian data on pristine or less impacted populations available and published. We suggest that this data is relevant to the questions of habitat conditions needed to meet biological recovery goals. [Haas (1998); Baxter, McPhail (1996); Baxter, Westover (1999); Baxter et al (1996); Bustard & Associates (1995a, 1995b, 1996, 1997, 1998)

B. There is a lack of comprehensive analysis, literature review and scientific support for conclusions and observations; It is not clear that all best and available data and information has been brought to bear or that it has been subjected to rigorous outside review

Where literature coverage occurs it is only utilized in the document to the level it supports this NFHCP. For example, "few studies have been conducted on egg incubation" (4-76). The document later cites McPhail and Murray (1979) in regards to sediment effects (4-166). However, McPhail and Murray (1979) is a largely an explicit lab-based study on successful temperature and rearing environments for bull trout that was initiated prior to a hatchery program in southwestern British Columbia, Canada.

The plan also claims that "few data are available indicating temperature ranges preferred by adult bull trout" (4-76). This statement is not really correct, and at a bare minimum there is lots of good inferential data available and in published form.

E1-100

The applicant states that its proposed "conservation measures are a combination of biological goals, practicability considerations represented by NFHCP business goals, and a solid basis of scientific data and rationale, while addressing additional concerns, uncertainties, and collaborative input from the Services" (1-9)

The company states it has been collecting data since 1993 at some considerable expense. If this is the case, where is it and why can it not already address some of the particular questions being asked or seemingly requiring answers? Why is this data not available for outside analysis and confirmation? Will future data be available to (or perhaps even better – collected by) a third party or at least include outside concerned groups? If we cannot view the data now, why do we think that monitoring and enforcement (and further data collection) will be valid?

Many non-PCTC studies and available data are not being used, and the proposal is to rely heavily on the future CAMP studies. This exclusive reliance on company literature appears

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suspicious and unnecessary to the outside observer. The company seems willing to extrapolate from their CAMP studies, but have not done so from often equally complimentary studies already completed.

The NFHCP also makes a regular habit of pointing out isolated instances of fish found in odd exceptions to otherwise reasonably well accepted and clear patterns. This adds little to any conservation debate or evaluation (or confidence in a conservation plan).

E1-100 An instance of this would be where bull trout were found at certain temperatures they normally are not (e.g. juveniles rearing at higher temperatures and bull trout in water up to 68°F (Plum Creek 1998f) on page 4-76).

The extent to which information is available on issues of central importance to this plan is vastly understated. For example, the plan states that "no studies specific to streams in the Planning Area have examined the effect of leaving contemporary streamside buffers." (3-4). What about their own technical report number 12, at least to some extent? Several analyses of BMP and FPA rules, and of past practices and impacts, within the Plum Creek lands are cited in this NFHCP.

C. There is lack of *data* and a preponderance of *observations* leading to conclusions

The proposal evidences an unscientific approach that seems inconsistent with Plum Creek's own Environmental Principles. For example, extensive *observations* are used of areas affected by harvest activities "…rarely convey runoff directly to stream." This statement is full of qualifications, relies on an unspecified methodology and therefore is not repeatable, not science.

There is a deficit of numeric criteria used to measure performance. Criteria, triggers, and monitorables are most often described in narratives, using the words "minimize," "reduce," or "observe." This gives rise to the fear that implementation of the Plan, from both Plum Creek's and the Services' perspective, will be difficult. Without clear, unambiguous criteria and triggers, much disagreement between Plum Creek. and the Services is likely, and much time could be lost before appropriate actions result.

E1-101

Without any specific data on conditions from Plum Creek lands under the "pre-Forest Practices" regime, it is implied that all the bad forestry occurred years ago and Plum Creek is still cleaning this up. This implication ignores the fact that Montana didn't have a FPA and still only has a voluntary BMP approach to forest management. Table 1 of the Findings is misleading as there is no data provided for review; it contains a summary of observations which may be recorded or may just be in someone's memory. Too often, "assessments" such as these are the result of a single field trip during fair weather.

It is also found that many "Actions" merely specify action plan development. In other words, a trigger sets off an action which is to develop a plan to act later. These plans are contingency plans, which any good business must develop. It must be seen, however, that they need to be developed now so that when the triggers go off, as surely they will, *action* can be taken instead of meetings attended. In the absence of generic action plans for response in the event of a trigger

Responses

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E1-101 being set off (these are known and specified throughout the Plan), a much more conservative approach, which reduces the risk to depressed and ESA-listed species and stocks must be taken.

VII. PERMIT SPECIES SPECIFICITIES AND NEEDS

A. There is inadequate analysis and data to support the assertion that conservation measures designed for bull trout will benefit all the covered species.

This "[c]onservation package applies conservation commitments that benefit all *native* salmonids" (1-6) (emphasis added), on the general basis that "all salmonids benefit from cold, clear, complex, and connected habitat" (4-105). The general philosophy is that:

- "all native salmonids do have broadly similar habitat requirements" (4-121) and "to the extent that this alternative benefits bull trout, it would also generally benefit other native salmonids" (4-192);
- "other aquatic species possibly present in the Project Area would also be affected, generally in a positive manner, by changes in habitat conditions under the NFHCP" [and] "include native fish (for example, Pacific lamprey), aquatic invertebrates, *non-native* salmonids, and *non- native* fish" (page 4-192) (emphasis added)
- "bull trout, in particular, would be positively affected to the greatest extent" (4-192);
- "based on the above considerations, overall habitat conditions for bull trout and other native salmonids in the Planning Area would improve (page 4-192)

E1-102

However, no data is offered to test these assumptions, and no literature to evaluate them against is provided. Any conservation and rehabilitation efforts could benefit one species more than the other, and particularly could benefit detrimental exotic species such as brook trout. This would not result in bull trout or other Permit species receiving any conservation benefits.

"Bull trout are the most widely distributed and have the most specific habitat requirements" (See .e.g. 2-19) The reality of this statement is largely true except that it results from bull trout being treated as a single Columbia River ESU whereas other listed salmonids are not. The defensibility of this single ESU designation could be debated.

In the above quote, read 'most extreme' as opposed to "most specific" as that is what the true case is. Bull trout are at the far end of habitat requirements, but these are not necessarily the most specific. Rather, they are probably the most difficult to maintain or the most sensitive to being impacted.

The following findings in the plan itself seem to conflict with the applicant's argument that an plan on bull trout biology will benefit all the Permit species:

- "optimal temperature range for bull trout growth and fitness is generally colder than for other salmonids" (3-4);

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Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E1-102	196

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E1-102

- "each species has a preferred range of water temperature (4-74);
- Plum Creek categorized watershed units based on bull trout biology (See. e.g. 2-19)
- "another approach for focusing conservation is to address specific species because of their unique needs or imperilled status" (1-9)

B. The between and within-species diversity that exists is the result of differences in habitat use

E1-103

The between and within-species diversity that exists is the result of differences in habitat use. Academic studies of speciation (formation of new species) almost solely stresses habitat or resource partitioning as the means under which it occurs.

In fact, the Plan anticipates a better result for bull trout that for species not as reliant on Tier I watersheds: "trends in improvement would be less certain for other Permit species in Tier 2 watersheds because of the reduced levels of conservation commitments there" (4-199); (2-20). How then would this NFHCP protect all the fish species outside of bull trout since these fall into Tier 2?

C. Emphasizing protection to Tier 1 Watersheds does not address the need for conservation in Tier 2 for some species to survive

How will this scheme ensure the needed benefits outside of Tier 2? How will it even work for bull trout, if only their "most sensitive life-history" stages will be protected? All stages of a life-history are sensitive and those discussed in the Plan as "most sensitive" really are likely better viewed as 'most vulnerable'.

It is our understanding that in order for this plan to be approved, the needs of all covered species must be met such that survival and recover are not appreciably reduced and take is minimised.

E1-104

The Plan cites at least two studies (Bustard and Narver 1975, and Everest and Chapman 1972) which at least partly discuss how various native salmonids in the Pacific Northwest are dominant and can force co-occurring species into habitat etc. that they would not primarily select. But these citations are not used in this context. Based on these studies, how can it be argued that improving the conditions for one species will improve them for all?

We note that the "Services encouraged Plum Creek, as the planning process proceeded to build into the NFHCP other methods of focusing conservation to ensure the needs of all species are met" (1-9) This NFHCP does not meet the terms of this statement. Rather, it sounds like a forced late addition to a finished product. The conservation package is still directed almost entirely towards bull trout (or brook trout). We believe that there are obviously are species-specific concerns and needs that are not being met.

"Permit length was specifically selected based on the biology of bull trout, a concept that also generally applies to the other Permit species" (4-193). The life-history, life-spans, ecology and biology of the various Permit species do not all match a 30 year Permit time-frame. Furthermore, each Permit species in the plan has its impacts, biology, etc. listed and discussed in

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E1-104	198

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isolation to all the other species. The plan admits that ecosystems can vary at several levels, and for instance that not every stream is the same. If this is the case, then how can all the different species be protected under the same Plan?

E1-104

We note that a poor understanding of the species and their ecosystems is exemplified by the cited example of a complex ecosystem collapse that involved mysid shrimp and kokanee. Kokanee are themselves not a native species. (4-142)

D. Critical "Staging" Areas for Bull Trout not Explicitly Addressed

E1-105

Staging areas are stream locales where adult bull trout migrate up to a certain point (often a barrier) and hold there until they move back downstream to spawn as pairs. Haas(1998). These staging are very critical and susceptible habitat points, and are known within the Plum Creek lands. These are never discussed in terms of conservation and at present would only likely rank into Tier 2 watersheds in this NFHCP. These staging areas would not receive sufficient protection.

VII. OTHER ISSUES

A. Relevance of Ecoregional Distinctions

E1-106

The ecoregions based on terrestrial criteria (as discussed on page B-9 for technical report #4) do not necessarily or even often have much direct correspondence to aquatic biology. What is generally more important to aquatics than terrestrial bioregions are things like watershed connectivity (present or historical), population isolation and within-species variation, and what other species are present in any particular ecosystem.

B. International Transboundary Issue not Addressed

E1-107

There is absolutely no discussion of transboundary issues for watersheds that are partly in Canada. There are several of these within the Plum Creek lands and this issue is not addressed. This is in spite of other instances in BC where BC has been strongly criticized (our premier received letters from the MT governor) for not providing adequate protection for the Wigwam River which happens to be one of the healthiest remaining spawning sites for US fish.

C Climate Change Should be Anticipated as part of Adaptive Management

E1-108

One feature that should definitely be listed as a "Changed Circumstance" (page NFHCP 8-25: AM3) in regards to these fish and particularly to bull trout is Climate Change or Global Warming. If this is not explicitly considered then any temperature increase could be attributed to "unforeseen circumstances" and/or to "No Surprises".

Similarly, if the NFHCP is planning for issues like "50 year floods" (NFHCP 2-8) then these events are very likely to occur with more frequency and perhaps less predictability. As well, if temperature is only considered in respect to its present climatological background then even the small degree of temperature change predicted here could be catastrophic in conjunction with an increased background level. This must be factored into any conservation plan and decisions.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E1-105	489
E1-106	17
E1-107	18
E1-108	19

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CONCLUSION:

This is a Better Business Plan than a Conservation Plan

The proposed plan turns the "precautionary principle" or "risk averse" approach to conservation on its head by applying it to the business side of the equation first.[4] What is needed is an approach which first sets up a conservation plan based on an honest assessment of biological recovery, and then determines what it is possible and where to best work business within this framework.

E1-109 From a biological perspective there is no utility or reality in simply approving what conservation is deemed financially possible and necessary from a business planning perspective. Certainly the lack of rigor and detail for conservation offered here would not be acceptable to a purely business assessment.

If a complete conservation plan that had explored all options onstructed, working from that basis would have provided the greatest certainties for investment in conservation. The current proposal does not produce the greatest certainty from a conservation standpoint.

E1-110 We have noted the absence of meaningful analysis of the level of "take" and therefore of the offered mitigation. So, too, are missing certain business details such as the economic impact to the applicant under the various NFHCP options. This approach might have provided a clearer picture of what the various management options mean in terms of foregone revenues and how much actually is being given up or offered over and above the current minimum regulations.

E1-111 The plan claims that the "resulting package of commitments provides not only a significant conservation benefit, but does so mostly within these standards of practicability, thereby meeting the "maximum extent practicable" test" (1-9). The test for this should be whether conservation is being done to the maximum extent practicable and not whether business is accommodating conservation at some level. If biology is not the most important component of a conservation plan, then this must be made public and explicit. It is important to clearly know and accessibly state what is likely being given up biologically in any compromise. Democratic and external debate and decisions can then more properly take place on whether this compromise is acceptable.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E1-109	377a
E1-110	372
E1-111	376, 377, 377a

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Responses

See Response to Comment Table or click on link provided below.

Comment Response

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Responses

See Response to Comment Table or click on link provided below.

Comment Response

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Letter E1

Responses

See Response to Comment Table or click on link provided below.

Comment Response

[1] This is not a comprehensive critique of all Plan proposals. Rather this is a focused analysis of key points that all reviewers agreed most be addressed, given limited time and resources.

[2] Peakflow indices used in the study were the maximum monthly streamflow, the 5% exceedence flow, the maximum daily flow and maximum instantaneous flow.

[3] "Where the water quality impact of upgrading an old road would exceed the conservation benefit, upgrading will be postponed until the road is needed for forest management activities (2-14). How will this be assessed, and how does it match the NFHCP "pledge to upgrade old roads"?

[4] The following excerpts from the plan illustrate the applicant's perspective:

- long-term business confidence is central to Plum Creek's motivation in developing the NFHCP" (1-8);
- "in addition to biological goals, business goals be used to help judge the desirability of alternative conservation measures" (1-8);
- "environmental concerns acting as constraints" (2-29);
- "costly conservation commitments" (1-3);
- "expend scarce resources on approaches that are not cost effective" (8-11);
- "it is not practicable to expect business managers to invest where there is little certainty of a return on the investment" (1-9);
- "conservation measures are a combination of biological goals, practicability considerations represented by NFHCP business goals, and a solid basis of scientific data and rationale, while addressing additional concerns, uncertainties, and collaborative input from the Services" (1-9);
- "it must creatively explore opportunities for conservation that consider both biology and business (1-5);
- "investors are attracted because of Plum Creek's desire to be successful while protecting the environment, and the demonstrated track records of doing so" (1-12);
- "because economic predictability is a fundamental incentive offered to Plum Creek through No Surprises, management responses cannot be arbitrary and should meet certain economic considerations" (8-11);
- "if conservation surplus is not available and additional resources must be committed to maintain biological goals, Plum Creek and the Services will utilize the NFHCP business goals to guide the development of a response" (8-15);

Letter E2

American Fisheries Society
Western Division

March 21, 2000

RECEIVED
MAR 24 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

Roy Heberger, Acting Supervisor
U.S. Fish and Wildlife Service
Snake River Basin Office, Columbia Basin Ecoregion
1387 South Vinell Way, Rm 368
Boise, Idaho 83709

Dear Mr. Heberger:

You requested that the American Fisheries Society provide you an objective, scientific review of the draft Native Fish Habitat Conservation Plan (NFHCP) and related draft Environmental Impact Statement (EIS) for the Plum Creek Timber Company. Our comments on these documents follow.

The draft NFHCP and EIS, which are dated December 1999, concern 1.7 million acres of lands owned by the Plum Creek Timber Company in Montana, Idaho, and Washington. The NFHCP seeks to conserve and restore native salmonid fishes, which includes fish species listed under the U.S. Endangered Species Act, on Plum Creel Timber Company lands. You specifically requested that the American Fisheries Society review and comment on the scientific premises used in the development of the NFHCP.

Your request was referred to the Western Division of the American Fisheries Society. The Western Division, through its Environmental Concerns Committee, identified five independent reviewers in the Western Division. In the review process, the reviewers participated in two conference calls with Ted Koch of your office who summarized the NFHCP and answered questions about the NFHCP.

The reviewers' comments on the NFHCP and related documents are provided below. Due to the range and depth of the review comments, and the complexity of the NFHCP and EIS documents themselves, we provide all comments as they were prepared, except for minor formatting to fit this letter. For clarity, the symbol >>> separates each of the reviewer's comments below .

>>>

Reporting and valuing the effects of the Alternatives

E2-1 I believe the DEIS did an adequate job of using available information in evaluating the 4 alternatives. The Alternatives represented a reasonable range of actions that meet the stated

British Columbia • Yukon • Mexico • Alaska • Arizona • California • Colorado • Hawaii • Idaho • Montana • Nevada • New Mexico • Oregon • Utah • Washington • Wyoming • Western Pacific Islands and trust territories

Responses

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Comment	Response
E2-1	1

Letter E2

E2-1 purpose and need, and presented the Alternatives in a format which reasonably compared and contrasted them.

E2-2 The effects analysis is deficient in portraying the distribution of Plum Creek Timber Company's management activities across the planning area, the density of these activities in specific areas, and the relationship of the distributions of management activities to the distribution and status of bull trout sub-populations. It is recognized that it is hard to accurately predict the distribution of management activities over the 30-year life cycle of the proposed permit, but specific estimates of road construction and timber harvest have been presented. These figures must be based on some knowledge of the planned location of these activities. Are management activities assumed to be spread equally across all Plum Creek Timber Company lands in the Planning Area? Are some Tier 1 Watersheds going to receive adjusted levels of management activities based on current status/trend of bull trout populations in the watershed? Will activities be concentrated in areas without populations of permit species, or to avoid occupied permit species streams? Specific information to address these questions would benefit the effects analysis.

Adequacy in addressing the purpose and need

E2-3 The alternatives appear to adequately address the combined purpose and need of native fish conservation and Plum Creek Timber Company's business needs. The ability to address either purpose and need individually is constrained by the other stated purpose and need. The document clearly discloses that issuance of the permit under the NFHCP may provide adequate conservation of native fish in some areas, but may not be adequate to conserve native fish in others.

Adequacy of the direction and trend analysis for ranking the alternatives for specific processes

E2-4 The ranking of the alternatives appears to accurately reflect the relative magnitude of effects for the specific processes as presented in the document.

The smart buffer approach

E2-5 Varying the amount of protection from management activities based on sensitivity of stream channels is a good approach in addressing site-specific physical and biological capabilities of streams. The proposed NFHCP does an adequate job of addressing riparian timber harvest and associated activities based on physical sensitivity of stream channels. There appears to be some variability in road construction activities in relation to channel sensitivity, but these are not very clear. Grazing management objectives should also be based on stream channel sensitivity. Potential grazing impacts on Channel Migration Zone (CMZ) types A and B are very high, while grazing impacts are very low on CMZ type D and E. Sensitivity of CMZs to grazing impacts should be incorporated in prescribing management activities for livestock grazing.

Proposed adaptive management commitments

E2-6 Incorporating the adaptive management commitments to revisit and alter management practices based on monitoring results is commendable. The Adaptive Management Pathway in the NFHCP relies heavily on biological relevance and casual linkages. These must be demonstrated before

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E2-2	121
E2-3	1
E2-4	1
E2-5	720
E2-6	622, 696

Letter E2

management changes are initiated. Demonstrating both biological relevance and casual linkages may be difficult in limited field situations. A benefit of this approach to the permittee is that they are reducing the probability of saying an activity is having an effect when in fact it is not. This reduces the potential of implementing a costly management change when it may not be required. However, this also increases risk to native populations by increasing the probability of saying an activity is not having an effect, when in fact it is. By the time this error has been realized, impacts to native fish populations may be irreversible and effects to a local population could be catastrophic. Third party review by entities agreed upon by the Services and Plum Creek Timber Company should be incorporated when triggers are reached and either biological relevance or casual linkages are in question.

E2-6

Needs of permit species other than bull trout

The EIS and the NFHCP rely heavily on the assumption that providing adequate habitat conditions for bull trout, or reducing management impacts on habitat in Tier 1 watersheds, will also benefit other permit species. Given the more restrictive habitat requirements of bull trout this assumption likely holds where other permit species coexist within Tier 1 Watersheds. This assumption may not hold true for populations of permit species that are not dependent on Tier 1 Watersheds. The effects analysis for other permit species should better address the distribution of these species in relation to Tier 1 Watersheds, and the proportion of the populations benefitting from more restrictive management in Tier 1 Watersheds versus the proportion of populations on Tier 2 lands. The analysis should also compare and contrast the differences in existing State Regulations, and management commitments on Tier 2 lands.

E2-7

Additional specific comments on the NFHCP

The relationship between Tier 1 Watersheds and Key Migratory Rivers is not clear. The text on NFHCP Page 1-10 states that Tier 1 Watersheds contain streams that are know to be important for bull trout spawning and juvenile rearing. There is a lot of inconsistency between Tier 1 Watersheds presented on EIS Map 2.2-1 and bull trout spawning/rearing streams on Map 4.6-1. It appears that the Tier 1 Watersheds are only applicable for watersheds that contain some Plum Creek Timber Company lands. If this assumption is correct, it should be clearly stated. This also applies to Key Migratory Rivers. There are many instances on Map 4.6-1 where important migratory spawning and juvenile rearing streams are not connected by "Key Migratory Rivers." The identified Key Migratory Rivers appear to have some relationship to Plum Creek Timber Company land ownership patterns but may not be clear given the scale of the map. If the Key Migratory Rivers discussed in the EIS and NFHCP are limited in extent by Plum Creek Timber Company ownership, this also should be clearly stated.

E2-8

NFHCP Page 3-5 states "Where biologically significant changes in stream temperature are discovered, prescriptions will be modified." What is meant by "biologically significant"? Does this have the same meaning as "biological relevance" as discussed on NFHCP Page 8-15? If so, consistent terminology should be used. If not, define and explain "biologically significant."

E2-9

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E2-7	198
E2-8	297
E2-9	616

Letter E2

E2-10 The descriptions and sensitivity to timber harvest of CMZs are presented and discussed on NFHCP Pages 3-11 to 3-15. This discussion relies heavily on the interaction of large woody debris (LWD) processes in channel changes/migration in justifying the sensitivity ratings. I agree with the ratings and rational for Types B-E. However, the moderate sensitivity rating for Type A CMZs appears to be based solely on the interaction of LWD and does not take into account the sensitivity of these channel types to other timber harvest related activities. These CMZs are highly sensitive to compaction in most geologies. In addition, they are highly dependent on vegetation for maintaining bank stability, and removal and/or alteration of existing vegetation can accelerate bank erosion processes. Although the risk of the channel migrating to a dramatically different position is less than a Type B or C CMZ (as stated on NFHCP Page 3-15), the risk of continuing channel instability and loss of complexity is high if it occurs and vegetation process has been altered. Inclusion of processes in addition to LWD should be utilized in developing the sensitivity ratings.

E2-11 Is there rationale for limiting the number of Native Fish Assemblages considered in this plan? Harvey Creek in the Upper Clark Fork sub-basin contains Plum Creek Timber Company lands, meets the criteria stated on NFHCP Page 8-29 and may be worth considering. If the amount of Plum Creek Timber Company ownership in the watershed is also a criteria, it should be stated.

Draft Environmental Impact Statement

E2-12 The specific habitat objectives for the "Cold" biological goal (Page 4-67) are limited to canopy closure. This does not take into account the importance of groundwater influences on stream temperature, especially in maintaining cold summer temperatures and moderate winter temperatures. This is discussed elsewhere in the EIS. Impacts of the alternatives as they affect the "Cold" objective only discuss canopy closure and how it is affected by timber harvest. This does not address the effects that road location, road density, and drainage patterns affected by roads can have on groundwater processes and in turn how these affect stream temperature.

E2-13 The specific habitat objectives for the "Complex" biological goal do not address the effects of altered hydrologic patterns due to upland vegetation removal. It is well documented in the literature that removal of vegetation can alter hydrologic regimes, increasing peak flows, especially in the rain-on-snow areas of Northern Idaho and Northwestern Montana. This is discussed in Section 4.3 (Water Resources and Hydrology), but the effects of these processes are not carried through to their effects on channel stability and instream habitat complexity.

E2-14 The identification of the sub-populations in Tables 4.6-4 and 4.6-5 does not appear to be related to the Tier 1 Watersheds, related to the Spawning/Rearing streams on Map 4.6-1, or to follow the definition of sub-population provided in the Glossary (Chapter 8). I do not have the source document for these tables (FWS 1998a), but they do not represent the definition of sub-populations in the Glossary for portions of the Planning Area in Montana. The list of sub-populations in Montana is very misleading when considering the relationship of Plum Creek Timber Company lands to the distribution and status of bull trout populations. For example, many

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E2-10	546
E2-11	717
E2-12	259
E2-13	260
E2-14	122

Letter E2

E2-14 of the Spawning/Rearing streams in the Blackfoot River drainage fit the Glossary definition of sub-population and the document would benefit from inclusion of these in the above tables. In contrast, the numerous "sub-populations" in the above tables in the Bitterroot River Basin are mostly small, isolated, and highly fragmented populations and do not meet the Glossary definition of sub-population. This table should be updated to represent the most up-to-date status information (some of which is cited in the EIS) and consistently apply the definition of sub-population.

E2-15 Table 4.6-6 does not represent the relationship between Mining and Connected Water. Water quality impacts from mining operations can create chemical barriers which can isolate streams and populations. This is know to occur in the Upper Clark Fork and Coeur d'Alene basins. The text on Page 4-141 also discusses the impact of chemical barriers from mining on connected waters.

E2-16 Page 4-142 (Genetic Introgression and Hybridization) infers that all brook trout/bull trout hybrids are sterile. While most offspring of brook trout/bull trout matings are sterile, F2 and F3 hybrids have been documented in the West Fork Bitterroot (Robb Leary and Chris Clancy, personal communication).

E2-17 Page 5-6 "Connected Habitat" refers to the identification and removal of human-caused barriers. Case-by-case barrier removal must address both the benefits to target species and the potential impacts from hybridization/competition with non-natives. The benefits and impacts must be identified and weighed against each other prior to barrier removal.

>>>

E2-18 Overall, I was impressed by the effort made by Plum Creek and the Services to develop this Plan. The attempt to incorporate flexibility via adaptive management is the key piece. Adaptive management has not been fully realized as a success in most cases (Walters 1997). As Walters points out, one of the biggest failures of the approach is a general lack of ambitious and innovative commitment on the part of agencies and industry. The NFHCP represents the beginning of a process that I find encouraging.

E2-19 *1) Introduction* - Overall, this plan has a lot of good elements. The adaptive management component is especially encouraging. Effective implementation of such a strategy will be the primary challenge (Walters 1997).

E2-20 *2) Tier 1 and 2 watersheds* - Tier 1 is defined as spawning and rearing habitat for bull trout; Tier 2 is migratory habitat and all other habitat types. Tier 1 appears to include only known occupied habitat. Bull trout are difficult to sample, and there is a lot of uncertainty regarding presence/absence. Also, bull trout may become extinct in some local habitats and re-colonize others. Therefore, management based exclusively on patterns of occurrence can produce a misleading view of habitats that may be key to bull trout populations. The USFWS (to my understanding) is currently managing known occupied *and* potential habitat under identical guidelines. Potentially occupied habitat should also be included in Tier 1 watersheds. One of the

-5-

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E2-15	123
E2-16	124
E2-17	397
E2-18	1
E2-19	1
E2-20	526

Letter E2

E2-20 major reasons for listing bull trout was a decline in distribution. Therefore, an expansion of distribution is needed and habitats outside of the current distribution of bull trout should be restored. Determination of potential distribution should involve detailed review of historical records of occurrence and modeling of habitat potential (similar to TMDL process).

E2-21 *3) Monitoring.* A key component of the plan is monitoring to support the adaptive management process. There are many innovative monitoring approaches described. A key piece of the monitoring program is based on "effectiveness" monitoring in Core Adaptive Management Projects (CAMPs). These areas will receive intensive monitoring and experimental treatment of different land uses to evaluate the effects of Plum Creek Timber Company's activities.

E2-22 *Definition of terms.* "Effectiveness" monitoring as described in the NFHCP is closer to what others would define as "validation" monitoring (Kershner 1997). Validation monitoring is conducted to test the validity of basic assumptions that underpin effectiveness monitoring. Effectiveness monitoring is conducted to determine if management actions (determined through "implementation" monitoring) were effective in achieving management goals.

E2-23 *Extrapolation from CAMPs.* A critical assumption of the "effectiveness" monitoring program is that effects observed in CAMPs can be extrapolated to other project areas. There is no real assurance in the NFHCP that this assumption is valid.

E2-24 Some "validation" of the proposed effectiveness monitoring seems warranted through some kind of extended monitoring program that extends outside of CAMPs and into a larger and more representative portion of the Project Area. The question of extrapolation from CAMPs to the Project Area needs to be explicitly addressed. CAMPs are probably most valuable for "validation" monitoring, as defined above.

E2-25 *Lagged responses.* Another issue not directly addressed in the NFHCP (but perhaps in the minds of the authors) is the issue of lagged responses of habitat to changes in land management and lagged responses of fish populations. For example, populations of relatively long-lived fishes, such as bull trout, may not respond immediately to changes in habitat. Consider the effect of changing juvenile survival. We may observe large numbers of adults and juveniles (those alive before they die) for some time until it becomes clear that juvenile survival is an issue. By the time the effect is detected, correction may be more complicated. Perhaps an explicit treatment of time lags should be included as a priority goal for validation monitoring.

E2-26 *Triggers: when and where to pull them.* As I understood it, triggers to initiate the adaptive management cycle can only be pulled through effects detected in CAMPs, or by lack of implementation. Again, extrapolation from CAMPs to the larger Project Area is a problem. Significant degradation of habitat and fish populations may occur outside of CAMPs, yet not be detected. Detection of environmental impacts using habitat or population surveys is already difficult enough without the problem of extrapolation.

-6-

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E2-21	647
E2-22	648
E2-23	634
E2-24	649
E2-25	676
E2-26	671

Letter E2

E2-27 *Timely reaction to trigger pulls.* When a trigger is pulled, there are a lot of filters the adaptive management process must pass through before something on the ground is done to remedy the situation (see NFHCP Page 8-8). This delay could take over 7 years (NFHCP Page 8-16). While it is important to be rigorous in making decisions, the cost of inaction should also be carefully considered. There may be some situations that have relatively low cost of action, but immediate benefit to a pressing threat (e.g., removal of recently invading nonnatives). In some cases, if changes in management practices are not implemented immediately, the long term costs can increase dramatically ("a stitch in time…"). This works both ways for the resource and business goals. In some situations, the cost of inaction is lower because the immediate threat is lower. Some clarification of the cost of delayed vs. immediate action is needed.

E2-28 The current adaptive management cycle is "reactive" in the sense that nothing is done to correct a potential problem until a lengthy evaluation is completed. A perhaps more proactive alternative would be to temporarily halt timber harvest, grazing, etc. (adopt a very protective and precautionary strategy) until a reasonable alternative is identified. This avoids further and potentially irreversible degradation while the adaptive cycle is implemented. This is particularly relevant if time lags in responses are important. Again this may be a good business decision as well (e.g., take the short-term precautionary measure to avoid a more larger and uncertain long-term cost).

E2-29 *Range Management Commitments , NFHCP Section 4.* The approach is to have grazing permittees "self monitor" their allotments. This approach has the potential for a conflict of interest, and relies to a large extent on relatively subjective and potentially unrepeatable field measurements. Periodic validation would be helpful to provide some measure of quality control and assurance. Detailed quantitative measurements of habitat conditions made by an independent party could be compared to assessments using the established protocol. If the two differ substantially, revision of the protocol will be needed. This would be the "adaptive" approach to monitoring (an important part of adaptive management).

E2-30 Use of grazing exclosures in strategic locations is a good idea. However, locating exclosures only in streams <6% gradient ignores upstream influences. While fish may be found only in larger, lower gradient streams, it is obvious that impacts from grazing influences can originate far upstream. A more experimental approach to use of grazing exclosures would be to learn more about how and why exclosures may or may not work. This keeps with the philosophy of experimental management advocated in other parts of the plan.

E2-31 *4) Recovery.* Currently, the Services are preparing recovery action plans for bull trout. How do bull trout populations and habitats on Plum Creek Timber Company lands fit into the bigger picture of recovery? This was not clearly spelled out in the NFHCP, so I assume this will be coordinated with the Services as the recovery process evolves. Some mention of this issue would be worthwhile.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E2-27	677
E2-28	678
E2-29	764
E2-30	753
E2-31	246

Letter E2

E2-32 *5) Miscellaneous.* In Chapter 5 of the EIS, it is stated that a reduction of only 1° F is expected on average in response to improved habitat conditions. This seems like a relatively minor change. I take this to mean that the best stream temperature models predict a low potential for cooling, given possible management options to reduce temperature.

E2-33 *Temperature MWAT.* Use of mean weekly average temperature dates back almost 30 years to the National Academy of Science review of water quality standards for the U.S. Environmental Protection Agency. I suggest using more up-to-date metrics that are more likely to be linked to biological responses. Use of several criteria, including a daily maximum temperature, weekly maxima, and time of exposure to critical temperatures would seem more realistic, in the biological sense. Revision of regional temperature criteria is currently being supported by the U.S. Environmental Protection Agency, and better advice on appropriate criteria should be available within two years.

E2-34 The before/after design to detect effects of management activities on temperatures is not the most rigorous approach. With only one year of "before" data, you may have relatively low statistical power for comparisons with "after" data. It would be difficult to statistically reject the hypothesis of no impact, when in fact a biologically relevant (but not statistically significant) impact may have occurred. One remedy would be increased replication of experimental units to overcome the shortage of "before impact" data.

E2-35 Some specific clarification regarding biologically significant effects, sample size, and statistical "significance" (Johnson 1999) should be included in the NFHCP. Sometimes a biologically significant effect is realized *without* statistical significance. Levels of biological significance need to be spelled out in addition to statistical significance.

>>>

E2-36 It would be appropriate to combine the best options for Native Fish Habitat Conservation listed in the three Alternatives, excluding the No Action Alternative, and call it the ProFish Conservation Alternative.

E2-37 The document appears to provide an excellent forum for the formation of creative partnerships, but how this will be evaluated and measured is less clear.

E2-38 The USFWS needs to establish some milestones for its and other agencies' involvement as the implementation phase moves forward, to ensure follow-through with the commitments made by Plum Creek Timber Company.

E2-39 The audit process is a good approach in the NFHCP, but again follow-through by Plum Creek Tiber Company and the USFWS is critical to the NFHCP's success in truly providing conservation for native fish. This section needs to be expanded by defining the specific protocols

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E2-32	573
E2-33	713
E2-34	714
E2-35	650
E2-36	180
E2-37	11
E2-38	305
E2-39	300

Letter E2

E2-39 for selecting the auditors and the audit process itself. Possibly the USFWS should have a role in the selection of auditors and an active oversight role in audit process and reporting.

E2-40 The use of the temperature metric Maximum Weekly Average Temperature (MWAT) does not adequately represent the impact of maximum temperatures on the aquatic community. Temperature metrics such as Maximum Daily Maximum Temperature (MDMT) or Maximum Weekly Maximum Temperature (MWMT) have been identified in the literature as being more biologically relevant in identifying the actual thermal load and stress on fish. The literature in support of this is cited in a recent U.S. Environmental Protection Agency - Region 10 peer review of the State of Idaho's proposal to replace the federally promulgated temperature criteria of 10° C for bull trout spawning and juvenile rearing waters. The State of Idaho proposed a temperature criteria of 12° C Maximum Daily Average Temperature (MDAT), which equates to 13.3° C MWMT, and could result in a 16° C MWMT.

>>>

E2-41 Tier 1 and Tier 2 lands are "locked in" in terms of their designation for the life of the proposed permit, which is 30 years. All streams that are Tier 1 should remain that way but there should be an opportunity for lands to convert to Tier 1 as additional surveys are conducted. This issue should be revisited every 5 years (about the generation length of a bull trout).

E2-42 The adaptive management approach must have some mechanism for incorporating information which shows changes in bull trout populations. For example, if surveys show bull trout in a Tier 1 stream decline in abundance by 90% in 10 years, there should be a mechanism for this information to cause change in the management prescriptions.

E2-43 Water yield must be addressed. Of particular concern is the possibility that flood events will cause much more channel erosion in drainages with intensive clearcutting than in drainages with little or no harvest. These effects will be more profound in unstable streams that have already been compromised in terms of form and function. Therefore, we suggest that Plum Creek Timber Company develop and implement a quantitative scoring technique for assessing the stability of stream channels, or use an existing scheme such as USDI (1998). All Tier 1 streams would be ranked with this or some other method, and if a stream ranks low, then Plum Creek Timber Company would commit to less intensive management in that drainage until the score improves. Exactly what form this less intensive management would take is uncertain, but it could prohibit clear-cutting or place a ceiling on the percent of the drainage that can be cut.

>>>

E2-44 Overall, I felt that this is an exceptional HCP in its design. Compared to others I have viewed, it is one which I felt had the best landscape description and even provided foresight into specific landscape applications. Keep in mind that designing HCPs is experimental in nature. Planning is

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E2-40	713
E2-41	526, 527
E2-42	672
E2-43	254
E2-44	1

Letter E2

E2-44 being done at the landscape level, yet we do not know a lot about these animals on the community and population level.

General Comments:

E2-45 *Were the effects on the four features (Cold, Connected, Complex, Clean) adequately analyzed?* The issues eliminated from further analysis (Page 4-63) are appropriate. The analysis of potential effects on these four features was somewhat generic but satisfactory. This is understandable given the lack of long-term pre-existing information. Where there is uncertainty about effects, I believe the implementation and monitoring system will improve understanding of possible effects. For example, although the effectiveness of Best Management Practices concerning road-related sediment sources is unknown, recognition of Clean Water Act concerns (Page 4-153) should ensure a system that strives to minimize effects.

E2-46 *Is it reasonable to expect a trend in habitat conditions that documents improving conditions?* It is reasonable, but there will be several elements of the monitoring design that need to be addressed, such as developing an understanding of the relative contribution from past management activities. For example, large cobble/boulder-dominant channels tend to be more resilient in character than alluvial type, meandering channels that depend on LWD for complexity. That is, boulder-dominant, higher gradient channels may not be sensitive to LWD inputs.

E2-47 In general, only certain variables may document improving conditions. With the understanding that exploratory analysis may reveal the appropriate indicators that are sensitive to inputs, it is reasonable to expect a trend in habitat conditions that documents improving conditions. However, a thorough understanding of existing conditions is necessary to establish hypotheses regarding habitat improvement and conservation strategies.

Specific Comments:

E2-48 *Page 4-134, Forest Management Effects on Complex Habitat*
I was uncertain how the statement in the first paragraph "all merchantable stands provide potential LWD loads within the natural range of variation for Planning Area Forests" relates to the statement in the next paragraph "It is unknown how much LWD currently is in Project Area Streams, or precisely how much LWD is adequate for properly functioning aquatic conditions." The natural range of variation for the variable being evaluated should be described at larger scales, such as sub-watershed or Project Area scale, rather than stand or even reach level. Attempting to interpret whether site-specific conditions are properly functioning or not will hinder the attempt to understand complex habitats.

E2-49 *Page B-26, Technical Report 12, Section on winter conditions:* The authors should further explain the relation between colder temperatures and shade removal (in the context of loss of insulation).

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E2-45	1
E2-46	651
E2-47	652
E2-48	586
E2-49	500, 587

Letter E2

NFHCP Section 8 , Adaptive Management and Monitoring Commitments

E2-50 Probably one of the most difficult parts of a successful adaptive management plan is setting up experiments that give reliable results for decision-making. The establishment of cause-and-effect relationships between the conservation plan and the fish population is essential. In the discussion relating to "basic research" (paragraph 3 on NFHCP Page 8-3), the plan states "...these causal linkages *may* (reviewer's emphasis) eventually be used in the adaptive management process". This rightly states that there is uncertainty about the value of information that can be derived from cause-effect studies using current fish and fish habitat mensuration techniques. NFHCP Page AM-1-2 (Appendix AM-1) adequately recognizes the complexity of monitoring causal linkages and rectifies that by applying monitoring to a subset of the Project Area.

NFHCP Appendix AM-1, Four Core Adaptive Management Projects, Conceptual Designs

E2-51 The discussion on biological relevance in the "Use of CAMP Results in Changing Management" (NFHCP Page AM-1-18) seems to lack the acknowledgment of uncertainties. The terms "functional habitat," "threshold," and "viable fish populations" will essentially be used to gauge current conditions. These terms are not explicit. Establishing baseline conditions via 5 years of evaluating the lower gradient habitats may not provide understanding of the potential range of conditions on which adaptive management decision-making depends.

E2-52 In determining trigger mechanisms (NFHCP Pages AM-1-18 to AM-1-22), the question proposed by Plum Creek Timber Company is, "Is there statistical significance ....?" Significance testing may not be the most appropriate testing vehicle given the dynamics and resiliency of watersheds. Correlations between habitat variables and fish production are being refined in research, building on the last few decades of work throughout the coastal Pacific Northwest and Interior Columbia Basin. Cause-and-effect studies have provided some insight into what affects fish productivity, but due to the many factors that contribute to fish production, it has been extremely difficult to relate to specific management practices. Evaluation of effect size or related approaches to data analysis may prove more meaningful in concluding biological relevance. It may be necessary to apply exploratory monitoring efforts to build confidence in defining reach-specific or watershed-specific "baseline conditions," "viable populations," and "functional habitats."

>>>

We trust these comments will be useful in your efforts to restore and conserve the native salmonid fishes of Montana, Idaho, and Washington.

K. A. Hashagen, President
Western Division, AFS

-11-

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E2-50	653
E2-51	650
E2-52	690

Letter E2

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Copy:

U.S. Department of Commerce
National Marine Fisheries Service
520 South Albury Street, Suite 2
Moscow, Idaho 83843

References:

Johnson, D. H. 1999. The insignificance of significance testing. Journal of Wildlife Management 63:763-772.

Kershner, J. J. 1997. Monitoring and adaptive management. Pages 116-134 *in* J. E. Williams, M. P. Dombeck, editors. Watershed restoration: principles and practices. American Fisheries Society, Bethesda, MD.

USDI. 1998. User Guide for Assessing Proper Functioning Condition and Supporting Science for Lotic Areas. Technical Report 1737-15.

Walters, C. 1997. Challenges in adaptive management of riparian and coastal ecosystems. Conservation Ecology [online] 1(2): 1 URL: http://www.consecol.org/v11/iss2/art1

Letter E3

EASTERN OREGON AGRICULTURAL RESEARCH CENTER
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9 March, 2000

USDI Fish and Wildlife Service
Snake River Basin Office
Columbia River Basin Ecoregion
1387 South Vinnell Way, Room 368
Boise, Idaho 83709

To Whom It May Concern:

I am current chair of the Wildlife Habitat Committee within the Society for Range Management and have been asked to provide comments on the white paper entitled "Grazing Best Management Practices, Plum Creek Timber Company." Enclosed please find my comments.

If you have any questions regarding these comments please feel free to contact me at any time.

Sincerely,

Chad S. Boyd

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter E3

These comments apply to the "white paper" entitled "Grazing Best Management Practices Plum Creek Timber Company"

Specific Comments

E3-1 * Page 2. You need to come up with a criteria for judging which soils have been affected by livestock (i.e. displacement/compaction). A photo guide would probably serve well here.

E3-2 * Page 2. Where did you get your stubble height information? Can you defend the 8 inch height with data? Stubble height should be considered in conjunction with pull-off date. For instance, if the 8 inch cut-off is reached in the early growing season, then herbaceous vegetation may re-grow prior to high water the following spring. If that cut-off were reached in the late growing season, re-growth prior to the following spring may be minimal.

E3-3 * Page 2. Where did you get you figures (i.e. 25%) for willow utilization? Season of use may also play a factor here as described above for herbaceous vegetation.

E3-4 * Page 3. Under the "Shrub Regeneration" heading you use the words "where they can exist." How do you know where shrubs should or should not exist?

E3-5 * Page 3. Under the "Weeds" heading, how do you define the difference between a weed and a forb? Native vs. non-native?

E3-6 * Page 4. Under the "Environmental Concerns" section, who defines what the "environmental weak links" are and what criteria do they follow to do so?

E3-7 * Page 4. Under "Monitoring Plans," what is the basis for establishing monitoring locations? Do you want to look at an "average" set of conditions across a management unit, or are you trying to monitor specific areas that have high potential for degradation due to livestock use? Both?

E3-8 * Page 5. I know moving salt has long been used as a tool to affect cattle distribution. However, there is experimental evidence (using radio-collared cattle) that salt placement has little affect on cattle distribution. This same study showed that changing the location of watering points has a much greater impact. I suggest you emphasize development of mobile watering devices for improving cattle distribution.

E3-9 * Page 6. Under "Season of Use" I strongly recommend that you give consideration to decreasing duration of use, or put in place fencing (permanent or temporary) that allows managers to shift cattle use from sections of the stream which are being overutilized.

E3-10 * Page 6. Under "Riding", here again temporary fencing could be a viable alternative.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E3-1	765
E3-2	728
E3-3	729
E3-4	730
E3-5	731
E3-6	766
E3-7	767
E3-8	732
E3-9	733
E3-10	734

Letter E3

E3-11 * Page 7. Under "Upland Wildlife Considerations", you mention that shrubs are important to a variety of wildlife species and that decreasing shrub availability should be avoided. What if these shrub communities are the product of overutilization by grazing livestock to begin with? Could periodic overgrazing be used as a tool to maintain shrub abundance.

E3-12 * Page 7. Under "Vegetation Rehabilitation", here again shrubs can impart benefits to plant community stability, but they shouldn't necessarily occur throughout the length of a stream. The "upland equivalent" of this generalization would be to say that planting sagebrush is effective in restoring upland plant communities. That's true in some upland plant communities, not true for others.

E3-13 * Monitoring Form: What are your goals here? Do you want to monitor ecological structure and function? If so, your approach is inappropriate. What does it matter if someone would not drink a glass of water from a stream? Another person might not have any problem drinking water from the same stream. What does it matter if you see a cow pie in the stream? What are the ecological implications of this finding? What if the water is too murky to see the cow pie? My bottom line is figure out what ecological properties matter within the context of stream integrity and your monitoring objectives and measure them. If you want to know if the water is murky than take water samples and quantify sediment loading.

E3-14 What would be wrong with using a proper functioning condition protocol here? The PFC methodology is widely accepted, widely used, not overly technical, and provides (in my opinion) as good a practical measure of "stream health" as anyone has been able to come up with.

General Comments

E3-15 * Season long use can be and usually is problematic when grazing riparian areas. I strongly suggest that you look into non-permanent fencing. Electric wire/tape with solar-powered chargers is a good way to keep cows out of certain areas and/or reserve portions of the stream for late growing season use.

E3-16 * In allotments were permanent pasture fences are in place, graze the pastures in a different order each year. This would allow for resting vegetation at different phenological stages across years.

E3-17 * I think your overall management effort would benefit substantially from a community level study of site factors which influence vegetation composition. A good example here is woody vegetation. Presence of a healthy woody component is often equated with overall stream health. That's not necessarily the case. Woody plants, and other community types, tend to be found within a particular range of environmental conditions (e.g. soil moisture regime, soil particle size, stream trough shape, gravelly soil...). Without knowing the environmental conditions needed to sustain a given plant

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E3-11	735
E3-12	736
E3-13	768
E3-14	769
E3-15	737
E3-16	414, 738
E3-17	739

Letter E3

E3-17 community type, it's difficult to assess what plant community type you would logically expect to find at a given point along a given stream.

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter E4

March 16, 2000

TO: Ted Koch
US Fish & Wildlife Service
1387 S. Vinnell Way, #368
Boise, ID 83709

Bob Ries
National Marine Fisheries Service
1387 S. Vinnell Way, #377
Boise, ID 83709

FR: Daniel Hall
Director, Forest Biodiversity Program
American Lands

RE: Proposed ESA Incidental Take Permit, Draft HCP, Draft IA, and Draft EIS for Plum Creek Timber Company Lands in Montana, Idaho, and Washington

Enclosed, please find our comments on the Plum Creek Timber Company's proposed Endangered Species Act (ESA) Incidental Take Permit (ITP), Draft Habitat Conservation Plan (HCP), Draft Implementation Agreement (IA), and Draft Environmental Impact Statement (DEIS) for Plum Creek lands in Montana, Idaho, and Washington, as announced in the December 17, 1999, Federal Register (64 FR 242).

American Lands is governed by and represents citizens from across the United States who seek to protect and restore our forests, watersheds, and biotic resources for the benefit of future generations. American Lands' Forest Biodiversity Program is dedicated to promoting improved biodiversity conservation and resource management on non-federal forestlands in the west, including through incentives and more effective policy implementation.

We appreciate the opportunity to comment on these documents and the proposed action, and would appreciate receiving copies of the biological opinions and other decision documents associated with this proposal. Our comments are as follows.

E4-1 Parenthetically, we wish to note that the HCP documents' organization make it difficult to distinguish between the HCP, DEIS, and IA, each of which serve unique functions. The HCP should also distinguish more clearly between the specific conservation measures which Plum Creek has agreed to implement, and the supporting discussion.

American Lands ALLIANCE

Jim Jontz,
Executive Director

Daniel Hall,
Director, Forest
Biodiversity Program

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5825 North Greeley Ave.
Portland, OR 97217

www.americanlands.org

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-1	20

Letter E4

Our failure to explicitly endorse various conservation measures or analyses in the HCP, IA, and/or DEIS should also not be taken as support for removing or weakening these provisions. Rather, these oversights are a reflection of the time required to evaluate the HCP and other documents, and competing demands on our time from other pending HCPs and federal decisions of interest. The HCP, IA, and DEIS already suffer from fundamental flaws, and reductions in the HCP's conservation measures or simplification of the HCP and DEIS' analyses are likely to further impact the survival and recovery of the covered species and other imperiled species in the region.

I. Why Issuance of the Take Permit is Inappropriate and/or Premature

E4-2 At the outset, we wish to note that we are opposed to the practice of issuing widespread permits to "take" -- i.e., harm, kill, destroy -- endangered species and their habitats across large tracts of land. Issuance of ITPs like Plum Creek's is particularly objectionable as: 1) these same timber companies share much of the responsibility for fish and wildlife species' imperiled status, and, 2) the companies' mitigation plans for the ITPs (i.e., their HCPs) fail to provide meaningful and adequate mitigation for most species. [See American Lands (1998), Hall (1997), Kareiva et al (1999), and other assessments listed in Section VII-D of our comments.]

E4-3 As indicated in the Federal Register notice for the HCP regulations of the US Fish & Wildlife Service (USFWS), ITPs/HCPs should only be used in "limited circumstances." [Federal Register 50;189, September 9, 1985.] Instead of issuing widespread ITPs, we recommend that the USFWS and National Marine Fisheries Service (NMFS) (collectively the Services) promote various alternatives to ITPs, including those summarized in Section IV-A of our comments.

E4-4 We are particularly disturbed by and opposed to the "No Surprises" guarantees being given to timber companies, developers, and others in conjunction with their ITPs. While we actively support and promote incentives for non-federal landowners to restore habitats and fish and wildlife populations above and beyond levels otherwise required by law, "No Surprises" type assurances are mostly just encouraging Plum Creek and other wood products companies to lock-in HCPs which largely permit the same forest practices that are driving fish and wildlife species extinct. These HCPs do, in some cases, provide mitigation measures which represent incremental improvements over scenarios in which these species are not protected. However, these measures are usually woefully inadequate. The overall effect of these plans is to provide the landowners with open-ended, landscape-level exemptions from the ESA and from the landowners' responsibility to contribute towards restoring habitats they are degrading. Moreover, the proper point of comparison for HCPs is not scenarios in which Threatened and Endangered species are not protected, but rather, scenarios in which protection measures are defined and enforced, as required by the ESA.

E4-5 We also question whether NMFS has the authority to issue ITPs for coastal cutthroat trout (including the SW Washington/Columbia ESU), chinook salmon (Upper Columbia River Summer/Fall ESU, and Mid-Columbia Spring ESU), coho salmon (Lower Columbia/SW Washington ESU), steelhead trout (Snake River ESU, Mid-Columbia ESU, and Lower Columbia ESU), chinook salmon (Lower Columbia ESU), and chum salmon (Columbia ESU), given that:

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-2	1
E4-3	21
E4-4	355, 361, 611, 701
E4-5	22

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E4-5 1) these threatened and as-yet-unlisted species are not covered under 50 CFR 227.21(b); 2) ESA section 4(d) rules have not been written authorizing ITPs for these species; and 3) the Federal Register notice for NMFS' rules governing ITPs and HCPs states, in effect, that "take" permits are not generically authorized for threatened salmon species, and that ESA 4(d) rules must be written to provide such authority (see Federal Register 55;97, May 18, 1990). To date, such rules have not been finalized.

E4-6 Likewise, as discussed in detail in Section II-H-iii of our comments, the proposed decision to issue an ITP for unlisted species is inappropriate and potentially quite harmful to the species' chances of survival and recovery. While we certainly support the adoption of conservation measures that will further the conservation of unlisted species, the adequacy of an HCP's approach to conserving previously unlisted species must be re-examined at the time those species are listed. Previously unlisted species should not be automatically added to ITPs.

The unlisted species proposed to be officially covered by the HCP and ITP are: redband trout, coastal rainbow trout, mountain whitefish, pygmy whitefish, westslope cutthroat trout, coastal cutthroat trout (including the SW Washington/Columbia ESU), chinook salmon (Upper Columbia River Summer/Fall ESU, and Mid-Columbia Spring ESU), and coho salmon (Lower Columbia/SW Washington ESU).

(The listed species proposed to be covered by the HCP and ITP are: bull trout (Columbia River DPS), steelhead trout (Snake River ESU, Mid-Columbia ESU, and Lower Columbia ESU), chinook salmon (Snake Spring/Summer ESU, Snake Fall ESU, Lower Columbia ESU), chum salmon (Columbia ESU). Together with the unlisted species, these are the "covered species.")

E4-7 As discussed further in Sections II and III our comments, issuance of Plum Creek's proposed HCP and ITP would be inappropriate because of their impacts on the covered species, including significant reductions of the species' chances of survival and/or recovery over time, as well as significant adverse impacts on the listed covered species' critical habitats. Moreover, the HCP, IA, ITP, and DEIS fail to meet basic legal and scientific standards for these plans, assessments, and permits, as discussed throughout our comments. Therefore we object to issuance of the ITP.

E4-8 The IA states that the HCP and ITP will also cover some lands not owned by Plum Creek, including lands where Plum Creek holds logging rights, easements, cost share agreements, etc. [IA, 3.3] Given that the HCP and DEIS fail to describe these other lands, likely impacts of Plum Creek's and others activities on these lands, and other factors, we believe this is a highly inappropriate and unprecedented provision. Many of the HCP's mitigation measures will need to be implemented for many years into the future to be effective. Examples include but are not limited to remediation of problem roads, restoration of riparian vegetation, etc. The HCP and IA fail to include measures to ensure continued implementation on other land ownerships over time.

E4-9 Moreover, the ITP should not be extended to "take" and other activities on federal lands, as "take" on such lands must be authorized by ESA section 7, rather than ESA section 10. Equally important, federal lands should be managed to much higher standards than those contemplated in

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-6	21
E4-7	23
E4-8	285
E4-9	93

Letter E4

E4-9 the draft HCP. Certainly it is "practicable" for federal lands to provide conservation measures which provide a much higher probability of recovery.

E4-10 Last, but not least, we question whether it is appropriate or even legal for the USFWS and NMFS to enter into an agreement with a company which does not hold clear, legal title to the lands in question. As has already been noted by other members of the public, much of the land to be covered by the HCP came to Plum Creek by way of illegal implementation of historical railroad land grants.

II. Policy Provisions Governing the Proposed Action; Evaluation of the HCP and Proposed Action in Relation to these Provisions

Our preceding comments notwithstanding, Plum Creek, the Services, and the HCP, IA, and DEIS must address and comply with each of the following policy provisions with regard to each of the species proposed to be covered by the ITP and HCP.

A. HCP Planning and Analysis:

i) Use of Best Available Science:

ESA section 7(a)(2) and the Act's administrative rules require agencies to use the best available science. [16 USC 1536(a)(2).]

E4-11 ***Additional Comments:***

The HCP and DEIS fail to meet this standard. The HCP and DEIS fail to include basic information, and fail to address the most relevant issues for most of the covered species, including population levels, specific habitat conditions, specific ecosystem interactions, and other factors needed for the species' recovery. The HCP also fails to compare the HCP's likely outcomes to these recovery standards. The DEIS suffers from identical flaws.

The HCP and DEIS generally fail to assess impacts of a number of activities, including: site preparation; herbicide applications; fertilizer applications; pesticide applications; intrusion of invasive exotic plants and other species as a result of intensive logging practices; intensive short-rotation clearcut forestry practices; frequent and widespread vehicle use and human disturbance; high road densities; and other sources of impacts. The HCP and DEIS fail to assess impacts both on the covered species, and on the broader forest ecosystem upon which they depend. Other impacts which are not adequately addressed are noted in Sections II-B and III of our comments, and elsewhere.

The HCP's discussion of influences on salmonid and bull trout habitat fail to account for invertebrates and other food sources, pollution from herbicides and other chemicals, impacts of herbicides and other chemicals on upslope riparian areas and thus downslope aquatic ecosystems, the impact of upslope logging and other practices on the timing and intensity of water flows, and various other factors.

The HCP generally largely lacks specific measurable and verifiable performance standards and indicators, including with regard to water temperature, sediment, chemical

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E4-10	60
E4-11	244

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pollution, invertebrates and other food sources, high and low summer and winter water flows, road densities, and other factors affecting the survival and recovery of the covered species.

At key junctures, the HCP and DEIS assume that landscape level conservation strategy and analyses structured around bull trout will be sufficient for salmonids and other native fish. The HCP's core land classification scheme, for example, is narrowly structured around bull trout. [HCP, p. 1-9] While the various fish species' needs may often overlap, the different species and populations are also likely to have different life history needs in many cases, and may rely upon different parts of the landscape. The HCP needs to ensure the survival and recovery of all covered species, and fully mitigate impacts to all covered species, not just bull trout. These problems are discussed further in Section III-A of our comments.

E4-11

As discussed below, in Section II-A-iii of our comments, the HCP and DEIS fail to compare the ITP and HCP's impacts and benefits to accurate baseline scenarios (i.e., the "No Action" alternative).

The HCP standards listed in Section IV (which is a compilation of recommendations from various scientific assessments of HCPs and HCP policy evaluations), in Section V (which summarizes the recommendations of a nationwide independent scientific study of HCPs), and in Section VII (which includes references to a number of pertinent scientific and policy studies) should all be considered and utilized, to meet the "best available science" standard. The HCP and DEIS generally fail to meet these supplementary standards.

The independence and quality of the peer review and other aspects of at least some of the technical reports supporting the HCP and DEIS are likely to have been overstated. [HCP, p. 1-17] There appears to have been substantial variation in the type and independence of peer review utilized for the different reports.

The HCP fails to address cumulative impacts. Presumably the Services will thus be relying upon the DEIS' cumulative impacts assessments. As discussed in Section VI-A of our comments, the DEIS' assessments are grossly inadequate.

The NMFS regulations state that HCPs must describe the status, distribution, seasonal distribution, habitat needs, feeding habitat, and other biological requirements of affected species or stocks. [50 CFR 222.22(b)(3).]

E4-12

Additional Comments:

The HCP and DEIS do not consistently meet these standards. Specific quantitative and qualitative information is not provided for most of these parameters for most of the covered species.

The Services' HCP Handbook also begins to recognize the importance of surveys, noting that even "low effect" HCPs should be based upon surveys. [USFWS et al (1996), p. 3-12.]

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E4-12	199

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ii) Identification of Biological Goals for the Species:

The HCP must also meet, with regard to each of the listed and unlisted species proposed to be covered by the ITP and HCP, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64;45, March 9, 1999.] As discussed below under Sections II-B, C, D, and E of our comments, the following biological goals must correspond to full mitigation of impacts to the species, minimization and mitigation of impacts to the maximum extent practicable, and species' recovery needs, and other basic impact minimization and mitigation standards.

"In the future, every HCP will include specific biological goals and objectives...." "The biological outcome of the operating conservation program for the covered species is the best measure of the success of an HCP." "Specific biological objectives are subsets of the biological goals and represent specific measurable targets for achieving the goals of the operating conservation program."

Additional Comments:

The HCP must provide concrete goals for each of the covered species. The HCP's conservation measures then need to be designed to meet these goals.

The HCP's biological goals and objectives are laudable, as far as they go, but are extremely vague, non-specific to different species and their specific habitat needs and variables, impossible to verify, and thus grossly inadequate and are unenforceable. [HCP, p. 1-7]

E4-13

The HCP wholly lacks any goals and objectives which clearly correspond to specific, measurable and verifiable conditions that correspond to the recovery of each of the covered species.

The HCP fails to include specific measurable outcomes and targets, in terms of populations, reproduction, specific habitat components, specific impact levels which will be considered tolerable, etc., for most covered species.

Quantitative measures and indicators are wholly lacking. The goals are simply phrased in terms of "minimizing" and "improving." In other words, these goals encompass an immense range of conditions -- some of which correspond to the covered species survival and recovery, and some of which would utterly fail to protect and recover the covered species.

"Although the goals and objectives may be stated in habitat terms, each covered species that falls under that goal or objective must be clearly specified."

Additional Comments:

E4-14

As discussed above, the HCP fails to provide adequate goals and objectives for most covered species, in habitat terms or otherwise. What habitat goals do exist do not clearly correspond to the covered species' recovery. The HCP fails to support the claim that the plan's habitat goals will result in the species survival, much less their recovery. These problems are discussed further in Sections II-D and VI-A of our comments.

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See Response to Comment Table or click on link provided below.

Comment	Response
E4-13	335
E4-14	335

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"The biological goals and objectives should be commensurate with the specific impacts and duration of the HCP applicant's proposed action."

E4-15

Additional Comments:

The HCP fails to include specific goals and objectives for most covered species, much less commensurate goals and objectives.

"Available literature, State conservation strategies, candidate conservation plans, draft or final recovery plans or outlines, and other sources of relevant scientific and commercial information can serve as guides in setting biological goals and objectives. Species experts, State wildlife agencies, recovery teams, and/or scientific advisory committees may also help develop the biological goals and objectives."

E4-16

Additional Comments:

The HCP and DEIS fail to consistently discuss how the HCP and ITP and their resulting habitat conditions, population levels, and other outcomes will relate to the biological goals and standards proposed by such literature and experts.

The Services' HCP Handbook states that: i) "habitat based" HCPs should use indicator species to establish forest management parameters, and ii) all endemic, sensitive, listed, proposed listed, candidate, and species of special concern should be addressed "adequately." [USFWS et al (1996), pp. 3-12, -37]

E4-17

Additional Comments:

The HCP and DEIS fail on both counts.

The HCP and DEIS also fail to provide adequate quantitative analyses or other analyses of how impacts to most of the covered species will affect the species' chances of survival and recovery.

The HCP and DEIS also fail to adequately identify, assess impacts to, and provide mitigation measures for all species and ecological communities of concern. Species and ecological communities which are likely to be impacted by Plum Creek's operations yet which are inadequately addressed are noted in Sections III-A, B, & C and VI-A of our comments.

Other species of concern which should be addressed by the HCP and DEIS, and which are likely to be impacted by the HCP and ITP, as discussed in Section III of our comments, are listed in Section VIII, Tables 2, 3, 5, and 6 of our comments.

Sierra Club et al v. Bruce Babbitt et al found that current data on species' conditions and recovery needs must be used; goals included in recovery plans are not sufficient if conditions have changed since those plans were written. [Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

E4-17a

Additional Comments:

The HCP and DEIS fail to meet these requirements. The HCP and DEIS generally fail to identify species population levels and habitat conditions that would

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See Response to Comment Table or click on link provided below.

Comment	Response
E4-15	373, 375, 377
E4-16	335
E4-17	208
E4-17a	336

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E4-17a correspond to genuine recovery across the species' ranges, and fail provide concrete quantitative assessments of how the populations and habitat conditions stemming from the ITP and HCP will compare to these recovery standards.

iii) Impact Assessment:

The NMFS regulations state that HCPs must describe the proposed activity, including the anticipated dates, duration, and specific locations. [50 CFR 222.22(b)(4).]

E4-18 ***Additional Comments:***

The HCP and DEIS fail to provide more than an extremely cursory description of the types of logging and other land management operations that will occur under the ITP.

The HCP and DEIS fail to quantify and identify the location of "take" that will occur pursuant to the ITP.

Other relevant flaws in the HCP and DEIS are discussed throughout our comments.

The NMFS regulations state that HCPs must describe the ITP/HCP's anticipated impacts, including the amount, extent, and type of "take," as well as the anticipated impact on habitats and the likelihood of habitat restoration. [50 CFR 222.22(b)(5)(i) & (ii).]

E4-19 ***Additional Comments:***

The HCP and DEIS fail to meet these standards.

The HCP and DEIS fail to identify the intensity and duration of "take" and the resulting impacts, including impacts as measured both before and after consideration of the HCP's impact minimization measures.

The HCP's discussion of influences on salmonid and bull trout habitat fail to account for invertebrates and other food sources, pollution from herbicides and other chemicals, impacts of herbicides and other chemicals on upslope riparian areas and thus downslope aquatic ecosystems, the impact of upslope logging and other practices on the timing and intensity of water flows, and various other factors.

A number of sources of impacts which receive only cursory mention, at best, are listed below in Sections II-B and elsewhere in our comments. The HCP and DEIS fail to provide any meaningful mitigation measures for these impacts. Other information and analyses which are missing from the HCP and DEIS are noted above in Section A-i of our comments, in Section III-A, and elsewhere.

Sierra Club et al v. Bruce Babbitt et al recently found that HCPs need to determine how many individuals of affected species will be "taken," how many individuals will remain, what the distribution of the species is throughout its remaining habitat, and how this relates to the species' minimum viable population. [Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

Responses

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E4-18	227
E4-19	350

Letter E4

Additional Comments:

The HCP and DEIS fail to provide any such information for all of the covered species.

The HCP and DEIS fail to identify species-specific impacts to the covered species from all permitted operations, including land management and development activities which are not currently planned or conducted by Plum Creek, but which would be permitted by the ITP. Types of operations and development which are known to impact the covered species are noted below, including in Section III.

Likewise, the HCP and DEIS fail to identify accurate baseline trends (i.e., the "No Action" alternative) which consider the likelihood that the various covered yet-unlisted would be listed in the near future, with various habitat protection measures being required *in lieu* of the HCP. Likewise, the HCP and DEIS' baseline assumptions fail to account for significant increases in protection and restoration measures that are and will continue to be required for the listed salmonids and bull trout *in lieu* of the HCP.

E4-20

Without accurate baseline trends it is impossible to determine whether the plan provides a net benefit -- or even adequate mitigation -- to the covered species over time. While the exact parameters of these improved measures may not yet be known, it would be quite simple for the HCP and DEIS to identify the likely range of enhanced policy standards that will be adopted by the USFWS, NMFS, the Washington Department of Natural Resources, and other relevant agencies.

In the case of salmonids and bull trout in Western Washington, baseline assumptions should, at a minimum, include the NMFS "no take" prescriptions outlined in Table 2, in Section III-A of our comments. However, the prescriptions outlined in Pollock et al (1998) and the Northwest Forest Plan are those which would actually provide a sufficient chance of avoiding "take." More accurate baseline scenarios also need to be identified for salmonids and bull trout in the inland portions of the permit area.

Equally important, for all of the covered species, the HCP and DEIS fail to identify, describe, and/or quantify the "residual" impacts that the covered species will experience -- including in relation to their survival and recovery needs -- *after* the HCP's impact minimization and mitigation measures have been accounted for.

Effects on proposed listed species, federally listed plants, and critical habitat are to be considered during the ESA s. 7 consultation process. [USFWS et al (1996), p. 6-15, and 16 USC 1536(a)(2).]

Additional Comments:

E4-21

As discussed throughout our comments, the HCP and DEIS fail to adequately consider these effects. Thus the HCP and DEIS provide an inadequate informational and analytical foundation for consultation. Consultation will need to establish and consider additional information and analyses.

The DEIS indicates that there are no plants in the plan area listed as Endangered or Candidate species, but that there may be three Threatened plant species. [DEIS, p. 4-46] The DEIS does not explain how these conclusions were reached. There is no evidence that thorough surveys for imperiled plants were conducted in the plan area. Consequently, it is entirely likely that other plant species will be negatively impacted.

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See Response to Comment Table or click on link provided below.

Comment	Response
E4-20	234
E4-21	24

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ESA s 7 requires consideration of cumulative and indirect effects. [50 CFR 402.] NEPA also requires a cumulative effects analysis.

E4-22

Additional Comments:

The HCP wholly fails to address cumulative impacts.

As discussed further in Section VI-A of our comments, the DEIS' treatment of cumulative impacts is highly inadequate.

Consequently, neither the HCP nor the DEIS provide an inadequate informational and analytical foundation for consultation. Consultation will need to establish and consider additional information and analyses.

Information which should be considered by the Services during cumulative impacts analyses is also provided in Section VI-A of our comments.

These and other problems with the HCP and DEIS' cumulative impacts analyses are discussed further in Section II-A-i of our comments and in Section VI-A.

According to the HCP Handbook, the Services may not be able to approve an ITP under ESA s. 7(a)(2) unless the HCP addresses *all listed species* in the plan area. [USFWS et al (1996), p. 3-7] Presumably this includes federally listed plants, which must be considered during the ESA s. 7 consultation process.

E4-23

Additional Comments:

The HCP fails to meet these standards.

The HCP fails to address any and all terrestrial species, other aquatic and riparian species besides the covered fish, etc.

It is entirely possible that other listed species will be impacted by the ITP and HCP, given that field surveys were not conducted for such species. The HCP and DEIS need to address these possible impacts.

Species likely to be affected by activities permitted by the ITP are listed in Sections III-A, B, & C of our comments and in the DEIS.

These standards highlights the importance of species surveys, and suggests the utility of contacting local biologists and persons who know the property to get a sense of what may actually be on site.

B. Impacts Must be Fully Mitigated:

ESA s. 7(a)(2) prohibits federal agencies from approving actions which would destroy or "adversely modify" species' critical habitat areas.

E4-24

Additional Comments:

The logging, site preparation, roading, chemical applications, other operations permitted by the ITP are likely to adversely modify and seriously impact critical habitat for most of the covered listed species.

As discussed further in Section III-A, B, & C of our comments, the HCP and DEIS also fail to provide adequate mitigation for impacts to key aquatic habitat variables

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See Response to Comment Table or click on link provided below.

Comment	Response
E4-22	230
E4-23	221
E4-24	25

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including temperature, invertebrates and other food sources, and the timing and intensity of water flows. Likewise, the HCP and DEIS fail to provide adequate and specific mitigation measures for pollution from herbicides and other chemicals, impacts of herbicides and other chemicals on upslope riparian areas and thus downslope aquatic ecosystems, and the impacts of upslope logging and other practices.

The final critical habitat designation for chinook salmon (Puget Sound, Lower-Columbia, Upper Willamette, Upper Columbia Spring run, CA Central Valley Spring run, CA Coastal ESUs), chum salmon (Hood Canal Summer run, Columbia River ESUs), sockeye salmon (Ozette Lake ESU), and steelhead trout (S. CA, S-Central CA coast, Central CA coast, CA Central Valley, Upper Columbia, Snake River Basin, Lower Columbia, Upper Willamette, Mid-Columbia ESUs) includes: "all river reaches accessible to listed salmon or steelhead within the range of the ESUs listed, except for reaches on Indian lands. Critical habitat consists of the water, substrate, and adjacent riparian zone of estuarine and river reaches...." The Federal Register notice indicates that non-federal forestry activities are among those which may affect critical habitat. The notice further indicates that essential habitat for the listed species includes: "(1) juvenile rearing areas; (2) juvenile migration corridors; (3) areas for growth and development to adulthood; (4) adult migration corridors; (5) water velocity; (6) cover/shelter; (7) food; (8) riparian vegetation; (9) space; and (10) safe passage conditions." The notice further indicates that summaries of the environmental parameters and freshwater conditions that harm the listed species are included in Brown & Moyle (1991), Nehlsen et al (1991), Higgins et al (1992), Botkin et al (1995), and Spence et al (1996). The notice further indicates that the adjacent riparian area for the salmon and steelhead species is the "area adjacent to a stream that provides the following functions: shade, sediment transport, nutrient or chemical regulation, streambank stability, and input of large woody debris or organic matter" The notice further indicates that "habitat quality in this range is intrinsically related to the quality of riparian and upland areas and of inaccessible headwater or intermittent streams which provide key habitat elements (e.g., large woody debris, gravel, water quality) crucial for salmon and steelhead in downstream reaches." The notice further indicates that "streams and stream functioning are inextricably linked to adjacent riparian and upland (or upslope) areas..." and that the riparian zone "stores sediment, recycles nutrients and chemicals, mediates stream hydraulics, and controls microclimate...," and that "healthy riparian zones help ensure water quality essential to salmonids as well as the forage species they depend on." The notice further indicates that "human activities in the adjacent riparian zone, or in upslope areas, can harm stream function and can harm salmonids...," and that "timber harvest, road building, grazing, cultivation, and other activities can increase sediment, destabilize banks, reduce organic litter and woody debris, increase water temperatures, simplify stream channels, and increase peak flows leading to scouring." The notice further reaffirmed that available regulatory mechanisms are inadequate and that regulated activities continue to pose a potential threat to the species' existence. [65 Federal Register 32, February 16, 2000]

E4-24

The final critical habitat designation for chinook salmon (Snake River Spring/Summer and Snake River Fall ESUs) and sockeye salmon (Snake River ESU) identifies critical habitat as the "water, waterway bottom, and adjacent riparian zone of specified lakes and river reaches...." "Adjacent riparian zones are defined as those areas

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within a horizontal distance of 300 feet (91.4m) from the normal line of high water of a stream channel...." The Federal Register notice further indicates that "riparian zones consist of all areas where the vegetation complex and microclimate conditions are products of the combined presence and influence of perennial and/or intermittent water, associated high water tables, and soils that exhibit some wetness characteristics." [58 Federal Register 247, December 28, 1993]

Proposed critical habitat for chinook salmon (Central Valley Spring run, Central Valley Fall/late Fall run, S. OR and CA coastal, Puget Sound, Lower Columbia, Upper Willamette, Upper Columbia Spring run, and Snake River Fall ESUs) includes "...the water, substrate, and adjacent riparian zone of all accessible estuarine and riverine reaches...." Adjacent riparian zones are defined as "...areas within a slope distance of 300 ft. (91.4m) from the normal line of high water of a stream channel or adjacent off-channel habitats...." The Federal Register notice further indicates that essential features of chinook critical habitat include "...adequate: (1) substrate, (2) water quality, (3) water quantity, (4) water temperature, (5) water velocity, (6) cover/shelter, (7) food, (8) riparian vegetation, (9) space, and (10) safe passage conditions...." The notice further indicates that habitat quality is "...intrinsically related to the quality of upland areas and of inaccessible headwater or intermittent streams which provide key habitat elements (e.g., large woody debris, gravel, water quality) crucial for chum salmon in downstream reaches." The notice further indicates that logging, roading, pesticide applications, application of other chemicals, and non-point source pollution are all likely to affect critical habitat for chinook. [63 Federal Register 45, March 9, 1999]

E4-24

The proposal to designate critical habitat for chum salmon (Hood Canal Summer run, Columbia River ESUs) also stated that "adjacent riparian zones are defined as "...areas within a slope distance of 300 ft. (91.4m) from the normal line of high water of a stream channel or adjacent off-channel habitats...." [63 Federal Register 46, March 10, 1998]

As discussed in Section III-A and elsewhere in our comments, the HCP's aquatic and riparian conservation measures are likely to fall far short of those measures needed to avoid adversely modifying proposed and designated critical habitat for the aforementioned species which are covered by the HCP and ITP. Logging and other operations permitted by the ITP, including types of operations not currently conducted by Plum Creek, are, among other things, likely to adversely modify the essential features of these species' critical habitat and inextricably linked ecological functions and environs, including riparian zones and their microclimate function, food sources, upslope ecological function, headwater and intermittent streams, and peak flows.

Moreover, the HCP and DEIS fail to identify conditions and indicators for these species' critical habitat features, fail to assess impacts to most essential features of these species' critical habitat, and fail to support the conclusion that the HCP's measures will ensure that Plum Creek's various operations avoid adversely impacting these species' critical habitat.

The HCP Handbook states that mitigation should not only be based on sound biological rationale, but also be "commensurate with the impacts." [USFWS et al (1996), p. 3-19.]

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See Response to Comment Table or click on link provided below.

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Additional Comments:

The HCP and DEIS completely fail to provide impact minimization and mitigation measures for some permitted activities that are likely to have substantial impacts. These activities include logging in upslope areas across the majority of the plan area's watersheds, applying chemical herbicides and pesticides, applying chemical fertilizers, and the intrusion of exotic plants and other species as a result of intensive logging practices. These impacts and the HCP's deficiencies are discussed further in Sections III-A, B, & C of our comments.

The HCP also fails to provide any suitable mitigation measures for some additional activities permitted by the ITP, IA, and HCP. No activity-specific mitigation measures are provided for potentially intensive commercial recreation, electronic facility construction and maintenance, and operation and construction of sawmills and other forest product manufacturing facilities. [See HCP, p. 2.17] These activities and their impacts are quite different than forestry operations, and will require activity-specific mitigation measures. It is not sufficient to simply suggest that sawmills, for example, are not expected to result in pollutant discharges. [HCP, p. 2.17 et seq] If the Services genuinely expect that no "take" will result from these other activities, and Plum Creek refuses to provide activity-specific measures, then the activities should simply be excluded from the ITP.

As discussed below in our comments in Section III-B, the HCP fails to provide habitat for species which rely on old growth, late successional, and older second growth timber stands and habitats. While the HCP and DEIS fail to indicate whether these species will suffer a loss of habitat under the HCP and ITP, it is clear that Plum Creek will not be providing habitats for such species, including as may be required to meet the species' recovery needs.

E4-25

The HCP and DEIS also fail to provide conservation, restoration, and mitigation measures considered vital to the covered species' survival and recovery by various scientific studies and conservation proposals referenced in Section VII of our comments.

We support and applaud the HCP's inclusion of mitigation measures to address livestock grazing. Grazing appears to be such a predominate land use in the plan area, and is thus likely to have substantial impacts on the survival and recovery chances of the covered species. According to the HCP, grazing affects 764,560 acres of Plum Creek lands in the plan area, as well as a significant amount of streams, including in Tier 1 watersheds. [HCP, p. 4-1 et seq.]

However, the HCP's grazing measures are insufficient and are likely to fail to adequately mitigate impacts to the covered species. More specifically, these measures are largely voluntary and are not required to be fully implemented in a timely manner. Most of the measures in the proposed grazing BMPs are voluntary. [HCP, p. G-1-3 et seq] Moreover, grazing lessees are not actually required to meet the HCP's grazing performance standards, rendering the standards ineffective. Lessees must simply show "movement towards meeting" the performance standards. [HCP, p. 4-5, G-1-1 et seq.]

The HCP's proposed BMPs for grazing also fail to provide adequate mitigation for significant periods of time. Cattle and other livestock are allowed to continue impacting heavily impacted areas for a nine year period before fencing must be installed in some high priority areas. [HCP, p. 4-6] No such fencing is required in most cases.

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Grazing measures also need to be specific to the types of livestock involved. Measures designed for cattle may be completely ineffective for sheep, for example. Most of the current proposed measures appear designed principally for cattle. While it appears from the HCP that cattle are currently the predominate focus of livestock grazing in the plan area, if the ITP permits other types of livestock grazing, then the HCP also needs to address those uses.

Section III-D of our comments provides additional concerns and suggestions regarding the HCP's approach to livestock grazing.

E4-26

We also applaud the HCP's inclusion of conservation measures intended to address the conversion of forestland to other land uses, and subsequent impacts to forest ecosystems and the covered species. Forest conversion is a serious threat not only to native ecosystems and biodiversity, but also to wood production and the sustainability of natural resource economies.

Unfortunately, as currently structured, the HCP's land use measures appear far less effective than one would hope. While the HCP includes some interesting "land use principles" that purport to further conservation objectives, these principles are extremely vague. Moreover, Plum Creek expressly states in the HCP that the company will "not be held" to these principles, making them even more meaningless. [HCP, p. 5-4]

The centerpiece of the HCP's land use measures is a formula in which development-oriented land sales and projects must be offset by conservation-oriented land sales and projects. Assuming that Plum Creek intends to continue liquidating its forest holdings and converting its productive forestlands to non-forest land uses, this formula will presumably have the benefit of also encouraging conservation-oriented land transactions.

However, the HCP's land use formula is constructed such that the converse to this scenario will also be true: Plum Creek will only be able to conduct conservation-oriented land transactions and projects to the extent that offsetting development-oriented projects are also conducted. This aspect of the HCP's formula is highly inappropriate and should be corrected. The simplest approach would be to require offsetting transactions for development-oriented projects, which are by nature harmful to forest ecosystems and the covered species, but to not require offsets for conservation-oriented projects, which, in theory, should not require mitigation.

The HCP's land use formula also downplays the ecological impacts of land sales subject to conservation easements or other covenants that limit development to 1 house/40 acres. [HCP, p. 5-7] While such transactions will have the benefit of precluding more intensive development on each parcel, they can also have the effect of dispersing development across more parcels, resulting in more land being converted and affected by roads, pets, fences, invasive exotic species, conversion of forest to non-forest, and other disturbances and impacts. A truly beneficial arrangement would be to cluster development near existing developed areas and roads, and to preclude development elsewhere.

It should also be noted that the HCP has not been designed to minimize and mitigate the impacts of conversions to residential, commercial, industrial, or more intensive recreational land uses do occur. Thus it is appropriate for such land uses to continue to be excluded from the ITP. It should be understood that both Plum Creek and

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other future landowners will be responsible for avoiding "take" or developing HCPs and ITPs specific to their properties and proposed land uses.

Additional deficiencies in the HCP and DEIS' mitigation measures are discussed elsewhere in our comments, including in Section III.

Sierra Club et al v. Bruce Babbitt et al recently held that replacement habitat must be provided for habitat destroyed pursuant to ITPs. [Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

E4-27

Additional Comments:

The HCP and DEIS fail to provide replacement habitat for a variety of terrestrial and riparian species likely to be affected by Plum Creek's logging, land management, grazing, land sales, and development operations.

Even in the case of the covered fish species, the HCP and DEIS HCP fail to provide a level of habitat protection and restoration that would be provided under a more accurate "No Action" baseline scenario in which the species are fully protected, as would normally be required under the ESA. Examples of more accurate "no take" baseline scenarios are included in Table 2, in Section III-A of our comments.

Again, Section III-A highlights alternate riparian and aquatic protection measures which are known to be more effective, and which have been determined to be necessary to avoid "take" of imperiled salmonids.

Listed plants must also be addressed and protected by ITPs and HCPs under ESA s. 7(a)(2). The Services may not approve an action which jeopardizes the survival or recovery of listed plants.

E4-28

Additional Comments:

No thorough field surveys for listed plants were conducted. Thus the HCP and DEIS do not provide a sufficient foundation for determining, under ESA s. 7, that impacts to listed plants will be avoided. The HCP and DEIS also fail to include specific and sufficient impact minimization and mitigation measures for listed plants.

The HCP must also meet, with regard to each of the covered species, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64;45, March 9, 1999.]

"Often, there is a direct relationship between the level of biological uncertainty for a covered species and the degree of risk that an incidental take permit could pose for that species. Therefore, the operating conservation program may need to be relatively cautious initially and adjusted later based on new information."

E4-29

Additional Comments:

A close reading of the HCP reveals that the plan is far less cautious than it might appear. The HCP, its adaptive management provisions, "changing circumstances" discussion, and Implementation Agreement (IA) actually circumscribe future adjustments quite narrowly. Consequently, the HCP's failure to adopt initial mitigation measures

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which provide a strong chance of recovery for the covered species becomes of even greater concern and likely harm. These problems are discussed further in Section discussed in Section II-F-ii and iii of our comments.

As noted above, the HCP fails to provide any mitigation measures whatsoever for many key impacts to the covered species. Deficiencies with some of the HCP's other existing mitigation measures are also discussed above.

As summarized in Section III-A of our comments, the HCP's riparian protection measures also fall significantly short of those proposed and/or used by various scientists, conservation groups, NMFS, and even another HCP that was developed for salmonids and other species. The Services recognized in the Final EIS for Plum Creek's land exchange in the I-90 corridor that the prescriptions of the NMFS' proposals, Pollock et al (1998) and the Northwest Forest Plan (see Table 2 of Section VII-A of our comments) would provide the best chances of survival and recovery for imperiled salmonids and other aquatic species.

E4-29

When evaluating the HCP, the Services also need to employ a more cautious approach than has often been used. The ESA expressly states that the Services may not approve HCPs and ITPs if they would "appreciably reduce the likelihood of the survival *and recovery* of the species in the wild." [ESA s. 10(a)(2)(B)(iv), emphasis added.] However, the Services appear to have often interpreted this standard as stating, more or less, that HCPs and ITPs may not be approved only if they would "jeopardize species' continued existence." This is a much lower standard than that specified in the ESA, and as used by the Services, allows approval of HCPs which utilize far less effective mitigation measures, and which are less risk averse.

C. Impacts Must be Minimized and Mitigated to the Maximum Extent Practicable:

ESA s. 10(a)(2)(B)(ii) requires impacts be minimized and mitigated to the "maximum extent practicable." The Services must analyze and document whether the HCP has indeed minimized and mitigated "take" to the maximum extent practicable. [*Sierra Club et al v. Bruce Babbitt et al*, Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

Additional Comments:

The IA erroneously states that the HCP minimizes and mitigates "take" to the maximum extent practicable. [IA, 2.1.4]

As discussed in Section II-B above, in Section D below, and in Sections III-A and D, Plum Creek's HCP fails to provide sufficient impact minimization and mitigation measures for most if not all of the covered species.

E4-30

Substantial improvements in the HCP's impact minimization and mitigation measures are both technologically and economically practicable. Longer timber rotations and other alternate silvicultural methods, for example, can minimize watershed disturbances and habitat impacts, while generating competitive economic returns. (See Hall (1999); this document has been provided to the Services on several recent occasions.) Moreover, the production of mushrooms and clean water, the sequestration and storage of atmospheric carbon dioxide, and the provision of other nontimber forest

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products and ecosystem services from older, healthier forests can generate significant supplemental revenues.

The DEIS claims that the Services assume the HCP is the most practicable alternative because this is the alternative that Plum Creek has chosen to implement. [DEIS, p. 4-281] As should be evident from our comments, this assumption is completely unwarranted. Moreover, the Services are obligated by the ESA to determine objectively and factually whether the HCP minimizes and mitigates the impacts of "take" to the maximum extent practicable. Assumptions are not an appropriate basis for implementing the ESA.

The Services need to independently evaluate Plum Creek's timber resources, site productivity, and other silvicultural factors, and determine what silvicultural and non-timber land management practices would in fact minimize and mitigate impacts to the plan species to the maximum extent practicable. The HCP and DEIS contain no such analyses.

Several existing HCPs explicitly require longer timber rotations or other improved silvicultural methods, demonstrating their practicability. The Elliott State Forest HCP uses 80 to 240 year timber rotations and maintains significant late successional reserves above and beyond the narrow stream buffers.

Other measures are also "practicable." The Simpson Northern California, Ribar Timberlands, Elliott State Forest, and Washington DNR HCPs maintain more ecologically meaningful reserve areas for northern spotted owl. The Scofield HCP also precludes all future timber operations after the one partial logging operation permitted by the HCP.

E4-30

Likewise, utilization of specific forest management standards to minimize impacts to habitats and forest productivity is also practicable. The Murray Pacific HCP, for example, includes limitations on the use of broadcast burning, to protect soils and woody debris.

The literature referenced in Section VII of our comments, including in Section VII-C, highlights a number of impact minimization and mitigation measures which are important for the conservation of imperiled fish, wildlife, and plants, and which would be economically "practicable" for forest landowners. Again, the HCP and DEIS fail to include most of these measures.

In evaluating Plum Creek's capacity to provide various conservation measures, the Services need to examine the full range of subsidies that Plum Creek receives, including below-cost timber from federal lands, and the company's tax exempt status from federal corporate income tax.

Recent changes in Washington State's forest policy and timber tax system should also make it practicable for Plum Creek to provide additional mitigation measures. Recent passage of Substitute House Bill 2091 gave Washington industrial timberland owners (including Plum Creek) an ongoing cut in timber harvest taxes worth roughly $8 million/year. The tax cut provided by SHB 2091 has significantly reduced Plum Creek's tax liability, meaning that provision of additional, more comprehensive and effective riparian buffers by Plum Creek should now be economically practicable. Plum Creek may also be receiving funding for road work from public salmon recovery programs, which would make further mitigation measures more practicable.

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The DEIS' economic analyses are also quite insufficient to support the claim that the HCP minimizes and mitigates impacts to the maximum extent practicable. The analyses ignore longer timber rotations and other more sustainable forestry regimes which could be adopted to reduce watershed impacts, to provide better wildlife habitat, and to maintain and even increase timber production and net profits. The analyses also ignore the public relations and marketing benefits that Plum Creek accrues by adopting conservation measures.

The DEIS also ignores the significant economic benefits that Plum Creek likely accrues by acquiring a valid ITP for various listed and unlisted species. Particularly when coupled with "No Surprises" guarantees, the ITP provides a level of regulatory certainty which is unprecedented in the business world, largely insulates Plum Creek from any future liability to adopt additional conservation measures to protect and recover listed and unlisted species, and may even increase Plum Creek's land values, assuming that the ITP and HCP could be potentially transferred or otherwise adopted by subsequent landowners.

Likewise, the HCP fails to account for the economic benefits of protecting the HCP's non-timber resource values, including the public relations and financial and legal value of the ITP to Plum Creek; production of edible mushrooms and other valuable nontimber forest products; production of clean water, sequestration and storage of atmospheric carbon dioxide, and other ecosystem services with emerging market values; etc.

E4-30

In discussing Plum Creek's "business goals," the HCP drastically overstates' business' need for "regulatory certainty." [HCP, p. 1-8] In no business sector in a free market economy is it normal, necessary, or expected for conditions to remain unchanged for a period of 30 years. Indeed, anticipation and adaptation to change is a hallmark of a successful business.

If anything, Plum Creek should be grateful to have avoided protecting imperiled species and other public trust resources for so long. Indeed, both the public's previous failure to adequately protect water quality, fish and wildlife, and other public trust resources, and the proposed issuance of an ITP, which is essentially an ESA exemption, result in significant externalities, and are thus *de facto* subsidies to Plum Creek.

The HCP misleadingly suggests that the HCP is providing a significant conservation benefit. [HCP, p. 1-9] The HCP and DEIS fail to include accurate analyses of the HCP's conservation measures and their likelihood of recovering sustainable populations of the covered species, including in relation to accurate baseline scenarios that account for habitat protection and restoration measures that would be required over time by the ESA *in lieu* of the HCP.

The HCP misleadingly suggests that it is not "practicable" for Plum Creek to implement conservation measures with uncertain benefits. [HCP, p. 1-9] While we agree that the public should not demand arbitrary conservation measures of Plum Creek, that is hardly the case here. Clear benefits arise from utilizing mitigation and conservation measures that will provide a higher probability of species' survival and recovery, even if the exact proportion of conservation benefit to mitigation expense is not perfectly known. In fact, Plum Creek is quite used to operating in a world of uncertainty. Companies like Plum Creek manage to remain quite profitable despite uncertainty about future housing

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trends, interest rates, wood product demand and prices, international competition, and other factors.

The HCP erroneously states that road densities are an "impracticable" measure of impacts to the covered species. [HCP, p. 2-2] In fact, road densities are an excellent indicator of watershed conditions and impacts to water quality and aquatic species. If Plum Creek refuses to limit its road densities due to perceived costs, then the company, the HCP, and the DEIS must document those costs and how they relate to the company's overall profitability, including under scenarios in which longer rotations and other measures are used to reduce watershed impacts while increasing the quantity, quality, and value of timber produced annually per acre.

The DEIS *does* note that the regulatory threshold will likely be increased over time *in lieu* of the HCP, presumably due to required protection measures for the listed covered species, and the potential listing of the other covered species. Likewise, the DEIS recognizes that these regulatory improvements will also be costly for Plum Creek. [DEIS, p. 3-16 et seq] However, these likely increases in the regulatory baseline do not appear to be factored into any of the largely unquantified and unsubstantiated claims that are made in the HCP that it would be impracticable for Plum Creek to adopt conservation measures which would be more effective than those proposed in the HCP. These claims appear to be made on the basis of comparing Plum Creek's revenues under the HCP versus the regulatory *status quo*, not a more accurate "no action" scenario in which the regulatory baseline also increases.

In the context of the Clean Air Act, "practicable" means economically or technologically possible. [*Union Electric Co. v. EPA* (427 US 246 (1976)), as cited in Arum (1998).] Likewise, the cost of an alternative should only determine its practicability in relation to other alternatives with the same level of environmental performance. [*Friends of the Earth v. Hall* (693 F Supp 904, 947 (W.D. Wash 1998), as cited in Arum (1998)] The NMFS rules for permits also state that the Administrator will consider whether the best available technology was used for impact minimization and mitigation. [50 CFR 222.22(c)(iv).]

E4-31

Additional Comments:

The Services do not appear to be applying these standards. As discussed in Section III-A of our comments, the HCP fails to use riparian protection measures which are known to provide a stronger likelihood of survival and recovery for the covered species. The HCP also fails to address forest management practices in watersheds' upslope areas, and fails to use alternative forest practices which could significantly reduce watershed impacts.

The Services' HCP Handbook states that if the landowner cites economic considerations as the reason for failing to utilize an alternate land management approach, then the landowner must provide supporting economic information, unless it is proprietary. [USFWS et al (1996), p. 3 - 36.] The Handbook also requires the Services to consider the cost of additional mitigation, the benefits of additional mitigation, the amount of mitigation provided by other landowners, and the landowner's own abilities. [USFWS et al (1996), pp. 3-36 and 7-3.]

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E4-32 ***Additional Comments:***
The HCP and DEIS fail to include such supporting information.

ESA ss. 10(a)(2)(A)(iv) and 10(a)(2)(B)(v) also authorize the Services to require mitigation measures *beyond* those "practicable" mitigation measures required by ESA s. 10(a)(2)(B)(ii). Likewise, the HCP Handbook also states that all HCPs should address other measures required by the Services. [USFWS *et al* (1996), pp. 1-7 & 3-10.]

E4-33 ***Additional Comments:***
The HCP and DEIS fail to provide any such additional measures.

D. The HCP Must Meet the Species' Recovery Needs, Including by Restoring Habitats and Enhancing Species' Populations if Necessary:

As indicated in ESA ss. 2(b), 2(c), and 3(3), the ESA's ultimate goal is, in effect, to recover threatened and endangered species, including to the point where they can be removed from the endangered species list. This has been affirmed by the US Supreme Court in *TVA v. Hill* and *Babbitt v. Sweet Home Chapter of Communities.* [See Gaffney et al (1997).] Several district court cases have also held that recovery must be assessed above and beyond mere survival. [See *House v. USFS* and *Idaho DFG v. NMFS.*]

E4-34 ***Additional Comments:***
The HCP and DEIS fail to meet these requirements.
The HCP and DEIS fail to identify, for each of the covered species, population levels, specific habitat conditions, and other factors that would correspond to genuine recovery across each of the species' ranges. Likewise, the HCP and DEIS fail provide concrete quantitative assessments of how the populations and habitat conditions stemming from the ITP and HCP will compare to these recovery indicators and standards.
The HCP covers a large portion of the bull trout's range, as well as large portions of the ranges of the other covered species.
Sections II-F-ii and iii of our comments discuss in detail how the HCP's mitigation and adaptive management measures will likely fail to allow for the full recovery of the covered species.

The ESA's s. 7 requirement to avoid adversely modifying species' critical habitats also requires the Services to ensure that HCPs and ITPs do not harm habitats needed for species' recovery, *including currently unoccupied habitat areas.*

E4-35 ***Additional Comments:***
As discussed in Sections II-B, III-A, and III-D of our comments, the HCP and ITP are likely to permit significant impacts to designated critical habitat for the listed covered species and will certainly permit adverse modification of those species' critical habitat. These impacts are likely to extend to stream reaches which may have historically supported the covered species, and which though not currently occupied by the species,

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will be important for their recovery, and must thus be considered part of their critical habitat.

The HCP and DEIS also fail to address whether and to what extent the ITP and Plum Creek's operations may affect critical habitat for other listed species which are not officially covered by the HCP but which may be present or need habitat for recovery in the plan area and neighboring lands.

ESA s. 10(a)(2)(B)(iv) explicitly and clearly precludes the Services from approving an HCP which will "appreciably reduce the likelihood of the survival and recovery of the species in the wild." The HCP Handbook also states that the Services should "discourage" HCPs that preclude recovery options or which are inconsistent with recovery plans. Consistency with recovery plans is also included in the Handbook as a "helpful hint." [USFWS et al (1996), p. 3-20 and 1-15.]

Additional Comments:

The HCP and IA incorrectly state that the ITP and HCP avoid appreciably reducing the covered species' likelihood of survival and recovery.

The HCP fails to incorporate impact minimization, mitigation, and adaptive management measures that will prevent Plum Creek's permitted actions from appreciably reducing various species' chances of recovery. As discussed in Sections II-B and III-A, B, C, and D of our comments, the HCP's initial measures are themselves inadequate and likely allow significant impacts to the covered species, including when the HCP's outcomes are compared with more accurate baseline scenarios (i.e., "No Action" alternatives).

Equally important, as discussed in Sections II-F-ii and III of our comments, the HCP and IA's "No Surprises" provisions, adaptive management provisions, and "changing circumstances" provisions will effectively preclude the adoption of significant additional habitat protection and restoration measures that might be required over time to avoid impacting the covered species' chances of recovery.

E4-36

The Services need to thoroughly analyze how Plum Creek's ITP, HCP, and all logging and other land use practices permitted by the ITP, HCP, and IA will affect each covered species' chances of recovery, based on the best current information on the species, the full range of land management practices allowed by the ITP, and other relevant factors. The HCP must not significantly (or "appreciably") impact any of the species' chances of recovery, as stated by the ESA. Additional mitigation measures must be provided to ensure that all land management practices potentially undertaken by Plum Creek will leave the covered species with a high probability of recovery.

Moreover, the HCP and DEIS need to identify species population levels and habitat conditions that would correspond to genuine recovery across the species' ranges, and provide concrete quantitative assessments of how the populations and habitat conditions stemming from the ITP and HCP will compare to these recovery standards.

Evaluations of the ITP and HCP's impacts on species' chances of recovery need to be based on more accurate baseline scenarios (i.e., "No Action" alternatives). Problems with the current baseline assumptions are noted above in our comments in Sections II-A-iii and III-A.

See Section IV-C below for recommendations on defining "recovery."

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E4-36 The HCP and DEIS also fail to provide conservation, restoration, and mitigation measures considered vital to the covered species' survival and recovery by various scientific studies and conservation proposals referenced in Section VII of our comments.

The legislative record for ESA s. 10(a) indicates that Congress intended for HCPs to *enhance* species' chances of survival. [HR Conference Report 835 (1982).] The HCP Handbook also cites this legislative intent and states that the Services should "encourage" landowners to provide a net benefit to species. [USFWS et al (1996), pp . 7-2 to 7-5 and 3-20.] The Department of Interior's testimony in response to the lawsuit against the "No Surprises" rule also recognizes that "[U]nder some circumstances, such as for 'severely depleted species and species for which the HCP covers all or a significant portion of the range' of a species,... measures to improve the species habitat may be required by the legislative history of [ESA] Section 10." [Federal Defendants' Combined Memorandum in Support of Cross-Motion For Summary Judgment and In Opposition to Plaintiffs' Motion for Summary Judgment, at 35 (D.D.C. Filed April 23, 1999), Spirit of the Sage Council et al v. Babbitt, No. 1:98CV1873 (EGS).]

E4-37 ***Additional Comments:***

The HCP and DEIS fail to document any credible enhancement of habitat conditions for the covered species above and beyond accurate baseline scenarios (i.e., "No Action" alternatives.). Problems with the HCP and DEIS' baseline assumptions are discussed at Sections II-A-iii and III-A of our comments. In fact, as discussed in Sections III-A and D, and elsewhere in our comments, significant impacts to species' habitats and chances of recovery, and net losses of habitat are likely to result from the ITP and HCP, when the HCP's conservation measures are compared to those that provide an adequate likelihood of the covered species' survival and recovery, and that should be included in more accurate baseline scenario descriptions.

Listed plants' chances of recovery must also be addressed and protected by ITPs and HCPs under ESA s. 7(a)(2). The Services may not approve an action which jeopardizes the survival or recovery of listed plants.

E4-38 ***Additional Comments:***

The HCP and DEIS fail to include sufficient measures to provide for the recovery of listed plants. Rare plant surveys do not appear to have been conducted to determine accurately whether listed or otherwise sensitive plants are found in the plan area. The HCP and DEIS fail to document whether those measures which have been provided are sufficient for listed plants' recovery, including the recovery of listed plants which are not currently found on the property, but which need viable populations to be established in the plan area for their recovery.

E. Additional Mitigation Standards:

The Service's HCP Handbook states that if new habitat is being created as mitigation, then the habitat must be created through techniques that are proven and reliable or, if relatively new, then

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those techniques must be augmented by contingency measures and adaptive management. [USFWS et al (1996), p. 3-22.]

E4-39

Additional Comments:

The efficacy of the HCP's riparian conservation measures, grazing measures, and various other measures are largely unproven. At the same time, there is already ample reason to suspect that the HCP's riparian protection measures are insufficient for the recovery of the covered species, as discussed above and in Section III-A and D of our comments. As discussed in detail elsewhere in our comments, the HCP also fails to mitigate whatsoever the impact of various activities, including upslope logging, chemical applications, and other forestry and non-forestry activities.

Unfortunately, despite the considerable effort that has gone into developing the HCP's adaptive management protocol, the HCP's monitoring and adaptive management protocol will ultimately be quite insufficient to address the likely shortcomings in the HCP's initial mitigation measures. Fundamental problems with the HCP's monitoring and adaptive management provisions are discussed in Sections II-F-ii and iii of our comments.

The Handbook also states that mitigation habitat should be close to the impact area, similar to the impacted habitat types, and support the same species. [USFWS et al (1996), p. 3-22.] The same mitigation methods should be used for the same species by different HCPs, unless there are "biological or other differences" which are "clearly explained." [USFWS et al (1996), p. 3-24.]

E4-40

Additional Comments:

As noted in Section III-A of our comments, the HCP's riparian conservation measures and other key measures are designed primarily around bull trout, and are particularly likely to be inadequate for many of the other covered species.

Mitigation and protection measures must be clearly defined for agencies to make decisions that hinge on such measures. Likewise, the mere promise of future actions is not sufficient to meet the ESA's protection standards. [See *LaFlamme v. FERC* (852 F.2d 389, 400 (9th Cir 1988), and *ONRC v. Daley* (1998 WL 296838) (D.Or 1998), as cited in Arum (1998), as well as *Sierra Club et al v. Bruce Babbitt et al*, Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

E4-41

Additional Comments:

As noted elsewhere in our comments, the HCP failed to provide species-specific habitat protection measures, species-specific impact minimization measures, and species-specific impact mitigation measures for nearly all of the covered species.

Many of the mitigation benefits projected under the plan will either not occur or will not occur for periods of time sufficient to offset the Company's impacts. The older forest habitat conditions that will supposedly develop in the HCP's riparian buffer strips will not become established until the plan's latter years, and thus may only be present for a few years. Since there are no guarantees that Plum Creek will continue providing this mitigation after the plan's expiration, this mitigation will often be of little benefit.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-39	617
E4-40	208
E4-41	208, 278, 327, 611

Letter E4

E4-41

Moreover, under the terms of the draft HCP and IA, Plum Creek may terminate the HCP at any time following its approval, without continuing to provide mitigation.

The Services must also document and evaluate the effectiveness of the HCP's conservation measures which are undefined in the HCP, including those measures listed below. The results of these analyses should be made available to the public.

A large number of the compliance monitoring standards for the HCP are, for example, left undefined, as noted in Section II-G of our comments.

Other measures which are poorly defined are noted below in Sections II-B and G, and III-A and D.

Anticipated improvements and additions to the HCP's initial mitigation measures should not be credited during the Services' review of the ITP and HCP, given the extent to which Plum Creek has a functional veto over adaptive management changes, given the extent to which the HCP's "No Surprises" and "changing circumstances" provisions preclude the adoption of additional mitigation measures over time, and given the uncertainty that any improvements in federal lands management will be implemented as per "No Surprises" to offset problems with the HCP. These problems are discussed below in Sections II-F-ii and iii of our comments.

The Service's HCP Handbook states that mitigation habitat should be provided *prior* to the "take" of a species habitat. [USFWS et al (1996), p. 3-21.]

E4-42

Additional Comments:

As noted above, the HCP not only fails to require mitigation to be provided prior to "take," but allows "take" to occur many decades before the mitigation measures are projected to become effective, leaving the species with a substantial gap in their protection and recovery measures. As discussed in Section III-A of our comments, many of the HCP's riparian conservation measures and other measures will take many years, even decades, to become fully effective.

It is not unheard of for an HCP to require up-front mitigation. International Paper's new HCP for red cockaded woodpecker in the southeast requires the company to successfully establish replacement habitat and viable replacement populations for woodpecker before "take" can occur elsewhere on the landowner's property.

The HCP Handbook states that mitigation habitat should be permanently protected. [USFWS et al (1996), p. 3-22.]

E4-43

Additional Comments:

The HCP and IA do not provide for permanent protection or mitigation -- including in cases where "take" will otherwise be permanent for all practical purposes, such as where old growth and older second growth forest stands are being logged. The HCP and DEIS fail to identify where such habitats will be logged under the ITP and HCP.

ITPs/HCPs may not rely upon speculative sources of mitigation, such as promises of additional funds for habitat acquisition from unnamed sources. [*Sierra Club et al v. Bruce Babbitt et al*, Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-42	327
E4-43	27

Letter E4

E4-44

Additional Comments:

As noted above and in Section II-F-ii and iii of our comments, the likelihood that any additional mitigation measures will be adopted as a result of monitoring and adaptive management is quite low and is certainly highly speculative.

Moreover, the adequacy of the most of HCP's mitigation measures with regard to virtually all species and their recovery needs is highly speculative. Neither the HCP nor the DEIS provide sufficient information or analyses to support the conclusion that the HCP will avoid significantly impacting each of the covered species' chances of survival and/or recovery. Given that the provision of additional impact minimization and mitigation measures is largely precluded, the HCP and ITP fail to meet the ESA's intent and requirements.

Providing funds for research is not sufficient as mitigation. [USFWS et al (1996), p. 3-23]

The HCP must also meet, with regard to each of the covered species, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64;45, March 9, 1999.]

"The operating conservation program will include those measurable actions that, when implemented, are anticipated to meet the biological objectives."

E4-45

Additional Comments:

The HCP fails to meet this standard, as the plan fails to include measurable and adequate biological objectives, including objectives that clearly correspond to species' recovery. Certainly, the HCP and DEIS provide no basis for determining whether this standard has been met.

F. Adaptive Management and Regulatory Assurances:

E4-46

Landowner assurances should take the form of explicit, up-front agreements about the plan's biological goals, monitoring, adaptive management, and enforcement, and fair allocation of responsibility between the landowner and public for funding future plan changes. In other words, the plan should provide up-front clarity and assurances about the process that will be used to identify and make improvements to the plan -- instead of simply precluding meaningful plan improvements through "No Surprises" type assurances such as those included in Plum Creek's HCP and IA.

We cannot emphasize strongly enough that landowner assurances should *not* take the form of "No Surprises" type guarantees or other guarantees that largely preclude additional mitigation by setting extremely high burdens of proof for the Services, requiring additional mitigation to first occur on public lands, by requiring any additional mitigation to be fully subsidized by the public, and/or requiring any additional mitigation to be voluntary. "No Surprises" supposedly encourages landowners to proactively conserve species which are not listed as threatened or endangered by indemnifying the landowners from providing addition mitigation should the

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-44	611
E4-45	338
E4-46	622, 687, 699

Letter E4

species be listed at a later date. However, the up-front analyses, protections, and mitigation measures for unlisted species are rarely sufficient, as evidenced by Plum Creek's draft HCP and DEIS. Even in cases where the up-front provisions are more adequate, changes and additions to these measures may well become necessary over time, including as a result of changes in the landowners' management practices.

E4-46

While many of the following standards will be relevant regardless of the type of regulatory assurances provided to Plum Creek, adherence to each of the following standards will be especially important if Plum Creek is provided with "No Surprises" type assurances, as envisioned by the draft HCP and IA.

i) Unlisted Species Must Be Addressed As if They Are Listed:

In order for the Services to provide regulatory assurances with regard to the unlisted covered species, Plum Creek's HCP must address each species as if it were already listed.

The final "No Surprises" rule, the legislative history for ESA s. 10(a), and the Services' HCP Handbook all state that any unlisted species covered in an HCP must be addressed as if it were listed. Congress stated that "the Committee intends that... In the event that an *unlisted species* addressed in the approved conservation plan is subsequently listed ... no further mitigation requirements should be imposed *if the conservation plan addressed the conservation of the species and its habitat as if the species were listed* pursuant to the Act." [Conf. Report at 30 and 50 FR 39681-39691, Sept. 30. 1985. (emphasis added).] The "No Surprises" rule states that *"adequately covered means... with respect to unlisted species, that a proposed conservation plan has satisfied the permit issuance criteria under section 10(a)(2)(B) of the ESA that would otherwise apply if the unlisted species covered by the plan were actually listed."* [Federal Register, 63;35, February 23, 1998. (emphasis added).] The HCP Handbook also states that, in order to "adequately cover" an unlisted species, HCPs must satisfy the ESA s. 10(a)(2)(B) HCP issuance criteria for those species, as if the species had been listed. [USFWS et al (1996), pp. 3-30, 4-1.]

E4-47

Additional Comments:

The IA erroneously states that the HCP addresses unlisted species as if they were listed. [IA, 2.1.4]

As discussed throughout our comments, the level of analysis, planning, and mitigation provided for the unlisted covered species is often inadequate. Species specific mitigation measures and impact assessments are lacking for nearly all covered unlisted species.

For the covered unlisted to have been addressed as if they were listed, each of the HCP policy standards listed under Sections II, IV, V, and VI of our comments should have been met for each of the species. The HCP fails to meet most of these policy standards for each of these species.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-47	200

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The draft "No Surprises" rule also stated that unlisted species need to be addressed by removing threats to their survival and recovery, such that the species would not need to be listed if the measures were undertaken across their range.

E4-48

Additional Comments:

The HCP and DEIS fail to provide thorough, quantitative, and objective analysis sufficient to determine whether this standard has been met. As discussed in our comments in Sections II-D and III-A, B, and C, the HCP fails to fully avoid impacting the covered species' chances of recovery, much less fully implement all impact minimization, habitat protection, active habitat restoration, road obliteration, species reintroduction, landscape level forest habitat restoration, and other measures that will be required to recover imperiled species and remove threats to their survival and recovery.

ii) Adaptive Management Measures Must Have Been Provided for Any Data Gaps, to Respond to Changing Conditions, Etc.:

The Department of Interior's testimony in response to the lawsuit against the "No Surprises" rule states, in effect, that large scale HCPs must have extensive, meaningful adaptive management provisions to be lawful. "The Services recognize that HCP permits often must be structured in such a way as to allow for the adaptation and refinement of mitigation measures over time as new scientific information becomes available.... Rather, the purpose of the No Surprises rule is to force the negotiating parties to clearly define up front a mutually-agreed upon framework for such adaptive management, if necessary due to scientific uncertainty, and to establish a division of later responsibilities in the event of highly unlikely unforeseen events.... In the event there are significant gaps in the biological data underlying a particular HCP, those gaps should be addressed through the inclusion of adaptive management provisions." [Federal Defendants' Combined Memorandum in Support of Cross-Motion For Summary Judgment and In Opposition to Plaintiffs' Motion for Summary Judgment, at 2 (D.D.C. Filed April 23, 1999), Spirit of the Sage Council et al v. Babbitt, No. 1:98CV1873 (EGS).] The HCP Handbook also states that if information on unlisted species' conservation needs is lacking, then the landowner should either: i) use adaptive management to incorporate new information as it becomes available, ii) conduct additional research on the species' needs, or iii) agree to reduced "No Surprises" guarantees for those species. [USFWS, et al (1996), p. 3-30.]

E4-49

Additional Comments:

As discussed throughout our comments, the HCP and DEIS suffer from major information and analytical gaps. Equally important, the HCP's initial impact minimization and mitigation measures are extremely limited, fail to address important impacts, fail to specifically address most of the covered species, and thus are likely to need adaptation and augmentation over time to avoid impacting the covered species' chances of survival and recovery. Furthermore, adaptive management will always be an essential part of an HCP of multiple decades' duration, given that conditions change, including Plum Creek's own management practices.

While the HCP's adaptive management provisions appear quite rigorous at first glance, closer examination reveals that the adoption of additional impact minimization

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-48	208
E4-49	622, 677, 696

Letter E4

Responses

See Response to Comment Table or click on link provided below.

Comment Response

and mitigation measures is severely constrained by the HCP's inadequate effectiveness monitoring program, hurdles and delays within the adaptive management process, by Plum Creek's virtual veto power within the adaptive management process, by the HCP's extremely insufficient discussion of "changing circumstances," and by the IA's "No Surprises" provisions.

Inadequacies with the HCP's effectiveness monitoring program are discussed in Section II-G of our comments. Among other things, the HCP fails to monitor key outcomes and parameters, and fails to conduct monitoring across sufficient portions of the plan area. Moreover, monitoring data cannot be utilized within an adaptive management system unless clear and adequate triggers are identified for corrective action. As discussed below and in Section II-G of our comments, the HCP's triggers are highly inadequate.

Furthermore, even if monitoring was to indicate the need for adaptive management, the HCP and IA are structured such that virtually no additional mitigation measures will be adopted. Virtually all other additional mitigation that might be required as part of adaptive management will also be effectively precluded by hurdles within the adaptive management process and by the HCP and IA's "changing circumstances" and "No Surprises" provisions, as discussed in Sections II-F-ii and iii of our comments.

The HCP states that when the "science triggers" in the CAMP projects are met, a "biological relevance" process will be used to determine if the failure to meet the HCP's goals are in fact important. [HCP, pp. 8-7 and 8-15 et seq] This process appears to comprise a large loophole and unpredictable variable in the adaptive management process. Along with other aspects of the adaptive management process proposed in the HCP, this "relevance" test will introduce substantial contention and delay into what should otherwise be a straightforward and scientifically-driven process. Much of the analysis proposed in the adaptive management process is written as if the scientific community does not already have a significant understanding of native fish habitat needs and impacts, and as though the this understanding must be built from scratch.

E4-49

In fact, Plum Creek essentially holds a veto over any adaptive management responses, as the HCP states that determinations of "biological relevance" must be made with the company's "mutual agreement." Similar agreement is also required later in the process during the identification of management responses. [HCP, p. 8-15 et seq.]

The adaptive management process also requires the analysts to show causality between Plum Creek's management and the failure to meet the HCP's targets and goals, based on information collected by the CAMP projects. [HCP, p. 8-15 et seq.] It is not clear whether these projects will be sufficient to demonstrate such causality.

These delays and hurdles are quite serious. The HCP's adaptive management process lacks any timelines for making adjustments and additions to the HCP's conservation measures in response to Plum Creek's potential failure to meet various goals and standards. Moreover, Plum Creek is not required to avoid impacting the resources in question after the the science triggers have been tripped, meaning that continued failure to meet the HCP's core goals could continue for substantial periods of time. The HCP needs to include both clear timelines and interim protection measures for the adaptive management process to be effective and provide Plum Creek with an incentive to come to

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E4-49

agreement, rather than an incentive to stall and avoid agreement, thereby avoiding strengthening the HCP's conservation measures.

Under the HCP, Plum Creek is not even responsible for providing additional mitigation over time in most cases where the plan's initial conservation measures were left undefined due to a lack of information or because various analyses were not yet completed.

Modifications (as opposed to additions) to the HCP's existing measures which are permitted under the HCP's No Surprises" clauses will often be of little utility since the HCP's initial impact minimization and mitigation measures are so limited.

As recognized by the Services' HCP Handbook, adaptive management is especially important for species whose conservation needs are not yet well known, as is usually the case with unlisted species. [USFWS et al (1994) and USFWS et al (1996).]

E4-50

Additional Comments:

As discussed above, the HCP and IA effectively preclude most meaningful improvements to the HCP that are likely to be required over time to address the covered unlisted species.

The HCP Handbook states that contingency measures should exist when landowners create/restore habitat as mitigation, in case the new habitat isn't viable. [USFWS et al (1996), p. 3-22]

E4-51

Additional Comments:

As discussed above, the HCP's monitoring and adaptive management provisions -- including those which should relate to the restoration of aquatic and riparian habitat and ecological function -- are grossly inadequate and are hamstrung by the various hurdles, the HCP's inadequate "changing circumstances" provisions, and the "No Surprises" provisions."

ESA s. 10(a)(2)(B) also requires HCPs to include assurances the plans will be implemented, continue to minimize and mitigate the impacts of take, and continue to avoid jeopardizing the species' chances of survival and recovery. ESA s. 10(a)(2)(A)(iv) also requires the Services to require other measures as necessary to ensure the plan's success.

E4-52

Additional Comments:

Problems with the HCP's approach to providing continued mitigation after termination of the ITP and HCP are discussed in Section II-H of our comments.

The HCP Handbook states that "thresholds" (i.e., triggers) for adaptive management review should be linked to key elements of the HCP and its monitoring protocol. Further, the thresholds must be based on measurable criteria. [USFWS et al. (1996). p. 3-25.]

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-50	622, 677, 696
E4-51	334, 622, 687, 699
E4-52	327

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Additional Comments:

The HCP fails to provide clear, concrete, and measurable performance indicators, triggers, and thresholds for nearly all covered species, their habitat conditions, and other key variables and objectives, including species' population trends, their specific habitat needs, specific water quality parameters, changes in Plum Creek's land management practices, changes in environmental conditions, development of new information on species' conservation needs, etc.

As discussed below, the HCP's adaptive management process relies on grossly inadequate effectiveness monitoring. Among other things, the monitoring program relies on data from only three watersheds for the entire 1.7 million acre HCP. As discussed in Section II-G of our comments, data from these watersheds are not likely to represent the full range and diversity of conditions and outcomes across the plan area.

E4-53 While they are a good start, the HCP's performance indicators and adaptive management triggers are nevertheless highly inadequate. The HCP's performance standard for water temperature, for example, fails to actually specify temperatures which much be achieved for different species and stream reaches. Rather, the HCP simply states that the HCP must avoid increasing water temperatures. [HCP, Table 8-1] This will, of course, be highly inadequate in stream reaches which already exceed levels needed for the survival and recovery of different covered fish species and the broader aquatic ecosystem upon which they depend. The HCP also fails to include indicators and triggers to account for water flows and timing. [HCP, Table 8-1]

Likewise, the HCP's sedimentation standards fail to include any objective measures. Rather, the HCP simply states that adaptive management will be triggered if sediment delivery to streams is not reduced by at least 49%. [HCP, Table 8-1] This approach will be inadequate in watersheds which are already highly impacted and where sediment delivery already exceeds tolerable levels by 100% or more, or where existing sedimentation is so severe that no additional sedimentation should be permitted.

The HCP must also meet, with regard to each of the covered species, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64;45, March 9, 1999.]

E4-54 "...an adaptive management strategy is essential for permits that cover species that have significant biological data or information gaps that incur a significant risk to that species at the time the permit is issued."

Additional Comments:

As discussed throughout our comments, there are substantial informational and analytical gaps in the HCP and DEIS with regard to all of the covered species.

E4-55 "Possible significant data gaps that could lead to the development of an adaptive management strategy include, but are not limited to, significant biological uncertainty about specific information about the ecology of the species or its habitat (e.g., food preferences, relative importance of predators, territory size), habitat or species management techniques, or the degree of potential effects of the activity on the species covered in the incidental take permit."

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-53	334, 567, 696
E4-54	327
E4-55	650

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E4-55

Additional Comments:

The HCP and DEIS fail to adequately address these specific informational and analytical needs for most of the covered species. The HCP and DEIS also fail to identify cases where such information and analyses are not currently available or possible to conduct.

"...there may be some circumstances with such a high degree of uncertainty that a species should not receive coverage in an incidental take permit at all until additional research is conducted."

E4-56

Additional Comments:

The HCP and DEIS fail to gauge the level of uncertainty that exists with regard to each of the covered species. Thus it is entirely likely that species are being inappropriately covered in the ITP. As discussed throughout our comments, there are significant informational and analytical gaps, likely significant impacts, mitigation shortcomings, and other problems with regard to most of the covered species.

"A practical adaptive management strategy within the operating conservation program of a long-term incidental take permit will include milestones that are reviewed at scheduled intervals during the lifetime of the incidental take permit and permitted action."

E4-57

Additional Comments:

Such milestones are almost entirely lacking in the HCP.

"For an adaptive management strategy to be effective, it must be integrated into a monitoring program that is designed to ensure proper data collection and analysis that can guide appropriate adjustments in the operating conservation program."

E4-58

Additional Comments:

As discussed above and in Sections II-F-iii and II-G of our comments, and above, the HCP fails to provide adequate monitoring and adequate adaptive management, as well as adequate integration between monitoring and adaptive management.

iii) Plum Creek is Responsible for Providing Additional Mitigation Measures Which May be Needed to Fully Protect and Recover Each of the Covered Species:

In drafting ESA s. 10, Congress explicitly recognized that "...circumstances and information may change over time, and that the original plan might need to be revised. To address this situation, the Committee expects that any plan approved for a long-term permit will contain a procedure by which the parties will deal with unforeseen circumstances...." [Conf Rept at 30 and 50 FR 39681-39691, Sept. 30, 1985.] The Federal Register notice for the final "No Surprises" Rule states that "...many changes in circumstances during the course of an HCP can reasonably be anticipated and planned for in the conservation plan (e.g., the listing of new species, or a fire or other natural catastrophic event in areas prone to such events), and the plans should describe the modifications in the project or activity that will be implemented if these circumstances arise...."

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-56	201
E4-57	281, 443
E4-58	105, 629, 630, 632, 635, 636, 637, 639, 640, 641, 649, 660, 661, 666, 690, 696, 697

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[Federal Register, 63;35, February 23, 1998.] The final rule itself then states that "changed circumstances means changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the Service and that can be planned for (e.g., the listing of new species, or a fire or other natural catastrophic event in areas prone to such events)." [Federal Register, 63;35, February 23, 1998.] Likewise, the HCP Handbook states that "unforeseen circumstances" *don't* include changed conditions that could reasonably be anticipated by the landowner or the Services, including the listing of new species or modifications in the landowner's activities. [USFWS et al (1996), p. 3-28] Under the final "No Surprises" rule, landowners are responsible for providing improved and/or additional mitigation measures needed in response to "changed circumstances," *provided the mitigation measures are identified in the HCP.*

Additional Comments:

The HCP and IA have been written such as to primarily absolve Plum Creek from responsibility for providing additional impact minimization and mitigation measures as might be necessitated over time, including in response to "changing circumstances." Thus the HCP and IA contradict the intent of the final "No Surprises" rule's "changing circumstances" provisions, will likely fail to avoid harming the covered species' chances of survival and recovery over time, and will likely fail to meet other key policies and goals for HCPs over time. In establishing section 10 of the ESA, Congress did *not* suggest that the public should be solely responsible for funding additional mitigation required over time in response to new circumstances. However, this would be the effect of the HCP's approach to the "No Surprises" rule and "changing circumstances."

E4-59

The IA inappropriately states that Plum Creek will be responsible for providing additional mitigation measures only if "unforeseen circumstances" occur and if the provisions of the "No Surprises" rule now in effect have been met. [IA, 4.2.2] This contradicts the purposes of the "No Surprises" rule's "changing circumstances" provisions, which are intended to allow for necessary foreseeable additions to the HCP's conservation measures regardless of "No Surprises." Moreover, the IA's language here could imply that Plum Creek will be responsible for providing additional mitigation if the other provisions of the "No Surprises" rule have been met. However, the current "No Surprises" rule *does not* require Plum Creek to adopt additional mitigation measures *at any time, except in response to "changing circumstances" identified in the HCP.*

At the same time, the HCP's adaptive management provisions will allow Plum Creek to *weaken* the HCP's conservation measures if they actually manage to exceed the HCP's conservation targets. [HCP, p. 8-10] In other words, the HCP's approach to future modification is extremely unbalanced and favors Plum Creek at the expense of the public and the covered species.

The HCP suffers from the fundamental flaw of failing to identify a host of foreseeable changing circumstances in the plan's "changing circumstances" provisions. Consequently, plan changes and development of additional mitigation measures will not occur as necessary to respond to these changing conditions. The only "changing circumstances" identified in the HCP are large stand replacing fires, floods, and landslides. [HCP, p. 8-25 et seq.]

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-59	618

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Responses

See Response to Comment Table or click on link provided below.

Comment Response

The listing of additional species as Threatened or Endangered under the ESA is not considered "changing circumstances" by the HCP and IA, if those species were "covered" by the HCP. This is highly inappropriate, contradicts the policy standards listed above, and clearly works against the intent of the final "No Surprises" rule. This approach also contradicts the precedent set with Plum Creek's existing HCP for the I-90 corridor area of Washington.

The HCP and IA fail to identify many other significant and reasonably foreseeable "changing circumstances," including changes in Plum Creek's land management practices; declines in the condition of the covered species due to inadequate conservation measures in the HCP; declines in forest health and productivity due to Swiss needle cast disease; designation of critical habitat for the covered species; development of recovery plans and recovery plan provisions for the covered species; and increased susceptibility of the forest to invasive exotic pests, pathogens, and plant and animal species due to the landowner's forest management practices. Possible management changes include use of shorter timber rotations, increased use of clearcutting and other even aged silviculture, use of "whole tree" and biomass harvesting, use of different tree species, use of genetically modified trees, increased use of fertilizers, herbicides, and other chemicals, and other types of intensified forest management.

Other foreseeable changing circumstances include the effects of human-induced climate change, which is likely to cause ecological gradients, vegetation zones, and species' habitat needs to shift significantly. This situation is similar to wildfires -- while we cannot predict exactly when and where wildfires will strike, we do know they are likely, and HCPs should account for their effects during planning, impact assessment, mitigation design, and adaptive management.

E4-59

In addition to identifying these and other changing circumstances, the HCP must identify the specific adaptive management and additional mitigation measures that will be adopted to ensure the HCP's continued performance.

In those few cases where the HCP does identify "changing circumstances," Plum Creek's management responses to these changes are largely undefined, speculative, and thus unenforceable. It is impossible to evaluate the adequacy of such undefined future management changes. The HCP essentially just requires Plum Creek to notify the Services if "changed circumstances" occur, and then develop plans to address the changes, as per the process outlined in HCP Table 8-6. [IA, 9.1]

The IA fails to establish any deadlines for Plum Creek responses to requests from the Services to respond to "changing circumstances." [IA, 9.2] This will render the HCP's "changing circumstances" provisions largely unenforceable.

Under the HCP, Plum Creek will also have an effective veto over any management changes in response to "changing circumstances." [HCP, p. 8-25] Moreover, the IA inappropriately states that Plum Creek shall not be required to modify the HCP or ITP in response to "changing circumstances." [IA, 9.3] This directly contradicts the intent of the final "No Surprises" rule and its "changing circumstances" provisions by precluding the very types of changes that the rule's "changing circumstances" provisions were intended to allow, makes the HCP's "changing circumstances" provisions potentially meaningless, and is likely to significantly impact the covered species' chances of survival and recovery over time. The express purpose of

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the "No Surprises" rule's "changing circumstances" provisions is for HCPs to identify foreseeable changes in circumstances for which the permitted is, by definition, responsible for addressing regardless of "No Surprises" guarantees.

Given these problems, we believe it would be inadvisable for the Services to count the HCP's proposed adaptive management process and any anticipated future improvements to the HCP's conservation measures, when evaluating the HCP under ESA ss. 7 and 10.

E4-59

Several existing HCPs begin to demonstrate the practicability of adaptive management arrangements in which the landowner retains responsibility for providing addition mitigation as needed. The Washington DNR HCP's adaptive management plan identifies several potential management changes that the DNR will undertake should they become necessary, even if they involve additional costs to the DNR. These potential changes include providing buffers for intermittent streams, increasing spotted owl protections, and reducing sedimentation from roads. Plum Creek's existing HCP for the I-90 Corridor area in Washington also requires Plum Creek to modify and improve its forest management to meet target outcomes for northern spotted owl. Likewise, the company agreed to provide additional mitigation over time if required by watershed analysis and water quality monitoring.

Plum Creek's existing HCP also stated that the listing of new species as threatened or endangered shall not be considered "unforeseen" circumstances. Likewise, under this existing HCP, changes in Plum Creek's operational or management prescriptions resulting from the watershed analyses and aquatic monitoring components of the HCP's adaptive management provisions will not be considered "unforeseen" or "extraordinary" circumstances, and Plum Creek will provide additional or enhanced stream buffers or other protection measures if required by these analyses.

ESA s. 10 only allows for "take" permits (ITPs) to be issued for listed species. *Unlisted* species should *not* be included in the ITP or an HCP's Implementation Agreement (IA).

Additional Comments:

E4-60

The IA improperly states that the Services will issue ITPs for the unlisted covered species when those species become listed. [IA, 4.2] Furthermore, the IA improperly states that ITPs will become effective for the unlisted covered species upon their listing, if the HCP is being properly implemented, without additional action on the Services' part. [IA, 4.2.1] Such additional actions presumably include the analyses required under NEPA and ESA ss. 10 and 7. This is highly inappropriate, fails to meet the requirements of ESA ss. 10 and 7, and contradicts the precedent set by Plum Creek's existing HCP for the I-90 corridor area of Washington.

The ESA's basic structure and precedents set by previous HCPs require the Services to re-examine the HCP in light of the ESA's HCP standards and issuance criteria with regard to newly listed species when deciding whether to add those species to an ITP. The ESA states that "take" permits may be issued for species *listed* pursuant to the Act. In other words, unlisted species should *not* be expressly included in the ITP. Nor should species be automatically added to ITPs.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
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E4-60

The question of whether or not unlisted species are adequately addressed by an HCP must be re-examined at the time those species are listed. The IA should expressly require the Services to re-examine, after a previously unlisted species is listed and if Plum Creek requests that the species be added to the ITP, whether the HCP still adequately addresses the species' conservation and mitigation needs under the ESA and its rules. This approach has been used in other existing HCPs and is quite reasonable. See Plum Creek's existing HCP for the I-90 corridor area in the central Washington Cascades, for example.

Similarly, the Services should not presume that the ESA s. 7 biological opinions drafted in conjunction with the HCP's initial approval will still be valid many years into the future when conditions have changed enough to warrant listing new species as Threatened or Endangered. Reinitiation of consultation is likely to be required when new species are listed. This should be recognized in the IA.

The IA also erroneously suggests that Plum Creek will, based on the draft HCP, minimize and mitigate the impacts of "take" of covered yet unlisted species to the maximum extent practicable, and that such "take" will not appreciably reduce those species' likelihood of survival and recovery. (Our analysis also finds that these statements are also erroneous with regard to listed species.) Most of the covered species are not yet listed and have not been well studied. Certainly they have not been well studied in the HCP, nor have they been provided with adequate mitigation measures. Nor have these unlisted species been addressed "as if listed," as required by Congress, the "No Surprises" rule, and other existing policies.

Consequently, it is premature to hold that the ESA's issuance criteria for ITP's have been met for these unlisted species.

The HCP must also meet, with regard to each of the covered species, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64;45, March 9, 1999.]

"When an HCP, permit, and IA incorporate an adaptive management strategy, it should clearly state the agreed upon and warranted range of possible operating conservation program adjustments due to significant new information, risk, or uncertainty."

E4-61

Additional Comments:

As discussed above, while the HCP and IA address the range of possible adjustments, the effect is to drastically limit and preclude such changes, contrary to the principle of adaptive management. Consequently, the HCP fails to provide a balanced and species-specific adaptive management program for the covered species.

G. Monitoring Standards for the HCP:

Monitoring provisions are mandatory for all HCPs. ESA s.10(a)(2)(B) states that the terms and conditions necessary to assure the plan will be implemented include reporting requirements. Reporting cannot occur without monitoring. Monitoring is also required under the Service's regulations at 50 CFR 17.22(b)(1)(iii)(B) and 50 CFR 222(b)(5)(iii). According to the HCP

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-61	691

Letter E4

Handbook, all HCPs must monitor their impacts over time. [USFWS *et al* (1996), pp. 1-7 & 3-10]

E4-62

Additional Comments:

As discussed below and elsewhere in our comments, the HCP fails to include adequate or scientifically credible monitoring provisions.

The HCP Handbook states that an HCP's monitoring provisions should be as specific as possible and be commensurate with the project's scope and the severity of its effects. [USFWS et al (1996), p. 3-26] The Handbook also states that monitoring must be sufficient to detect trends in species' populations. [USFWS et al. (1996), p. 3-27.]

E4-63

Additional Comments:

The HCP's compliance monitoring provisions are an improvement over some previous HCPs, but are nevertheless unnecessarily vague and incomplete. The HCP's language on compliance monitoring relies on the HCP's "Administration and Implementation" section, which in turn indicates that Plum Creek will hire an "environmental auditing" firm to periodically monitor Plum Creek's implementation of the HCP. The HCP then outlines a number of "performance metrics" to be used for the monitoring. [HCP, pp. 8-2 and 7-2 et seq]

The "performance metrics" proposed for the monitoring fail to cover key aspects of the HCP, its potential impacts, and species populations, habitat factors, and other variables that correspond to the recovery of the covered species. A substantial number of the "metrics" are simply left to future definition through some undefined process. [HCP, Table 7-1]

Moreover, the HCP fails to specify minimal qualifications for the potential auditing firms, and fails to establish any procedural and scientifically-valid requirements for the audits. Much of the language in this section of the HCP sounds like language used to describe the American Forest & Paper Association's "Sustainable Forestry Initiative" (SFI) and Plum Creek's recent SFI "audit" by the accounting firm Price Waterhouse. It should be understood that SFI is not a credible third-party environmental accounting system. Price Waterhouse has also been found to have a vested interest in some of the companies it evaluates and is, regardless, an accounting firm and will not be qualified as environmental assessors simply by hiring a few outside professionals, as was done with their Plum Creek audit.

The HCP's effectiveness monitoring provisions also appear constructive, but are nevertheless extremely inadequate, including in relation to their role as adaptive management triggers.

The effectiveness monitoring provisions also rely upon four "core adaptive management projects" (CAMPs). [HCP, p. 8-4] (A number of the "performance metrics" in Table 7-1 also claim to evaluate the effectiveness of different mitigation measures, yet fail to include any indicators, procedures, or other meaningful criteria for doing so.)

The HCP's effectiveness monitoring provisions are not sufficient or even intended to track trends in species' populations. The HCP generally fails to monitor the covered

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-62	654
E4-63	301

Letter E4

species' populations, reproductive rates, prey species, impacts, specific habitat components, ecosystem processes, and other factors.

The four CAMP projects also appear insufficient for the scope of the HCP and its permitted activities. In a nutshell, they purport to address: 1) the effectiveness of the road BMPs, 2) the riparian measures' effectiveness at establishing large woody debris and fish habitat diversity, 3) the HCP's effectiveness at avoid stream temperature increases (versus reductions down to necessary levels), and 4) the long term effectiveness of the grazing BMPs. [HCP, p. 8-13]

The CAMP projects will supposedly be representative of conditions and outcomes across the entire 1.7 million acre plan area. [HCP, p. 8-3] However, the CAMP projects will be conducted in only three watersheds, despite the fact that the plan area spans three states, multiple ecosystem types, and various historical and current conditions from the Pacific Coast to the Northern Rockies. [HCP, p. AM 1-4] We find it extremely difficult to believe that three watersheds could be representative of the plan area's range and diversity of different ecosystem types, natural environmental conditions, land management legacies, species and habitat composition, likely future land management practices, different state forest practice rules and other policies incorporated as part of the HCP's conservation measures, and interactions between the land management authorized by the ITP and the covered species' populations, habitat conditions, survival, and recovery.

E4-63

The survival and recovery of the covered species should not be left to such guesswork. Plum Creek and the Services are responsible for ensuring that the HCP and Plum Creek's operations do not harm the survival and recovery chances of the covered species in *all* watersheds covered by the ITP and HCP.

The final design of the four CAMP projects is also left to future action. [HCP, p. 8-13 et seq.] Thus the Services cannot evaluate the effectiveness of these projects at this time.

The HCP Handbook states that monitoring protocol must specify the frequency, timing, and duration of data collection; must specify how the data will be analyzed; and must specify who will do the analysis. [USFWS et al (1996), p. 3-27.]

E4-64

Additional Comments:

For the most part, the HCP lacks such monitoring protocol.

The USFWS regulations state that by being granted an ITP, the landowner has agreed to grant access to Service staff to property, records, and other areas. [50 CFR 13.21(e)(2) and 13.47.]

E4-65

Additional Comments:

To their credit, the plan documents to begin to recognize this requirement.

The HCP must also meet, with regard to each of the covered species, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64;45, March 9, 1999]

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-64	655
E4-65	28

Letter E4

"The biological outcome of the operating conservation program for the covered species is the best measure of success of an HCP."

E4-66

Additional Comments:

As discussed above in Section II-A-ii of our comments, the HCP generally fails to include meaningful conservation goals that could serve as indicators of the HCP's effects. The HCP's monitoring program generally fails to include specific indicators for biological outcomes, including populations of the covered species, etc.

"Monitoring is a mandatory element of all HCPs."

E4-67

Additional Comments:

Again, the HCP fails to include adequate or scientifically credible monitoring provisions.

"The Services and the applicant must ensure that the monitoring program provides information to: (1) evaluate compliance; (2) determine if biological goals and objectives are being met; and (3) provide feedback to an adaptive management strategy, if used."

E4-68

Additional Comments:

As discussed above and in Sections II-F-ii and iii of our comments, the HCP fails to adequately meet each of these goals.

"...the scope of the monitoring measures should be commensurate with the scope and duration of the operating conservation program and project impacts."

E4-69

Additional Comments:

As discussed above, the HCP's monitoring provisions are highly inadequate, and are certainly not commensurate with a plan of this extent and duration, and which is likely to seriously affect the survival and recovery chances of the covered species, as well as other species which may need habitats in the area for their recovery.

"The following components are essential...: (1) the implementation and effectiveness of the HCP terms and conditions...; (2) the level of incidental take of the covered species; (3) the biological conditions resulting from the operating conservation program...; and (4) any informational needs of an adaptive management strategy, if utilized."

E4-70

Additional Comments:

As discussed above and in Sections II-F-ii and iii of our comments, the HCP fails to adequately meet all four of these goals. The HCP's monitoring programs do not track incidental "take."

"The monitoring program will be based on sound science and standard survey or other monitoring protocols previously established...."

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-66	332, 333, 334, 335, 337, 339, 340, 341, 342
E4-67	654, 655
E4-68	629, 630, 632, 635, 636, 637, 639, 640, 641, 649, 660, 661, 666
E4-69	655
E4-70	631

Letter E4

E4-71 ***Additional Comments:***
For the most part, the HCP fails to specify any monitoring or survey protocols.

"The monitoring program should also clearly designate who is responsible for the various aspects of monitoring."

E4-72 ***Additional Comments:***
The HCP largely fails to specify who within Plum Creek or other entities is responsible for monitoring.

"Compliance is necessary... Therefore, the Services verify adherence to the terms and conditions of the incidental take permit, HCP, IA, and any other related agreements...."

E4-73 ***Additional Comments:***
The HCP and IA generally fail to include any mechanisms, timelines, procedures, funding sources, and other measures that will be necessary for the Services to verify Plum Creek's compliance.

"...it is important for the Services to make field visits to verify whether the report data are correct and the HCP is being implemented as negotiated."

E4-74 ***Additional Comments:***
The HCP and IA fail to include any requirements, timelines, or other mechanisms for such field visits.
The results of any field visits should be considered when re-assessing the HCP with regard to species which may be listed in the future. The adequacy of field visits, including their frequency, geographic distribution, coverage of areas where intensive management is occurring, and other factors should also be evaluated. New species should not be added to the ITP until Plum Creek's compliance with the HCP can be credibly and consistently established.

"For large-scale and/or regional HCPs, oversight committees, made up of representatives from significantly affected entities (e.g., State Fish and Wildlife agencies), are often used to ensure proper and periodic review of the monitoring program...."

"Oversight committees should periodically evaluate the permittee's compliance with the HCP, its incidental take permit, and IA, and the success of the operating conservation program in reaching its identified biological goals and objectives. Such committees usually include species experts and representatives of the permittee, the Service, and other affected agencies and entities."

E4-75 ***Additional Comments:***
While this is clearly a large scale and regional HCP, covering 1.7 million acres and spanning three states, the HCP appears to lack such an oversight committee.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-71	654, 655
E4-72	29
E4-73	309, 319
E4-74	317, 543
E4-75	316

Letter E4

E4-75 "Oversight committees should meet at least annually and review implementation of the monitoring program and filing of reports as defined in the HCP, permit, and/or IA."

E4-76 ***Additional Comments:***
The HCP fails to meet these standards.

"The Services should strive to collect information that will help detect cumulative trends in covered species populations or changes in the quality and/or quantity of the habitat...."

E4-77 ***Additional Comments:***
The HCP fails to track population trends for nearly all of the covered species, as well as for other listed species which may need viable habitats in the area for their recovery. Likewise, the HCP fails to track numerous habitat components and ecosystem processes for most covered species.

"Effects and effectiveness monitoring will generally include, but are not limited to, the following: 1. Periodic accounting of authorized incidental take; 2. Surveys to determine species status, appropriately measured for the particular operating conservation program (e.g., presence, density, or reproductive rates); 3. Assessments of habitat condition; 4. Progress reports on fulfillment of the operating conservation program (e.g., habitat acres acquired and/or restored); and 5. Evaluations of the operating conservation program and its progress toward its intended biological goals."

E4-78 ***Additional Comments:***
As discussed above and throughout our comments, for all of the covered species, the HCP fails to require accounting of "take," species surveys, and assessments of many specific primary habitat components. Assessments of progress towards the plan's biological goals will be relatively meaningless, as those goals themselves are grossly inadequate, as discussed above in Section II-A-ii of our comments. Other problems with the HCP's compliance and effectiveness monitoring protocol are also discussed above.

"The following represents the minimum information frequently needed in a monitoring program and its reports: 1. Objectives for the monitoring program; 2. Effects on the covered species and/or habitat; 3. Location of sampling sites; 4. Methods for data collection and variables measured; 5. Frequency, timing, and duration of sampling for the variables; 6. Description of the data analysis and who conducted the analyses; and 7. Evaluation of progress toward achieving measurable biological goals and objectives and other terms and conditions as required by the incidental take permit and/or IA."

E4-79 ***Additional Comments:***
The HCP fails to include most of these monitoring program components for virtually all of the covered species and fundamental issues involved with mitigating the "take" specific habitat values.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-76	316
E4-77	656
E4-78	657
E4-79	301

Letter E4

H. Enforcement and Long-Term Implementation of the HCP:

ESA ss. 10(a)(2)(A)(iv) and 10(a)(2)(B) state that the Services shall require "...other measures...necessary or appropriate for purposes of the plan" and "...other assurances...that the plan will be implemented." The HCP Handbook's template implementation agreement (IA) also states that the purpose of an IA is to ensure that each item of the HCP is implemented. [USFWS et al (1996), Appendix 4, pp. 3 & 6]

E4-80

Additional Comments:

The HCP fails to include sufficient other measures and assurances.

Fundamental flaws with the HCP's monitoring and adaptive management provisions are discussed above in Sections II-F and G of our comments. Provisions in the HCP and IA which preclude meaningful adaptive management are discussed in Sections II-F-ii and iii of our comments.

Fundamental flaws with the HCP's IA are discussed below.

Further, the HCP Handbook also states that enforceable mitigation should be included in HCPs. [USFWS et al (1996), p. 1-16]

E4-81

Additional Comments:

As discussed below, the IA generally fails to include adequate and effective enforcement and remedies provisions.

The HCP and ITP must be accompanied by a legally sufficient Implementation Agreement (IA).

E4-82

Additional Comments:

The IA's measures for plan enforcement, remedies, and relief are highly inadequate. Indeed, it would probably be more accurate to say that the IA simply lacks enforcement, remedies, and relief provisions.

To its credit, the IA does begin to include language maintaining the Services' ESA enforcement authority. [IA, 13.3]

The IA also states that the Services may suspend the ITP if Plum Creek and the Services are unable to agree upon significant adaptive management changes and if dispute resolution proves unfruitful. [IA, 10.3] This provision is useful but inadequate, since it is unlikely that the Services would actually choose to suspend the ITP in such a case. Moreover, suspending the ITP would fail to provide the additional mitigation that is presumably needed in such circumstances.

Similarly, other provisions allowing the Service to revoke Plum Creek's ITP are unlikely to carry much weight once Plum Creek has been allowed to "take" key habitats in the plan's early years. As discussed below, continued mitigation will be required for many years to offset Plum Creek's permitted "take," despite claims to the contrary in the HCP, DEIS, and IA.

The IA lacks any remedies and relief provisions whatsoever. There are no provisions requiring Plum Creek to restore damaged habitats, for example, if the

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-80	608, 611, 613, 618, 631
E4-81	362
E4-82	362, 368

Letter E4

company exceeds the allowable level of "take," fails to comply with the HCP's conservation measures, or otherwise violates the HCP and IA.

In fact, the IA inappropriately states that Plum Creek will not be liable, including for monetary damages, for failure to implement the HCP's conservation measures and mitigate impacts to the covered species. [IA, 13.2]

E4-82 The IA does not clearly maintain citizens' right to sue for enforcement of the ESA's protection measures for listed species. These measures should be understood to include the HCP's conservation measures, which are being substituted for the ESA's normal protection measures. Indeed, the IA may actually restrict citizen suits under the ESA by stating that the HCP, ITP, and IA do not create any third party beneficiaries. [IA, 14.8] This language should be revised to clearly and explicitly authorize citizen enforcement actions. It is well known that citizen suits have been essential to securing implementation of various aspects of the ESA. The San Bruno plan, the model for the ESA section 10 ITP/HCP process, maintained citizens' enforcement rights.

The Services' HCP Handbook's template IA also states that the purpose of an IA includes providing rights to remedies and relief. The Handbook's template IA includes some limited provisions for injunctive and temporary relief. [USFWS et al (1996), Appendix 4, pp. 3 & 6.]

Additional Comments:

E4-83 The IA fails to include provisions providing the Services and the public with rights to specific remedies and relief.

Such provisions are not without precedent. The IA for the Regli Estate HCP grants the Services the right to require restoration of any habitat values that are impacted in violation of the HCP. The Services may also seek damages for some types of violations.

The USFWS' new permit rules state that "a permittee... remains responsible for any outstanding minimization and mitigation measures required under the terms of the permit for take that occurs prior to surrender of the permit and such... even after surrendering the permit...." [50 CFR 17.22(b)(7) and 50 CFR 17.32, as established by June 17, 1999 Federal Register, 64;116.]

Additional Comments:

E4-84 The IA and HCP fail to include sufficient provisions requiring continued mitigation as per the new rules.

The HCP erroneously states that all impacts will be fully and immediately mitigated, such that continued implementation of the mitigation measures will not be required. [HCP, p. 1-16] Likewise, the IA erroneously and improperly states that that the HCP provides full mitigation throughout the HCP's term, that there will be no "mitigation deficit" if the ITP, IA, and/or HCP are terminated early, and that no post-termination mitigation will be required if the ITP, IA, and/or HCP are terminated early. [IA, 6.2.2, 6.3.1, 6.3.2, 6.3.3, and 7] Similarly, the IA inappropriately and erroneously states that continued mitigation will not be required should Plum Creek sell or otherwise transfer lands out of its control and the HCP. [IA, 11.2]

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-83	363
E4-84	327

Letter E4

E4-84

In fact, significant residual impacts are likely for at least two reasons. First, as discussed in Sections II-B & C, III-A, B, C, & D, and VI-A of our comments and elsewhere, the HCP does not fully mitigate "take" and all significant impacts.

Second, several of the HCP's basic mitigation measures will in fact require significant amounts of time to become fully effective, and/or will need continued implementation for other reasons. For example, in many areas, decades will be required for sufficient development of riparian tree stands and other vegetation for the purposes of restoring and maintaining adequate temperature, bank stability, and riparian habitats and microclimates. Moreover, such riparian vegetation will need to be protected once it is established.

The HCP's road remediation measures will also take a number of years to complete. Under the HCP, roads in high priority watersheds will not be finished until year 2010, while roads in other areas will not be finished until 2015. [HCP, p. 2-7 et seq] Similarly, the DEIS indicates that the sediment delivery reductions projected under the HCP alternative will take 15 years to become fully effective. [DEIS, p. 4-167]

The DEIS also notes that the HCPs benefits would decline if it were implemented for a shorter period of time. Establishment of sufficient large woody debris in stream channels, for example, is not expected until well into the planning period. [DEIS, p. 4-193]

The HCP Handbook states that large scale HCPs may also need perpetual funding to cover long term monitoring and mitigation. [USFWS et al (1996), p. 3-24.]

E4-85

Additional Comments:

At 1.7 million acres in size, spanning three states, and 30 years in duration, Plum Creek's HCP is certainly "large scale." However, the HCP fails to include perpetual funding sources.

The Service's Handbook states that the landowner should provide up-front legal or financial assurances, such as a letter of credit, if mitigation measures will be implemented after "take" occurs. [USFWS et al (1996), p. 3-22.]

E4-86

Additional Comments:

Plum Creek's IA and HCP fail to include any up-front financial securities, despite the fact that many key mitigation measures will need ongoing mitigation, as noted above. The IA and HCP fail to require Plum Creek to post bonds other provide other mechanisms to ensure continued implementation of the HCP's mitigation and restoration measures should Plum Creek become insolvent otherwise incapable of meeting its promise.

In fact, the HCP and IA fail to address the HCP's long-term funding needs whatsoever, including additional funding that may be required to respond to "changing circumstances" and other foreseeable improvements and augmentations of the HCP's conservation and restoration measures. [HCP, p. 1-4] The IA simply states that Plum Creek "warrants" that the company has sufficient resources to implement the HCP over its 30 year duration. [IA, 7.0]

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-85	286
E4-86	286

Letter E4

E4-86 The HCP Handbook anticipates that conservation easements can be used to ensure the HCP "runs with the land." [USFWS et al (1996), p. 6-30]

E4-87 ***Additional Comments:***

No such provisions are used to ensure that the HCP will continue to be implemented over time. Conservation easements are a relevant tool for ensuring long-term implementation of forest HCPs. The IA for the Regli Estate HCP, for example, was also attached to the property's deed as part of a conservation covenant and restriction, to ensure that future landowners continue to implement the mitigation measures.

The USFWS' new permit revocation rule states, in effect, that an ITP will be revoked if the permit would "appreciably reduce the likelihood of the survival and recovery of the species in the wild." [50 CFR 17.22(b)(8) and 50 CFR 17.32, as established by June 17, 1999 Federal Register, 64;116, referring to ESA s. 10(a)(2)(B)(iv).]

E4-88 ***Additional Comments:***

The IA largely fails to identify circumstances that would result in the ITP being revoked, such as Plum Creek's failure to comply with the terms of the HCP.

Moreover, the IA appears to undermine the ESA's provisions and Service's regulations pertaining to ITP revocation. Specifically, the IA states that the Services must demonstrate that all actions have been taken pursuant to the "No Surprises" rule before revocation can occur. [IA, 6.2.1]

The IA also undermines adaptive management by stating, in effect, that the Services may only terminate the ITP if failure to do so would "jeopardize" one of the covered species' survival, and if the other remedies (i.e., provision of additional conservation measures on federal lands, etc.) stated in the "No Surprises" rule have been exhausted. Plum Creek, on the other hand, may terminate the HCP at any point under this highly biased IA.

It should also be understood that "jeopardy" is not the appropriate standard by which the HCP and its implementation are to be evaluated. Rather, the HCP and its implementation must be evaluated under the standard of avoiding impacts to species' chances of survival and/or recovery, under the standard of avoiding adverse modification of species' critical habitats, and under other standards listed in Sections II and VI of our comments.

ESA s. 10(a)(2)(C) states that the Services "...shall revoke a permit...if [they] find that the permute is not complying with the terms and conditions of the permit."

E4-89 ***Additional Comments:***

The IA fails to identify circumstances that would result in the ITP being revoked, such as Plum Creek's failure to comply with the terms of the HCP.

Moreover, as noted above and in Section II-F-ii of our comments, the draft IA and HCP appear contradict the ESA by restricting the Services' authority to revoke the ITP and by forcing the Services to meet additional tests before the ITP can be revoked. The

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-87	777
E4-88	328
E4-89	329

Letter E4

E4-89 IA and HCP should be revised to conform with the ESA and the new permit revocation rules.

I. Duration of the ITP:

The HCP must also meet, with regard to each of the covered species, the following standards from the Services' "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." [Federal Register, 64;45, March 9, 1999.]

"...when determining incidental take permit duration... factors include duration of the applicant's proposed activities and the expected positive and negative effects on covered species... including the extent to which the operating conservation program will increase the survivability of the listed species and/or enhance its habitat."

Additional Comments:

Along with supplemental measures not currently provided for in the HCP, the HCP's initial mitigation measures need to be provided for as long as possible.

However, the duration of the Tip's "No Surprises" assurances is too long. If the proposed HCP and IA continue to include "No Surprises" type assurances, and continue to automatically include unlisted species in the ITP, then the negative impacts of the ITP and HCP will only become more intense as time goes on.

E4-90 On the other hand, if "No Surprises" provisions are not included, if the HCP's mitigation measures fully mitigate all impacts and support all covered species' recovery, and if the suitability of the HCP for newly listed species is re-assessed at the time those species are listed, then it might well be beneficial to have an HCP of longer duration, perhaps on the order contemplated for the draft HCP. However, the HCP fails to meet any of these criteria.

Given the HCP's fundamental flaws, including an amendment process in the IA that will allow the HCP and ITP to be extended for an indeterminate amount of time appears fundamentally inappropriate and harmful to the covered species' chances of survival and recovery.

"...the Services will also consider the extent of scientific and commercial data underlying the proposed operating conservation program for the HCP, the length of time necessary to implement and achieve the benefits of the operating conservation program, and the extent to which the program incorporates adaptive management strategies."

J. The Landowner's Eligibility for an ITP:

ESA ITPs are premised upon the idea that the "take" of species and their habitats will be "incidental to otherwise lawful activities." [See ESA Ss. 10(a)(1)(B) and 10(a)(2)(B)(i) and USFWS et al (1996), p. 1-5.] Thus an ITP/HCP should not be granted for any forest management operation or other land use activity that violates federal, state, or local laws.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-90	279

Letter E4

E4-91

Additional Comments:

In determining whether to approve the proposed ITP, HCP, and IA, the Services must assess whether Plum Creek's allowable land management practices under the ITP and HCP would comply with all laws relevant to forest management. Laws which are relevant to forest management on private and state lands include, but are not limited to state endangered species acts, state fish and game codes, state forest practices rules, federal and state water quality rules, state and local land use laws, state air quality rules, state environmental quality rules, federal and state pollution control laws, federal and state hazardous waste laws, federal and state labor practices laws, and federal and state tax policies.

Plum Creek' land management practices are most likely not in compliance with the Clean Water Act and its goals and provisions pertaining to pollution, non-point source pollution, and the maintenance and restoration of "fishable, swimmable, drinkable" waters.

Plum Creek has also reportedly violated Idaho forest practice rules with regard to riparian protections from logging and equipment operation.

Furthermore, as per 50 CFR 13.21(b) and (c), 50 CFR 220.21(b), and USFWS et al (1996), p. 7-1, the Services must determine whether Plum Creek has:

i) been assessed a civil penalty or convicted of any criminal provision of any statute or regulation relating to the activity for which the permit application is filed, if this penalty or conviction evidences a "lack of responsibility;"

ii) failed to disclose material information or made false statements of material fact in connection with the permit application;

iii) failed to demonstrate a valid justification for the permit and a "showing of responsibility;"

iv) violated the Migratory Bird Act, the Lacey Act, or the Bald & Golden Eagle Protection Act; or

v) failed to submit valid, accurate, and timely reports required by their permit.

If the answer to any of these questions is "yes," then the landowner is not eligible to receive or keep a permit under the ESA, Migratory Bird Act, or Bald & Golden Eagle Protection Act.

E4-92

Additional Comments:

As discussed throughout our comments, Plum Creek has failed to provide considerable information about the company's financial capacity to provide additional and more effective mitigation measures, is not providing sufficient information on the presence and distribution of imperiled species and their habitats, has falsely stated that the company is minimizing and mitigating "take" to the maximum extent practicable, and has falsely stated that the HCP and ITP will avoid impairing the covered species' chances of recovery.

We believe that Plum Creek and the Services have not shown a valid justification for receiving/granting the ITP. As exemptions from the ESA and its basic protection

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-91	810
E4-92	30

Letter E4

E4-92 measures, ITPs should not be granted wholesale across entire landscapes. Rather, exemptions should be used for limited circumstances where no reasonable alternatives exist. As discussed throughout our comments, the HCP and DEIS also fail to credible and accurately document that the HCP and all of Plum Creek's allowable land management practices under the ITP will provide a net benefit to the covered species and meet their recovery needs.

III. Additional Comments

A. Inadequacy of the HCP's Impact Minimization and Mitigation Measures for Bull Trout, Salmon, and Other Aquatic and Riparian Species:

E4-93 There is little reason to believe that Plum Creek's conservation measures are sufficient for the protection and especially the recovery of the covered fish species, including bull trout and salmonids -- and every reason to believe that the logging and other operations permitted by the ITP and HCP will significantly and negatively impact the ecosystems and specific habitat components needed by the covered species for their survival and recovery. The HCP's aquatic and riparian protection measures fall significantly short of those expected to credibly and sufficiently reduce risks to salmonid species' chances of recovery. Bull trout are even more sensitive than most salmonid species, and are likely to require even more rigorous protection and recovery measures.

E4-94 The HCP and DEIS' conclusion that the HCP provides a benefit to the covered species is based substantially on faulty assumptions. As discussed above in Section II-A-iii of our comments, the HCP and DEIS also fail to compare the HCP's riparian and aquatic conservation measures with those that would likely be required over time in lieu of the HCP under a more realistic baseline (i.e., "No Action") scenario that would include "no take" standards. In Western Washington, more realistic baseline standards would include the "no take" standards identified by NMFS and summarized in Table 2 below.

E4-95 The HCP and DEIS also fail to document whether the HCP's aquatic and riparian conservation measures will fully offset all impacts to the covered aquatic and riparian species, and whether these measures will produce habitat conditions which correspond to the survival and recovery of the covered species. The DEIS and HCP also fail to identify the extent to which "take" of the various covered species will occur. The HCP and DEIS' discussion of current conditions ignore a number of important factors affecting bull trout, salmon, and other aquatic species, and fails to provide mitigation measures for related impacts. The HCP largely ignores the issue of water flows and timing, and how they are affected by upslope forest management practices, including as discussed below and documented by the references cited in Section VII of our comments. The HCP and DEIS also fail to adequately discuss temperature, the role of invertebrates as food sources and water quality indicators, and the impact of chemical applications, including around upslope intermittent streams. Wetlands, seeps, and springs also receive inadequate treatment.

E4-96 The salmonids and other covered species are likely to be even more heavily impacted by Plum Creek than bull trout, given that the HCP's identification of "Tier 1" watersheds and migratory

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See Response to Comment Table or click on link provided below.

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E4-93	14, 77
E4-94	181
E4-95	106
E4-96	208

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E4-96 rivers is structured solely around bull trout. The HCP's riparian conservation measures and other mitigation measures are substantially weaker in non-Tier 1 watersheds and on rivers which aren't identified as key migration corridors for bull trout. Consequently, the HCP is particularly unlikely to avoid harming the survival and recovery chances of the non-bull trout covered species.

E4-97 Both the HCP and DEIS incorrectly assume that strategies designed around bull trout will be sufficient for salmonids and other native fish. While the various fish species' needs may often overlap, the different species and populations are also likely to have different life history needs in many cases, and may rely upon different parts of the landscape. For example, although the redband rainbow trout inhabits much of Plum Creek's ownership in the Middle Kootenai River basin, only the Parmenter Creek watershed is classified as a Tier I watershed. Comparison of the EIS' westslope cutthroat trout distribution map and the Tier I designation maps show many other areas where this situation occurs. The DEIS also recognizes that the majority of the habitat in the plan area for the covered species other than bull trout are located in non-Tier 1 watersheds. [DEIS, p. 2-20]

E4-98 The HCP's riparian protection measures for Plum Creek lands in Western Washington fall far short of the compromise standards recommended by NMFS for protecting salmonids in the "westside" forests of the West Coast states. These compromise standards include the NMFS proposal for protecting Oregon coho salmon on non-federal forestlands (NMFS 1998), those required by NMFS for "short term" HCPs in California (see NMFS (1999)), the standards employed in the Pacific Lumber Headwaters HCP, and even the inadequate standards proposed in the "Fish and Forests Report" (FFR) developed by Washington State officials, NMFS, and Washington timber industry representatives. (See Table 1 below.)

E4-99 It should also be noted that the FFR has been proposed by NMFS as the basis for an exemption from the ESA's "take" prohibition, as part of the proposed ESA section 4(d) rules for various western salmon and steelhead ESUs. The FFR rules themselves suffer from serious shortcomings, and do not protect an adequate likelihood of survival and recovery for the various salmon and steelhead species. Problems with the FFR rules are well documented in the Washington Environmental Council's comments on the proposed 4(d) rules for western salmon and steelhead. Please note that we wish to incorporate the Council's comments by reference. These comments were submitted to NMFS' Lacey, Washington, office.

E4-100 The HCP's riparian protection and restoration measures fall even further short of those existing standards considered to provide reasonable assurances of recovery. In Western Washington, these standards include the standards employed by the Northwest Forest Plan for federal forests in the range of the Northern spotted owl, and the standards proposed by Pollock et al (1998). These standards are summarized in Table 2 below. The Draft Environmental Impact Statement (DEIS) for the Pacific Lumber Headwaters HCP also indicated that comparable stream buffers and aquatic protection measures are needed to avoid "take" of imperiled salmonids. (USFWS et al (1998)) (See the NMFS "No Take" standards in Table 2.) It should also be noted that even the Northwest Forest Plan was only considered to have roughly an 80% probability of providing

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See Response to Comment Table or click on link provided below.

Comment	Response
E4-97	208
E4-98	603
E4-99	31
E4-100	502

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E4-100 well distributed populations of salmonids across the federal lands in question. (USDA FS et al (1993))

E4-101 In Eastern Washington, Idaho, and Montana, existing standards considered to provide more reasonable assurances of recovery include the "INfish" standards for federal lands and American Fisheries Society et al (1994). Even so, it should be noted that the final listing rule for Klamath River and Columbia River bull trout indicates that the USFWS questions whether the INfish riparian buffers and protection measures for federal lands are adequate for bull trout. The HCP's riparian protection strategy is considerably weaker than the INfish standards, including in terms of the streams covered by buffers, the width of the buffers, and the amount of logging and other activities permitted within buffers. [63 Federal Register 111, June 10, 1998.] The final listing rule for all bull trout populations affirmed that existing federal land management policies are insufficient for bull trout conservation. [64 Federal Register 210, November 1, 1999]

E4-102 It is also unclear whether the HCP even meets the interim bull trout conservation guidelines issued by the USFWS. [USFWS (1998b).]

E4-103 *Table 1. Summary of Compromise Aquatic Protection Standards for "Westside" West Coast Forests*

NMFS "Short Term HCP" (NMFS (1999))	*Perennial Fish Bearing Streams:* 180 ft. buffer w/ no logging. No chemical applications. Additional buffer on steep slopes. *Perennial NonFish:* Same as perennial fish bearing. *Intermittent Streams:* 30 ft. buffer w/ no logging. Additional buffer to 100 ft. w/ significant retention during logging.
NMFS OR Coho Proposal (NMFS (1998))	*Perennial Fish Bearing Streams:* 30 ft. buffer w/ no logging. Additional buffer to 150 to 200 ft. buffer w/ large tree retention, and subsequent no logging. *Perennial NonFish:* 30 ft. buffer w/ no logging. Additional buffer to 100 to 135 ft. w/ large tree retention, and subsequent no logging. *Intermittent Streams:* 0 to 30 ft. buffer w/ no logging. Additional buffer to 75 to 100 ft. w/ large tree retention, and subsequent no logging.
Pacific Lumber HCP	*Perennial Fish Bearing Streams:* 100 ft. buffer w/ no logging. Additional buffer to 170 ft. w/ significant retention during logging. *Perennial NonFish:* 30 ft. buffer w/ no logging. Additional buffer to 130 ft. w/ significant retention during logging. Additional buffer to 170 ft. w/ equipment exclusion. *Intermittent Streams:* 30 ft. buffer w/ no logging. Some exceptions. Additional buffer to 50 to 100 ft. w/ equipment exclusion.
Washington "Fish & Forests Report"	*Perennial Fish Bearing Streams:* 0 to 100 ft. buffer w/ no logging, depending on option chosen. Additional buffer to 90 to 200 ft. with minimal retention during logging. *Perennial NonFish:* 0 to 50 ft. buffer with no logging. Additional buffer (in some cases) to 30 ft. w/ equipment exclusion. *Intermittent Streams:* 30 ft. buffer w/ equipment exclusion.

Notes: For comparison purposes only. Does not include all aspects of the different standards.

E4-104 USDA FS et al (1993), Huntington (1998), Pollock et al (1998), and the Draft EIS for the Pacific Lumber Headwaters HCP (USFWS et al (1998)) all indicate that buffer widths approaching two site potential trees are necessary to *begin* providing microclimate effects and habitat for riparian species. Amphibians and reptiles comprise a large portion of the ecosystem in all water systems and are an integral part of the food web. Adverse effects to amphibian and reptilian populations

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See Response to Comment Table or click on link provided below.

Comment	Response
E4-101	32
E4-102	32
E4-103	603
E4-104	552

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Table 2. Summary of Aquatic Protection Standards that Provide a High Probability of Salmonid Recovery in Forested "Westside" West Coast Watersheds

NW Forest Plan	*Perennial Fish Bearing Streams:* 300 ft. buffer w/ no logging. *Perennial NonFish:* 150 ft. buffer w/ no logging. *Intermittent Streams:* 170 ft. buffer w/ no logging.
Pollock et al (1998)	*Perennial Fish Bearing Streams:* 250 ft. buffer w/ no logging. Some exceptions. *Perennial NonFish:* 250 ft. buffer w/ no logging. Some exceptions. *Intermittent Streams:* 105 to 250 ft. buffer w/ no logging. Some exceptions.
NMFS "No Take" (USFWS et al (1998))	*Perennial Fish Bearing Streams:* 340 ft. buffer w/ no logging. *Perennial NonFish:* 170 ft. buffer w/ no logging. *Intermittent Streams:* 100 ft. buffer w/ no logging.

Notes: For comparison purposes only. Does not include all aspects of the different standards

E4-105

E4-104 (continued)

can lead to adverse impacts on aquatic species such as salmon and trout. Changes in microclimate conditions can alter the ecosystem of the riparian environment for amphibians, reptiles, and other plant and animal species. Buffer widths that allow increased direct and indirect solar radiation into the riparian zone will increase air temperature and decrease relative humidity in that area. If these measurements move beyond the tolerance levels of terrestrial riparian flora and fauna, these species may perish or be forced to find other suitable habitat to complete their life cycle. Rudolph et al (1990), for example, reported amphibian and reptile populations were significantly lower in aquatic habitats with narrow buffer widths (i.e., those less than 98 ft.) than those with wider buffer strips due to greater shading (i.e., less solar radiation and lower air temperatures) and open understory vegetation.

E4-106

The DEIS also recognizes that there is reason to be skeptical that the HCP's riparian conservation measures will be sufficient to produce proper microclimate conditions in riparian zones. [DEIS, p. 4-181] While the DEIS suggests that subsequent monitoring and (perhaps) adaptive management will address any shortcomings, a close reading of the HCP's monitoring, adaptive management, and "changing circumstances" and "No Surprises" provisions strongly suggests otherwise. (See Sections II-F-ii & iii and II-G of our comments.)

E4-107

The HCP's measures on smaller and intermittent streams are particularly inadequate, including for water quality, downstream bull trout and salmonids, and amphibians, invertebrates, and other aquatic and riparian species. The HCP's measures are unlikely to meaningfully reduce sedimentation to other streams, maintain normal water flow levels and timing, protect water temperature, and provide habitats needed by species that utilize intermittent stream habitats.

Intermittent streams normally provide important nutrients and food sources for fish and aquatic systems. Conversely, when impacted by logging and roading, these streams can significantly affect stream temperatures, sedimentation, hydrology, and other conditions downstream. The importance of intermittent, upslope streams to downstream fish habitat conditions is noted in USFWS (1999), NMFS (1998), and Reid et al (1999), for example, as well as in NMFS' critical habitat notices for Oregon Coast coho and Upper Columbia steelhead. Streamside trees and other vegetation are needed throughout all stream reaches to prevent erosion and wasting, and

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See Response to Comment Table or click on link provided below.

Comment	Response
E4-105	552
E4-106	553
E4-107	533

Letter E4

E4-107 large woody debris is needed to help trap sediment, prevent scouring, and maintain other functions.

E4-108 The HCP's measures for seeps, springs, and other non-stream riparian areas also fall far below those recommended by NMFS (1998) and other more recovery-oriented proposals, as well as those employed by the Northwest Forest Plan and even the Pacific Lumber HCP. USDA FS et al (1993) and USDA FS et al (1994) recommend no-harvest buffers of 1 to 2 site potential trees (i.e., roughly 170 ft. to 340 ft.) around different types of non-stream riparian areas.

E4-109 The HCP's inadequate measures on smaller streams, intermittent streams, seeps, and springs will also lead to adverse impacts on the amphibian populations that are crucial to this habitat. The resulting lack of forest cover means that evapotranspiration rates are likely to increase with increasing air temperature and may contribute to a lowering of the groundwater table and soil moisture content. This may prematurely dry up intermittent streams, depriving flora and fauna of an important water source during the dry season. Intermittent streams also provide important primary habitat for a number of amphibians and other species, including species that do not tend to utilize larger streams as frequently. [American Lands (1998), Benda et al (1998), and USFWS (1998).] Equally important, roading, logging, and other operations within and adjacent to intermittent streams is likely to lead to significant amounts of erosion and sediment loading in downstream channels, including areas needed for salmon spawning and other functions. In this context, it is quite unclear whether the HCP's vague and open-ended goals for reducing equipment use in intermittent streams will be sufficient.

USFWS (1998) also found that the aquatic conservation strategy proposed in NMFS (1998) is necessary, and indeed in some respects insufficient, for the conservation of riparian associated amphibians. Again, the HCP's measures fall significantly short of those proposed in NMFS (1998), i.e., the agency's proposal for protecting coho salmon in Oregon.

As recommended by Olson in Benda et al (1998), the HCP also needs to provide long term refugia (or "anchor" habitats) which contain the specific habitat elements needed by different riparian and aquatic habitat associated amphibians. Sites used by the different species need to be inventoried and protected. Section VIII, Table 5, of our comments lists examples of amphibians which are associated with small streams in Washington, and which need to be addressed more carefully by the HCP and DEIS.

E4-110 It is also unclear whether the HCP adequately protects and restores habitats on non-fish-bearing streams which historically supported bull trout, salmonids, and other aquatic and riparian species, or which are otherwise needed for the species' recovery. The HCP fails to address the question of whether streams which once provided habitat for salmonids and other fish have become non-fish-bearing due to historical and current roading, logging, and other land use practices. There is evidence that fish can utilize relatively steep stream reaches when large woody debris provides pools and "stair step" stream structure. [See Trotter (1995) and Montgomery (in preparation).]

E4-111 The HCP fails to protect as "refugia" those watersheds which remain relatively unimpaired and productive for bull trout, salmonids, and other covered species. The importance of protecting

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-108	503
E4-109	222
E4-110	92, 514. 534
E4-111	33

Letter E4

E4-111 remaining refugia is discussed in several of the studies referenced in Section VII of our comments.

E4-112 The HCP and DEIS fail to adequately mitigate for road densities and resulting impacts. The HCP fails to include any standards or goals for maximum road densities. In fact, the ITP and HCP allow substantial net increases in road miles and densities.

E4-113 As noted in the final listing rule for bull trout, high road densities have a negative impact on bull trout populations. Road densities are also a good indicator of likely impacts to salmonids and other aquatic species as well. Along with clearcutting, high road densities have been documented to result in substantial increases in peak stream flows, including, but not only, during rain on snow events. Peak flow increases of 20% to 50% have been reported in large watersheds as a result of road densities as low as 10% of the watershed area. [Grant (1994) and Grant et al (1996).]

E4-114 The projected road density in the HCP area (6.5 mi/mi^2) greatly exceeds those thought to have negative impact on Puget Sound bull trout (1.7 mi/mi^2) and on inland bull trout (0.7 mi/mi^2). [64 Federal Register 210, November 1, 1999] The HCP indicates that at least 16,000 miles of roads are present on Plum Creek lands in the plan area, and that Plum Creek plans to build another 1,300 miles. [HCP, p. 2-1] While we applaud the HCP's proposed abandonment of "surplus" roads, the HCP fails to establish any quantitative targets for the amount of roads to be abandoned and restored. [HCP, p. 2-7 et seq.] Consequently, it is most prudent to assume that the 1.7 million acre plan area will be affected by at least 17,300 miles of roads. (Densities will of course vary somewhat given the diversity of the plan area's conditions.)

E4-115 The HCP's measures for road management rely heavily on existing state best management practices (BMPs). [HCP, p. 2-3] Clearly these BMPs are insufficient, or the various listed covered species would not have required protection under the ESA, and certainly Plum Creek would not be in the position of needing an ITP to avoid enforcement of the ESA's prohibitions on "take." Requiring Plum Creek to follow the Montana BMPs and "enhanced" road BMPs is step in the right direction. [HCP, p. 2-7 et seq.] However, there is no evidence that this step is anywhere near sufficient for the conservation and recovery of the covered species. Moreover, the HCP and DEIS lack any objective assessment of each state's BMPs, the specific habitat conditions and fish populations likely to result from implementing these BMPs, and how these outcomes compare with quantitative indicators of recovery for each covered species.

E4-116 The HCP should focus on road obliteration (i.e., restoration of approximate original contour) rather than mere road abandonment. Abandonment may not be sufficient to avoid significant risk of triggering large and cumulative small landslides.

E4-117 The HCP lacks explicit measures to address a number of key problems, including but not limited to the remediation of existing stream crossings which are impassable to fish and/or which are likely to blow out under storm conditions, and protection measures needed for seeps and springs. Instead, the HCP's "enhanced road BMP" section states that Plum Creek will be expected to *drain* seeps and springs when constructing roads through them. [HCP, R1-1 et seq.]

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See Response to Comment Table or click on link provided below.

Comment	Response
E4-112	379, 414, 418
E4-113	415
E4-114	416
E4-115	461
E4-116	442
E4-117	398

Letter E4

E4-118 The HCP lacks any process for the Services or other credible, independent third-parties to verify whether Plum Creek staff, who by definition have a clear conflict of interest, are accurately and thoroughly identifying problem roads during the HCP's road inspection process. [HCP, p. 2-7 et seq.] Similar verification should be required of the HCP's measures for assessing road runoff and erosion.

E4-119 In Montana, the HCP only requires culverts to be capable of handling 50 year storm events. [HCP, p. 2-7 et seq.] Culverts should be required to handle at least 100 year events. However, recent years in the Pacific Northwest demonstrate that events which were once considered 100 year events may actually occur more often -- meaning that culverts should probably be capable of handling even more intensive storms.

E4-120 Not surprisingly, perhaps, the DEIS states that the Services cannot determine whether the HCP's projected level of sediment delivery reductions will be sufficient to allow for the recovery of the covered species in all areas. [DEIS, p. 4-167] Consequently, the HCP and ITP should not be approved under ESA s. 10. While the DEIS implies that subsequent monitoring and (perhaps) adaptive management will address any shortcomings, a close reading of the HCP's monitoring, adaptive management, and "changing circumstances" and "No Surprises" provisions strongly suggests otherwise. (See Section II-F-ii & iii and II-G of our comments.)

E4-121 The HCP fails to adequately address water quality. For example, there is no evidence presented in the HCP and DEIS to support the conclusion that the HCP will provide water quality conditions needed by bull trout. Among other things, bull trout require stream temperatures of 1 to 12 degrees Celsius depending on their life stage and other factors -- considerably colder than those temperatures required by the Washington Water Quality Standards, for example, i.e., 16 degrees Celsius and higher. Not surprisingly, the final listing rule for bull trout finds that the Washington Water Quality Standards are insufficient for bull trout. [64 Federal Register 210, November 1, 1999] The September 15, 1998, USFWS Biological Opinion for the Oregon Water Quality Standards also confirmed that even Oregon's standards are "...likely to adversely affect bull trout...," at least for some life stages. [USEPA (1998).] The Oregon standard is 10 degrees Celsius.

E4-122 The DEIS recognizes that, in relation to the water temperature requirements of the covered species, the HCP most likely *will not* achieve adequate conservation of the covered species in all watersheds. [DEIS, p. 4-179] Consequently, the ITP and HCP must not be approved, as per ESA s. 10 -- at least not for those watersheds. The DEIS fails to identify watersheds which are likely to fail to meet the species' conservation and recovery needs, and fails to address how these shortcomings will affect different populations of the different species' chances of survival and recovery.

E4-123 In fact, there is little reason to believe that the HCP will achieve water temperature standards needed for the survival and recovery of bull trout and the other covered species in *any* of the covered watersheds. The DEIS states that the HCP is likely to only yield water temperature reductions of 1 degree Fahrenheit. [DEIS, p. 4-179] This is likely to be highly insufficient in

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See Response to Comment Table or click on link provided below.

Comment	Response
E4-118	302
E4-119	411
E4-120	77
E4-121	811
E4-122	14, 92, 246
E4-123	14, 92, 246

Letter E4

E4-123 many areas for many of the covered species, including bull trout. The DEIS fails to examine the actual temperature outcomes expected under the HCP, and how this relates to the conservation and recovery needs of each of the covered species.

The basis of Plum Creek's assumptions about salmonids' water temperature needs (Watson and Hillman 1997) is also flawed because a) they had no control sites (i.e., undisturbed watersheds) for comparison, b) the water temperature inferences were extrapolated from unreplicated point-estimates during one season.

E4-124 More generally, there is no evidence that the HCP's conservation measures will provide the specific habitat conditions needed by bull trout. Moreover, the HCP fails to include specific, quantitative biological goals, monitoring indicators, and adaptive management triggers for most of these conditions. The final listing rule for Klamath River and Columbia River bull trout describes basic habitat functions and criteria that should be provided by the HCP's conservation, mitigation, and restoration measures. According to the final rule, needed habitat conditions include: large woody debris; undercut banks; boulders; pools; beaver ponds and other overwintering areas; low gradient streams with loose clean gravel free from fine sediments for spawning; suitable insects, small fish, and other food sources; and cold water, with a maximum of 59 degrees Fahrenheit at all times, with maximum of 48, 46, 39 degrees for spawning, rearing, and egg incubation respectively; and migratory corridors. [63 Federal Register 111, June 10, 1998.] The final listing rule for all bull trout populations indicates that spawning habitat temperature requirements are 5 to 10 degrees Celsius (41 to 51 degrees Fahrenheit). [64 Federal Register 210, November 1, 1999]

E4-125 Moreover, as indicated by Friends of the Wild Swan (1998) and Friends of the Wild Swan et al (1998), bull trout need: migratory corridors on an intra- and inter-watershed basis; full protection for intermittent streams, non-fish-bearing streams, wetlands, and unstable slopes; vegetation retention, canopy closure and other upland conditions to ensure full ecosystem function; maximum stream temperatures of 6 to 8 degrees Celsius for spawning, 10 to 12 degrees for rearing, and 12 degrees for migration; less than 20% fine sediment over natural conditions in spawning habitat; pool frequency; bank stability; cobble embeddedness of less than 30% in summer rearing habitat and less than 25% in winter rearing habitat; and riparian buffers of at least 300 feet on all streams. Again, there is no evidence that the HCP's conservation measures will provide most of these habitat conditions.

E4-126 While the HCP does include some monitoring and adaptive management provisions with regard to temperature, bull trout, and other considerations, the range of improvements in the HCP's conservation measures that can be required of Plum Creek is extremely narrow. Moreover, as discussed earlier in our comments, the HCP's monitoring, adaptive management triggers, and adaptive management process are so flawed that there is little reason to believe that meaningful improvements and additions to the HCP's conservation measures will be adopted over time.

E4-127 The HCP completely fails to address logging, chemical applications, intensive broadcast burning, and other activities permitted by the ITP across upslope areas, i.e., the majority of the land area in the HCP's covered watersheds. The HCP fails to even include minimal retention requirements

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Comment	Response
E4-124	339
E4-125	504
E4-126	691
E4-127	250

Letter E4

E4-127 for understory vegetation, green trees, snags, and large woody debris, something which is common (though rarely sufficient) in other forest HCPs.

E4-128 The HCP alternative will actually allow *increased* impacts to watershed conditions and the covered species, contrary to the HCP and DEIS' repeated and largely unsubstantiated claims that the HCP will provide a net benefit. Section 4.3 of the DEIS acknowledges that under the ITP, Plum Creek can employ widespread clearcutting and other more deleterious logging and silvicultural regimes, instead of the partial cutting practices that are supposedly being employed at the moment. [DEIS, p. 4-20]

E4-129 The HCP and DEIS fail to include any mitigation measures whatsoever to address the hydrological impacts of widespread clearcutting and other intensive silvicultural practices allowed by the ITP. Along with high road densities, frequent, widespread clearcutting has been documented to result in substantial increases in peak stream flows, including, but not only, during rain on snow events. [Grant (1994) and Grant et al (1996).] The DEIS also recognizes that logging affects peak and low stream water flows. [DEIS, p. 4-90] Recent materials from the US EPA also confirm the importance of addressing "...hydrological maturity/successional issues ...(vegetation patterns/composition/structure) with respect to both peak flows and base flows" for the conservation of native fish, salmonids, amphibians, and other riparian habitat associates. [Moore (1998)]

E4-130 The DEIS also notes that bull trout need ground water upwellings for spawning. [DEIS, p. 4076] However, the HCP fails to include any measures to protect groundwater flows from roading and logging operations. Logging can affect groundwater flows by changing water retention timing and rates. Roading can affect groundwater flows by altering geology and soil hydrology. Both the HCP and DEIS fail to assess the extent to which practices allowed under the ITP could impact groundwater flows and timing.

E4-131 Section 4.2 of the DEIS acknowledges that soil disturbances can increase erosion potential. However, the HCP and DEIS fails to evaluate the extent and intensity of erosion and sedimentation likely to result from Plum Creek's upslope logging practices and other sources of soil disturbance across the plan area. Nor do the documents ever quantify the extent to which landslides and mass wasting are already occurring across the plan area, the extent to which they will occur under the HCP, and how these disturbances will affect the survival and recovery of the covered species. The HCP and DEIS also fail to assess the risk to small, genetically distinct fish populations from large slides that could obliterate large portions of their remaining range.

E4-132 The final listing rule for Klamath River and Columbia River bull trout also indicates that upslope logging that alters erosion, sedimentation, runoff patterns, the magnitude of peak and low flows, and annual water yield can affect temperature, channels, substrates, and other habitat conditions in bull trout streams, thereby harming bull trout. [63 Federal Register 111, June 10, 1998.] The HCP and DEIS fail to examine the extent to which the logging and other operations permitted by the ITP in upslope areas will cause such impacts. No mitigation measures are provided for these impacts.

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Comment	Response
E4-128	126
E4-129	554
E4-130	252
E4-131	477
E4-132	127

Letter E4

E4-133 Ultimately, no evidence is provided in the HCP or DEIS to suggest that logging will occur at levels which will avoid significant harm and which will allow the re-establishment of habitat conditions needed for the survival and recovery of bull trout, salmonids, invertebrates, amphibians, and other aquatic and riparian species.

E4-134 The HCP also fails to consistently and thoroughly require reductions in logging, roading, and other impacts on unstable slopes, including slopes at high risk of failure. Substantial amounts of logging are allowed in many slide prone areas. This will often be exactly the opposite of what is needed: retention of the larger trees, to maintain site stability, and to ensure that when failures do occur, large woody debris is delivered to stream channels.

E4-135 In addition to the monitoring problems discussed in Section II-G of our comments, the HCP fails to monitor aquatic invertebrates. The importance and utility of using invertebrates and other biological indicators during water quality assessments and monitoring is discussed in Karr et al (1999), Karr (1998), Karr (1991), and other resources listed in Section VII of our comments. The Oregon plan for conserving coastal coho salmon also establishes basic protocol for using macro-invertebrates as water quality indicators.

E4-136 It should not be assumed that existing watershed analysis processes are sufficient, including where they are being utilized as part of the existing regulatory framework that is incorporated as part of the HCP's mitigation measures. The HCP and DEIS fail to examine and offset these shortcomings.

E4-137 The Washington watershed analysis process, which is often upheld as a model, nevertheless suffers from significant gaps and problems. Gaps and problems related to salmonids and bull trout include: 1) lack of assessment of the biotic integrity of waterbodies (e.g., macroinvertebrates); 2) limitation of riparian assessment to shade and large woody debris recruitment from stands adjacent to fish-bearing streams, ignoring other riparian functions such as microclimate, and food chain support and wood recruitment to non-fish channel segments for water quality (i.e. sediment routing) and as source for downstream stream reaches; 3) lack of an antidegradation policy and use-based water quality criteria (i.e., temperature standards) during water quality assessment; 4) during hydrology assessments, lack of consideration of surface/groundwater interactions, groundwater system recharge/discharge areas, subsurface flow and thermal regimes, and hydrologic functions of forest canopy in rain dominated landscapes (i.e. the process assumes the most significant effects of timber harvest on hydrologic processes is through the influence on snow accumulation and melt during rain-on-snow events); and 5) during temperature assessment, inadequate consideration of heat transfer from air to surface water, from soil to shallow groundwater, and from shallow groundwater to streams (i.e. ground/surface water interactions can result in adverse change to surface water temperature, causing potential loss of reach-scale thermal refugia and degrading summer rearing habitat for aquatic biota).

E4-138 While we applaud the HCP's inclusion of measures to restore existing "legacies" (i.e., heavily impacted stream reaches, etc.), these measures should not be counted towards the conservation and recovery of the covered species until the HCP includes specific, measurable targets and

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Comment	Response
E4-133	128
E4-134	485
E4-135	658
E4-136	129
E4-137	34
E4-138	800

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E4-138 objectives for such projects. Currently, these projects are only vaguely defined in the HCP. Specific project goals, performance standards, and schedules should be developed. Moreover, the HCP provides Plum Creek with complete discretion as to the extent and type of restoration projects that will be undertaken. [HCP, p. 6-4]

B. Inadequacy of the HCP's Impact Minimization and Mitigation Measures for Species Dependent on Old Growth and Older Forest Habitats:

Salmonids, bull trout, and other fish associated with forested watersheds co-evolved with habitat conditions and ecosystem processes that reflected the presence of old growth forests and other mature forest stands across substantial portions of the landscape. The relationship between salmon and forests appears to be truly symbiotic. In addition to being themselves dependent on habitat and watershed conditions associated with older forests, spawning salmonids and their predators and decomposers contributed heavily to the maintenance of soil nutrients and flaura and fauna in riparian zones, which in turn supported future salmon populations. [Lichatowich (1999)]

Restoring mature forest conditions across significant portions of forested watersheds is an essential component of protecting and recovering imperiled salmonids and other native fish species. A combination of forest protection, restoration, and improved management approaches can be used to meet this goal. For example, as discussed above in Section II-C of our comments, the adoption of longer timber rotations is an economically-beneficial and "practicable" measure which can be used to supplement other protection and restoration measures by reducing cumulative watershed impacts, helping restore relatively mature forest conditions, and maintaining and even increasing landowners' timber production and revenues.

E4-139 The HCP, however, fails to protect, much less restore, old growth and more mature forest conditions across the plan area's watersheds. The HCP's riparian buffers are far too narrow and subject to logging to provide ecologically viable interior forest habitat, and thus will not provide viable older forest ecosystems in many respects, should the trees and understory vegetation in these buffers be allowed to mature. The draft Crown Pacific HCP for Northwestern Washington notes, for example, that interior forest habitats are not found within the first 330 ft. of timber stands. [Draft Crown Pacific HCP, page 3-40] Moreover, the draft HCP and IA would allow Plum Creek to terminate the ITP, HCP, and IA at any time and discontinue provision of the HCP's promised mitigation measures, meaning that even the proposed riparian buffers and forest conditions may very well never be produced.

Equally important, the HCP is completely lacking in forest management standards, parameters, and goals for upslope areas, i.e., the majority of the plan area and the affected watersheds. No protection measures exist for the remaining old growth or mature forest stands or fragments which are likely to exist across the plan area. Both the HCP and DEIS fail to provide detailed information on the plan area's timber stands and the presence of older forest habitat areas. Even individual old trees provide an important building block in the restoration of older forest habitats; thus logging such trees will work against the recovery of old growth dependent species. Individual old trees may also be providing important refugia for rare and imperiled lichens and

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other species with relatively small habitat ranges. The HCP and DEIS fail to assess and mitigate these potential impacts.

Consequently, there is no basis for assuming that mature forest conditions will be produced across the majority, if not all, of the plan area. Indeed, the ITP, HCP, and IA would allow Plum Creek to log the majority of the plan area within very short time frames, subject only to the minimal requirements of the Washington, Idaho, and Montana forest practice rules. Such a scenario would leave the plan area dominated by early successional forests, assuming that regeneration is successful.

E4-139 Thus issuance of the ITP and HCP is not only likely to harm the survival and recovery chances of the covered native fish species, but will also harm the survival and recovery of other listed and non-listed aquatic, riparian, and terrestrial species which rely upon more mature forest habitats.

The species affected by Plum Creek's failure to protect and allow the natural regeneration and restoration of older forest stands and habitats will include both species that are currently present in the plan area, and species which are not present, but which will need viable habitats in the area for their recovery. Presumably, many wildlife and plant species will need viable habitats in the area in order to maintain or re-establish population linkages between neighboring federal lands.

Species likely to be affected include but are not limited to: marbled murrelet, Northern spotted owl, fisher, marten, pileated woodpecker and other cavity nesting birds, various frogs and amphibians, Northern goshawk, and Vaux's swift.

E4-140 Federal lands will also be insufficient for the protection and recovery of many imperiled species. Most of the habitat for most threatened and endangered species is found on non-federal lands. [GAO (1994)] Equally important, the management of federal lands is not sufficient to support the survival and recovery of many species. For example, the Northwest Forest Plan for federal forestlands within the range of the Northern spotted owl was only expected to provide an 50% chance of supporting 41% of late successional forest species. (See Section VIII, Table 4, of our comments.) Implementation problems with the Northwest Forest Plan and its inherent insufficiency for lower elevation forests and many late successional species are discussed further in Section VI-A of our comments.

Well over half of the amphibian, bird, and mammal species associated with old growth forests in the Pacific Northwest have over half of their habitat on non-federal lands. Specifically, 67% of selected amphibians, 77% of selected birds, and 73% of selected mammals associated with old growth forests have 50% or more of their range on non-federal lands. (See Section VIII, Table 3, of our comments.) Consequently, Plum Creek's HCP and ITP, which cover a substantial amount of land, have the potential to significantly affect these species' chances of survival and recovery.

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C. Inadequacy of the HCP's Impact Minimization and Mitigation Measures for Other Species:

The ITP and HCP is likely to impact a host of species which rely on more developed timber stands and forest habitats, and/or species which are sensitive to human disturbance, chemical applications, and other impacts associated with intensive industrial forestry and other activities permitted by the ITP and HCP.

The HCP fails to provide any meaningful mitigation for clearcutting and other industrial timber operations across the unprotected, managed areas covered by the HCP. As discussed above in Sections III-A and B of our comments, no significant vegetative retention or other mitigation measures are required during clearcutting and other operations on most of the HCP's forested areas. While Plum Creek is reportedly using somewhat less intensive even and uneven aged silvicultural practices, nothing in the HCP or IA precludes Plum Creek from reverting back to clearcutting. Ecologically, shelterwood and seed tree harvests also function as clearcuts.

The HCP and DEIS fail to account for how the potential virtual absence of green trees, snags, down logs, understory, "lifeboat" retention areas, etc., across the majority of the plan's forested landscape will affect various covered species, their specific habitat needs, population trends, dispersal, and survival and recovery. Likewise, the HCP and DEIS fail to account for how impacts to the broader forest ecosystem, soil productivity, and biological diversity will impact the covered species.

E4-141

The HCP and DEIS fail to address the intrusion of invasive exotic plants and other species that is likely to result from intensive logging operations, grazing, and other activities that will negatively impact native plant communities and habitats, and that facilitate the establishment of exotic species.

Since changes in Plum Creek's timber rotation age, tree species mixture, use of chemicals, etc., are not included in the HCP as "changing circumstances," Plum Creek can utilize even more intensive forestry practices over time, including by introducing exotic or genetically altered tree species, leading to further impacts which will not be mitigated.

The HCP and DEIS fail to incorporate the results of existing and needed additional surveys for other listed and unlisted species and their habitats.

Species likely to be impacted include but are not limited to: olive sided-flycatcher, harlequin duck, bald and golden eagle, grizzly bear, gray wolf, western toad, Cascades frogs, wolverines, and species identified in Benda et al (1998) as likely to be harmed by the draft Western Oregon State Forests HCP (see Section VIII, Table 2, of our comments).

The HCP and ITP's potential relationship to the conservation and recovery of sage grouse should also be addressed.

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The DEIS also recognizes that a number of species are likely to lose primary habitats under the ITP and HCP. Specifically, numerous species in five "lifeform" categories would all lose primary habitats: ducks and turtles (6% loss), elk and grouse (3% loss), warblers and porcupines (28% loss), sparrows and thrushes (30% loss), and kingfishers and beavers (8% loss). Some of these species categories are already have low primary habitat presence, meaning that additional losses may be particularly significant; these include: ducks and turtles (presently at 44%), and kingfishers and beavers (40% presently). [DEIS, pp. 4-237 to 4-239]

Interestingly, at least one these species groups that are losing primary habitats are associated with healthy riparian and aquatic ecosystems, and provide important habitat for salmonids and other native fish during different life stages: beavers. The DEIS fails to address this issue and the resulting impacts on the covered species' chances of survival and recovery.

D. Additional Comments Regarding Livestock Grazing:

Cattle and sheep grazing has occurred on Plum Creek's land in the project area since the late 1800s. Private operators currently lease the forage (and necessary water) on Plum Creek lands, grazing approximately 10,000 cows in 1998. [HCP p. 4-1] Grazed lands within the project area are laced with 1,928 miles of streams, of which 265 miles are within Tier 1 watersheds. Forty miles of streams potentially affected by grazing are further designated as Key Migratory Rivers. [HCP p. 4-1]

Livestock grazing is detrimental to riparian areas and fish habitat. The HCP acknowledges that livestock grazing and trampling causes reduction in streamside vegetation, severe erosion, stream widening, and increased stream temperatures. [HCP p. 4-1]. Nevertheless, Plum Creek proposes to continue grazing in the project area.

The HCP's proposed mitigation measures for livestock grazing consist of five components: 1) grazing best management practices (BMPs); 2) grazing exclosures; 3) evaluating the long-term effectiveness of BMPs; 4) reporting on status of vacated leases; and 5) rancher training. [HCP p. 4-1 – 9; App. G]

The BMPs have four primary components: 1) performance standards; 2) annual range management plans; 3) stream and riparian habitat monitoring; and 4) preparation of end of year reports. [HCP p. 4-3 – 4; App. G-1-2]

E4-142

The performance standards suffer from several major flaws. First, the "streambank stability" standard is unrealistic, given the cumulative impacts of grazing. A majority of western streams have been damaged by 50-150 years of livestock grazing, some irreparably so. Permitting continued livestock disturbance in the project area, even as little as ten percent per year, will not allow for full recovery of riparian areas that have already been subjected to decades of grazing.

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E4-143 Second, the "riparian compaction" standard may be impossible to meet. Certainly the standard of less than ten percent of hoof displacement/compaction is laudable. However, cattle gravitate to water and appurtenant lush vegetation. Unless they are continually herded to uplands or fenced from streams, livestock will focus much of their grazing on riparian areas. Also, the test area for visual estimation of displacement/compaction (66 feet by 66 feet) is likely too small to afford a reasonable estimate of livestock damage throughout a larger area.

E4-144 Third, the "grass utilization" standard is inadequate. Given that annual and perennial riparian vegetation can grow to two feet in height, if livestock were allowed to utilize it to eight inches then heavy damage would likely occur to fish habitat by lingering cattle in the form of erosion, pollution from cattle dung and soil compaction.

E4-145 Fourth, the "tree regeneration" standard may be impossible to implement. How can the effects of hoof compaction on tree regeneration be "visually evaluated?" Indeed, the impacts of compaction on root and stem/trunk occur underground, out of sight. Also, the test area for visual evaluation of compaction on tree regeneration (66 feet by 66 feet) is likely too small to afford a reasonable estimate of livestock damage throughout a larger area.

E4-146 Fifth, the "shrub regeneration" standard is inadequate. The HCP states "[w]here they can exist, shrubs must be present along streams and in riparian areas...." We note that shrubs can exist *everywhere* along streams and in riparian areas in western Montana. Where they do not currently exist, they were probably consumed by livestock.

E4-147 Sixth, the "Weeds" standard lacks actual standards. The HCP simply states "[n]ote presence and species (no standard—monitor and note)." This standard is extremely important given that cattle are perhaps the most culpable vector for weed dispersal in the west. Yet, the weeds standard lacks measures for stream recovery. Merely monitoring and noting where weeds exist will not halt their advance into pristine areas, and may prove a depressing task given how quickly weeds can spread through livestock grazing.

E4-148 The grazing exclosures provisions need to be implemented immediately, not nine years in the future. The HCP proposes construction of grazing exclosures along stream reaches where conditions are declining due to cattle grazing after year nine of the plan. Cattle grazing can decimate riparian habitat in less than two years, especially in successive dry years. Waiting nine years to bar cattle from these areas is poor management and will cause fish to decline.

E4-149 With regard to vacated leases, we urge Plum Creek to follow the recent examples of several federal land management agencies which have retired vacant/vacated grazing leases/permits to protect sensitive species and allow for habitat recovery.

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E4-146	744
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Livestock grazing has forced more plant, animal, bird and fish species to be listed under the ESA than any other human activity (Wilcove 1998) (invasive species—weeds—are the second greatest threat to native flora and fauna (Wilcove 1998)). Chaney, Elmore, and Platts wrote in *Livestock Grazing on Western Riparian Areas* that "extensive field observations in the late 1980s suggest riparian areas throughout much of the West were in the worst condition in history" (Chaney et al. 1990).

E4-150 Given the environmental destruction wrought by livestock grazing and the tiny financial return from ranching operations, Plum Creek should eliminate grazing in the plan area. Cows and fish cannot coexist. Although admirable, conservation measures proposed in the HCP will forever be too weak to recover sensitive fish and other species.

E4-151 Should grazing continue in the permit area, substantially stronger conservation measures must be developed to *ensure* habitat recovery, every year, regardless of weather, forage, and management conditions. Grazing management must err on the side of conservation. Cows must be removed and excluded from areas damaged by grazing. Grazing leasees, Plum Creek administrators and independent evaluators must constantly monitor grazing impacts on riparian areas and associated uplands. Cattle must be constantly herded away from sensitive areas throughout the grazing season.

E4-152 The HCP lists four reasons for continuing grazing leases in the project area: 1) [Grazing] generates revenue for the company and diversifies income sources; 2) Because open range laws in the Project Area, cattle use of some Plum Creek lands is inevitable. Maintaining grazing leases with responsible operators can be more effective than merely trying to fence out all cows; 3) Forested range grazing is important to the region both economically and culturally. In the absence of Plum Creek leases, many livestock producers would either go out of business or dramatically reduce their herd sizes; and 4) Plum Creek believes that both forestry and livestock grazing are legitimate land uses, and if conducted in a manner consistent with good stewardship of the land, are fully compatible with maintaining high quality water and fisheries. [HCP, p. 4-2]

We find this reasoning to be flawed and noncompelling. First, grazing income is minimal for private and public ranchers alike. Proper conservation management as described above is costly. If such measures are employed, grazing will be a money loser. Second, we agree that open range laws are antiquated and absurd. Although expensive, fencing the outer perimeter and removing cattle from the project area would solve all the grazing problems affecting fish habitat. If grazing is to continue, management planning must account for the unauthorized use.

Third, ranching is dying as an industry. Economic contributions from livestock grazing are minimal. Cultural values such as those associated with ranching are lost and gained by our society as our perception of what is valuable evolves over time. Finally, while it is true that g razing is a historic use of western lands, ecologically, we do not agree that it is legitimate.

See Section II-B of our comments for additional suggestions and concerns regarding the HCP's approach to livestock grazing.

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E. Extension of the HCP and ITP to Additional Lands:

E4-153

The IA would allow Plum Creek to extend the ITP to other lands within the planning area after providing cursory information on the land parcels and likely effects. [IA, 11.1.2] The process appears inadequate. The Services will also need to evaluate the inclusion of any significant new lands to the HCP and ITP under ESA ss. 7 and 10 at the time those inclusions are proposed.

If federal lands are transferred to Plum Creek, the Services will need to assess the impacts on the success of federal land management strategies and the survival and recovery of not only the covered species, but also other sensitive species in the planning area, as well as other species which may need habitats in the planning area for their recovery. It should not be assumed *a priori* that the transfer and inclusion of federal lands to the ITP will be of low significance.

The proposal to treat such situations as minor amendments to the HCP and ITP may have significant impacts on various sensitive species, including species other than those proposed for coverage by the ITP and HCP. [IA, 11.1.3]

IV. Additional Goals and Standards For Forest HCPs

The following goals and standards are common sense approaches needed to meet the ESA's policy standards for HCPs, including those standards listed in Sections II and VI of our comments, and the ESA's requirements to use the best available science, avoid significant impacts to species' chances of survival and recovery, and minimize and mitigate impacts to the maximum extent practicable. The goals and standards are also based on the recommendations of a number of independent conservation biologists, scientific assessments of HCPs, and policy assessments of HCPs, including Aengst *et al* (1998), Bean et al (1991), Bean (1998), Benda *et al* (1998), Cheever *et al* (1998), Hood *et al* (1998), Kareiva *et al* (1999), Murphy *et al* (1996), Noss *et al* (1997), and other sources listed in Section VII below.

A. Scope and Applicability of HCPs:

E4-154

ITPs and HCPs should only be used in limited circumstances. The ITP and HCP should not be used to eliminate or degrade habitats across significant portions of landscapes, ecosystems, or species' remaining ranges. Likewise, ITPs and HCPs should not be used where more effective alternatives exist. Particularly with larger HCPs, "take" should be limited to fraction of the given species' habitat on the property.

Alternatives to "take" permits and HCPs include:

- Recognizing landowners' responsibility to protect what little habitat remains for endangered species within the context of their much larger ownerships.
- Providing landowners with clear guidance on what actions will, and won't "take" imperiled species.
- Providing landowners with incentives for habitat restoration. (See Hall (1999).)
- Purchasing key areas needed for habitat restoration and species recovery from industry landowners.

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- Using "safe harbors" agreements in appropriate circumstances and subject to credible baselines and other basic safeguards.

E4-154

Additional Comments:

There is no evidence that these alternatives were pursued in lieu of providing Plum Creek with a property-wide ITP. Nor does there appear to have been an effort to limit the scope of the ITP.

The HCP and ITP should not allow "take" of species and habitats which can not be fully mitigated, including in relation to the goal of promoting species recovery above and beyond credible baseline conditions and trends.

E4-155

Additional Comments:

The HCP does not appear to provide full mitigation to the covered species, much less other species affected by Plum Creek's current and potential land managment practices.

The size and duration of the HCP and ITP should be limited as necessary to allow for complete and thorough assessment of baseline conditions and species' recovery needs, development of effective mitigation measures, and satisfaction of other objectives.

E4-156

Additional Comments:

The HCP and ITP fail to meet these goals.

If there is not sufficient information to determine how some listed and/or unlisted species will be affected, or to design viable mitigation strategies for those species, then they should not be included in the ITP and any regulatory assurances. Such species may be discussed in the HCP, but "take" should not be permitted until adequate information, mitigation measures, and scientific and public review are in place.

E4-157

Additional Comments:

While other information exists on the conservation and recovery needs of at least some of the covered species, the HCP and DEIS' lack sufficient quantitative and qualitative analyses of the covered species' needs, the HCP and ITP's impacts, and the extent to which the HCP and Plum Creek's land management will impede the survival and recovery of the covered species suggest otherwise.

The number and scale of ITPs and HCPs being developed and approved by the USFWS and NMFS should not exceed the agencies' capacity to effectively and consistently evaluate, negotiate, monitor, evaluate, revise, and enforce the plans over time. The ITP/HCP in question must be evaluated in this light.

E4-158

Additional Comments:

The DEIS and other documents fail to include any discussion of the Services' capacity to ensure that the HCP will continue to be implemented over time, that species'

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E4-158 recovery needs will continue to be met over time, and that additional impact minimization and mitigation measures will be provided under realistic scenarios, given the HCP's "No Surprises" guarantees and other limits on Plum Creek's responsibilities, and given the Services' limited budgets, authority over other federal lands, etc.

B. Relationship to Other ESA Policies and Programs:

E4-159 The USFWS and NMFS should continue to enforce the ESA prohibition on "taking" listed species and their habitats while the HCP is in development. Listed plants, which must also be addressed in HCPs under ESA section 7, should also receive interim protection, as should all unlisted plants and animals to be covered by the ITP/HCP.

E4-160 "Safe Harbors" type agreements should not be given to landowners who have significantly reduced their baseline habitat conditions below natural levels, or who will be degrading habitats under ITPs and HCPs. "Safe Harbors" agreements tell landowners that they will be allowed to "take" new habitat produced in the future, provided they maintain habitats at current baseline levels. As such, they may be appropriate for small forestland owners who are stewarding their land for relatively intact habitat conditions, and who seek an "insurance policy" that allows continued management should additional endangered species colonize the property. Other standards and conditions for "Safe Harbors" agreements are discussed in Bean (1998), Noss *et al* (1997), and materials from American Lands.

E4-161 HCPs should not be used as substitutes for recovery plans and should not be counted as contributing towards recovery goals unless they fully mitigate the impacts of "take," significantly restore habitat areas which are already degraded, and are otherwise fully consistent with species' recovery. Consistency with recovery plans may not be sufficient, as many existing recovery plans are heavily compromised. Ideally, recovery plans would be in place prior to development of HCPs, to provide a proper planning context.

Additional Comments:

The HCP does not appear to fully meet the covered species' recovery needs, and should not be considered a substitute for recovery plans. Moreover, it should be noted that the HCP, ITP, and IA are likely to work against species' recovery, inasmuch as the "No Surprises" provisions and other limitations on additional impact minimization and mitigation will likely preclude the establishment of other measures needed to meet recovery. The DEIS fails to discuss how the HCP's measures compare with measures needed for species' recovery.

HCPs should not be used as substitutes for listings or critical habitat designation.

C. Conservation, Recovery, and Mitigation Standards:

E4-162 The HCP should utilize alternate land management and development practices and opportunities which provide the landowner with reasonable economic returns but have fewer impacts to imperiled and sensitive fish, wildlife, plants, and ecosystems. Examples include longer timber

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E4-162 rotations, harvest of mushrooms and other nontimber forest products, fee-based recreation, and provision of ecosystem services such as delivery of clean water, adequate summer flows of water, and the sequestration and storage of atmospheric carbon dioxide, all of which are more associated with older, more diverse forests subject to fewer disturbances.

Additional Comments:
The HCP generally fails to utilize such measures.

E4-163 The HCP and/or EA/EIS must document the comparative economic costs and benefits of the landowner's chosen alternative and other, more biologically-effective alternatives, if the landowner fails to use those more effective alternatives.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-164 The plan must *fully* minimize *and* mitigate all direct and indirect habitat impacts and habitat losses for listed and unlisted species covered by the ITP or regulatory assurances such as "No Surprises," to avoid producing a net loss of the quality or quantity of habitat during any planning period. As a first preference, impacts and "take" should be avoided (i.e., minimized). Then, all remaining "take" and impacts must be fully offset (i.e., mitigated) by providing replacement habitat. If habitat will be "taken" on one portion of the property, then replacement habitat of equal quality should be provided elsewhere. As discussed in USDA FS *et al* (1993), Benda *et al* (1998), and WAFC (1997b), habitat protection, late successional reserves, and other forms of impact minimization must be used for species like marbled murrelet and rare lichens which are not likely to relocate to new sites, or which are highly sensitive to disturbances. Protected areas should include the best available habitat.

Additional Comments:
As discussed above, the HCP fails to meet these standards.

E4-165 If the ITP and HCP allow residential development or other land uses beyond roading, logging, and other forestry operations, then the HCP must provide mitigation measures that are specifically tailored to offset "take" and other impacts from these land uses.

Additional Comments:
As discussed above, the HCP's measures for grazing and other activities are inadequate.

E4-166 The Endangered Species Act (ESA) states that the impacts of "take" must be minimized and mitigated to the "maximum extent practicable." "Practicable" should be understood as simply referring to cases where a lack of available technology renders a mitigation measure impossible for all practical purposes. This approach is commonly used in other environmental policy arenas. It is also required by the NMFS regulations for permits.

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E4-166

Additional Comments:
The HCP and DEIS fail to adopt this approach.

E4-167

The HCP must avoid, minimize, and mitigate impacts to *all* species listed as threatened or endangered, all candidate species, and all other sensitive and at-risk species which will be impacted by the landowner's proposed forest management activities. Many candidate and proposed-listed species would be listed as threatened or endangered, but for USFWS or NMFS determinations that the listings are of lower priority than other actions, etc. On the ground surveys will be needed to determine which species are present. Because landowners and the Services are not generally surveying for species prior to or during the development of forest HCPs, "take" of other listed and non-listed species which depend on old growth, late successional forest stands, and other older and more complex forest stands may be occurring under HCPs that only explicitly address a few well-known species, like northern spotted owl. Soils, potential natural vegetation, climate zones, and other factors can also be used to help determine which species would exist on the site under natural conditions, and are thus likely to need viable habitats on the property as a contribution to their recovery. Indirect impacts may include the establishment of invasive alien plants, pests, and pathogens facilitated by poor forest management, by road-building, and by other operations.

Additional Comments:
The HCP and DEIS fail to include sufficient analyses to document compliance with these standards. There is no evidence that field surveys have been conducted for most covered species. There is no evidence that surveys have been conducted for other listed, proposed listed, candidate, endemic, or otherwise sensitive species which are not proposed to be covered by the HCP, but which may nevertheless be using the site, or which may need viable habitats on the site for their recovery.

E4-168

As envisioned by Congress, the HCP must actively benefit each species above and beyond accurate baseline conditions and trends. These benefits must be in terms of species-specific, measurable increases in habitat quantity and quality, and in species' populations.

Additional Comments:
The HCP fails to meet these standards. As discussed above, the HCP and DEIS' baseline scenarios are based on the deeply flawed assumption that additional protection measures will not be provided for listed and as-yet-unlisted species in lieu of the HCP.

E4-169

The HCP must actively and measurably promote the recovery of each species, above and beyond accurate baseline conditions and trends, including in terms of habitat quantity and quality and species' populations. This will be particularly important with species which depend more heavily on non-Federal lands, and where the landowners' past management has eliminated or heavily degraded large amounts of habitat. Recovery is, after all, the overarching goal of the ESA. Recovery should be understood as the point where populations, habitats, and ecosystem functions are viable over the long-term (i.e., several hundred years) in the face of fires, climate changes, fishing and hunting, and other significant disturbances, impacts, and uses. There should

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E4-169 be a high (i.e., 95%) probability of being consistent with recovery when all risk factors to the species are considered.

Additional Comments:
The HCP and DEIS fail to document the HCP's compliance with these standards.

E4-170 In return for the regulatory flexibility provided by ITPs, and in recognition of how industry landowners' past practices have contributed significantly towards species' endangerment, larger HCPs in particular should contribute towards the restoration of habitat for species which have been extirpated from the plan area by past habitat destruction, but which will depend upon the plan area for their recovery.

Additional Comments:
The HCP fails to meet these standards. The plan documents do not appear to have even considered these issues.

E4-171 Mitigation measures must be logical, credible, and likely to be implemented. Habitat areas sold at full market value to the public should not be counted as mitigation, nor should management changes on Federal lands or other areas which are already protected.

Additional Comments:
As discussed above, the IA appears insufficient to guarantee long term implementation of the plan's measures.

E4-172 Mitigation habitat must meet detailed habitat definitions and actually support populations of the species in question. Mitigation measures must be species-specific and described in detail. The HCP must identify the specific stand characteristics, ecosystem processes, and other factors which correspond to the habitats being provided as mitigation. These characteristics will likely need to include factors such as canopy closure, tree species mix (including hardwoods), tree spacing, basal area, tree size and age distribution, the structure and density of tree limbs, understory vegetation, woody debris characteristics, snag characteristics, frequency of disturbances of different intensities, the makeup of soil communities, the presence of prey species and their habitats, relationships with populations of predators and exotic species, microclimate, the role of fire, distribution and spatial arrangement of the habitat across the landscape, etc.

Additional Comments:
The HCP and DEIS fail to meet these standards for most, if not all, covered species.

E4-173 Mitigation measures must be clearly identified up-front in the HCP, and not left to future development through open-ended processes like watershed analysis. While watershed analysis can make useful contributions to HCPs, including as part of an adaptive management process, adaptive management is intended to assure the long-term effectiveness of mitigation measures, and is not a substitute for up-front mitigation measures.

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E4-173

Additional Comments:

As discussed in Section II-E of our comments, the HCP fails to define a number of conservation measures.

E4-174

Mitigation for habitat losses and degradation should occur *prior* to the planned impacts, and be monitored, evaluated, and if necessary, improved and augmented over time through adaptive management. The provision of late successional forest stands in riparian buffers, for example, should not be counted until those habitat features actually develop -- something that will take 50 to 100 years or longer, depending on current conditions and how the buffers are managed. Species with long lifespans and generation times, and/or which are slow to disperse and colonize new habitats, will require a significant overlap in the time when the original and replacement (i.e., mitigation) habitat exists. Many forest species will require an overlap of 20 years or more.

Additional Comments:

As discussed above in Sections III-A and B of our comments, the HCP fails to meet these standards when addressing older forest habitats and riparian areas.

E4-175

Generally, mitigation should occur on site. Any offsite mitigation on other properties should be limited to similar ownership types, be focused on high-priority areas in landscape level biodiversity restoration plans, be located in nearby areas where possible, and contribute to the species' restoration and recovery beyond levels that would occur anyway on those sites. Management of federal, state, and other forest areas should not be counted towards impact minimization and mitigation for the property in question.

E4-176

Permanent mitigation, including reserves instituted through conservation easements, should be provided in return for "take" of habitats that will not be replaced for the foreseeable future. Permanent late successional reserves for old growth dependent species should, for example, be established where landowners are converting residual old growth stands to commercially managed second growth stands. The permanency of the protections can be ensured by dedicating a conservation easement in perpetuity.

Additional Comments:

The HCP and IA fail to meet these standards.

E4-177

Protection of habitat areas should not be contingent upon continuous use by the species in question. Many species do not occupy the same site continuously. Consequently, a lack of protection for unused areas will lead to a cumulative loss of habitat. Protection should be provided year-round for species' nests and den sites.

Additional Comments:

The HCP and fail to meet these standards, including with regard terrestrial species.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-174	287
E4-175	37
E4-176	183
E4-177	273

Letter E4

E4-178 If the HCP addresses fish, amphibians, water quality, and other aquatic and riparian species, then the plan should provide full protection for intermittent streams, other non-fish bearing stream segments, wetland areas, and unstable slopes. Vegetation retention, canopy closure, and other factors on upland slopes need to be sufficient to ensure that winter/spring water flows are not excessive, that summer/fall flows are not reduced, and that other hydrological and ecological functions are maintained. Analyses need to be conducted at the watershed level. Landslides, peak flows, erosion, and flooding must be addressed. Refugia for imperiled salmonids must be protected and/or restored. Fish passage must be ensured for all stream segments, and roads must be upgraded or removed.

Additional Comments:
As discussed above, the HCP fails to consistently meet these standards.

E4-179 If the HCP addresses species which utilize snags and down logs, then the plan must provide for the retention of a full range of sizes and decay stages.

Any remaining examples of primary old growth forests or other habitats which have not been significantly impacted by modern society should be protected as refugia and study areas.

Additional Comments:
The HCP fails to meet these standards.

E4-180 Larger HCPs in particular should set-aside reserve areas for species which are particularly sensitive to disturbances and land management activities, for species which rely on old growth forests or other habitat types that will not be produced by the proposed land management, for species with high site fidelity, for species which are slow to disperse and colonize, for species for which the plan will not provide fully functional replacement habitats, etc. Reserve design must utilize the best available science, and reserves must comprise usable, functioning habitat.

Additional Comments:
The HCP fails to meet these standards.

E4-181 Reserve area design must be sufficient to maintain habitats for population "sources," viable habitat for species which are particularly susceptible to disturbance, habitat for species which are slow to disperse or colonize new habitat areas, habitat connectivity across broader landscapes, etc. Analyses of reserves' benefits must be species-specific, in the case of species covered by the ITP, HCP, or IA. Reserves should be designed to minimize edge effects, support species distributions across landscapes, include more intact and less developed sites, and cover biodiversity "hotspots." Noss *et al* (1997) and Noss *et al* (1994) provides excellent overviews of the science of conservation reserve design.

Additional Comments:
The HCP fails to meet these standards.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-178	505
E4-179	274
E4-180	183
E4-181	183

Letter E4

D. Unlisted Species:

E4-182 If candidate, proposed-listed, rare, endemic, or other unlisted species are covered by the HCP, ITP, IA, and/or "No Surprises" type assurances, then the species' conservation and recovery needs, impact assessments, and impact minimization and mitigation measures must be addressed and developed as thoroughly as if the species were listed. Moreover, the mitigation measures provided for unlisted species must be sufficient to help reverse any population declines and to preclude the need for the species to be listed.

Additional Comments:
The HCP fails to meet these standards.

All other HCP policies, goals, and standards for listed species are also applicable to unlisted species covered by the plan and its agreements.

E. Other species and Ecosystem Goals:

E4-183 The HCP should conserve and help restore habitats for species which are: endangered, threatened, candidate species, former candidates, proposed listed, in decline, area limited, dispersal limited, resource limited, process limited, keystone species, endemic, umbrella species, or otherwise of special concern.

Additional Comments:
The HCP largely fails to meet these standards. The HCP and DEIS fail to examine the extent to which the HCP meets or fails to meet these standards.

E4-184 Special attention should be provided to species with large area requirements, specialized habitat needs, functional importance in their ecological community, or particular sensitivity to human disturbances.

Additional Comments:
The HCP largely fails to meet these standards. The HCP and DEIS fail to examine the extent to which the HCP meets or fails to meet these standards.

E4-185 The HCP should conserve and help restore entire ecosystems.

Additional Comments:
The HCP largely fails to meet these standards. The HCP fails to address impacts to the larger forest ecosystem, and fails to adopt alternate forest management regimes such as long rotation silviculture which would reduce impacts to the forest while providing competitive revenues and timber yields. The HCP and DEIS fail to examine the extent to which the HCP meets or fails to meet these standards.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-182	203
E4-183	275
E4-184	275
E4-185	377

Letter E4

F. Planning and Analysis:

E4-186 The HCP and NEPA analyses must use the best available science, as required by section 7 of the ESA, during all analyses, planning, adaptive management, and implementation. Among other things, current population trend data, literature on species' habitat needs, information on how species are affected by different management practices, information on the economic benefits of alternate land management practices, population viability analyses, risk analyses, areas of uncertainty, and fires, windstorms, land management changes, and other "stochastic" factors should be identified and considered.

Additional Comments:

The HCP and DEIS fail to meet these standards, as indicated throughout our comments.

E4-187 Accurate baseline conditions and trends, including "no action" scenarios that maintain species protections, must be identified in the HCP and NEPA document through field surveys for all species covered by the plan and through identifying full species specific protection and management measures for listed and as-yet-unlisted species that would likely be required over time *in lieu* of the plan. Surveys should be conducted for all threatened or endangered, candidate, rare and endemic, and all other at-risk species, as well as for any other unlisted species covered by the HCP. While important, state species databases generally contain little information on species which may be on private lands. The Nature Conservancy and Native Plant Society have developed lists of at-risk species, many of which have not been officially listed as threatened, endangered, or candidate.

Additional Comments:

The HCP and DEIS fail to meet these standards.

E4-188 Where surveys cannot be conducted, or where the recovery of currently absent species is being considered, assumptions about which species are present on the property and/or which will need viable habitats on the property for their recovery should be based on an evaluation of the site's soils, potential (i.e., natural) vegetation, climate zones, elevations, topography, etc. It should not be assumed that past land management eliminated all sensitive species and their habitats.

Additional Comments:

The HCP and DEIS fail to meet these standards.

E4-189 The definition of what land management practices constitute "take" of species habitats must be biologically credible and sufficient to prevent population declines and to protect the species' chances of recovery across their ranges.

E4-190 The conservation and recovery needs of all species covered by the plan must be explicitly identified, including in terms of specific habitat components, including specific tree structural characteristics, type and abundance of hardwoods, understory vegetation, soil conditions, hydrology and stream conditions, etc.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-186	132
E4-187	235
E4-188	506
E4-189	340
E4-190	246

Letter E4

E4-190

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-191

The plans must identify the specific forest management regimes likely to be used in different areas by the landowner over time.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-192

The HCP and NEPA document must explicitly assess how all land management and development activities allowed under the ITP will affect each species and their habitat components, and how these effects compare to conditions needed for both the species' survival and long-term recovery. The impact of specific types of operations should be evaluated, including the use of fertilizers, herbicides, pesticides, and other chemicals for forest management purposes. Any land management practice which is not specifically precluded by the HCP or IA, but which is among the types of activities permitted by the ITP, should be assumed to occur over time. Examples might include use of shorter timber rotations, logging of snags and larger "hazard" trees, "whole tree" or biomass logging, or subdivision and residential development. The HCP and NEPA document must identify those species which are more dependent upon private and state lands for their survival and recovery; species which are more dependent upon the property for their survival and recovery; and the percentage of the species' current ranges that are covered by the project area, and by other HCPs and other activities impacting their survival and recovery.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-193

The effectiveness of each mitigation measure must be explicitly evaluated, in relation to the species' conservation and recovery goals, based on the best available science. The HCP and NEPA document must indicate when each impact minimization and mitigation measure will be provided; how long those measures will last; what the measures' location and geographic scope will be; and exactly how and to what extent the measures will reduce or offset "take" and other impacts. Mitigation measures should not be counted if they fail to benefit species until around the time the landowner is permitted to terminate the HCP.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-194

Species-specific maps should document the location of baseline habitat areas, habitat areas that would exist over time *in lieu* of the ITP/HCP, and habitat areas that will exist over time under the ITP/HCP for each threatened, endangered, or otherwise sensitive species addressed by the HCP. Where feasible, the maps should indicate the number of individual animals, plants, etc. Habitat definitions used for the maps should be as specific as possible, distinguishing, for example, between primary and secondary habitat, nesting and dispersal habitat, etc.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-191	38
E4-192	204
E4-193	133
E4-194	205

Letter E4

E4-194

Additional Comments:

The HCP and DEIS fail to meet these standards.

E4-195

The HCP or NEPA document must document how land management activities permitted by the ITP will affect critical habitat for any threatened or endangered species, regardless of whether the species are officially covered by the ITP/HCP.

E4-196

If the HCP or NEPA document claim that State Forest Practices Rules or other non-ESA policies adequately protect species, then the documents must discuss how, when, and where specific species are protected by these policies.

Additional Comments:

The HCP and DEIS fail to meet these standards.

E4-197

The HCP and NEPA analyses must account for how exceptions to the plan's impact minimization and mitigation measures will affect the HCP's performance and species' chances or survival and recovery.

Additional Comments:

The HCP and DEIS fail to meet these standards.

E4-198

The plan must identify measurable and enforceable biological goals for each species that correspond to full mitigation, benefits above baseline conditions, and contributions to recovery. The contribution to recovery should be commensurate with the size of the property. Goals should be defined in terms of both quantitative and qualitative population and habitat targets, and other performance standards. Habitat goals must address specific habitat components that provide viable, functional habitat.

Additional Comments:

The HCP and DEIS fail to meet these standards.

E4-199

The HCP and NEPA analyses must account for likely "stochastic" factors, such as forest fires, windstorms, and other events which are natural parts of forest ecosystems, as well as likely changes in local and regional climate and vegetation zones that will result from both natural and human-induced climate change.

Additional Comments:

The HCP and DEIS fail to meet these standards for the most part.

E4-200

The HCP and NEPA analyses must address the full life-cycle needs and ecological linkages and interdependencies of the species in question, including food sources, impacts from invasive exotic species, relationship with populations outside the plan area, etc.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-195	125, 221
E4-196	604
E4-197	134
E4-198	335
E4-199	704
E4-200	206

Letter E4

E4-200

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-201

The HCP and NEPA analyses should address fundamental ecological functions and processes such as soils, seasonal fluctuations in hydrology, nutrients, and other factors.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-202

If the HCP uses "guilds" or other approaches to addressing species which supposedly utilize similar habitat types, then the plan: i) should only group together those species which use very similar habitats, ii) must identify the specific habitat components used by each group (versus simply saying that "x" species use vaguely defined poletimber stands, for example), and iii) should discuss how these habitat components will be affected by forest management.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-203

Likewise, if habitat models, indicator species, or guilds are used, then they must use the best available science and detailed habitat descriptions, be clearly related to specific silvicultural or other land management practices, and limit indicators, guilds, and other groupings to species with closely related habitat needs.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-204

Nevertheless, all threatened, endangered, candidate, proposed listed, rare, endemic, or otherwise at-risk species must also be addressed individually. Use of guilds, models, etc., should not substitute for more detailed and species-specific information.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-205

Credible and thorough cumulative effects analyses, including analyses of indirect effects, must address the role of "take," the ITP, and HCP in the larger landscape and species habitat trends. Other past, present, and reasonably foreseeable HCPs and other public and private land management actions throughout the species' ranges must be considered.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-206

Conservation measures on other properties and ownerships should not be used to discount the need for protection and mitigation in the plan area.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-201	135
E4-202	39
E4-203	39
E4-204	207
E4-205	136
E4-206	95

Letter E4

E4-206

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-207

The HCP and NEPA documents must explicitly identify any data and/or analyses which were needed but unavailable.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-208

Arguably, an ITP and HCP should not be developed for species for which there is no recovery plan or critical habitat designation, since: i) it may be impossible to properly address the species' needs without this information and, ii) HCPs are being substituted for recovery plans and critical habitat designations.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-209

If the landowner fails to provide adequate mitigation, the HCP should: i) document why alternate forest management regimes which better provide for species would not also provide a reasonable economic return at different time periods, and ii) document the landowner's financial situation. If documentation requires the inclusion of proprietary information, an independent accounting firm can be used to review that information.

Additional Comments:
The HCP and DEIS fail to meet these standards.

G. Monitoring:

E4-210

The plan must require that both compliance and effectiveness monitoring occur frequently over time, including monitoring of species' populations and reproduction, habitat quantity, habitat quality and specific habitat components, habitat trends, and other goals and indicators. Compliance monitoring assesses whether the landowner is implementing the mitigation measures and following the terms of the ITP, HCP, and IA. Effectiveness monitoring helps assess whether the mitigation measures are, when implemented, actually working to offset the landowner's impacts and support target species.

Additional Comments:
The HCP and DEIS fail to consistently meet these standards, as discussed above.

E4-211

Monitoring must covers all species, plan components, plan goals, and the full duration of the ITP and HCP.

Additional Comments:
The HCP and DEIS fail to meet these standards.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-207	137
E4-208	111
E4-209	373, 375, 377
E4-210	665, 672
E4-211	665

Letter E4

E4-212 Monitoring must be based on scientifically credible protocol, and address current and potential causes of species' population declines, habitat changes, community and ecosystem changes.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-213 The Services should conduct regular field inspections as part of both compliance and effectiveness monitoring.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-214 Monitoring must provide a foundation for proactive adaptive management -- versus simply counting species until they disappear.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-215 Monitoring results must be available to the public.

Additional Comments:
The HCP and DEIS fail to meet these standards.

Noss *et al* (1994) provide additional monitoring suggestions.

H. Adaptive Management and Landowner Assurances:

E4-216 The HCP and IA must ensure that credible adaptive management will occur throughout the plan's implementation, to provide a mechanism for plan review, contingency planning, and corrective action. Reviews should occur at least every five years, and must consider potential corrections and additions to the plans' mitigation measures in light of monitoring data, new scientific information from outside sources, and changing conditions, both foreseeable and unforeseeable.

Additional Comments:
The HCP and DEIS largely fail to meet these standards, as explained in our comments above.

E4-217 Adaptive management must cover all species and plan components -- not just areas where there are data gaps -- particularly for plans covering longer time periods.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-218 Adaptive management protocol must include identification of management goals, stressors to species and ecosystems, models and hypotheses, performance indicators, monitoring and

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-212	659
E4-213	309, 311, 323
E4-214	692
E4-215	304, 307, 310,
E4-216	281
E4-217	619
E4-218	660

Letter E4

E4-218

sampling protocol, performance "triggers" and adverse biological trends that will require plan changes, collection of data which was missing initially, regular review of monitoring data and new scientific information, and evaluation and potential modification of management prescriptions and mitigation measures.

Additional Comments:

The HCP and DEIS fail to adequately meet these standards, as discussed in our comments above.

E4-219

Adaptive management should not be used *in lieu* of well-defined, up-front mitigation measures. If, in addition to periodic plan evaluation and correction, adaptive management is used for experiments, then the experiments must be limited to a small portion of the plan area.

Additional Comments:

The HCP and DEIS fail to meet these standards.

E4-220

Landowner assurances should take the form of explicit, up-front agreements about the plan's biological goals, monitoring, adaptive management, and enforcement, and fair allocation of responsibility between the landowner and public for funding future plan changes. In other words, the plan should provide up-front clarity and assurances about the process that will be used to identify and make improvements to the plan -- instead of simply precluding meaningful plan improvements through "No Surprises" type assurances.

The landowner must retain responsibility for supplementing and improving the plan's conservation and mitigation measures as may be recommended by adaptive management reviews, to ensure that population targets and other goals are met over time.

Additional Comments:

The HCP and DEIS largely fail to meet these standards, as discussed in our comments above.

E4-221

The landowner must retain responsibility for funding and providing additional mitigation in response to all foreseeable changing circumstances or other circumstances within the landowners' realm of responsibility. *This is a critical requirement -- these circumstances must be explicitly identified in the HCP and IA.* They include changes in the landowners' land management practices; fires, windstorms, pest outbreaks, and other "stochastic" events which are a natural ecosystem processes; additional species listings over time; and increased susceptibility of the forest to invasive exotic pests, pathogens, and plant and animal species due to the landowner's forest management practices. Possible management changes include use of shorter timber rotations, use of "whole tree" and biomass harvesting, use of different tree species, etc. Other foreseeable changing circumstances include the effects of human-induced climate change, which is likely to cause ecological gradients, vegetation zones, and species' habitat needs to shift significantly. This situation is similar to wildfires -- while we cannot predict exactly when and where wildfires will strike, we do know they are likely, and HCPs should account for their effects during planning, impact assessment, mitigation design, and adaptive management.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-219	620
E4-220	619
E4-221	696

Letter E4

E4-221

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-222

If critical habitat designations or recovery plans do not exist for the species, then the plan must be amended once they are developed. The landowner should be responsible for providing additional mitigation if the plans' initial mitigation measures were inadequate.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-223

Landowner assurances should *not* take the form of "No Surprises" type guarantees or other guarantees that largely preclude additional mitigation by setting extremely high burdens of proof for the Services, requiring additional mitigation to first occur on public lands, by requiring any additional mitigation to be fully subsidized by the public, and/or requiring any additional mitigation to be voluntary. "No Surprises" supposedly encourages landowners to proactively conserve species which are not listed as threatened or endangered by indemnifying the landowners from providing addition mitigation should the species be listed at a later date. However, the up-front analyses, protections, and mitigation measures for unlisted species are rarely sufficient. Even in cases where the up-front provisions are more adequate, changes and additions to these measures may well become necessary over time, including as a result of changes in the landowners' management practices.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-224

The burden of proof should be on the landowner, rather than the public, to show that the plan adequately addressed the needs of newly-listed species, when requests are made to add the species to the ITP. Species should not be automatically added to ITPs.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-225

The Services' failure to respond within narrow periods of time should not be grounds for the landowner to unilaterally proceed with requested changes to the ITP/HCP.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-226

Additional lands should not added to the HCP and ITP over time without commensurate analysis and site-specific mitigation.

Additional Comments:
The HCP and DEIS fail to adequately meet these standards.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-222	693
E4-223	622
E4-224	40
E4-225	679
E4-226	364

Letter E4

E4-227 The Services must retain authority to incorporate new information into the HCP, ITP and IA, and to modify the plan and its implementation to provide additional conservation measures which may prove necessary for the conservation and recovery of the species covered by the plan.

Additional Comments:
The HCP and DEIS fail to meet these standards.

I. Enforcement and Long-Term Implementation:

E4-228 The HCP must be covered by explicit, thorough, legally-binding, and publicly-available Implementation Agreement (IA) that satisfies each of the following points.

The full scope of the plan's mitigation measures, monitoring, adaptive management, and plan revision and improvement requirements must be enforceable, and meaningful penalties, injunctive relief, and restoration requirements must be available to the USFWS and NMFS for cases of noncompliance.

Additional Comments:
The HCP and DEIS fail to meet these standards.

Enforcement language should not be replaced by dispute resolution processes, though dispute resolution can sometimes supplement enforcement provisions.

E4-229 The provision of mitigation measures by the landowners must be enforceable throughout the entire time period for which they are needed, including *after* the ITP expires. Logging residual old growth *refugia* will, for example, result in relatively permanent impacts; mitigation should be provided for commensurate time periods. Mitigation must also continue on portions of the property which might be sold, traded, or otherwise disposed of.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-230 The Services need to explicitly retain the right to require mitigation after "take" has already occurred. Many IAs only provide the Services with the power to cancel the ITP in accordance with the ESA's permit revocation requirement; this provides little leverage to require ongoing mitigation after "take" has already occurred. One approach is to have the landowner post bond to help ensure that mitigation continues to occur after "take" has occurred. Alternately, the HCP and IA can be placed as an encumbrance on the land title. Dedicating a permanent conservation easement to the Services or a third-party trust is the most enforceable approach to encumbering the title. This will also help ensure that mitigation continues if the property is sold or transferred to another landowner.

Additional Comments:
The HCP and DEIS fail to meet these standards.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-227	611
E4-228	365
E4-229	288
E4-230	289

Letter E4

E4-231 The USFWS and NMFS must periodically review the plan's implementation to ensure the landowner is complying with the HCP, its adaptive management requirements, and other provisions. Reviews should be published in the Federal Register and include a plan summary, a status review of the species involved, a compliance report, any new information on the species' status, and any modifications needed to plan.

Additional Comments:
The HCP and DEIS fail to adequately meet these standards.

E4-232 The USFWS and NMFS must retain the right to terminate the ITP if the agencies determine that the HCP no longer actively contributes to the species' recovery.

Additional Comments:
The HCP and DEIS fail to adequately meet these standards.

E4-233 The IA must explicitly maintains citizens' rights under the ESA to bring suit for violations of the plan, ITP, and IA, which should be understood as violations of the ESA.

Additional Comments:
The HCP and DEIS fail to adequately meet these standards.

E4-234 The IA must not limit the landowner's obligation to protect unlisted species prior to their listing if those species are covered by "No Surprises" assurances and/or are otherwise included in the HCP, ITP, and/or IA.

Additional Comments:
The HCP and DEIS fail to adequately meet these standards.

E4-235 If the ITP and IA provide the landowner with "No Surprises" guarantees for unlisted species, then the IA should explicitly state that the Services will re-evaluate the HCP when considering whether to add newly listed species to the ITP. The Services will need to ensure that the HCP meets all of the existing HCP policies and standards.

Additional Comments:
The HCP and DEIS fail to meet these standards.

J. Funding:

E4-236 Public funding to support additional mitigation measures in response to truly unforeseeable circumstances may be appropriate. However, up-front funding sources must be assured before approval of an HCP that uses this approach. Unforeseeable circumstances must not be defined to include natural disturbances, changes in markets or the landowner's land management practices, additional species' listings, declines in species' conditions due to the landowner's land management or inadequate initial mitigation measures, or the development of additional information on species whose needs were not well researched.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-231	314
E4-232	330
E4-233	363
E4-234	366
E4-235	202
E4-236	367

Letter E4

E4-236 ***Additional Comments:***
The HCP and DEIS fail to meet these standards.

E4-237 Up-front funding must be assured for all plan components and implementation, including monitoring and adaptive management. Landowner bonds, public funds, and other moneys must be dedicated up-front to cover the costs of adaptive management changes, as well as continued mitigation should the landowners terminate their HCPs early or other contingencies arise during or after the plan period.

Additional Comments:
The HCP and DEIS fail to meet these standards.

E4-238 In the interest of fairness, it may be appropriate for landowners to contribute to HCP trust funds. Contributing landowners should include those who have eliminated all known habitats for threatened and endangered species, and are thus not developing ITPs/HCPs.

V. Summary of HCP Standards Recommended by the National Independent Scientific Review of HCPs; Evaluation of the HCP and DEIS in Relation to These Standards

The HCP, IA, and DEIS generally fail to meet the following requirements, which have been paraphrased from Kareiva et al (1999):

E4-239 Explicit scientific standards need to be developed for HCPs, particularly for larger ones.

E4-240 Independent (and presumably, academic) scientific peer review panels should be consulted during HCP development, particularly for more significant plans.

E4-241 Information on listed species, as well as monitoring data from HCPs should be made accessible in a centralized location, to facilitate better planning and plan evaluation.

E4-242 When basic data on species, their conservation needs, resulting levels and impacts of "take," and other considerations are unavailable, data gaps should be filled *prior* to developing HCPs. Ideally, "take" permits should not be given to landowners when significant information needed to develop scientifically credible HCPs is lacking. Fewer data gaps should be allowed with plans covering larger areas, longer time frames, irreversible impacts, or multiple species.

E4-243 If HCPs proceed in the absence of needed data, then approaches which provide greater levels of certainty for the species should be used.

E4-244 If proposed mitigation measures cannot initially be demonstrated to be effective, then mitigation, monitoring, and evaluation should occur *prior* to "take."

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E4-237	327
E4-238	41
E4-239	92, 246
E4-240	138
E4-241	315
E4-242	46, 208
E4-243	46
E4-244	290

Letter E4

E4-245 Plans must be flexible, to allow for timely improvements based on monitoring results. If monitoring is used to help correct for data gaps, then mitigation measures must be adjusted as needed over time.

E4-246 HCPs -- particularly those covering large areas or large amounts of a species' range -- should inventory, summarize, and document available data on each species and their distribution, abundance, population trends, ecological requirements, life history, and causes of endangerment.

E4-247 Quantitative estimates of the impacts of "take" on species' viability should be provided; especially for larger or more significant plans. At a minimum, best and worst-case scenarios should be identified.

E4-248 Impacts of "take" should also be evaluated, particularly for larger or more significant plans, including by determining whether the habitats being "taken" correspond to population "sources" or "sinks," whether genetically unique subpopulations are being "taken," and whether unique habitat/species combinations are being impacted.

E4-249 The details of HCP mitigation measures must be explicitly described and accompanied by data on their effectiveness. The likely success of each measure must be evaluated, as must the overall effectiveness of mitigation measures at minimizing and offsetting "take."

E4-250 Monitoring provisions should be used to evaluate mitigation measures' performance over time, and to assess impacts to species. Monitoring must be designed to facilitate timely improvements to mitigation measures.

E4-251 HCPs need to quantify the plans' biological goals.

E4-252 HCPs should evaluate the cumulative impacts of multiple plans and their interactions.

E4-253 An HCP's adequacy is questionable if the plan fails to adequately address one or more of the following: species' status reviews, analyzing the proposed "take," assessing the impacts of "take," planning and assessing mitigation measures, and planning and assessing monitoring provisions.

E4-254 HCPs should provide mitigation measures in a timely fashion, preferably before species are affected by "take."

E4-255 HCPs should include contingency measures (i.e., adaptive management supported by monitoring) to address potential failures with mitigation measures.

E4-256 The percentage of local *and* global populations that will be "taken" should be assessed.

E4-257 Managers should adopt risk-averse strategies in the face of uncertainty.

E4-258 Where possible, assertions made in HCPs should be supported by quantitative information.

Responses

See Response to Comment Table or click on link provided below.

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E4-246	199
E4-247	109
E4-248	109
E4-249	42
E4-250	694
E4-251	342
E4-252	246
E4-253	109, 290
E4-254	287
E4-255	695
E4-256	108
E4-257	46
E4-258	43

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VI. Policy Provisions Governing the DEIS: Evaluation of the DEIS in Relation to These Provisions

While the following discussion is intended to provide analyses specific to the DEIS, other sections of our comments also provide information and comments relevant to the DEIS, *including, but not limited to, those sections referenced below.*

A. Basic NEPA Standards:

Under NEPA, sufficient, accurate, current and up to date data must be used. Accurate projections of affected species' populations under the ITP/HCP must be compared with accurate historical baseline populations, as well as populations that would occur *in lieu* of the ITP/HCP. Population trends should be compared with minimum viable population data to help assess impacts. [*Sierra Club et al v. Bruce Babbitt et al*, Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. District, Alabama, S. Div.]

Additional Comments:

The HCP and DEIS generally fail to meet these criteria, including as discussed above.

As with the HCP, much of the DEIS' analysis is based on comparing the HCP to the "No Action" alternative. As defined in the HCP and DEIS, the No Action alternative is fundamentally flawed, for it expressly ignores increased protections that would normally be required for salmon and other recently listed species and species that are likely to listed over time. In other words, the DEIS' claim that the HCP improves conditions for species is often exaggerated. In fact, the HCP might provide less protection than would otherwise occur under biologically-sufficient "no take" rules for salmon and bull trout, and potentially for the unlisted species.

E4-259

The DEIS' economic analyses are also highly imbalanced, incomplete, and inaccurate. [DEIS, p. 4-275 et seq.] In addition to the problems discussed above in Section II-C of our comments, the discussion of community impacts is highly imbalanced. While the DEIS' notes that further reductions in logging could negatively impact local communities, the DEIS fails to determine the relative importance of logging to local economies. The DEIS also fails to examine issues of sustainability in the wood products industry, both in relation to the HCP alternative and an alternative that would adopt longer timber rotations that can increase timber yields, the quality of timber and opportunities for local value added processing, and timber revenues. Likewise, the DEIS fails to account for how local communities are likely to benefit from the recovery of fish and wildlife populations, eventual enhancement of recreational fisheries, improvements in local quality of life, and other benefits associated with more effective conservation measures.

Other problems with the DEIS' analyses are discussed throughout our comments on the HCP. The DEIS largely relies upon the same assumptions, data, and analyses as the HCP.

Responses

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Under NEPA, an EIS must "rigorously explore and objectively examine all reasonable alternatives." [40 CFR 1502.14(a).] The existence of a "viable but unexamined alternative renders an environmental impact statement inadequate." [*Alaska Wilderness Recreation & Tourism v. Morrison* (67 F.3d 723, 729 (9th Cir. 1995), as cited in Arum (1998)] Likewise, an agency may not "consider only those alternatives with [the same] end result." [*Resources Ltd. v. Robertson* (35 F.3d 1300, 1307 (9th Cir. 1994), as cited in Arum (1998)] NEPA regulations require an EIS to "rigorously explore and objectively evaluate all reasonable alternatives," and to explain why alternatives not analyzed were eliminated from detailed consideration. (40 C.F.R. § 1502.14(a).) Consideration of alternatives is the "heart" of an EIS. (40 C.F.R. § 1502.14.) An EIS must evaluate a "reasonable range" of alternatives. The range is dictated by "nature and scope of the proposed action," and must be sufficient to permit the agency to make a "reasoned choice." (Alaska Wilderness Recreation and Tourism v. Morrison, 67 F.3d 723, 729 (9th Cir. 1995).) The analysis must include the alternative of no action, as well as alternatives not within the federal lead agency's jurisdiction. (40 C.F.R. § 1502.14(c), (d).)

Additional Comments:

The HCP and DEIS fail to meet these criteria.

E4-260

The "no action" alternative's description is fundamentally flawed and misleading inasmuch as it fails to include the enhanced riparian protections measures and other measures that will be required over time *in lieu* of the HCP to protect and recover the covered species, as is required under the ESA for the listed species, and as is likely to be required for the other species should they become listed. The DEIS *does* note that the regulatory threshold will likely be increased over time *in lieu* of the HCP. [DEIS, p. 3-16 et seq] However, these increases are not reflected in subsequent analyses within the HCP and DEIS, including DEIS Table 3.3-1, and the discussion of the "no action" alternative within DEIS Section 4, "Affected Environment and Environmental Consequences." This latter section is the core of the DEIS' impact assessment.

The DEIS' range of alternatives fails to include an alternative that utilizes more effective conservation measures and which would provide a high probability of recovery of each of the covered species across the plan area. The DEIS states that Plum Creek rejected such an alternative as "not practicable." [DEIS, p. 3-6] However, the DEIS fails to document the specific economic costs and benefits of such an alternative. Moreover, NEPA requires consideration of full range of alternatives irrespective of prejudgements about costs and benefits.

As discussed in Section II-C of our comments, both the HCP and DEIS fail to consider an alternative which utilizes more sustainable silvicultural regimes to reduce watershed impacts and other impacts while producing competitive and even greater amounts of timber and revenue. Appropriate, more sustainable practices would include long rotations, variable retention within upslope logging units, increased tree species diversity, marketing of forest ecosystem services, and/or other more "sustainable" forest management approaches to reduce impacts to terrestrial, riparian, and aquatic species, and to potentially even increase timber yields.

While the DEIS highlights the costs to Plum Creek of more effective conservation measures, the DEIS fails to highlight the benefits to Plum Creek of using more sustainable forestry regimes as part of such an alternative. [DEIS, p. 3-7]

Responses

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E4-261 The EIS must "devote substantial treatment to each alternative considered in detail so that reviewers may evaluate their comparative merits." (40 C.F.R. § 1502.14(b).) It also must explain how each alternative will or will not achieve the policies of NEPA and other relevant environmental laws and policies. (40 C.F.R. § 1502.2(d).)

Additional Comments:

See our preceding comments, regarding the exclusion of an alternative that would utilize more sustainable forest management practices.

E4-262 Under NEPA, where economic preferences are used to select the preferred alternative, the decision must not be based on misleading, biased, or incomplete economic information. [*Seattle Audubon v. Lyons* (871 F. Supp. 1291, 1324 (W.D. Wash. 1994), aff'd 80 F.3d 1401 (9th Cir. 1996), as cited in Arum (1998)]

Additional Comments:

The DEIS' economic analysis is incomplete, biased, fails to consider the economic benefits to Plum Creek and others of adopting an alternative which utilizes more sustainable forestry practices, and fails to correct the flawed economic analyses presented in the HCP.

The DEIS fails to provide a thorough or objective analysis of whether the HCP minimizes and mitigates the impacts of "take" to the maximum extent practicable.

Additional problems with the HCP's economic analyses and claims that the HCP minimizes and mitigates "take" to the maximum extent practicable are discussed in Section II-C of our comments.

E4-263 The HCP Handbook notes that the Services must consider impacts on Federally-listed plants, during ESA s. 7 consultation, regardless of whether those plants are "covered" by the HCP. Plants protected by state laws are among those which must be addressed, pursuant to ESA s. 9. [USFWS et al (1996), pp. 1-6, 3-8, & 3-17]

Additional Comments:

Field surveys do not appear to have been conducted for sensitive plants.

E4-264 Under NEPA, environmental impacts which must be considered include impacts to ecological, aesthetic, historical, cultural, economic, social, and health values, including direct, indirect, and cumulative impacts. [Mueller *et al* (1997).] The HCP Handbook also states that impacts to air quality, water quality, and land use patterns should be addressed. [USFWS *et al* (1996), p. 1-6]

Additional Comments:

The DEIS fails to thoroughly assess the health, water quality, air quality, and other potential implications of the wood processing plants covered by the ITP.

E4-265 Off-reservation American Indian treaty rights must be considered, including through consultation with the relevant tribes, according to the HCP Handbook. [USFWS et al (1996), p. 3-9]

Responses

See Response to Comment Table or click on link provided below.

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E4-263	44
E4-264	141
E4-265	97

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E4-266 Contractors for NEPA documents need to be selected by the Services. Moreover, the contractors should not have a financial or other interest in the outcome of the project. [See section 1506.5(c) of the NEPA regulations.] The HCP Handbook also states that the Services are responsible for drafting the NEPA document. [USFWS *et al* (1996), p. 2-4.]

E4-267 The Services must take a "hard look" at the environmental consequences of approving an action, i.e., an ITP/HCP. [*Kleppe v. Sierra*, 427 U.S. 390, 410 n.21 (1976).] NEPA regulations require an EIS to "provide a full and fair discussion of significant environmental impacts" of the proposed action, as well as each alternative. (40 C.F.R. §§ 1502.1, 1502.14, 1502.16(d).) (Environmental impacts, or effects, include ecological, aesthetic, historic, cultural, economic, social, and health effects, whether direct, indirect, or cumulative in nature. (40 C.F.R. § 1508.8.) NEPA requirements for evaluating the significance of environmental effects are found at 40 C.F.R. § 1508.27.) In addition to cumulative impacts, this discussion must address the direct and indirect impacts of the project. (40 C.F.R. § 1502.16(a), (b).) "Direct effects" are those which are immediately caused by the action; indirect effects are those which will be caused by the action at a later time, but which are nevertheless reasonably foreseeable. (40 C.F.R. § 1508.8.) The discussion must also include an analysis of possible conflict between the proposed action and federal, state, regional and local land use plans and policies. (40 C.F.R. § 1502.16(c).) The discussion of environmental impacts must satisfy a "rule of reason" which requires a "reasonably thorough" discussion of impacts and mitigation measures. (Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 352 (1989).) The HCP Handbook emphasizes that, unlike the impact analysis in the HCP itself, the impact analysis in an EIS must evaluate *all* significant effects on the environment, such as air quality, water quality, cultural resources, and land use patterns, not just impacts to species. (HCP Handbook, p. 1-6.)

Additional Comments:

The DEIS fails to meet these requirements and fails to provide an independent, objective, and thorough examination of the HCP and the impacts of "take." The DEIS relies primarily upon the same assumptions presented in the HCP, and fails to examine many crucial issues, as discussed throughout our comments.

The DEIS is heavily biased towards the HCP, fails to include objective analyses, and fails to include many basic and essential analyses and data. The document mostly just summarizes the HCP's mitigation measures, relies on information already provided in the HCP, and fails to actually provide a meaningful impact assessment.

The impact analyses generally just compare the HCP with the misleading "No Action" alternative, fail to look at habitat losses and population impacts that remain despite the HCP's mitigation measures, fail to quantify impacts, and fail to compare the HCP's quantitative outcomes with objective, quantitative measures of species' survival and recovery needs, corresponding habitat and population levels, etc.

The DEIS' analysis of the HCP alternative's outcomes and impacts also overstates the alternative's benefits by comparing the alternative to the improperly defined "no action" alternative. As discussed above, the "no action" alternative generally fails to account for improvements in regulatory protection measures for the covered species that will likely be required over time *in lieu* of the HCP.

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Moreover, the HCP alternative will actually allow *increased* impacts to watershed conditions and the covered species, contrary to the HCP and DEIS' repeated and largely unsubstantiated claims that the HCP will provide a net benefit. Section 4.3 of the DEIS acknowledges that under the ITP, Plum Creek can employ widespread clearcutting and other more deleterious logging and silvicultural regimes, instead of the partial cutting practices that are supposedly being employed at the moment. [DEIS, p. 4-20]

The DEIS largely ignores the condition of invertebrates and other food sources for salmonids and bull trout, ignores ecosystem interactions, the impacts of herbicides and other chemicals, and the impacts of sedimentation from upslope logging. The DEIS simply notes that water temperatures will be maintained for bull trout, without ever specifying what temperatures will be achieved, and how they compare with temperatures needed during the bull trout's different life stages. The DEIS largely fails to assess and quantify factors affecting fish habitat, reproduction, recovery, etc., outside of riparian area tree cover and sedimentation. The DEIS fails to rigorously, quantitatively, and objectively compare the HCP's outcomes with conditions needed for aquatic species' recovery.

Despite its length, the core of the DEIS' impact assessment, section 4 "Affected Environment and Environmental Consequences," consistently fails to quantify or even adequately describe the likely impacts and outcomes of the ITP, HCP, and land management and development activities permitted by the HCP. Equally important, the DEIS fails to relate these impacts and outcomes' relationship to quantitative measures and other indicators of survival and recovery of the covered species. While DEIS subsection 4.5, "Vegetation Resources," begins to provide data on riparian vegetation, this is a rare exception to the DEIS' general failure to provide adequate data and analyses. Another rare exception is the various figures provided on sediment delivery from roads and on canopy closure under different alternatives. [DEIS, p. 4-155 et seq and 4-161.] Unfortunately, the DEIS still fails to compare the alternatives' outcomes with criteria that correspond to the survival and recovery of each of the covered species.

E4-267

As with the HCP, the DEIS fails to identify, for each of the covered species, population levels, specific habitat conditions, and other factors that would correspond to genuine recovery across each of the species' ranges. Likewise, the DEIS fails to provide concrete quantitative assessments of how the populations and habitat conditions stemming from the ITP and HCP will compare to these recovery indicators and standards. The DEIS fails to include any population viability analyses.

Section 4.3 of the DEIS acknowledges that the partial logging practices that are reportedly employed by Plum Creek have not been well studied. [DEIS, p. 4-20] In other words, the impacts of Plum Creek's logging practices on water resources and hydrology are, according to the DEIS, not known.

The DEIS inappropriately chooses to exclude the issue of fish population objectives from the impacts analysis. [DEIS, p. 4-65] While we agree that it is crucial to establish and evaluate fish habitat objectives, fish population objectives will also remain crucial. Although populations of anadromous fish may be affected by factors beyond Plum Creek's control, they are also affected by habitat conditions. Ultimately, fish populations are *the* issue. We question how the Services can determine whether the HCP will impact the covered species' chances of survival and recovery without knowing the

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HCP alternative's possible outcomes with regard to fish populations. Likewise, failure to determine how the HCP will affect fish populations could easily result in failure to determine whether the HCP's habitat outcomes are adequate.

The DEIS' discussion of bull trout habitat and conservation needs is generally quite cursory and lacks key data. [See DEIS, p. 4-84 et seq.] While the DEIS does note the range of water temperatures that have been associated with bull trout habitat, other habitat variables remain unquantified and poorly described. Moreover, the DEIS fails to distinguish between water temperature data for bull trout which is more credible, and fails to relate the different temperature data to the bull trout's different life stages and functions. For example, bull trout are much more temperature sensitive during spawning and early development.

The DEIS' impact assessment in relation to the four HCP goals of "cold, clean, complex, and connected" suffers from the same problems found with the overall impact assessment. The discussion of "clean" also fails to adequately account for water quality impacts stemming from the application of fertilizers, pesticides, herbicides and other chemicals during forestry operations. [DEIS, pp. 4-136 and 4-144] The discussion of "complex" also fails to adequately address ecosystem interactions between instream structures and habitat conditions, and the broader riparian zone. [DEIS, p. 4-144 et seq.] The discussion of "cold" also fails to examine how logging and roading affects hydrology, high and low water flows, ground water patterns, and thus streamflows and water temperatures. [DEIS, p. 4-135]

E4-267

The DEIS assumes at several junctures that the HCP's monitoring and adaptive management processes will be sufficient to address shortcomings in the HCP's initial mitigation measures. (See DEIS pp. 4-170 and 4-179, for example.) As discussed in Sections II-F and II-G of our comments, this assumption is unfounded and largely incorrect. The DEIS fails to include any objective analysis of the efficacy, thoroughness, and likely outcomes of the HCP's monitoring and adaptive management provisions, and the constraints imposed by the HCP's "No Surprises" guarantees and inadequate "changing circumstances" provisions. The DEIS' discussion of the HCP's adaptive management process largely just describes the process. [DEIS, p. 4-185] The DEIS' discussion fails to objective examine the problems raised here and in Section II-F of our comments, and fails to examine whether the improvements that are likely to occur to the HCP's mitigation measures despite the adaptive management system's procedural hurdles, the "No Surprises" guarantees, and the "changing circumstances" will be sufficient to overcome problems with the HCP's initial mitigation measures.

The Services are to be commended for assessing impacts to non-covered wildlife species in the DEIS. Unfortunately, the DEIS' assessment suffers from fundamental flaws, and is not sufficient to ensure that the proposed action will avoid harming various wildlife species, including various listed species and other species of concern.

For most species, the wildlife assessment either: 1) concludes that issuance of the ITP and approval of the HCP will have no effect on the species, because the HCP's riparian conservation measures are at least as beneficial as the "no action" alternative, or 2) simply fails to answer the question of how issuance of the ITP and approval of the HCP will impact the species.

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In the former case, the DEIS' conclusions are likely to be quite flawed, due to the DEIS' use of an inaccurate "no action" alternative description. Problems with this alternative are discussed above. Equally important, the question at hand is not just how the HCP's outcomes compare with a "no action" alternative, but whether the logging, roading, and other activities permitted by the Services' proposed issuance of the ITP will negatively impact listed or otherwise sensitive species which the Services are obligated to protect under the ESA. As discussed in Sections II-B and III-A, B, C, & D of our comments, the logging, roading, and other activities which Plum Creek may conduct under the ITP are indeed likely to have substantial negative impacts on a variety of listed or otherwise sensitive species, and are likely to significantly impact these species' chances of survival and recovery.

The problem with the latter case is self evident. Examples of species for which outcomes are not addressed include grizzly bear and tailed frog.

E4-267

The DEIS also ignores the HCP area's role in providing low elevation forest habitats and habitat connectivity between neighboring low elevation forests and coastally-proximate forests.

The DEIS fails to adequately assess impacts to listed species which are not currently found in the HCP area, but which may need viable habitats of one sort or another in the area for their recovery.

As discussed in Sections II-A-ii and iii, II-B, and III-A, B, and C of our comments, the DEIS fails to address impacts from a number of activities, including activities permitted by the ITP, and impacts to a variety of species of concern. The impacts of Plum Creek's existing and potential intensive, short-rotation, low-retention, chemical-intensive forestry practices across the vast majority of the plan area are ignored.

The DEIS fails to supplement the HCP's inadequate species surveys.

The DEIS fails to assess various other issues and impacts identified throughout our comments.

E4-268

An EIS must analyze "cumulative actions, which when viewed together have cumulatively significant impacts." (40 C.F.R. § 1508.25(a)(2).) Thus, "[w]here several foreseeable similar projects in a geographical region have a cumulative impact, they should be evaluated in a single EIS." (Resources Ltd. v. Robertson, 35 F.3d 1300, 1306 (9th Cir. 1993); *see also* 40 C.F.R. § 1508.25(a)(3).) "Cumulative impact" is defined in the NEPA regulations as the impact on the environment that results from "the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions." (40 C.F.R. § 1508.7.) The EIS must include "reasonable options" for avoiding or mitigating to insignificance any significant cumulative effects identified. (40 C.F.R. § 1508.25.)

Additional Comments:

While the DEIS' cumulative impacts assessments are grossly inadequate.

The DEIS literally provide only a cursory paragraph for each environmental resource category, fails to provide any quantitative or even qualitative data, and fails to really provide any analyses.

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Those cumulative impacts discussions which are provided in the DEIS are primarily just brief statements of largely unsubstantiated conclusions.

The analyses also fail to compare the HCP and ITP's outcomes with those that would correspond to species' recovery. Instead, the DEIS continues to compare the HCP's outcomes with those of the poorly defined "No Action" alternative which fails to provide accurate baseline conditions. The HCP and DEIS' faulty "no action" alternative descriptions fail to account for likely improvements in the regulatory baseline over time, and therefore overstate the relative benefits likely to result from the HCP alternative. As discussed above, comparison with more accurate baseline trends is likely to show far more serious impacts and fewer benefits resulting from the HCP.

The cumulative impact analyses also ignore residual impacts stemming from the HCP, i.e., impacts which remain after consideration of the HCP's mitigation measures.

The cumulative effects analyses fail to incorporate quantitative and qualitative data on the impacts that will result from the ITP, HCP, and the activities permitted by the ITP, as well as other federal and non-federal actions across the covered species' ranges.

The cumulative impacts analysis for fish habitat quality, for example, suffers from all of these problems, and then goes on to say that cumulative effects are simply "unknown." [DEIS, p. 198]

Some key subsections within DEIS section 4, "Affected Environment and Environmental Consequences," fail to include any cumulative impacts assessments whatsoever. Examples include subsection 4.3, "Water Resources and Hydrology."

E4-268 The cumulative impacts analyses also fail to address the types of forestry practices and impacts that will occur on other non-federal forestlands in the range of the affected species and ecosystems.

The Services must determine how this HCP, other HCPs being developed in the species' ranges, and other federal and non-federal actions cumulatively affect each covered species' specific habitat conditions, population dynamics, distribution, and chances of recovery and survival. Other actions include timber sales, road building, and other operations on federal forestlands in the Northwest and Northern Rockies regions; ITPs issued to other landowners in these regions; and water withdrawals, passage barriers, and water quality impacts in the downstream reaches of Plum Creek's watersheds. Plum Creek's holdings encompass a significant amount of the range of the bull trout and other covered species, and it is imperative that various HCPs be fully consistent and actively contribute towards the recovery of viable, healthy, abundant populations of the covered species that can withstand fishing, climate changes, land management operations, and other sources of disturbance.

Identification of impacts on Forest Service and other federal lands must be based on actual, on-the-ground practices. It is not safe to assume, for example, that the Northwest Forest Plan has always been implemented as intended. Some Forest Service districts are prone to violating basic resource protection standards. The Congressionally-mandated "Salvage Logging Rider" also undercut the Forest Plan's protection measures for many Late Successional Reserves and other areas. The U.S. Forest Service has also been failing to comply with the Northwest Forest Plan, which was supposed to protect the old growth ecosystems and numerous threatened and endangered fish, wildlife, and plant species on federal lands in the range of the northern spotted owl. The agency has been

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apparently ignoring the Plan's requirements and logging in Late Successional Reserves that were supposedly protected. Over 275 recent and pending timber sales, totalling 1.2 billion board feet, reportedly failed to meet the Plan's requirements and are illegal. Under the Plan, agencies were also supposed to survey forests for rare plants and animals and then protect them from logging. Surveys had still not been completed for 33 rare plants and animals after a five year deadline.

In addition, the Northwest Forest Plan was only expected to have an 80% chance of yielding well-distributed populations of northern spotted owl across *federal* lands, and was not expected to produce viable owl populations across the region as a whole. Similar ratings for other species are noted below in Section III-B of our comments.

E4-269

NEPA requires a discussion of growth-inducing impacts as part of its analysis of indirect environmental effects of the proposed action. (40 C.F.R. § 1508.8(b).) A project may have a growth-inducing impact if it may directly remove an obstacle to growth, or if it may encourage other activities that would significantly affect the environment, individually or cumulatively.

Additional Comments:

The HCP and DEIS fail to even mention growth-inducing impacts.

E4-270

NEPA requires an EIS to include measures to avoid or minimize *each* significant impact identified, including the impacts of alternatives. (40 C.F.R. § 1502.16(h), 1502.14(f).) The analysis must include appropriate mitigation measures for each alternative analyzed in detail. (40 C.F.R. § 1502.14(e), (f).) This discussion must distinguish between measures proposed by the project proponent to be included in the project and others that are not included but could reduce adverse impacts if included as conditions of project approval. If several measures are identified to mitigate an impact, the EIS must discuss the basis for selecting a particular measure, if that is done.

Additional Comments:

The HCP and DEIS fail to meet these standards. The DEIS fails to include any impact minimization or mitigation measures beyond the inadequate measures provided in the HCP.

The DEIS fails to mitigate each significant impact. The DEIS fails to provide mitigation measures beyond those provided in the HCP, and the HCP's mitigation measures are highly inadequate, as documented above, and throughout our comments. The impacts of a number of activities are ignored, as noted above. No mitigation is provided for additional impacts that the DEIS fails to assess, as described below.

E4-271

NEPA requires all federal agencies to "use all practicable means . . . to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions on the quality of the human environment." (40 C.F.R. § 1500.2(f).)

Additional Comments:

The HCP and DEIS fail to meet these standards, including by failing to mitigate each significant impact, by failing to assess key impacts, by excluding an alternative that

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E4-271 would utilize more sustainable forest practices, by excluding alternatives to issuing a "take" permit, etc.

E4-272 Finally, NEPA requires an EIS to include a discussion of significant adverse effects which cannot be avoided if the proposal is implemented (40 C.F.R. § 1502.16), and to discuss any irreversible or irretrievable commitments of resources which would be made if the proposal is implemented (40 C.F.R. § 1502.16).

Additional Comments:
The DEIS fails include any such discussion.

B. Additional Goals and Requirements for the NEPA Assessment:

E4-273 The EA/EIS should assess likely costs to the public and future generations of the proposed HCP versus alternatives. Costs may include lost fish and wildlife, lost fisheries employment, lost rare plants and future medicines, regional ecosystem failures, the cost of paying landowners to restore habitat areas, the cost of paying landowners for adaptive management and improvements to their HCPs that have been precluded by "No Surprises" agreements, the cost of increasing protections on Federal lands to compensate for failed HCPs on private lands, etc.

Additional Comments:
The DEIS fails to meet these goals.

E4-274 The EA/EIS must assess impacts to all environmental values in the plan area, including both direct and cumulative effects. These values include, but are not limited to, unlisted, sensitive, rare or endemic, or otherwise at-risk fish, wildlife, and plant species; water quality; water supplies and the timing of flows; air quality; open space; soil productivity; and the sequestration and storage of atmospheric carbon dioxide.

Additional Comments:
The DEIS fails to adequately meet these standards.

E4-275 The EIS/EA must also account for any new information which has come to light during development of the HCP.

Additional Comments:
It is not clear whether the DEIS adequately addresses this requirement.

VII. References and Resources

A. Cumulative Impacts of HCPs and Related Actions:

American Lands. Inventory of Pending and Approved Forest HCPs in Western States. American Lands Alliance, Forest Biodiversity Program, Portland, OR.

Responses

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EPIC & Sierra Club. 1998. Synopsis of Biological Opinions Issued by USFWS, Region 1: Environmental Protection Information Center, Redway, CA, & Sierra Club, San Francisco, CA. Available through American Lands' Forest Biodiversity Program, Portland, OR.

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See Response to Comment Table or click on link provided below.

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Responses

See Response to Comment Table or click on link provided below.

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Responses

See Response to Comment Table or click on link provided below.

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Responses

See Response to Comment Table or click on link provided below.

Comment Response

VIII. Additional Data

Table 2. Species Likely to be Harmed Under Draft W. Oregon State Forest HCP

Birds	American goldfinch	orange crowned warbler
	American kestrel	Pacific slope flycatcher
	band tailed pigeon	pileated woodpecker
	Barrow's goldeneye	purple martin
	belted kingfisher	rock wren
	brown creeper	rufous hummingbird
	bufflehead	Swainson's thrush
	chipping sparrow	turkey vulture
	dark eyed junco	Vaux's swift
	great gray owl	violet green swallow
	harlequin duck	western bluebird
	killdeer	western tanager
	Lewis woodpecker	western wood pewee
	mountain quail	white crowned sparrow
	mourning dove	willow flycatcher
	northern goshawk	Wilson's warbler
	olive sided flycatcher	winter wren
Bats	fringed myotis	silver haired bat
	long-eared myotis	Yuma myotis
	pallid bat	
Other Mammals	American marten	ringtail
	mountain lion	Trowbridge's shrew
	Pacific fisher	western gray squirrel
	red tree vole	white footed vole
Reptiles	reptiles in general	sharptail snake
Amphibians	amphibians in general	foothills yellow legged frog
	Cascades frog	Oregon salamander
	Cascade torrent salamander	red legged frog
	clouded salamander	southern torrent salamander
	Columbia torrent salamander	tailed frog
	Cope's giant salamander	western toad
	Ensatina salamander	
Fish	aquatic species in general	trout
	salmonids in general	Oregon chub
	chinook salmon	Pacific lamprey
	chum salmon	river lamprey
	coastal cutthroat trout	steelhead trout
	coho salmon	Umpqua River cutthroat trout
	lower Columbia river cutthroat	Umpqua chub
Invertebrates	invertebrates in general	Oregon silverspot butterfly
Vascular Plants	late seral epiphitic mosses	
Fungi	rare fungi	

Source: Benda et al (1998). Notes: Includes species expected to be harmed or unaided according to one or more of the reviewers in Benda et al. The reviewers generally expected the plan to lead to increased habitat fragmentation and disturbance; presumably, these impacts will harm any species for which no mitigation or other "aid" is provided.

Letter E4

Table 3. Selected Late Successional Forest Species Within the Range of the Northern Spotted Owl That Depend Significantly (>25%) on Non-Federal Forests

Amphibians	Birds	Mammals
>25% Non-Federal Lands:	***>25% Non-Federal Lands:***	***>25% Non-Federal Lands:***
tailed frog	northern goshawk	American marten
Oregon slender salamander	Barrow's goldeneye (smr hab)	Fisher
Shasta salamander	Hammond's flycatcher	Forest deer mouse
Del Norte salamander	flammulated owl	Pacific shrew
Larch Mountain salamander	white headed woodpecker	
	black backed woodpecker	***>50% Non-Federal Lands:***
>50% Non-Federal Lands:	Williamson's sapsucker	elk
northwestern salamander		western red-backed vole
clouded salamander	***>50% Non-Federal Lands:***	southern red-backed vole
black salamander	wood duck	Townsend's chipmunk
Cope's giant salamander	bufflehead	northern flying squirrel
Pacific giant salamander	hermit thrush	dusky-footed woodrat
Dunn's salamander	brown creeper	shrew-mole
Van Dyke's salamander	Vaux's swift	deer mouse
Cascade torrent salamander	northern flicker	red tree vole
Olympic torrent salamander	hermit warbler	fog shrew
southern torrent salamander	pileated woodpecker	
rough skinned newt	western flycatcher	***>75% Non-Federal Lands:***
	northern pygmy owl	red tree vole (California)
>75% Non-Federal Lands:	bald eagle	
Columbia torrent salamander	varied thrush	
	hooded merganser	
	red crossbill	
	common merganser	
	chestnut backed chickadee	
	hairy woodpecker	
	golden crowned kinglet	
	red breasted nuthatch	
	white breasted nuthatch	
	pygmy nuthatch	
	red breasted sapsucker	
	barred owl	
	winter wren	
	warbling vireo	
	Wilson's warbler	
	>75% Non-Federal Lands:	
	Barrow's goldeneye (wtr hab)	

Source: WAFC (1997d) and USDA FS et al (1993). Notes: The FEMAT Report was developed primarily for management decisions on Federal lands and does not provide thorough analyses for non-Federal lands.

Responses

See Response to Comment Table or click on link provided below.

Comment Response

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Table 4. Likelihood of Late Successional Forest Species Being Well-Distributed Across Federal Lands Under Option 9 of the Northwest Forest Plan

Species Group	# Species w/ 80% Chance or Less	# Species w/ 50% Chance or Less	# Species w/ 25% Chance or Less	Total # Species Studied
Fungi	519	182	99	527
Lichens	145	110	84	157
Bryophytes	1 group	0	0	13 groups
Vascular plants	40	19	12	131
Mollusks	102	99	14	102
Arthropods	10 groups	1 group	0	15 groups
Amphibians	13	5	3	19
Birds	2	0	0	37
Bats	7	2	0	11
Other mammals	4	0	0	12
Fish	6 groups	0	0	7 groups

Source: USDA FS et al (1993) and WAFC (d).

Table 5. Examples of "Small Stream" Amphibians in Washington

Species	Requires Canopy Closure	Requires Large Woody Debris	Management Resilience
Cope's giant salamander	yes	no	medium
Pacific giant salamander	yes	yes	high
Columbia torrent salamander	yes	no	low
Cascade torrent salamander	yes	no	low
Olympic torrent salamander	yes	no	low
tailed frog	yes	no	medium
Dunn's salamander	yes	yes	low
Van Dyke salamander	yes	yes	low
western red-backed salamander	no	yes	high

Source: WA DNR TFW (1997)

Table 6. Examples of Species Which Are Slow to Colonize or Disperse, or Have High Site Fidelity, and Thus Require Medium to Long-Term Reserves, as Well as Protection of Existing Habitats Until New Reserves Are Colonized

northern spotted owl
marbled murrelet
rare plants
some amphibians
lichens
bryophytes
fungi

Source: Benda et al (1998).

Responses

See Response to Comment Table or click on link provided below.

Comment Response

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Responses

See Response to Comment Table or click on link provided below.

Comment Response

Table 7. Summary of Selected Mitigation Measures Recommended by FEMAT for Late Successional Species

Species Group	General Measures (in Addition to Option 9)	Measures Specific to Non-Federal Lands
Fungi	Retention and distribution of old growth patches of at least 5 - 10 acres across watersheds. Protection of rare and locally endemic species. Retention of 15 percent of green trees during harvest, with buffers, and with an accumulation of leave trees during successive harvests. Retention of 12 logs per acre in a range of decay classes, and distributed within a range of stand types. Minimize site disturbances, including burning and compaction. Surveying and monitoring programs.	Some species are particularly dependent upon non-Federal lands in the OR Coast Range, coastal Olympic Peninsula, SW WA, Willamette Valley, and low elevation Cascades. Existing old growth fragments should be protected, as should sites with rare or endemic species and other species of concern.
Lichens	Protection and distribution of old growth stands of 10 - 40 acres across the landscape. Protection of rare and endemic species. Retention and clumping of leave trees. Retention of diverse tree species. Retention of large down logs. Retention of trees on ridgelines to optimize spore dispersal. Providing tree buffers around rock outcroppings. Surveying and monitoring programs.	Some lichen species are dependent upon oceanic microclimates, and are thus more likely to be found on private and state lands in the coastal ranges. Generally, more late successional stands need to be developed.
Bryophytes	Protection for species living in floodplains outside riparian buffers. Protection for riparian stands over 80 years old. Restrictions on commercial harvest of mosses and other species in reserve areas and riparian buffers. Provide tree buffers around rock outcroppings. Provide riparian buffers for small and intermittent streams. Retain coarse woody debris. Protect rare and endemic species. Conduct surveys and monitoring.	Bryophytes will neither survive nor recover on private lands as long as lands are managed on short rotations and late successional forest is lacking across the landscape. Species that depend on oaks are also in jeopardy of not surviving, including *antitrichia curtipendula.*
Vascular Plants	Adequate distribution and spacing of old growth stands. Corridors for seed dispersal. Protection of populations of at-risk species in addition to proposed late successional reserves. Follow other special conservation strategies for specific species. Protect Port Orford cedar from *phytophthora lateralis.* Retain coarse woody debris and canopy structure.	At least 12 species of vascular plants are closely associated with old growth stands below 3,000 ft. elevation. These include locally endemic *aster vialis and scoliopus bigelovii.* Many vascular plants associated with late successional and old growth forests occupy upper headwaters, intermittent streams, and seeps. The viability of at least 10 species may be affected by non-Federal land management, including the intensity and frequency of timber harvest. (See FEMAT p. IV-124 for specific species.)

Letter E4

Table 7, continued.

Species Group	General Measures (in Addition to Option 9)	Measures Specific to Non-Federal Lands
Mollusks	Include mollusks in watershed analyses for riparian reserves. Development and use of survey protocol for both riparian and upland areas, and also for reserve areas when management is contemplated. Protection of at-risk species' sites with buffers of at least one site potential tree height. Protection of talus and limestone areas.	Nonfederal lands, particularly SW WA and N CA, play an important role in the viability of some mollusks, including some slug species in WA, and some endemic freshwater mollusks in CA. Surveys should be conducted and mitigation measures developed. (Areas of endemism that are likely to include private lands are also listed on FEMAT p. IV-124.)
Arthropods	Limitation of salvage operations. Restriction of silvicultural operations in late successional reserves. Watershed protections. Retention of a full range of coarse woody debris and green tree sizes and species. Cessation of burning as a means of site preparation. Protection of remaining old growth fragments, particularly in low elevation areas.	Remaining fragments of low elevation late successional and old growth forest should be protected as refugia.
Amphibians	Follow the mitigation measures identified in the SAT report. Designate and protect sites for Del Norte salamander, Larch Mountain salamander, Siskiyou Mountain salamander, and Shasta salamander. Provide riparian buffers the width of two site potential trees on each side of streams occupied by riparian amphibians. Retain logs of 16" or greater at levels comparable to unmanaged stands, for terrestrial amphibians. Provide riparian buffers of 100 ft. for spotted frog in eastern Washington and for Van Dyke's salamander. (Other species specific mitigation measures are listed on FEMAT p. IV-149.)	Riparian associated species are particularly reliant on non-Federal lands. Streamside protection measures are needed.
Reptiles	Provide riparian buffer widths of 600 ft. for western pond turtle.	None specified.

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter E4

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Table 7, continued.

Species Group	General Measures (in Addition to Option 9)	Measures Specific to Non-Federal Lands
Northern Spotted Owl & Marbled Murrelet	For NSO: Use some prescribed fire in reserves. Retain hardwoods in the Klamath Province. Retain the 6 largest green trees per acre. Use land exchanges to consolidate Federal ownerships. For MM: Stabilize and improve nesting habitat in all occupied areas. Develop large blocks of future habitat with interior forest. Improve habitat distribution.	For NSO: SW WA, NW OR, and N CA are of particular concern for NSO. Other areas were identified by the Final Draft Recovery Plan for NSO, including the I-90 corridor in the WA Cascades, the CA Cascades, and the OR Coast Range. For MM: Private lands are key to maintaining MM in parts of its range, including N CA, the area between the Siuslaw and Siskiyou National Forests, and the area between the central OR Coast Range and the Olympic Peninsula. Additional habitat should be provided on these lands, along with management (protection) of existing habitat.
Other Birds	Provide wider riparian buffers. Limit salvage operations, particularly in the eastern Cascades provinces. Protect nesting and foraging habitat for northern Goshawk in the matrix. Survey for and protect flammulated owl sites. Follow existing species-specific protections for other species. Provide riparian buffer widths of 600 ft. for bald eagle, wood duck, goldeneye, buffle head, hooded merganser, heron, and sandhill crane. Provide riparian buffer widths of 450 ft. for common loon and pileated woodpecker. Provide riparian buffers of 300-330 ft. for dabbling duck. Provide riparian buffers of 165 ft. for lesser scaup and harlequin duck.	None specified.
Mammals Other Than Bats	Ensure fishers are not taken incidentally during marten trapping. Retain large snags and coarse woody debris in matrix areas. Provide riparian buffers of 300-330 ft. for beaver and mink.	Protect fisher during marten trapping. Address forest management impacts on red tree vole.
Bats	Distribute large snags and large green trees throughout matrix areas in high densities. Provide wide riparian buffers. Protect caves and mines, including from sedimentation. Provide tree and understory buffers around caves.	Keen's myotis depends heavily on non-Federal lands in WA and is strongly associated with late successional forests. Populations on the CA coast also of concern. Mature oak woodlands need to be protected.

Source: (WAFC 1997d) and USDA FS (1993) Notes: The FEMAT Report was developed for Federal lands and does not provide thorough management recommendations for non-Federal lands. Mitigation measures were also premised on the conservation measures already provided by Option 9 and other Federal management options

Letter E4

IX. Incorporation of Other Relevant Information

We wish to incorporate by reference the resource materials listed in Section VII above. Among other things, the literature cited in Section VII documents impacts likely to forest ecosystems, habitats, and species in relation to different forest management practices; documents the shortcomings of various forest HCPs, including Plum Creek and other relatively similar plans; and recommends more effective forest management and resource protection standards which Plum Creek's HCP would need to employ to adequately meet the four species' survival and recovery needs. This literature includes substantial information which we have not been able to highlight in our comments, given the short comment period for the proposed action and competing comment periods for other proposed HCPs and ESA policy changes. Nevertheless, the Services should consider this literature when evaluating Plum Creek's HCP and the impacts of issuing the proposed ITP. In a number of cases we have provided the Services with copies of our own unpublished materials that are also referenced in Section VII. These materials were provided in our comments on other forest HCPs in the region, and in separate submissions to USFWS and NMFS staff.

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter E5

Montana Council
P.O. Box 7186 Missoula, MT 59807 (406) 543-0054

16 March 2000

RECEIVED
MAR 2 0 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

Ted Koch, project manager
U.S. Fish and Wildlife Service
Snake River Basin Planning Office
1387 Vinnell Way, Room 368
Boise, ID 83709

re: comments on proposed Plum Creek NFHCP and DEIS

Dear Ted:

Enclosed are the comments of Trout Unlimited on the draft EIS and Native Fish Habitat Conservation Plan and incidental take permit proposed by Plum Creek Timber Company. These comments represent the collective opinion of Trout Unlimited national and its Montana and Idaho state councils. We appreciate the work the Services have put into developing the DEIS and in consulting with Plum Creek. We also appreciate the effort of the Services and the company, specifically you and Mike Jostrum, in keeping us informed while the proposal took shape.

E5-1 Trout Unlimited supports the use of HCPs and incidental take permits for advancing endangered species conservation on private lands. But we believe these tools should be used judiciously and be backed with sound science. HCPs and take permits have the most potential for benefiting species when they are developed for activities that occur on small tracts of private land, where cause and effect of land management is more easily measured. Using this approach for large landscapes, such as on 1.7 million acres of Plum Creek holdings, and for multiple-species is substantially riskier. Scientific uncertainty increases when permits are issued for large landscapes and when they target a number of species. The proposed HCP for Plum Creek's lands includes significant scientific uncertainty.

E5-2 We believe the proposed HCP includes enough shortcomings and uncertainty that its potential conservation benefits do not outweigh the risk associated with issuing a 30-year incidental take permit. Thus we can't support issuance of a take permit based on the HCP described in this DEIS. Because this is the first large-scale HCP and take permit proposed for private land in this region, we are also concerned about precedent. The measures and risk approved in this permit could set the bar too low for subsequent applications from other landowners. Thus the cumulative effect of "take" on all non-federal lands could eventually be harmful to recovery of listed or candidate species. In addition, the amount of take allowed for this 1.7 million acres could directly affect how federal lands with the same species are managed. An inordinate amount of the conservation burden could ultimately fall on public lands in order to compensate for excessive take approved on other lands. This might unfairly affect interests dependent on national forests or BLM lands for certain services and resources.

E5-3

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E5-1	46
E5-2	1
E5-3	90

Letter E5

But to us the bottom line is: Does the HCP indeed demonstrate that it minimizes and mitigates to the maximum extent practicable the impacts of the take? Based on the document we reviewed, no.

Among the major findings of our review are:

E5-4 1. The proposal does not provide an estimate of "take," either under existing management or under the proposed HCP. This makes it impossible to determine exactly how the HCP could aid native fish.

E5-5 2. No alternatives are offered and evaluated that avoid a take.

E5-6 3. The document doesn't provide sufficient information to allow the Services to determine whether the proposed HCP mitigates the impacts of incidental take to the maximum extent practicable. Practicability appears limited by Plum Creek's "business goals," which are general in nature and never enumerated.

E5-7 4. The adaptive management pathway is too complicated and it gives the benefit of the doubt to Plum Creek's internal business objectives instead of to the species under permit.

E5-8 5. The HCP focuses on conservation efforts in spawning and rearing habitat for bull trout. But little evidence is offered demonstrating that this is an adequate ecological surrogate for mitigating to the maximum extent practicable the take of 16 other species.

E5-9 6. Many of the conservation commitments include activities that are impossible to measure on the ground, are already required under law or involve items for which there are no targets.

E5-10 7. Proposed monitoring of application and effectiveness of some conservation commitments is flawed scientifically or vulnerable to bias.

Some commitments in the HCP do have potential for significantly reducing impacts from existing roads, eliminating passage barriers and to a lesser extent, minimizing impacts to riparian values along some streams. But the specifics of these items, as well as their relationship to a quantified take, needs to be fleshed out and expanded. Our review includes suggestions to better accomplish that.

Several conservation commitments are keyed to use of "best management practices." Some commitments merely continue existing practices that Plum Creek advertises as being part of its everyday activities. Other commitments, such as measures in streamside zones in Montana, are required by law. The HCP proposes "enhancing" other management practices. We support improving management practices and we acknowledge that Plum Creek and others in the timber industry have significantly improved their practices in recent years. Certainly state-organized audits in Montana document improved practices are in use and that they can be effective for reducing sediment contributions to streams. But because Montana's BMPs are integral to the proposed HCP, the Services should understand their limitations.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E5-4	109
E5-5	177
E5-6	369, 375
E5-7	611
E5-8	208
E5-9	268, 382, 463, 606
E5-10	661

Letter E5

E5-11 None of the BMPs in Montana have ever been empirically tested for effectiveness. All conclusions of BMP on-the-ground effectiveness are based on subjective, snapshot-in-time ocular estimates. Though we agree that many conclusions regarding reductions in short-term sediment delivery are reasonable, they are also site-specific estimates and they do not address cumulative effects within watersheds. The Services should also understand that a scientific relationship between application of state-approved practices and the health of fish populations has never been measured. It has only been assumed.

E5-12 The required streamside BMPs in Montana are not based on scientific research. They result from negotiations among timber industry representatives, agencies and conservationists, and they reflect agreement on politically and economically acceptable minimum practices in streamside areas. Trout Unlimited was part of the development of the streamside BMPs and understood from the beginning the scientific uncertainty behind these practices. Moreover, the main objective of the streamside BMPs is to reduce risk from sediment. Woody debris recruitment and maintenance of water temperatures were not prime objectives in development of these practices. The streamside (and other) BMPs were developed primarily to enable the State of Montana to retain primacy over the state's program for controlling polluted runoff from forestry activities.

E5-13 Much has been made about high scores Plum Creek and other timber operators have received in bi-annual audits of best management practices in Montana. We assume that is a reason Montana's BMPs are the foundation for a number of the conservation commitments in the proposed HCP. The Services should understand, however, that the methods used in the audits -- at least regarding in-field practices -- are largely subjective. The audits do not quantify the relationship between a practice or set of practices and sediment reduction. Conclusions about effectiveness are based on snapshot-in-time estimates made during site visits to portions of harvested areas. The sites are selected randomly. The visits occur after leaf-up and generally during dry parts of the year, which sometimes makes it difficult to trace sediment transport. Audit methods have also not been designed to determine the effectiveness of practices over time, though we have successfully pushed for re-audits of some sites. Re-auditing is still formative in nature and began only in 1998. Finally, the audits have not been designed to establish cause-and-effect relationships between specific practices and fishery health.

The BMPs and the audits have been helpful tools for reducing impacts to water quality and fisheries. And that's why Trout Unlimited has been involved in developing these measures. Much like Plum Creek in its recommendations for adaptive management, we, too, endorse scientific rigor and certainty. That's why we point out the limitations of conclusions based on Montana's BMP program for forestry.

To help reduce uncertainty over whether Plum Creek's proposal "minimizes and mitigates to the maximum extent practicable," we have evaluated the proposed HCP and offered suggestions for improvement. We look forward to the agencies and the company being open-minded about our review and suggestions. The principal investigators for TU have experience in the policy and legal arena of ESA. They also have on-the-ground experience with timber and fishery management in the region.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E5-11	604
E5-12	462
E5-13	604

Letter E5

Most of our review focuses on the proposed HCP, though we direct some comments to the DEIS. It's clear to us that the proposed HCP is the core item needing evaluation.

We have organized our review in this fashion:

1. An overview of the 53 Conservation Commitments
2. A review of statutory and policy compliance, as well as the proposed adaptive management approach.
3. A focused review on specific topics and conservation commitments potentially providing the most conservation benefit. Several topics include references and appendices. We include discussion on:

    - ecological considerations for 17 species
    - road commitments
    - riparian commitments
    - range commitments
    - monitoring
    - land disposition

We look forward to the Services responding to our analysis and suggestions. Please call me if you have any questions.

Sincerely,

Bruce Farling
Executive Director
Montana Council, TU

NMFS
Plum Creek Timber Company

Responses

See Response to Comment Table or click on link provided below.

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Letter E5

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Comments of Trout Unlimited

Proposed Habitat Conservation Plan and Incidental Take Permit for Native Fish Species

for

Plum Creek Timber Company Lands

16 March 2000

Letter E5

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Contents

Letter E5

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Comment Response

Plum Creek's 53 Conservation Commitments

Letter E5

1

Coarse Screening of Plum Creek's 53 NFHCP Commitments

In order to focus on items in the HCP with the most potential for contributing to conservation of native fish, TU performed a coarse screen analysis on the 53 Conservation Commitments. This screening helped TU determine which commitments are above and beyond current practices and legal requirements. And because much like Plum Creek, TU is interested in rigorous science, statistically significant findings and practices that produce biologically relevant results, the screening helped determine which commitments were measurable and which had the most potential to provide benefits across Plum Creek's holdings. In addition, this review helped identify areas of uncertainty and items that need further explanation.

This first-cut analysis helped determine how many of the 53 Conservation Commitments are meaningful, how many are subsets of other commitments and which are indeed new approaches to management.

EP1 – The Environmental Principles are broad statements that cannot be measured in terms of conservation. Thus their conservation value is vague. According to the HCP, the Environmental Principles of today may not be the same as tomorrow's. They are also philosophical in nature. The HCP states (1-14) that: "These principles may be revised by Plum Creek from time to time, and are not intended to be inflexibly applied....they are statements of Plum Creek's philosophy and approach."

E5-14

R1 – Plum Creek, like other private and public timber owners in the state, already commits to implementing BMPs. These practices are part of the company's Environmental Principles. The SMZ practices are the minimum required by law. Application of the existing forestry BMPs is the basis for the State of Montana retaining primacy over regulation of non-point pollution for timber practices in the state. Thus this isn't a new commitment. It is today's baseline.

R-2 – "Enhanced" BMPs could have additional, measurable conservation value beyond practices the company currently employs. But the commitment needs more detail and improvement. See detailed review and recommendations.

R-3 – Road tracking using GIS or other methods is essential in order to accomplish R-2 to R-11, thus this should not be a stand-alone conservation commitment.

R-4 – Inspections are necessary to accomplish R-1 to R-11, thus this should not be a stand-alone conservation commitment.

R-5 – This commitment should have conservation value beyond today's practices. It should be noted that upgrade of some old roads will occur anyway as part of Plum Creek's transportation system maintenance program. See detailed review and recommendations.

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R-6 – This will have some limited conservation value, depending on the methods. See detailed review and recommendations. This is also more appropriately a subset of R-5.

R-7 – This will have some conservation value, depending on methods, amount and location of roads retired. See detailed review and recommendations. It should be noted that Plum Creek, much like other private and agency landowners, currently closes some roads to reduce maintenance costs and as part of transportation system management.

R-8 – This could have some conservation value if the inspections lead to road improvements. This commitment shouldn't be a stand-alone item. It is necessary for implementation of R-4.

E5-14

R-9 – It's unclear how valuable this commitment will be because it appears the analysis will be applied inappropriately. See detailed review and recommendations. Analysis of road sediment delivery, whether in demonstration watersheds or other drainages, is a monitoring tool. In itself, it will not reduce impacts to native fish. Thus it isn't a stand-alone commitment.

R-10 – It's unclear how beneficial this is because the impacts of poaching on native fish on Plum Creek lands has not been described. Its value will also be limited by how much the State participates. The HCP doesn't disclose a formal arrangement with the state, nor does it disclose the specifics of the State's commitment.

R-11 – This commitment has conservation value, depending on where and how many road restrictions are implemented. Its value will be limited if restrictions aren't enforced regularly. It should be noted restrictions, such as seasonal closures, are already part of Plum Creek's ongoing road management.

E5-15

Rp1 – This is not a new commitment. It is the minimum required by law.

Rp2 – This commitment has potential significant value, but it appears it will affect less than 2 percent of Plum Creek's perennial stream length. See detailed review and recommendations. Retention requirements are less than that recommended in published literature and federal native fish strategies.

Rp3 – This commitment will have potential conservation value beyond existing practices. See detailed review and recommendations. It appears this commitment will affect less than 2 percent of Plum Creek's total perennial stream length. See detailed analysis and recommendations. The retention requirements are significantly less than that recommended in published literature and federal native fish strategies.

Rp4 – This commitment will have limited conservation value beyond existing practices, and that will mainly be in additional tree retention 50 feet upslope of the CMZ. The basal area of the retention areas will be dominated by small dbh stems. See detailed analysis and

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E5-15	606

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recommendations. This is significantly less retention than that recommended in published literature and in federal native fish strategies.

Rp5 – This commitment has limited conservation value beyond existing practices, and that's mainly in providing a no-cut buffer 25 feet from the high water mark. This commitment affects a very small percentage of Plum Creek's perennial stream miles. See detailed analysis and recommendations. This is significantly less retention than recommended in published literature and in federal native fish strategies.

Rp6 – This commitment contains very little additional conservation benefit over the legal minimum.

E5-16

Rp7 – This commitment contains very little additional conservation benefit beyond the legal minimum, except for the minor increment of small-dbh tree retention in "thermal management zones." It's unclear how the hydrological calculations and identification of "thermal management zones" will be monitored.

Rp8 – This could have some conservation benefit, depending on how it is implemented. Averaging of distances from the CMZ significantly reduces its conservation value. See detailed review and recommendations.

E5-17

Rp9 – The additional conservation benefit is unclear. The HCP doesn't detail why harvesting in these areas is being deferred for 10 years, nor what the known conservation value of each watershed is to native fish. Some of these have been harvested heavily in recent years. The HCP omits explaining why 10 years is an adequate period for conservation purposes.

E5-18

G-1 – BMPs might have additional conservation value above today's management. But it's difficult to tell how because many BMPs are vague and don't appear to be mandatory. Existing "take" from grazing is never identified (nor how many riparian acres are affected) so it's difficult to determine how much conservation value is in this commitment. See detailed review and recommendations.

E5-19

G-2 – This commitment has some, but likely limited, conservation benefit. This commitment won't be implemented for at least 10 years and it's unclear how many riparian acres might be affected. See detailed review and recommendations.

E5-20

G-3 – Monitoring is essential to ensure G-1, G-2 and G-4 provide a conservation benefit. Thus, this should not be a stand-alone conservation commitment. The monitoring protocol is flawed. See detailed review and recommendations.

E5-21

G-4 – It's unclear how much conservation benefit this might have because the HCP never describes how many riparian acres are grazed. The conditions and monitoring protocol are vague or inadequate. See detailed review and recommendations.

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E5-16	382
E5-17	593
E5-18	749
E5-19	754
E5-20	382
E5-21	721

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E5-22 **G-5** – This conservation commitment should be part of G-1 and shouldn't be a stand-alone item. Without training, the results from G-1, G-2, G-3 and G-4 would be suspect. This commitment also has reduced conservation value if the leasees are performing self-monitoring and it occurs without independent compliance monitoring

L-1 – These are broad statements and cannot be measured for conservation benefit. According to the HCP, the Land Use Principles of today may not be the same as tomorrow's. They are also philosophical in nature. The HCP (5-4) states: "These principles may be revised by Plum Creek from time to time, and are not intended to be inflexibly applied….they are statements of Plum Creek's philosophy and approach."

E5-23 **L-2 to L-8** – Some of these commitments are iterations of the same thing. The value of most of the land use commitments depends on the willingness of parties receiving Plum Creek lands to invest in conservation (ie., agree to forgo development). Plum Creek doesn't have to invest in the conservation; it only has to find buyers. In addition, because the HCP includes no targets for acres placed under some conservation restrictions, it is impossible to determine how much value these commitments will have over the life of the permit. Some of the restrictions suggested are flawed, and the 8 percent cap on unrestricted sales is large enough to allow most critical riparian tracts to be sold or traded without conservation encumbrances. See detailed review and recommendations.

E5-24 **L-9** – This formula includes incentives that purport to ensure there is no net loss of conservation value over the life of the permit. The formula is flawed because, among other things, it allows Plum Creek grace periods for when the balance is negative. It also allows the company to finish the 30-year permit period on the negative side of the balance as long as it balances the proportion later. See detailed review and recommendations.

E5-25 **Lg1** – This commitment could help provide some conservation benefit, provided the inventory is followed by on-the-ground restoration. Otherwise, the benefit is negligible.

Lg2 – This commitment could provide conservation benefits. However, the HCP doesn't commit to specific restoration targets. Thus, it's possible no or little restoration could occur.

Lg3 – This commitment should be part of Lg2. Monitoring is essential to determine whether restoration provided conservation benefits to native fish. Thus, this should not be a stand-alone commitment.

Lg4 – The conservation benefit of this commitment is speculative. No restoration targets are committed to, and projects will occur only "as opportunities arise." The conservation benefit will likely be proportionate to how much other interests participate financially. It should be noted that Plum Creek participated in several cooperative projects on its lands in the 1990s.

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E5-22	759
E5-23	785, 787, 789, 792, 793
E5-24	795
E5-25	382

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E5-25

Lg5 – This is a commitment to create a plan. It does not commit resources to any specific on-the-ground projects. Project objectives will be subordinate to valid existing water rights. Its conservation benefit is unknown because the HCP doesn't describe how significant a problem diversions on Plum Creek land are to native fish. It is likely the impacts are local, and limited to the Thompson River drainage and perhaps the Blackfoot.

Lg6 – This commitment is speculative. The State of Montana has not approved a plan for brook trout suppression in Gold Creek (personal conversation with Chris Clancy, Feb. 2000; personal conversation with Ron Pierce, Feb. 2000).

Lg7 – This commitment is speculative. It merely says Plum Creek "will seek" cooperative enforcement agreements. It doesn't say agreements WILL be reached, nor what will be in them. The conservation value of the potential agreements is unknown because the HCP doesn't specify the problem to native fish the agreements will correct or mitigate.

Lg8 – Because it's a good business practice, Plum Creek already participates at some level in watershed groups, including the groups it cites (6-10). The quantitative benefit to native fish of this commitment is unclear.

E5-26

A-1, A-2 and A-3 – These tools make good business sense if Plum Creek is to comply with the terms of the permit. Thus, they are not really conservation commitments.

A-4 – Internal auditing is a good business practice for Plum Creek and its shareholders. According to press releases the company issued in recent months, it already deploys internal auditing for its forestry practices. Internal auditing can help ensure the company complies with the terms of the permit, and thus it can save the company money by preventing disputes with the Services. It's not really a conservation commitment.

A-5 – External audits are a good business practice to ensure Plum Creek complies with the terms of its permit. The conservation benefit of this commitment is limited because audits will be done mainly on application, instead of on effectiveness.

A-6 – This reporting is necessary in order to perform audits on implementation. Thus it is not a stand-alone commitment. Some of the "metrics" are not measured.

E5-27

AM-1 – The use of demonstration projects in CAMPs to determine effectiveness of practices is limited because of the potential for bias in study design. Demonstration projects can be helpful when they provide refinements on how to improve implementation of a practice. But using them to generate surrogate monitoring data for determining the effectiveness of practices in other watersheds has serious shortcomings. See detailed review and recommendations.

E5-28

AM-2 – The adaptive management framework is flawed because it requires the agencies to respond to three significant tests – statistical significance, biological relevance and causal linkages – after a monitoring trigger is tripped. The adaptive management pathway

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E5-27	661
E5-28	611

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is cumbersome and gives the benefit of the doubt to Plum Creek's and its internal financial goals instead of to the conservation of native fish species, which is the objective of the HCP. See detailed review and recommendations.

E5-28

AM-3 – It's unclear how much conservation benefit is provided by this process. The commitment does not include a full compliment of reasonably foreseeable changed circumstances. The adaptive management pathway it can trigger is cumbersome, time consuming and it begs for independent arbitration. See detailed review and recommendations.

E5-29

AM-4 – This commitment could have conservation benefits, but mainly because it *might* accelerate restoration of legacy problems in some key watersheds. The actual result of the proposed analysis is vague. Hard commitments – including mileposts – are absent beyond the promise to finish evaluations and start some unspecified level of activities on-the-ground within 10 years.

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E5-29	705, 706, 708

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Policy and Statutory Compliance;
Adaptive Management and Monitoring

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Plum Creek's Proposed HCP/Incidental Take Permit: Policy and Statutory Compliance; Adaptive Management and Monitoring

1. The NFHCP must provide an estimate of incidental take.

The U.S. Fish and Wildlife Service and National Marine Fisheries Service (Services) 1996 *Habitat Conservation Planning Handbook* (HCP Handbook -- HCPHBK) states that "four subtasks must be completed to determine the likely effects of a project or activity on federally listed or candidate species". One of the four is "quantifying anticipated take levels" (HCPHBK 3-10). The HCP Handbook states further (HCPHBK 3-14) that "[i]n determining the amount of incidental take that will be authorized during the life of the permit, three things **must be determined**: (1) how incidental take will be calculated; (2) the level of incidental take and related impacts expected to result from proposed project activities; and (3) the level of incidental take that the section 10 permit will actually authorize" (emphasis added). In cases, such as the present one, in which the specific number of individuals is unknown or indeterminable, incidental take may be expressed "in terms of habitat acres or other appropriate habitat units (e.g., acre-feet of water) to be affected generally or because of a specific activity" (HCPHBK 3-14). In such cases, incidental take "is typically expressed as all individuals occupying a given area of habitat, in whatever habitat unit is being used" (HCPHBK 3-14).

E5-30

The NFHCP meets none of the above requirements. It states nothing about how incidental take is calculated and does not provide any estimate of the amount of such take that is expected to result from Plum Creek's activities. According to the NFHCP (NFHCP 1-18), "Plum Creek believes--and has stated to the Services--that the NFHCP will not result in any 'take'; that is, direct mortality, of individual members of species covered by the NFHCP." If Plum Creek believes that the activities covered by the NFHCP will not result in incidental take, then no incidental take permit or habitat conservation plan is needed, nor indeed, should one be granted by the Services. On the other hand, as the NFHCP goes on to state (NFHCP 1-18), "Plum Creek acknowledges that some of its activities may affect fish habitat, and those impacts are described in Chapter 4 of the [D]EIS/NFHCP document." Under the Endangered Species Act (ESA) regulations (50 CFR 17.3), the definition of "take" includes "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering." As the HCP Handbook states (HCPHBK 3-15), "habitat modification or destruction, to the extent the above effects occur, can constitute take and must be detailed in the HCP and authorized by permit." It is reasonable to believe, then, based on the existence of the DEIS and the NFHCP, that incidental take is expected to occur. If so, then there must be some description of how incidental take has been calculated and the quantified results of that calculation. Neither appear in Chapter 4 nor any other place in the DEIS or NFHCP, with a few rare and minimal exceptions. For instance,

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"[t]ake from tree planting, timber marking, gravel quarrying communication site use, and other activities under this alternative would be at such low levels as to be virtually zero" (DEIS 4-197). How much take, then, would result from timber harvest, road building, or grazing? Without this information, the Services cannot determine the level of incidental take that would be authorized by a section 10 permit, and they cannot, therefore, issue the permit.

That the DEIS/NFHCP does not provide calculation methods or estimates of incidental take has implications for many provisions of these documents, which are discussed below. For instance, the DEIS states that "Plum Creek would implement the terms of the Permit such that the amount of mitigation provided would exceed the amount of take authorized at any point over the life of the permit" (DEIS 4-197). How much take is expected to occur? How much is authorized? No answers to these questions are provided by the DEIS/NFHCP. The DEIS compares changes in net sediment delivery, riparian area canopy cover, large woody debris recruitment, grazing disturbance, and other variables among four alternative take scenarios, which may satisfy the National Environmental Policy Act (NEPA). But such comparisons fail to provide any information on level of incidental take, which is required to comply with the ESA. Presumably, there is a relationship between these variables and the level of take. The HCP must take the next step and translate these relationships into estimates of incidental take.

E5-30

As another example, section 10.4 of the Implementing Agreement (IA) states that the adaptive management section of the IA "does not authorize any changes in NFHCP management measures that would result in an increase in the amount of Take or increase the impacts of Take of Listed Covered Species beyond that analyzed in connection with the original NFHCP and any amendments thereto." Because no level of take is quantified, even in habitat terms, the NFHCP and DEIS provide no apparent means of making such a determination.

The absence of quantified levels of take in habitat terms also muddles the analysis of alternatives to take, as described next.

2. The NFHCP must identify alternative actions to avoid take.

While combining a DEIS and proposed HCP into one document provides many benefits, it should not be allowed to obfuscate or obviate the need for compliance with the separate requirements of NEPA and the ESA. The DEIS correctly notes that a HCP must "describe alternatives to the proposed 'taking' and explain why they were not considered feasible. By comparison, NEPA requires a broader analysis that examines additional environmental impacts of the proposed NFHCP and considers all reasonable

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alternatives" (DEIS 1-23). Unfortunately, the DEIS/NFHCP then proceeds to conduct an alternatives analysis that may satisfy NEPA, but clearly fails to meet ESA requirements.

Section 10(a)(2)(A)(iii) of the ESA requires that a HCP specify "what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized". The HCP Handbook (HCPHBK 3-35) states that "two alternatives commonly included in the 'Alternatives Analyzed' section of the HCP are: (1) any specific alternative, whether considered before or after the HCP process was begun, that would reduce such take below levels anticipated for the project proposal; and (2) a 'no action' alternative, which means that no permit would be issued and take would be avoided or that the project would not be constructed or implemented." The alternatives analyzed in the DEIS, including the "No Action" alternative, all involve unspecified levels of incidental take. The discussions of alternatives in Chapters 3 and 5 of the DEIS do not include discussion of alternative actions that were considered to avoid taking.

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Even so, the DEIS appears to try to treat the "No Action" alternative as a no take alternative. It is described as an "existing regulations" alternative in which Plum Creek would adhere strictly to what is required by law and no more (DEIS 3-28). As such, Plum Creek presumably would strictly avoid take of listed species, which is prohibited by section 9 of the ESA, including activities that destroy or modify habitat to the extent that they kill or injure listed fish. Under the "No Action" alternative, however, the adverse effects on fisheries and aquatic resources from new and existing road sediment delivery, changes in riparian area canopy cover, grazing disturbance and other activities are the greatest of the four alternatives. If the "No Action" alternative analyzes the effect of activities that result in zero incidental take, then the three other alternatives must result in less than zero take, and should not be the subject of a HCP and section 10 permit application because they involve no take. But the DEIS and NFHCP state that the NFHCP will minimize and mitigate for **expected** incidental take. If incidental take is expected under the NFHCP, then even greater incidental take, not zero take, must be expected under the "No Action" alternative.

The DEIS attempts to deal with this issue in a brief disclaimer (DEIS 3-8): "The No Action Alternative does not represent the Services' opinions about what would be required in all, or even most, cases to avoid take of listed species . . . There is likely a wide range of possible outcomes that could occur across the Project Area to avoid take of listed native salmonids. Take avoidance would occur on a project-by-project basis." But this disclaimer is not a substitute for meeting the ESA requirement to specify what alternative actions to taking were considered and why they are not being utilized.

The DEIS and NFHCP also do not describe an alternative that would result in less take than the NFHCP (assuming that take is related to net sediment delivery, riparian area canopy cover, grazing disturbance and other variables in Chapter 4.6 of

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E5-31 the DEIS). This should be done, in part, to make it possible for the Services to make a determination of whether the NFHCP has minimized and mitigated to the maximum extent practicable, as discussed next.

3. The NFHCP must provide sufficient information to allow the Services to determine whether it minimizes and mitigates the impacts of taking to the maximum extent practicable.

Section 10(a)(2)(B)(ii) of the ESA and the implementing regulations (50 CFR 17.32(b)(2)(ii)) require a finding by the Services with respect to a HCP and section 10 permit that "the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking." The HCP Handbook states that "[a]nalysis of the alternatives that would require additional mitigation in the HCP and NEPA analysis, including the costs to the applicant is often essential in helping the Services make the required finding. . . .This may require weighing the costs of implementing additional mitigation, benefits and costs of implementing additional mitigation, the amount of mitigation provided by other applicants in similar situations, and the abilities of that particular applicant" (HCPHBK 7-3). The DEIS and NFHCP provide no analysis of alternatives and costs that would allow the Services to conclude that the NFHCP minimizes and mitigates the impacts of taking to the maximum extent practicable. In order to make such a determination possible, an alternative should be analyzed that would minimize and mitigate to a greater extent than the NFHCP, along with sufficient economic data to justify why it was not selected.

E5-32 Section 3.1.2 of the DEIS/NFHCP does briefly describe an "Extensive Conservation Alternative", which was considered but not selected for further analysis, that presumably minimizes and mitigates to a greater extent than the NFHCP. Although this alternative would "provide significant conservation benefits for native salmonids" and "long-term certainty that Plum Creek could manage its lands without risk of non-compliance with ESA", the DEIS states that "the economic costs of implementing the conservation measures were anticipated by Plum Creek to be not practicable" (DEIS 3-6). Further, the DEIS states that "Plum Creek management has stated that the practicability of the 'Extensive Conservation Alternative' for a business is non-existent" (DEIS 3-6). No documentation is provided to support these statements other than a one sentence assertion that the alternative would require the set aside of more than 400,000 acres, and a second sentence stating that the alternative does not consider the NFHCP business goals.

Clearly, development of federal land management prescriptions did not take into account Plum Creek's business goals. However, the NFHCP/DEIS fails to demonstrate why Plum Creek's business goals, stretched to the maximum extent practicable, are not compatible with federal land management. Federal land management certainly provides long-term sustainability and certainty, expends resources on measures that

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have demonstrable conservation benefit, is scientifically credible, and is operationally practical. The DEIS, however, concludes that "this alternative would not meet the project purpose and need from Plum Creek's perspective, which includes the need to allow for long-term certainty of economic use of their lands" (DEIS 3-7) -- a statement which appears directly contradictory to the one cited above from the previous page (DEIS 3-6) that "there would be long-term certainty that Plum Creek could mange its lands without risk of noncompliance with ESA."

Even if the Extensive Conservation Alternative is so clearly impracticable as to warrant no analysis, the NFHCP still must analyze some alternative set of actions that would minimize and mitigate take to a greater extent than the NFHCP in order to allow the Services to make the determination required under section 10(a)(2)(B)(ii) of the ESA.

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The NFHCP states that "Plum Creek has developed the NFHCP business goals to aid in the determination of the 'maximum extent practicable' criterion" (NFHCP 1-9). These broad business goals (NFHCP 1-8), however, in and of themselves do little to aid in addressing the question of whether the NFHCP minimizes and mitigates to the maximum extent practicable. The "Specific Business Objectives" set forth by the NFCHP (NFHCP 1-8) of cost effectiveness, operational practicality, and long-term profitability and certainty should be used together with economic data to analyze the NFHCP and at least one realistic alternative that minimizes and mitigates to a **greater extent** than the NFHCP. If the economic data and other information with respect to these objectives supports selection of the NFHCP over an alternative that minimizes and mitigates to a greater extent, then the Services would have a rational basis for concluding that the NFHCP minimizes and mitigates to the maximum extent practicable. The HCP Handbook states that "if economic considerations are the basis for rejecting alternatives, data supporting this decision must be provided to the extent that it is reasonably available and non-proprietary. While applicants may be hesitant to provide such information, it can be important in making the required finding that the HCP represent minimization and mitigation to the maximum extent practicable" (HCPHBK 3-36).

Assertions by Plum Creek that alternatives which have not been analyzed are not practicable are not sufficient to allow the Services to make the maximum practicable determination required by the ESA.

4. The NFHCP must include a final audit prior to complete or partial permit termination to ensure that NFHCP commitments were kept and that take was minimized and mitigated to the extent required by the permit.

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The DEIS and NFHCP (e.g., DEIS 4-197, NFHCP 1-16) assert that the NFHCP incorporates so-called "pay-as-you-go" mitigation, under which "Plum Creek expects

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that improvement in riparian function will equal or exceed any take associated with the NFHCP throughout the term so long as they are in compliance with the terms of their permit." Following this premise, the IA (§6.2.2) states "[a]s analyzed in the NFHCP, the Services find that the mitigation measures provided in the NFHCP result in Plum Creek having fully and continuously minimized and mitigated the effects of the Covered Activities on the Covered Species before or as those effects arise, for the duration of the term of the Permits." In particular, therefore, "if Plum Creek is properly implementing the NFHCP, upon any suspension, revocation, or other termination of the Permits (in part or in whole), Plum Creek shall have no further obligation under this Agreement, the NFHCP or the ESA, for any take, or effects of Take, that occurred during the implementation of the NFHCP." Section 6.3.3 extends this insurance to Plum Creek to cases in which Plum Creek voluntarily relinquishes the Permits completely or with respect to any specified covered species, covered lands or covered activities before expiration of the term of the NFHCP.

The DEIS states that "take would not occur disproportionately early in the proposed 30-year Plan implementation period, as compared to later in the Plan implementation period." However, there is little in the DEIS or NFHCP that appears to discuss the timing and magnitude of covered activities or take. Nevertheless, the DEIS, then continues "[m]ost mitigation measures would be fully implemented during the first 15 years of the proposed Permit period." Even if this is accurate, there remain

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significant issues concerning mitigation that involve timing of take and timing of partial or total permit relinquishment because of the significant lag in monitoring and reporting requirements.

Reporting on implementation monitoring occurs only every five years with respect to many key commitments (NFHCP 7-4), such as implementation of forestry BMPs and enhanced BMP compliance (R1, R2), the riparian management commitments (Rp1-Rp9), grazing leaseholder requirements and the intent of grazing BMPs (G1), the land use planning commitments (L1-L9), riparian vegetation restoration (Lg2), and of most of the other legacy and restoration commitments (Lg1,3,4,6,7,8). Actual reporting to the Services is due at the end of the first quarter of year 6 (NFHCP 8-16). Consequently, relinquishment of the section 10 permit at any time other than shortly after the reports in year 6 raises the possibility that commitments were not kept and, therefore, that take was not mitigated. In particular, permit relinquishment in the year preceding the required report or audit (years 4, 9, 14, 19, 24, and 29) will raise the possibility that nearly five years of activities were not minimized and mitigated to the extent required by the NFHCP. This concern would be heightened if any of the reports five years earlier had already required management responses for poor performance, in which case there could have been nearly 10 years of inadequate performance. The guarantee to Plum Creek that there will be no mitigation deficit (IA 6.2.2) upon termination of the NFHCP is contingent upon proper implementation of the permit. The NFHCP must ensure that proper implementation occurred.

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To ensure that there has been proper implementation of the HCP, as well as to ease fears and prevent allegations that activities went unmitigated during the period between reporting and permit termination, the NFHCP must include final audits and reporting prior to permit revocation, suspension or relinquishment, in whole or in part. Such audits and reporting could be required if permit termination occurs more than one year after the most recent 5-year reports and audits. If the audits and reports determine that the NFHCP was not properly implemented, then Plum Creek must be required to fulfill on the commitments made in the NFHCP.

The land use planning commitments (L1-L9) may already incorporate the above suggestions of a final report and adjustments as needed to ensure that the NFHCP has been properly implemented. Commitment L9 states that "[i]f, at the end of the NFHCP term, the proportionality balance remains below the range limit, then L2 through L5 restrictions must be applied to sufficient acreage within the Project Area to counterbalance the net deficiency in the proportionality balance to restore the balance with the range limit" (NFHCP 5-14). If this requirement is intended to apply only at the end of the full 30-year term of the NFHCP, then it must be modified to apply at any point at which the permit is revoked, suspended or relinquished or otherwise terminated, in whole or in part.

E5-33 Effectiveness monitoring may still show that the NFHCP was implemented as required but that implementation was not effective in meeting the biological goals and objectives of the NFHCP. Under the IA, if effectiveness monitoring triggers a management response in one or more of the commitments and the NFHCP adaptive management pathway determines that a management response is required, then Plum Creek may still elect to relinquish the permit with no further obligation, notwithstanding that the NFHCP has been found to have been ineffective in its measures to minimize or mitigate take. Unlike the situation with ensuring that the NFHCP has been properly implemented, the measures to protect against a properly implemented but ineffective NFHCP should be to construct the commitments and triggers of the NFHCP in a manner sufficiently cautious in preventing take to minimize the chances that such a scenario will occur.

The need to exercise greater caution in behalf of covered species under the NFHCP is discussed in the following three comments.

5. The NFHCP must improve responses to implementation monitoring by establishing more sensitive triggers and better defining management responses to those triggers.

E5-34 The triggers based on implementation monitoring that result in pre-defined mandatory management responses are generally too forgiving. Many responses are triggered when the compliance rate is less than 90 percent (Table NFHCP8-1A). For instance, the trigger for a response to implementation of Forestry Practices Acts (FPAs)

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and forestry Best Management Practices (BMPs) -- R1 -- occurs when the compliance rate is less than 90 percent. Yet the Montana statewide BMP compliance rate averaged 94 percent in 1998, and Plum Creek's rate of compliance has averaged 97 percent since 1994 (NFHCP 2-7). Clearly, the trigger should be set at or above 97 percent, not 90 percent, particularly in view of the 5-year monitoring interval.

E5-34

In addition, many of the pre-defined mandatory management responses are too vague. When such responses are triggered by compliance less than 90 percent (e.g., under specific habitat objectives 1 and 4, for commitments Rp1-Rp9 and R1 and R2 (Table NFHCP8-1B)), the mandatory response is that "Plum Creek will develop and implement an action plan for achieving higher compliance" or "for improving compliance". Such a standard allows a 50 percent compliance rate to be improved to 51 percent. The road and riparian area management commitments are critical to the success of the NFHCP. Consequently, these responses should be modified to require that Plum Creek increase compliance to a rate that exceeds the trigger level by the next reporting date.

6. The NFHCP must simplify its adaptive management pathway and give the benefit of the doubt to protection of the covered species.

E5-35

According to the Services' 1999 "Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process" (HCP Handbook Addendum), "[i]f an adaptive management strategy is used, the approved HCP must outline the agreed upon changes to the operating conservation program." The HCP Handbook Addendum goes on to elaborate that "[w]hen an HCP, permit and IA incorporate an adaptive management strategy, it should clearly state the agreed upon and warranted range of possible operating conservation program adjustments due to significant new information, risk, or uncertainty." The adaptive management pathway described in section 8 of the NFHCP ignores this guidance. Rather than specify a range of possible adjustments, the NFHCP opts for a completely open-ended process that makes consideration of conservation program adjustments difficult and adoption of any adjustments dependent on the future concurrence of all parties. The adaptive management pathway describes the process to be followed in the NFHCP from the point at which effectiveness monitoring indicates that conservation measure results are different than what was expected (tripping of science-based trigger) to the point at which any management response is developed. The NFHCP describes this process as "an extra layer of scientific rigor to ensure that the appropriate questions are asked and that a scientifically based management response is developed." It may be instead an extra set of hurdles more related to economics than biology, which will likely frustrate efforts to develop measures to correct any deficiencies in the NFHCP.

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The NFHCP states that "[t]he first step after a science-based trigger has been observed [tripped] is to determine if the observation has any biological relevance in order to determine if the departure in expected results is affecting the biological goals of plan" (NFHCP 8-7). The science-based triggers, such as a statistically significant increase in stream temperature (Trigger A) or no net measurable increase in canopy cover (Trigger B) in the NFHCP were selected because they are known to be biologically relevant. Changes in these variables are known to be related to adverse effects on native salmonids. If there is substantial doubt that any of the triggers do not measure a variable that is related to conservation of the covered species, then the trigger should be changed or discarded in favor of one that is. Otherwise, if there is a statistically significant change in one of the science-based fisheries and aquatic habitat variables (triggers), then it is reasonable and commonplace to infer adverse effects on fish and other aquatic resources. This inference should be made because of the difficulty of demonstrating adverse effects on population parameters or habitat utilization through experimentation, particularly for populations of small size or limited distribution. Moreover, the biological relevance determination in the NFHCP relies on differential habitat utilization, which in itself is not necessarily a sensitive predictor of whether a parameter such as survival is being adversely affected. A process that is properly conservative or cautious in terms of preventing harm to the covered species should result in action based on a science-based trigger being exceeded, not additional determinations.

E5-35

However, according to the NFHCP, "[t]he reason for making a determination of biological relevance after observing a trigger is to ensure that the observation of a trigger is really detrimental to fish **before requiring a costly management change**" and "to **ensure that the NFHCP measures will not be subject to changes** unless change is needed to achieve the NFHCP biological goals" (NFHCP 8-7, 8-9, emphasis added). The intent of the biological relevance determination, therefore, is to protect Plum Creek from having to incur additional costs. The process errs on the side of protecting Plum Creek rather than the covered species. If the requirement for determining biological relevance is to remain in the NFHCP, then the presumption should be reversed, so that the triggering is assumed to be biologically relevant unless it can be demonstrated that it is not.

More importantly, the next step in the NFHCP adaptive management pathway, "causal linkage", should also be discarded. Under the NFHCP, even if it can be demonstrated that a statistically significant change in a key salmonid habitat variable has had a statistically significant effect on native salmonid utilization of that habitat, no management actions can take place unless it can also be demonstrated that the cause of that decline in habitat utilization was due to the inadequacy of the NFHCP measures and not because of "changed circumstances" or "unforeseen circumstances". If the biological relevance determination was difficult, then the causal linkage determination is nearly impossible. What methodology will be used to determine cause? The

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NFHCP states that Core Adaptive Management Projects (CAMPs) "will be designed to collect data to support biological relevance determinations and identify causal linkages" and that "causal linkages will be evaluated based upon CAMP results and other data" (NFHCP 8-13, 8-16). But none of the conceptual designs of the CAMPs (Appendix AM1) discuss the determination of causal linkage in their purposes and objectives, hypotheses, approaches, or uses of results. In short, no experimental design or discussion of determination related to causal linkages appears in the CAMP conceptual designs. How will the CAMPs be used or what data will be collected to demonstrate that measured habitat changes on Plum Creek lands causing adverse effects on native fish utilization of habitat on Plum Creek lands were caused by Plum Creek's activities and not activities on adjacent lands? The experimental design of such an effort is mind-boggling. Given that the CAMPs are not designed to be able to answer this question, and that no other studies or information is provided in the DEIS or NFHCP to answer it, the causal linkage step in the adaptive management pathway will be based largely on anecdotal evidence and opinion. As such, it will serve only as a roadblock in the effort to modify management actions under the NFHCP; one that will lead to endless debate and disagreement, and ultimately may prevent the NFHCP from achieving its goals. Consequently, the causal linkage requirement should be dropped, or, at a minimum, the burden of proof should be reversed so that management actions proceed unless it can be demonstrated that Plum Creek's activities were not the cause of the adverse effects on covered species.

E5-35

In any case, as noted in point #7 below concerning the "changed circumstances" provisions of the NFHCP, the response to changed circumstances should be the same as the response to inadequacy of NFHCP management measures and prescriptions. The conservation and mitigation measures needed by the NFHCP covered species are the same in either case.

The formal structure of requiring demonstration of biological relevance and determination of causal linkages prior to consideration of management responses should be dropped, or the burdens of proof reversed, because the NFHCP already gives Plum Creek the authority to veto any management response that it believes is not warranted. The management responses to science-based triggers in the Adaptive Management Pathway are so called "mandatory collaborative management responses". While the NFHCP requires **some** response, there must be agreement between Plum Creek and the Services on the actual **specific** response. The NFHCP states (NFHCP 8-14) that the response will be "based on CAMP study data or newly available data" and that Plum Creek is assured that responses will be "scientifically credible and will be applied within the bounds of effectiveness" (NFHCP 8-10). Plum Creek's ability to prevent adoption of any management response that it believes does not meet these criteria amply protects them from unwarranted costly management changes in the NFHCP without erecting the unnecessary hurdle of biological relevance or the impossible obstacle of causal linkage.

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E5-35 A far better approach than the NFHCP adaptive management pathway, which seems intended mostly to make change difficult in the NFHCP, would be to ensure that science-based triggers are biologically relevant and appropriately set, and then specify a range of possible operating conservation program adjustments, as recommended by the HCP Handbook Addendum.

7. The NFHCP must consider a broader range "changed circumstances".

The HCP Handbook (HCPHBK 3-28) states that "'[c]hanged circumstances' are not uncommon during the course of an HCP and can reasonably be anticipated and planned for" and that "HCP planners should identify potential problems in advance and identify specific strategies or protocols in the HCP for dealing with them". Under the ESA regulations (50 CFR 17.32), if conservation and mitigation measures are deemed necessary and are included in a HCP, then they are required to be implemented. The NFHCP identifies only three such changed circumstances: forest fires of specific intensities, size and distribution; 25 to 100-year floods; and landslides between 500 and 5,000 square yards that deliver sediment to streams. Consequently, these circumstances are the only ones that require a response by Plum Creek. If additional conservation and mitigation measures are needed to respond to any other changed circumstances, the Services may not require any additional conservation and mitigation measures without the consent of Plum Creek. It is important to the conservation of the species covered by the NFHCP, therefore, that the changed circumstances provided for in the NFHCP include all those that can be anticipated reasonably.

E5-36 One such changed circumstance that can be reasonably anticipated -- because it is discussed in the NFHCP -- is the probability of a 200-year or 500-year flood during the 30-year life of the NFHCP. The NFHCP calculates the probability of the former to be 14 percent -- certainly great enough to warrant reasonable anticipation and conservation and mitigation measures in the NFHCP, particularly given that the probability of a 150-year flood is about 20 percent.

Contrary to the NFHCP and the IA (NFHCP 8-25, IA §3.1), nothing in the ESA regulations or HCP Handbook limits changed circumstances to natural occurrences. The NFHCP (NFHCP 8-9) describes "increased timber harvest activities on other ownerships" as an example of an unforeseen circumstance, but its mention alone, as well as common sense, indicate that it is a circumstance that reasonably can be anticipated. Changes in ownership and use (e.g., increased timber harvest, second home development, and recreational development) of the 3.8 million acres of adjacent private lands within the Planning Area during the next 30 years is almost a certainty. Conservation and mitigation measures ought to be provided in the NFHCP for this changed circumstance. And although the NFHCP and DEIS are silent about the level of timber harvest on Plum Creek's own lands, it seems reasonable to anticipate that there are circumstances under which this harvest and road building would increase

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beyond whatever is anticipated (e.g. salvage harvests due to disease or fire). The NFHCP commits Plum Creek to disclose its timber salvage plans to the Services in the event of forest fires that fall within the NFHCP's changed circumstances definition. Timber salvage in the event of such fires or in the event of disease can be reasonably anticipated and ought to be the subject of conservation and mitigation measures as a changed circumstance in and of itself in the NFHCP.

E5-36

Excluding the above described events from the changed circumstances provisions of the NFHCP is significant. It inappropriately relegates them to being considered under the ESA regulations as either "changed circumstances not provided for" in the HCP or as "unforeseen circumstances". The result of either classification is that Plum Creek is protected substantially by these regulations from having to mitigate the resulting adverse effects.

Finally, as noted in point #6 above concerning the NFHCP adaptive management pathway, there is no apparent reason why the response to "changed circumstances" should be different than the response to inadequacy of NFHCP management measures and prescriptions. Neither the ESA regulations nor the HCP Handbook call for a different type of response. If forest fires, floods, landslides, increased salvage harvests, or changes in land uses on adjacent lands cause the science-based triggers (e.g., increased stream temperature or sediment delivery or decreased riparian area canopy cover) to be tripped, then the response should be the same as it would be if the science-based triggers were tripped due to inadequacy of NFHCP management measures. The conservation and mitigation measures needed by the NFHCP covered species are the same in either case.

E5-37

8. The NFHCP must demonstrate that its conservation program will minimize and mitigate the impacts of incidental take on the covered species other than bull trout.

The HCP Handbook states that "an unlisted species is said to be 'adequately covered' by an HCP and subject to the assurances of 'No Surprises' when the species is addressed in the HCP 'as if it was listed pursuant to section 4 of the ESA, and in which HCP measures for that species would satisfy permit issuance criteria under section 10(a)(1)(B) of the ESA if the species was listed'" (HCPHBK 4-4). Consequently, the NFHCP must minimize and mitigate to the maximum extent practicable the impacts of taking on all 17 species of native salmonids to be covered by the conservation program and incidental take permit. The NFHCP and DEIS acknowledge this requirement, but fail to demonstrate that it will be met.

E5-38

The DEIS/NFHCP asserts that "[n]ative salmonids in the Project Area generally have similar habitat requirements" and, therefore, "to the extent that this alternative [NFHCP] benefits bull trout, it would generally benefit other native salmonids" (DEIS 4-192). No documentation is provided in support of this assertion. Moreover, with

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respect to these other native salmonids to be covered by the NFHCP, the DEIS acknowledges that "less is known about their distribution and habitat needs in the Project Area" (DEIS 1-16). Consequently, because the conservation commitments under the NFHCP (and Internal Bull Trout Conservation Plan Alternative) "would be focused on bull trout spawning and rearing streams (Tier 1 watersheds) . . . the potential benefits to other Permit species from these alternatives is uncertain, but is likely less than for bull trout, to the extent that sensitive life history stages of other Permit species occur in Tier 2 watersheds" (DEIS 4-150). The solution provided by the NFHCP for this uncertainty with respect to conservation of the 16 native salmonids other than bull trout is monitoring and adaptive management. "In the proposed NFHCP, monitoring and adaptive management commitments would reduce uncertainty regarding the benefits of conservation commitments to other Permit species" (DEIS 4-150). Additionally, "[a]daptive management may play a more important role for conserving Permit species other than bull trout, since generally less information was available in the Project Area for those species during plan development" (DEIS 1-16).

Unfortunately, the design of the monitoring and adaptive management measures does not appear from the information provided in the NFHCP to be adequate to assure mitigation of incidental take impacts on the 16 salmonids other than bull trout for a number of reasons.

E5-38 First, the NFHCP commitments focus on bull trout spawning and rearing streams (DEIS 4-150). Consequently, implementation monitoring also is focused on bull trout. It is not clear whether implementation monitoring is based on sampling. If it is, there needs to be a sampling design that would ensure that commitments are implemented uniformly with respect to all covered species.

Second, the sampling design for effectiveness monitoring also does not appear to be likely to provide information on the NFHCP's effect on all 17 covered species. Effectiveness monitoring and adaptive management measures to mitigate impacts of incidental take on these species depend largely on the CAMPs and, to a lesser extent, dispersed monitoring. The majority of CAMP monitoring and research will be done in demonstration watersheds, which are not selected on the basis of helping to discern how effectiveness of the NFHCP measures might vary among the 17 covered species (NFHCP 8-3). Of the nine criteria for selecting demonstration watersheds (NFHCP AM-1-4), only the "presence of native salmonids" seems relevant to this issue, and it would not preclude selection of watersheds based solely or predominantly on presence of bull trout. Other criteria such as "representative of dominant geologic, geomorphic, and climatic settings" or "geographic area of concern identified by the Services" may or may not ensure adequate representation of all covered species.

Dispersed monitoring is intended to provide sampling of "conditions that may not be found within the demonstration watersheds (e.g., different geologic types, riparian types, channel types, fish species, etc.)" (NFHCP AM-1-4). However, there is no

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apparent sampling design for this dispersed effectiveness monitoring that would ensure that the effectiveness of the NFHCP will be assessed for all 17 covered native salmonids. Additionally, the NFHCP notes that the dispersed monitoring "may not be conclusive because of the relatively small sample size compared with Demonstration Watersheds" (NFHCP AM-1-4).

Third, the hypotheses to be tested in the CAMPs are not constructed in a manner that addresses whether effectiveness in meeting habitat needs (mitigating incidental take impacts) varies by species. An appropriate null hypothesis for an additional CAMP would be that there is no difference in the effectiveness of the NFHCP measures among the 17 native salmonids covered by the NFHCP. The present set of CAMPs may produce anecdotal evidence that bears on this question, but they are unlikely to produce scientifically credible responses to the question of whether each of the 17 native salmonids subject to the NFHCP are "adequately covered".

Fourth, the science-based triggers that initiate adaptive management are set variously for landscape, planning basin, or reach levels of analysis (NFHCP 8-10), but they do not appear to be set in a manner that would ensure NFHCP effectiveness across habitats for each of the 17 covered species.

E5-38 The Native Fish Assemblages (NFA) adaptive management commitment (AM4) in the NFHCP is intended to "identify streams thought to contain high numbers of individuals of the various Permit species as well as the greatest variety of those species, forming key assemblages of native species diversity" (NFHCP 8-29). These core areas will be subject to special analyses and management by Plum Creek and the Services and will "help identify whether additional conservation risks or opportunities may be present in other portions of the Project Area that should or could be addressed through Adaptive Management." While this effort is commendable, it is not well integrated into the adaptive management process. The NFA, unlike the CAMPs, does not appear to be used as part of monitoring the effectiveness of NFHCP measures in mitigating the impacts of incidental take on all covered species. Nor does the NFA appear to be used in establishing science-based triggers or deciding when they are tripped. Moreover, selection of the eight NFA watersheds is weighted toward bull trout. "NFA watersheds were selected based on the following general criteria:

- Basin size, bull trout presence
- Bull trout population fitness
- Genetic integrity and richness of other native species such as westslope cutthroat" (NFHCP 8-29).
-

Consequently, the NFA analyses are not necessarily representative of the habitat needs and limiting factors of each of the 17 covered species. The NFA commitment, like the CAMPs, does not appear to be designed in a manner that will allow

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E5-38 determination of whether there is a difference in the effectiveness of the NFHCP measures among the 17 covered species.

9. The NFHCP should establish an independent oversight committee to evaluate program compliance and its success in reaching the established biological goals and objectives.

E5-39 The NFHCP clearly is a large scale, regional HCP. It addresses management of 17 species on 1.7 million acres, affecting 17 million acres in three states. The HCP Handbook Addendum states that "[f]or large-scale and/or regional HCPs, oversight committees, made up of representatives from significantly affected entities (e.g., State Fish and Wildlife agencies), are often used to ensure proper and periodic review of the monitoring program, and to ensure that each program complies with the terms and conditions of the incidental take permit." Additionally, oversight committees, according to the HCP Handbook Addendum, should evaluate "the success of the operating conservation program in reaching its identified goals and objectives." Such oversight committees have been used commonly in large-scale and/or regional HCPs in southern California, Clark County, Nevada, and elsewhere. Therefore, the NFHCP should adhere to the Services' guidance and establish an independent oversight committee to evaluate program compliance and its success in reaching the established biological goals and objectives. As such, this committee should review and comment upon the minor annual implementation monitoring reports and the major five-year implementation monitoring reports. In particular, the oversight committee, not an environmental auditing firm, should conduct the external audits of NFHCP implementation every 5 years (commitment A5, NFHCP 7-3). The equally common practice of establishing technical advisory committees to assist in design of studies and evaluation of program effectiveness also should be adopted in the NFHCP. A technical advisory subcommittee of the oversight committee, consisting of fishery scientists and managers, should be established to assist in design of the CAMPs, selection and modification of appropriate adaptive management response triggers, and development of management responses once a trigger has been tripped. Composition of the oversight committee should, as the HCP Handbook Addendum recommends, "include species experts and representatives of the permittee, the Service[s], and other affected agencies and entities." Representatives of other affected agencies should include fisheries scientists or managers with the U.S. Forest Service, Bureau of Land Management and state fish and wildlife agencies.

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Ecological Considerations, Road Management, Riparian Management, Range Management and Monitoring

Letter E5

Plum Creek's Proposed HCP/Incidental Take Permit for Native Fish: Ecological Considerations, Road Management, Riparian Management, Range Management and Monitoring

General Comments

E5-40 1.) The HCP's excessive verbiage makes it difficult to pick out the new commitments that are above and beyond current practices. The final document should segregate the new actions and practices developed for this HCP into a stand-alone section that is separate from those activities currently in use. It appears that portions of some State of Montana BMPs, which Plum Creek says are already part of its ongoing activities, are cited as commitments while others are not. The HCP doesn't explain why some are cited and others are not.

E5-41 2.) The State of Montana is currently developing Total Maximum Daily Loads (TMDLs) for some degraded streams in Montana. TMDLs may be developed for streams on Plum Creek lands. The HCP and DEIS should specify how the permitted activities will dovetail with TMDL development and implementation.

E5-42 3.) A major HCP commitment treats state forestry BMPs in Montana as if they were regulations. For the most part BMPs have been developed primarily to reduce sediment contributions. Scientific evidence has not been developed demonstrating that BMP application in Montana assures important components of fisheries habitat, including temperature and woody debris requirements, are maintained and enhanced. In fact, quantitative evidence is not available demonstrating that BMPs are adequate in all situations for reducing sediment to levels not harmful to fish.

E5-43 Most state BMPs are general in nature, including prescriptions for road drainage. They leave considerable room for subjective field interpretation that could contribute harm to fish habitat. Statutory BMPs, such as Montana's one-size-fits-all streamside zone practices, are specific. But they were not developed scientifically, nor have they been subjected to rigorous experimental methods that demonstrate they serve to deliver adequate supplies of large woody debris (LWD) to channels, or that they maintain adequate stream temperatures. To minimize adverse effects on species covered by the incidental take permit, the HCP should include as many quantitative on-the-ground practices as possible that demonstrate the "Four Cs" are being met. The HCP should also demonstrate that the measures achieving the "Four Cs" have been developed through independent and peer-reviewed scientific inquiry. This review will elaborate on why the HCP's CAMP demonstration watershed approach is flawed for determining whether BMPs are adequate.

E5-44 4.) The State of Washington has revised forestry rules titled "Forest and Fish Emergency Rules adopted January 20, 2000, effective March 20, 2000." These are in addition to its "Water Type Emergency Rule" and "Salmonid Emergency Rule," both

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E5-44 established November 16, 1999. The HCP should ensure these rules are the minimum practices applied to Plum Creek lands in Washington.

HCP Summary

1.) *Proposed (ES-5):* The HCP divides Plum Creek lands into two categories, Tier 1 and Tier 2 watersheds. Tier 1 lands represent only 19 percent of Plum Creek lands (page 2-20), and they include only those lands believed to include bull trout spawning and rearing habitat. Though Tier 2 lands likely support most of the westslope cutthroat habitat on Plum Creek lands, as well as habitat for other species and for meeting other bull trout life history requirements, the HCP proposes actions for these tracts that are less protective than for Tier 1 lands.

Response: Focusing only on known or suspected bull trout spawning and juvenile rearing habitat is inappropriate for the scope of the proposed take permit. First, not all bull trout spawning sites are likely known, or they may be temporarily absent of spawning fish due to outside factors or existing habitat degradation. Second, juvenile rearing habitat is probably more widespread than presently known. Some stream reaches may not have sufficient individuals to show up in normal fishery sampling efforts. Third, bull trout spawning, especially for the migratory life-forms, is generally restricted to large-order streams (3rd and larger). The components of bull trout spawning and rearing habitat is not always representative of habitat requirements for other species such as cutthroats (Jakober 1995; Nakano et al 1992; Schmetterling, in press). Fourth, population viability of bull trout and other species depends on other factors besides available spawning and juvenile rearing habitat. Bull trout can be affected on a population level by reduced woody debris recruitment, which in turn can reduce forage and security habitats. Removal of riparian vegetation can also reduce thermal insulation and thus available overwinter habitat. These adverse impacts can potentially be within or outside Tier 1 watersheds (Jakober 1995).

E5-45

Recommendation: The HCP is designed so that westslope cutthroats and other species included in the take permit will remain inordinately vulnerable to habitat modification throughout Plum Creek's lands. They could especially be at risk in Tier 2 areas. If all these species must be covered in the same incidental take permit, then as ***a minimum*** all watersheds containing their populations should be accorded the same deference as that provided spawning and juvenile rearing habitat for bull trout. In addition, bull trout spawning and rearing habitats, which according to the HCP occurs in only 19 percent of the landscape covered in the take permit, is simply not an adequate surrogate for ensuring impacts to bull trout and the other 16 salmonid species is "minimized to the extent practicable." This shortcoming is amplified by the HCP's lack of quantifiable information on all salmonid populations, as well as on existing habitat quality. Therefore, the proposed HCP and take permit are appropriate at most for only bull trout.

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New Road Commitments

E5-46

1.) Proposed: The HCP proposes special mitigation for roads.

Response: The HCP doesn't detail mitigation for roads on over-steep slopes. It does not address stabilizing the backslopes of new road-cuts by constructing them to standards that prevent sloughing. It does not commit to locations and designs that reduce overly large cuts and fills. It does not recognize the sensitivity and risks associated with -- nor does it mitigate for -- locating roads on granitic soils. Road location and design often determine the risk of mass failure. Proper location and design is key to preventing deterioration of fisheries habitat from sedimentation. Burroughs and King (1989) found roads with bare cutslopes, unsurfaced roadbeds and unprotected ditches to yield 7.5X more sediment than roads with revegetated backslopes, surfaced roadways and rocked ditches. They also note revegetation of backslopes is enhanced by shaping slopes at 1:1 slopes instead of .75:1. They found that seeding stable backslopes can reduce cutslope sediment by 89 percent. Finally, they found dry ravel on granitic soils to be a major sediment source. Many professional resource managers generally recognize that roads located on slopes exceeding 60 percent need special designs to reduce sediment contributions and risks of mass-failure.

Recommendation: The HCP should include a matrix of measurable, scientifically based road design standards appropriate for the soil types and slopes encountered on each Plum Creek project. These should include location and design standards that generate the least amount of sediment and potential for mass failure. They should include full-bench designs on slopes exceeding 60 percent, backslope ratios sufficient for long term stability, surfacing for all granitic roadbeds or low load-bearing soils, and rocked ditches on granitics where road gradient exceeds 3 percent and where road locations provide potential delivery to perennial, seasonal and ephemeral channels.

E5-47

2.) *Proposed:* The HCP commits to using driveable drain dips or ditch relief pipes, but it commits to using only two dips on uphill approaches above stream crossings (R-1-1:1). The HCP does not include detailed design criteria for the dips.

Response: This limited commitment leaves the majority of road lengths without specific drainage commitments, thereby leaving large amounts of road surfaces as potential uncontrolled sources of sediment delivery to streams. Road ruts developed during logging, log haul or runoff conditions often render one or two cross drains ineffective, as documented by recent Montana BMP audits (Fortunate 1999). Also, long spaces between dips increases the amounts of water and sediment that will be transported downgradient. Multiple, properly spaced cross-

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drainage along any native surfaced road better ensures sediment is controlled before reaching a channel. In addition, sediment control on roads that relies solely on in-sloping and inside ditches and which does not utilize cross-drainage is vulnerable to failure. That's because ruts often negate insloping and instead channel overland flow and suspended sediment towards surface water. Sometimes if spacing of drainage features is too wide, the measures that are designed to intercept overland flow and sediment (such as those located just above crossings) will be overwhelmed and fail. The HCP should require adequately spaced drainage features on most roads, regardless of their proximity to fish populations, because seasonal and ephemeral channels, as well as perennial streams, can deliver sediment to fish-bearing streams.

Recommendation: The HCP's commitments for new construction should specify that ditch relief and cross drainage will be applied in locations, frequencies and designs commonly recognized as appropriate by forest road specialists (Moll 1996; Elliott 1998). These treatments should be applied to road reaches potentially contributing to all perennial, seasonal and ephemeral stream crossings. Cross drainage should be designed to a depth and scale that enables proper function when heavily rutted by logging or other road traffic. The HCP should examine designs specified by local Forest Service road specialists. All drainage features should be in place during road construction and before the road is used. Drainage features should remain functional during logging activities and afterwards.

E5-48

3.) *Proposed:* The HCP proposes seeding grass on crossings and on cuts and fills by the end of the first operating season.

Response: Though seeding is important for reducing impacts from new construction, revegetation success depends on several factors. Establishment of grass has much better success when seed is applied on roughened soil immediately after construction. In the least, seeding should occur before surface hard-pan develops. Seeding success is less certain if operators wait until the end of the season. By then hardpan conditions can develop, and seeds are easily lost before they germinate because of wind, rain and gravity. In addition, by waiting until the end of the first operating season, much of the first growing season can be wasted. Fertilization, which is not mentioned in the HCP, can also enhance seed-take in the first season. Seeding the roadbeds, in addition to seeding cuts and fills, considerably lessens exposed soil within road prisms (Swift 1984). Burroughs and King (1989) state that erosion controls put in place early are more effective than those put in later. Bethlahmy and Kidd (1966) found that erosion was reduced by 58 percent once grass was established. Thus the earlier grass is established, the better.

Recommendation: The HCP should state that all cuts, fills and roadbeds should be seeded and fertilized within two weeks of final road construction. It should also state that similar treatments be applied not just to crossings affecting known fish-

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bearing streams, but also to crossings above all active, seasonal and ephemeral channels. Implementation monitoring should include a standard that measures whether seeding and fertilization occurred within two weeks of construction, and whether successful revegetation was established within a year.

E5-49

4.) *Proposed:* Culverts will be constructed to pass 50-year storm events.

Response: Forest Service managers on lands adjacent to Plum Creek are installing culverts to pass 100-year flood events. The HCP's "enhanced BMP" for culverts inadequately addresses fish passage. On all fish-bearing streams, whether intermittent, ephemeral or perennial (cutthroats do use some streams that do not run all year round), fish passage should ensure migration of appropriate species is not impeded. Westslope cutthroats appear to commonly use first-order streams for spawning, and upstream movement is centered around the peak flow of the hydrograph (Schmetterling, in review). Thus passing larger flows and providing ample grade, resting areas and velocities is important for cutthroats to move into spawning areas. In some cases, bottomless arches or bridges might be necessary to achieve fish passage at higher flows.

Recommendation: The HCP should demonstrate that effective fish passage occurs. In watersheds where westslope cutthroats occur, all new stream crossings should be designed to assure passage of at least the Q3 flow. The HCP should acknowledge that culverts are not the only stream crossing structure available, and that at times bottomless arches or bridges might also be appropriate. (See additional comments addressing fish passage and genetic considerations elsewhere in this review).

E5-50

5.) *Proposed:* Construction in inner gorge areas will be avoided.

Response: Though avoidance of inner gorges is certainly warranted, the term "avoid" indicates roads could still be constructed in these areas. Risk of slope and road failure in these areas is significant. When disturbed, these areas can concentrate water or modify pressure gradients, even with the size of disturbances contemplated in the HCP. In addition, other potentially unstable slopes and landforms are not included in this proposal (see WAC 222-16-010 of Section 3.47 of Washington's Forest and Fish Emergency Rules adopted January 20, 2000).

Recommendation: The HCP should commit to more than just avoidance of these potentially unstable sites. It should state clearly that ANY construction or disturbance proposed in these landforms must employ expertise and procedures outlined in WAC 222-10-030. To avoid the possibility of catastrophic land movements, the HCP should adopt these requirements for all potentially unstable sites throughout the project area. Monitoring should demonstrate that these procedures were deployed in high-risk areas.

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E5-51

6.) *Proposed:* Install road cross drainage as "frequently as necessary to control erosion."

Response: This commitment is too vague and does not ensure that specific and necessary management practices will be employed, or that these measures will be easily monitored. "Frequently as necessary" does not quantify design or construction standards, nor does the term "control erosion" specify the performance level to be measured. Professional guidelines have been developed for spacing surface drainage features (Moll 1996; Elliott 1998). These guidelines are based on road slope and soil types. In addition, roadbed drainage construction should be designed and constructed to function during logging and under moisture ranges expected on site. In other words, specific designs of roadbed drainage are needed to minimize failure during high runoff events (Fortunate 1999).

Recommendation: The HCP should incorporate by reference specific guidelines for spacing road drainage. It should also include design standards for the soils found on Plum Creek lands. As a minimum, road designs should accommodate Q25 precipitation and runoff events, and be able to withstand heavy logging traffic and other use during wet periods.

E5-52

7.) *Proposed (2-4):* General descriptions are included for skid trail location and construction.

Response: The HCP provides insufficient guidance for skid trail location and for minimizing their erosion potential. For example, skid trails constructed in ravines almost always accelerate erosion. Skid trails that remove the A-horizon soil will not revegetate and stabilize if constructed at grades approaching 30 percent (Seyedbagheri 1996). The HCP includes no constraints on skid trails, nor on construction or post-use stabilization for areas steeper than 30 percent (or even less). BMP audits in Montana have recognized skid trail erosion as a concern on Plum Creek lands and elsewhere (Fortunate 1999).

Recommendation: The HCP should commit to practices that reduce erosion from skid trails by better analyzing location, construction and post-use treatment (such as log-enhanced drainage), especially on slopes exceeding 30 percent. In addition, commitments should be included that save and redistribute A-horizon material over skid trails in granitic soils. This enhances erosion control as well as benefits sustainable forestry, which is the aim of several Plum Creek Environmental Principles.

E5-53

8.) *Proposed* (2-5 Inset): Temporary road definition

Response: The HCP does not say if temporary roads will be located or constructed using the same sediment reduction features as other new roads. Forest managers, including those at Plum Creek, acknowledge that proper road design, drainage and

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E5-53	432

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E5-53

location can minimize sediment contributions to streams. If temporary roads are not constructed with adequate drainage, they will be exposed for at least a year to runoff and precipitation that could contribute sediment to streams. Frank (1994) found that improperly applied application -- or the lack of -- drainage is responsible for most water quality degradation from forestry practices. The first year of a newly constructed road, because of its instability, can be the period when sediment contributions are highest.

Recommendation: To minimize sediment contributions, temporary roads should be located using the same drainage considerations as those on permanent roads. Design, construction and spacing should ensure drainage functions properly during use, especially when accommodating logging traffic. Implementation monitoring should measure whether temporary roads were put to bed properly within the one year period.

Existing Road Commitments

E5-54

1.) *Proposed 2-13:* The HCP commits that not more than 20 percent of existing roads will be upgraded by year 2010, with the remainder upgraded by year 2015.

Response: The overall goal of this commitment could potentially have a significant conservation payoff. However, it doesn't include short-term milestones that help ensure conservation benefits begin accruing at HCP inception. The proposed schedule requires no upgrades of existing roads until year 2010, when no more than 20 percent would be upgraded. In other words, it's possible Plum Creek could have the benefit of nearly 10 years of the permit without having done the road upgrades. If the permit is suspended in that period, it's possible the company could enjoy the certainty provided by the permit without providing the conservation benefit of upgrading roads.

Recommendation: The HCP should require bi-annual goals, monitoring and reporting that ensure road upgrades occur incrementally within the first 10 years of the permit period. The HCP should include a commitment that assures road upgrades will increase at a rate of at least 4 percent every-other-year until year 2015.

E5-55

2.) *Proposed (Appendix R-3):* The Plan provides for specific drainage treatments for road upgrades (Enhanced BMPs 1 and 2).

Response: Aside from treating drainage at crossings, the "Enhanced BMPs" are very general and will be applied only "as frequently as necessary to control erosion." Resource professionals have developed guidelines for road drainage frequency based on soil type and road slope (Moll 1996; Elliott 1998). The application of these measures is designed to ensure drainage is reasonably effective. They are appropriate for both old and new roads. According to BMP

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audits, lack of drainage or improperly applied drainage is responsible for most water quality degradation (Frank 1994).

E5-55

Recommendation: Scientifically evaluated designs with specific drainage and frequency parameters (Elliott 1998; Moll 1996) should be used for "enhanced" BMPs. The HCP should commit to using specific drainage features and spacing that will be effective during all periods of use as well as during Q10 runoff events.

3.) Proposed (R-3-2 (3)): The HCP commits to upgrading culverts to pass 50-year peak flows.

E5-56

Response: Culverts should be designed to pass 100-year flow events in order to provide ample passage. Fish passage is important for ensuring connectivity occurs between fish populations, especially among stocks that have been isolated. Adequate passage also makes spawning and rearing habitat available to native species. Professional fishery biologists should assess the desirability of fish passage in all instances where salmonids occur above or below barriers. Passage barriers may be desirable in some cases in order to prevent mixing of some populations and prevent unwanted genetic introgression. Sometimes barriers are also desirable to prevent competing fish species from invading waters inhabited by important native fish. Protecting genetically pure or minimally introgressed populations is important to native fish conservation, especially among the cutthroat subspecies. Protection of genetic integrity is also a key goal of bull and westslope cutthroat restoration in Montana.

Recommendation: In order to protect genetically important stocks and prevent unwanted competition and predation, the HCP should ensure professional fishery biologists evaluate all proposals for enhanced fish passage. Fish passage for cutthroats should be designed to accommodate a Q3 event. Fish passage commitments should be applied to all crossings where habitat is present above the crossing, including in first order drainages.

4.) Proposed (R-3-2 (5)): For roads paralleling streams, the HCP says inexpensive road relocation will be considered in lieu of road drainage improvements, or that road drainage will be added. In other instances, these road reaches will be treated as Hot Spots.

E5-57

Response: Few parallel roads can be relocated inexpensively. Additional road drainage will likely be insufficient to significantly reduce impacts from sediment delivery or channelization. Road surfacing is often the most effective treatment for sediment control in these cases. Burroughs and King (1989) found that a six-inch lift from using 1 ½ inches of gravel reduces sediment 70 percent. Properly mitigated road abandonment can provide the most sediment reduction. Allowing riparian vegetation to colonize streamside roads also benefits stream function.

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E5-57

Recommendation: The HCP should commit Plum Creek to evaluate the relative effectiveness of sediment reduction treatments on old roads on a watershed basis (Elliot 1998). Treatments should be selected based on effectiveness at reducing sediment yield, improving stream function and meeting the transportation planning needs of Plum Creek. Transportation planning should favor abandonment of roads next to streams. Abandonment criteria should be specific and include adequate drainage (Elliott 1998; Moll 1995), scarification and revegetation. Where abandonment of parallel road segments is not feasible, surfacing with 4-6" of aggregate and construction of drainage features should be standard sediment reduction practices.

5.) Proposed R-3-2 (6): Upgraded roads with disturbed surfaces should be seeded within one year.

E5-58

Response: Exposed soil revegetates only when stable. Vertical cuts on roads often slough and they can contribute to slope failure. Maintaining stable backslopes may require a slope construction standard of up to 1.5:1, depending on soil type. Though seeding is appropriate on all bared road segments, its success for revegetation depends on how well the road surface was treated and how well drainage was constructed. Waiting up to one year following disturbance to plant seed allows surfaces to harden and erosion to occur, thereby reducing revegetation success. Seeding immediately after disturbance improves success.

Recommendation: Road upgrades should be designed with backslopes that reduce risk of failure and erosion. Seeding should occur within two weeks of completion of machine work. Implementation monitoring should examine whether seeding/fertilization occurred within two weeks and whether successful revegetation occurred by the next field season.

6.) Proposed (2-15): The HCP outlines a system for identifying and treating legacy road segments that fall outside of the normal road system and which will be dealt with using Hot Spot Treatments.

E5-59

Response: The effectiveness of this program will be hard to determine. For example:

a.) *Proposed:* Foresters will evaluate fish barriers for fish passage utilizing a key provided in Appendix R-6.

Response: The key is not based on current knowledge of fish passage requirements. Cutthroat migration generally occurs at or near peak flow discharge. Some migration extends into first-order drainages (Schmetterling in press). Published literature (Poulin and Argent; Baker and Votapka 1990) indicates that high-flows for most road-length culverts in forests are about 3 ft/sec, not 6 ft/sec. Culverts, except for those at gradients less than 0.5 percent, offer poor fish passage. In some instances, baffles or embedding culverts into the

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stream bed can provide sufficient roughness to reduce velocity or provide resting places. Baffles, however, may be appropriate only at culvert gradients less than 5 percent (Baker and Votapka 1990). Other structures, including bottomless arches or bridges are often the most effective passage structures. The key ignores criteria for determining outfall-height barriers, though it does address outfall pool size. Outfall height can be a barrier. It should be reduced if the water level from the pool to the bottom of the culvert exceeds 6 inches (Poulin and Argent). A series of approach steps downstream of the crossing can help rectify problems caused by the height of a perched culvert.

E5-59 *Recommendation:* The key should be revised to incorporate some of the above criteria. Professional fisheries scientists should assess both the desirability of fish passage and how best to assure fish passage is satisfied. The best and most efficient approach to ensuring fish passage is enhanced to minimize the impacts of road crossings on native fish is for the HCP to include a specific conservation commitment for this item. The commitment could include development of a comprehensive data base and a system for assessing culverts on Plum Creek lands. In addition, it could include a priority scheme derived from analyzing risk for engineering failure, genetic introgression and passage success. The HCP could include a schedule for correcting fish passage problems similar to that proposed for upgrading roads.

b.) *Proposed:* Hot spots will include roads with ruts more than 6 inches deep.

Response: Rutting of road surfaces suggests that road drainage is insufficient or that the road is being used during periods when the surface is not firm enough to support the weight of vehicles. This commonly occurs in certain soil types and in wet conditions. Roadbeds with ruts exceeding 6 inches have already contributed significant sediment deposition. Kennedy (1997) says a rut 32 mm deep (1 1/4 inches) has an increased potential for sediment delivery that is 40 percent greater than a rut 8mm (1/3 inch) deep. Recent studies have determined that rutted road

E5-60 surfaces yield 150-500 percent more sediment than nonrutted road surfaces (Foltz and Burroughs 1990; Foltz 1994). Logging traffic increases road surface erosion rates 1.9X (Burroughs and King 1989). Identifying and fixing roads prone to rutting should be a priority for hot-spot inventories.

Recommendation: Hot Spot reduction should highlight and immediately treat roads that have insufficient drainage, soil types with low tolerances to heavy loads, or which are otherwise sensitive to rutting when wet. The HCP should commit to curtailing traffic during periods when drain dips or road surfaces are vulnerable to damage.

E5-61 c.) *Proposed:* Identify perched roadbeds with imminent risk of landsliding.

7

Responses

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E5-61

Response: Though determining imminent risk of failure may be possible in rare circumstances, predictive capabilities are more guesswork than science. For instance, though most of the landslides occurring in Idaho's Clearwater National Forest in the winter of 1997 were associated with old roads, few had been previously identified as being imminently in risk of failure, even though they were in high-hazard areas, on erosion prone soils and in a region that is susceptible to intense, short duration precipitation events.

Recommendation: All roads in the project area should be assessed for landslide risk based on a matrix that examines soil type, size and steepness of cuts and fills, presence of water, potential for concentration of water, and drainage condition. If a combination of these elements suggests landslide risk is high, not just imminent, then they should be treated as hotspots.

E5-62

d.) Proposed: Identify blown-out culverts as hotspots.

Response: In many cases, blown-out culverts are already contributing significant sediment to a stream. Post-damage assessment may do little to improve fisheries habitat. Culvert failure is somewhat predictable based on assessments of culvert capacity, fill stability and directional approach of water.

Recommendation: All culverts should be examined by a hydrologist or fishery professionals within the first two years of the permit period; as suggested above, a database should be established within three years of permit inception, and treatment of hot spots should be completed by the fourth year.

E5-63

e.) Proposed: List as hotspots both skid trails or landslides that are contributing sediment and which are discovered through the normal course of business.

Response: Once a timber harvest operation is completed a forester is not likely to return to the same site anytime soon to assess sediment contributions. Thus these disturbances can contribute accelerated sediment for years unless regular inspections are scheduled.

Recommendation: Scheduled inspections of project roads, temporary roads and skid trails should occur within 1-2 years after project completion. The next inspection should occur in 4-5 years to ensure sediment controls are functioning. Faulty sediment controls should be immediately corrected.

7.) Proposed 2-16 (R7): Identify roads to be abandoned.

E5-64

Response: Abandonment of roads can be a valuable conservation measure. The Road Abandonment Criteria (Appendix R-7) are appropriate, though #1, #5 and #7 could be improved. For example: #1, Because ATV use is increasing, special designs for road blocking are needed, including recontouring road reaches located

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E5-64	438

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on steep terrain, or similar measures that might effectively prevent all vehicle use; #5, Specifying spacing for drainage using accepted guidelines for the specific soil and road slope would ensure sufficient drainage. The HCP's reference to "tread is flat" is confusing because it could imply either the road has no grade or that the roadbed has no grooves. Fertilizing after seeding improves the rate of vegetative recovery. Ripping (especially when organic mulch is added) greatly improves infiltration (Luce 1977) and thus improves revegetation.

Recommendation: Drainage features should be added to all roads to be abandoned. Spacing of drainage features should be sufficient to prevent concentrations of surface water and prevent sediment delivery to stream channels. Construction guidelines are available in Moll (1996). Vehicle blocking structures should ensure ATVs are impeded. Road ripping should occur before seeding, and seeding supplemented with fertilization.

8.) Proposed 2-17 (R8): The HCP proposes a reinspection schedule of 5, 7 or 10 years as well as aerial reconnaissance following 25-year flood events.

E5-65

Response: Reinspection schedules should not differentiate between Tier 1 and Tier 2 watersheds. Native salmonids occur throughout Plum Creek lands. Under the proposed schedule, if an upgraded road -- open or closed -- failed, the road could yield accelerated sediment for 5 to 10 years before it was reinspected. Aerial reconnaissance of roads following 25-year events will probably detect only the largest disturbances, such as mass failures. Less obvious damage such as failed drainage structures, partially plugged culverts or roadbed rutting are not likely to be detected from the air.

Recommendation: Reinspections should occur on-site at a frequency of no greater than 5 years. On-site reinspection should occur during the first field season following a 25-year-or greater event.

9.) Proposed (R-8): Guidance for maintenance is limited to avoiding directly depositing soil into streams, and avoiding widening roads through repeated maintenance sidecasting.

E5-66

Response: Montana's forestry BMP is stronger. It says, "Avoid sidecasting where erosion will carry materials into a stream." Directly depositing material in a stream is much different than putting materials in a place where they can be eroded into a stream. Maintenance commitments should clearly state that undercutting cutslopes creates instability, and thus blades should not contact these erosion-prone features. The HCP should also state that plugging road ditches is an unacceptable practice. Maintenance should not impede drainage structures, and if they are altered they should be restored immediately after maintenance. Regular maintenance should ensure open tops are cleaned and rubberbelts repaired. Open tops need annual inspection, especially where erosive soil types are present. Ditches should be

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cleaned periodically. Seeding and fertilization of the roadbed following maintenance should be required to reduce roadbed erosion.

Recommendation: The HCP should include commitments to specific road maintenance measures as discussed above.

10.) Proposed 2-19 (R9): Road Sediment Delivery Analyses will be completed on selected watersheds.

E5-67

Response: RSDAs can help assess performance, but primarily when conducted by an independent study group on randomly selected watersheds. RSDAs are most valuable when used to determine how much sediment a specified reach of road is contributing to a particular sediment delivery point. The sensitivity of RSDAs is reduced when they are used on a watershed scale, especially when sediment yield is not calculated for the full road inventory. Moreover, the point at which sediment yield is calculated is important. If yield is calculated at the mouth of a large-order drainage, the local effects of sediment upstream in headwater tributaries can be masked. But most fundamentally, it's inappropriate for Plum Creek to be selecting the watersheds and conducting the analysis. This could be rectified if agency specialists or an independent technical committee reviews and approves site selection methods, study designs and results. Using reference watersheds as a basis for assessing performance is scientifically valid only if the study design is rigorous and developed by independent specialists. The HCP's proposed approach involves too much opportunity for bias. The proposed RSDA design is also flawed because it suggests that only roads "near streams" will be analyzed. Sediment yields will be substantially understated because contributions from other roads will not be calculated. Fine and coarse sediment can be delivered to streams via both perennial and seasonal channels in a watershed. All roads in the watershed that are tributary to an active channel or stream should be included in any watershed-wide analysis. The stated purpose of RSDAs is to "determine if sediment delivery is being effectively minimized...." But, "effectively minimized" is not defined.

Recommendation: If HCP application and effectiveness is to be partly based on the results of RSDAs, then these studies should be planned and conducted, or at least reviewed, by an independent party selected by the Service and paid for by Plum Creek. All road segments tributary to an active channel must be included in RSDAs to better assess sediment yield. RSDAs should further evaluate whether established stream sediment thresholds for egg or fry survival (or another appropriate biological metric) identified in published literature are being exceeded or not. Ideally, sediment mitigation is best measured when studies are designed in the affected watersheds. Instead of using RSDAs in reference watersheds (the CAMPs), scientific rigor would be enhanced by determining existing sediment conditions in all drainages where management is occurring. Before and after monitoring could then be implemented.

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E5-67	387

Letter E5

Riparian Management Considerations

1.) Proposed (3-3): The HCP appears to conclude that past timber harvest has reduced standing volume to levels below which new entries would be allowable within the permit period under state streamside management laws on 65 percent of Plum Creek's lands.

E5-68

Response: Because of past practices, woody debris recruitment will be very limited from many riparian stands on Plum Creek lands for at least 50 years. Acknowledging that 2/3 of Plum Creek's lands have little recruitment potential for LWD during the permit period is a significant finding that should influences goals for habitat complexity (one of the "4 Cs.").

Recommendation: The HCP should demonstrate that all remaining LWD recruitment is protected during the permit period. This requires a fundamental re-examination of all the riparian commitments.

2.) Proposed (3-3): The HCP indicates that "only" 3 percent of the riparian stands are likely to be harvested along Tier 1 streams during the first 10 years.

E5-69

Response: This is misleading. First, the proposal to harvest only 3 percent in the first 10 years fails to acknowledge the cumulative effect of historical harvests which have already reduced LWD recruitment potential across Plum Creek's riparian tracts by 65 percent. Thus 3 percent could be significant, depending on where it occurs. Moreover, remaining parcels of unharvested or lightly harvested riparian stands in B,C and D channel types could also be lost through other activities, such as land disposition. The Land Use Commitments don't guarantee that all riparian stands will be protected when they are sold. These commitments merely purport to create incentives to protect riparian stands.

Calculating the potential for LWD recruitment on a watershed scale is not necessarily the best way. Site by site analysis is also critical. Though smaller woody debris may move downstream during high flows, the most important components for aquatic species are the larger pieces that streams don't generally transport very far. The large materials become anchors and catch points for smaller pieces and sediment. The large pieces are key channel-forming components. The small stream reaches common to much of Plum Creek's lands need to be managed to protect localized LWD sources, especially larger materials.

Recommendation: Evaluation of LWD recruitment needs to be addressed by stream reach. The consequences of land disposition needs to be better evaluated for its effects on LWD recruitment. The HCP could commit to attaching

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conservation easements to key riparian lands to assure that existing and potential LWD sources are protected by future owners. The existing streamside BMPs for Montana, which were developed primarily as measures to intercept sediment, are inadequate for assuring LWD recruitment will be adequate (see discussion later in this review).

3.) Proposed (3-4): The HCP appears to conclude that fire risk in riparian stands is the same as for upland sites.

E5-70

Response: Most riparian stands in lower elevation, large-order drainages in the Northern Rockies historically have been at low risk for stand replacement fires. Low intensity fires, however, were common (Mick Harrington, personal communication; Arno 1995). To an extent, fire risk has been reduced because roads and harvest units have created discontinuities on the landscape. Understory removals using logging or fire have further reduced fire risk in riparian stands that have been invaded by shade tolerant species such as grand fir (M. Arno 1995). Done properly, understory removals also leave larger trees for woody debris recruitment and for stream shading. But even when fire occurs in unlogged stands, some sources (Rieman 1995) conclude that except for occasional short-term local adverse effects, fires generally have minimal impact on native fish such as bull trout and redband trout. In fact, fire can be beneficial because it produces woody debris and nutrients for stream systems. Even after stand-replacement fires, boles continue to stand for decades. In some cases they provide a steady supply of LWD to streams while replacement stands are maturing. The 1988 Canyon Creek fire in Montana bordered some Plum Creek lands. This stand-replacement fire burnt much of the upper watershed of the North Fork of the Blackfoot. After the fire, short-term pulses of sediment and nutrients were recorded in the river. Twelve years later, the native fishery in this drainage remains healthy enough to be labeled by agency, university and private biologists as one of the most important core watersheds for bull trout and westslope cutthroats in Montana. Partial riparian harvest can compound fire risk to riparian stands (Lee et al 1996). Overstory removal, for instance, can leave untreated or minimally treated slash on site. Opening of stands exposes fuels to drying, increasing fire risk. In addition, regeneration and residual stands of submerchantable, shade-tolerant trees common to partial harvest can become effective fire ladders and increase the risk of fire mortality to residual stands.

Recommendation: The HCP's discussion of fire risk in riparian stands should be struck from the document. It is not supported by most scientific evidence related to riparian areas.

4.) Proposed: The HCP describes the results of two studies related to partial harvest and summer stream temperatures. This is the basis for conclusions that riparian harvest prescriptions proposed in the HCP effectively protect fish from adverse changes in water temperatures.

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E5-71

Response: Discussion in Appendix 3 of this review concludes that summer temperature changes projected in Plum Creek's Technical Report 12 may not be accurate, and thus State of Montana streamside BMPs might not be effective. Moreover, winter conditions are often more limiting on native fish than summer conditions. Studies indicate that mortality in winter can be higher than during summer (Smith and Griffith 1994; Needham et al 1945; Schrader 1989; Cerven 1973). Winter mortality is often attributed to anchor ice, ice blockages, or dewatering and mechanical damage caused by moving sheets of ice. Removal of riparian vegetation can reduce winter temperatures by 10 degrees F (Hewett and Fortson 1983). Maintaining the thermal-blanket effect of conifer cover can reduce icing and its effects on fish (Hicks et al 1991). Shade from deciduous vegetation may be beneficial in summer, but it has little effect in winter.

Recommendation: Proposed commitments that purport to maintain stream temperatures cannot be based on Technical Report 12 because of deficiencies in the study design. Riparian commitments should be revised to ensure streamside canopy is adequate to prevent winter icing . That could mean maintaining existing canopy cover on the fraction of Plum Creek streamside sites that haven't been subjected to harvest.

5.) Proposed (3-9): Determinations of fish presence or absence will be based on stream classification systems from each state.

E5-72

Response: Each state in the project area has a different approach for determining fish presence. Washington has the most credible approach. It is based on onsite sampling. And when sampling isn't done, Washington defaults to geomorphological parameters that are fairly reliable for determining presence-absence. The presumption in Washington is that fish generally use a stream. Montana and Idaho assumptions for fish presence are overly simplistic, relying on arbitrary flow-related thresholds. Thus many streams, such as intermittent channels, that may have fish all or part of the year, are considered fish-less. Fisheries biologists have found significant numbers of cutthroats in intermittent streams comprised of little more than pools fed by groundwater. A study of Sagehen Creek in California found that survival of rainbow trout in intermittent streams was higher than in perennial streams, apparently because the flow-restricted reaches have lower predation risk. Schmetterling (in review) found Blackfoot River fluvial westslope cutthroat spawning in streams in watersheds as small as nine square miles. Because sediment and some woody debris transport occurs between ephemeral, intermittent and perennial streams, streamside management activities even along the smallest of headwater channels can potentially damage fish habitat. The HCP inadequately protects the function of potentially important first-order channels.

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E5-71	574
E5-72	520

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E5-72

Recommendation: Fish presence determinations should be based on Washington's approach. On-site population evaluations should be used wherever management or a BMP treatment is to be based on fish presence or absence. Because all active channels have the ability to transport sediment and wood, the HCP should ensure BMPs affecting fish-bearing streams are applied to all active channels, regardless of fish absence or presence.

6.) Proposed (3-8): The HCP ignores the relationship between riparian timber harvest and increased impacts from streamside grazing.

E5-73

Response: Areas with riparian harvest that are also grazed can be subjected to inordinate streamside damage. Logged riparian sites commonly respond with lush grass and shrub growth after thinning (Sedell 1988). The combination of lush vegetation on relatively flat lands adjacent to water attracts a disproportionate share of grazing pressure. Over time, this pressure alters composition of plants to favor species such as bluegrass and alder. Grazing can significantly reduce the amount, vigor and recruitment of the most palatable shrubs, including dogwood and willow. These species are favored by beavers. When dogwood and willows are reduced, beaver activity diminishes. In turn, important habitats for fish, including overwintering sites, are less available. Reduced beaver activity also modifies stream function, reduces bank storage and affects timing and volume of stream discharges. The overall effect can be negative to fish. Reducing shrub communities and converting riparian sites to bluegrass-dominated systems reduces streambank strength, amplifies streambank damage by livestock, reduces overhead cover and delays development of future sources of LWD. These impacts are most severe on stream reaches with gradients of less than 6 percent, and where streambank stability is dependent on streamside vegetation.

Recommendation: The HCP should commit to timber management practices that prevent increased livestock access to streambanks. Unless livestock will be precluded from entry into partially harvested riparian areas, say, by using fencing or intensive riparian range management, the HCP should commit to reducing grazing in allotments with riparian areas.

7.) Proposed (3-11): The HCP says flood prone widths and CMZs will be identified. Most of these zones are rated as moderately sensitive to timber harvest. Prescriptions focusing on maintaining structural habitat components are geared mainly to Tier 1 "High Sensitivity CMZs."

E5-74

Response: The prescriptions for Tier 1 and especially Tier 2 riparian areas downplay the importance of LWD recruitment for species other than bull trout. Populations of all species of salmonids within the project area depend on healthy recruitment of LWD. The HCP provides no basis for determining that any channel with LWD as a habitat component is only moderately sensitive to timber harvest. If a channel is important for fish, and it includes LWD, then riparian areas are

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sensitive to harvest. Most species covered in this HCP, many which occur in Tier 2 watersheds and in small and large order streams with varying CMZs, have been shown to be directly affected at a population level to LWD availability (Moore and Gregory 1989).

The HCP's allowance of large-scale timber harvest in all but "Tier 1 High Sensitivity Channels" could affect at least 90 percent of the remaining riparian stands not already harvested in the project area. Past harvesting has already severely reduced the long-term LWD recruitment potential in 65 percent of the stream reaches covered under the HCP. It could take more than a century for them to recover to where they can again contribute relatively natural amounts of LWD to channels (Grette 1985). Studies in Washington and Oregon found that LWD in stream reaches in harvested areas was dominated by material that had been recruited prior to logging (Grette 1985). This demonstrates that logging reduces LWD recruitment. In B channels in Idaho, LWD was also considerably reduced in managed watersheds compared to reference watersheds (Cross and Everest 1995).

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Montana's SMZ laws requires a minimum of 50 percent tree retention, or 5 or 10 trees per 100 linear foot of SMZ, whichever is greater. The law allows incremental entries for timber harvest, as long as minimum retention standards are met. The minimum retention allowed for Class 1 streams (most, but not all fish-bearing streams) in Montana is about 35 to 88 trees per acre. Retained trees only have to be greater than 8 inches in dbh. The law does say that residual stands must be representative in species composition and age-class distribution of the pre-harvest stand, but there is no quantitative standard to ensure this occurs. In fact, no timber operator has ever been cited for exceeding this arbitrary standard.

Logging that meets Montana's SMZ standards can dramatically reduce potential for LWD recruitment in currently unharvested stands by upwards of 80-90 percent. Basal area estimates for 35 to 88 dbh trees per acre is about 12 to 31 square-feet – that is, when the retention trees are not much more than the legal minimum of 8 inches in dbh. Mature riparian stands, however, commonly exceed 150-200 square-feet of basal area. The difference is important. Assuming Plum Creek will harvest mainly the largest, most valuable trees in existing stands, the residual stands will tend to be the species, size and condition least desirable for short- and long-term LWD needs, even when the company complies with SMZ standards. This is important to note because larger trees simply have a greater probability of reaching stream channels than do smaller trees (Robinson and Beschta 1990; McDade et al 1990). Moreover, the persistence and long-term benefits of LWD entering streams depends on length, size and to some degree species (Murphy and Koski 1989; Sedell 1988). Graham (1994) found Douglas fir and larch to be desirable as LWD because of their long-term persistence in streams. Additional findings indicate that true firs (such as grand and subalpine fir in the Northern Rockies), which are not very merchantable, do not persist and they

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decay relatively quickly. Because of the limitations of Montana's SMZ law, post-harvest riparian stands are often comprised of small-diameter trees of less desirable species.

Large trees of persistent species serve as keys (long-term catch points) for smaller and more mobile pieces of wood (Nakamura and Swanson 1993). A 24-inch dbh, 90-foot-tall cedar or larch will stabilize a site, catch other woody material and remain viable for many decades. In contrast an 8-inch, 60-foot grand fir, which already has heart rot, often breaks on impact into smaller portions and may completely rot within a decade. Based on the riparian prescriptions proposed in the HCP for Plum Creek's riparian sites (aside from the small percentage classified as Tier 1 High Sensitivity), it's probable that at the end of the permit period, most riparian areas in the area will be lacking in LWD recruitment potential.

LWD is crucial to formation and frequency of pools. Lisle and Kelsey (1982) found that the average pool frequency of a reference stream was 4-6 times the mean stream-width. Stream reaches having large amounts of LWD had pool frequencies of one pool for reaches that were three times the stream width. Fausch and Northcote (1991) found that biomass of cutthroat trout and coho salmon positively correlated to pool volume. Pool volume is directly related to LWD size and abundance. Muhlfield, et al (2000) found redband trout in late fall and winter in a large tributary of the Kootenai River closely associated with large pools and abundant cover.

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Because of abundant LWD, many first-and second-order streams have maintained pool/step sequences that are critical for reaching hydrological equilibrium. LWD jams in first-and second-order streams also retain desirable gravels, including those used for spawning. These structures retard movement of other sediments (Duncan et al 1987; Nakamura and Swanson 1993). Fine-grained suspended sediment (less than 0.063 mm), however, is transported in these channels regardless of woody debris levels (Duncan, et al 1987). The balance between retention of coarser sediment and transport of finer materials is important for maintaining certain habitats important for trout life-history cycles.

Stability of first-and second-order channels has developed over thousands of years of continuous LWD recruitment. Interruption of the amount and quality of LWD will affect quality of fish habitat and can contribute to unraveling or scouring of some streambeds (Bilby 1984). Reid and Lieme (1994) found that intermittent streams account for over one-half of the channel length of many watersheds of the Pacific Northwest. The authors recommend deferring timber harvest along intermittent streams for a distance of one potential tree height or 100-feet slope-distance from the bank. The HCP suggests that leaving only 35 trees greater than 8 inches per acre along smaller streams is adequate. But this standard could interrupt LWD supplies, and in many cases contribute to deteriorated stream habitat onsite and downstream.

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Partial harvest in streamside areas also accelerates blowdown and breakage in the retained stand. Belt (1992) found that windthrow accounted for 94 percent of the lost volume in buffer strips in Oregon, resulting in reduction of up to 88 percent of the initial gross volume. This problem is particularly vexing in stands with high water tables where the roots have developed close to the surface. Hanson (1995) identifies riparian habitat types *Picea/lysame*, *Thuja plicata/gymnocarpium* and *Thuja plicata/oplopanax* as being particularly susceptible to windthrow. Some of these habitat types, or similar types, are found on Plum Creek lands. Wind buffers outside the streamside zone, such as those required in Washington, can provide partial protection for residual stands. In Montana, overstory removals including clearcutting, seed-tree cuts and shelterwood cuts, are allowed right up to streamside management zones. Buffering is not required.

By allowing differential harvest within the channel migration zone, it's conceivable that streams plugged with debris during high runoff will migrate from normal high-water channels into areas with reduced rootmass cohesion (the areas on the outside of CMZ's that have been logged). These areas would have been more resistant to the flood flows before harvest. After logging they could be more apt to erode. Thus, partially harvesting a CMZ could inadvertently increase the rate and amplitude of channel migration.

E5-74

Recommendation: Because past riparian harvest has adversely affected 65 percent of stream reaches within the area covered by the HCP, all significant LWD recruitment on the remaining 35 percent should be preserved. For both Tier 1 and Tier 2 fish bearing streams, harvest should be deferred during the permit period on A-C channel types for the full riparian zone width as well as an additional horizontal distance of not less than 75 feet from the edge of the channel migration zone. Where channel migration zones do not occur (D and E channels), harvest should be deferred a distance of one potential tree-height or 100 feet from the stream, whichever is greater. That will protect LWD recruitment at existing levels. The HCP should also protect LWD recruitment along all other active channels, including intermittent and ephemeral channels tributary to fish bearing streams. This should include all Class 2 streams in Montana, as well as all Class 3 streams with an active channel that is tributary to a Class 2 or Class 1 stream. Along streams fitting Montana's Class 2 definition, harvest and use of machines should be precluded within 75 feet of the channel. For streams meeting Montana's Class 3 classification and which have channels tributary to a Class 2 or Class 1 stream, harvest should be precluded for a distance of 25 feet from the active channel. Harvest should then be limited to no more than 50 percent removal of stems greater than 8-inches another 75 horizontal feet from the no-harvest buffer, or at a distance equal to one site-potential tree height from the stream, whichever is greatest. In addition, wind buffers similar to those required in Washington state should be required next to harvested riparian stands. These recommendations are based on the assumption that little additional presence/absence data for native fish

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will be available during the permit period. Moreover, these recommendations are significantly less protective than default prescriptions developed on federal lands for conservation of native fish. Finally, these recommendations allow Plum Creek to continue harvesting timber while also presenting some risk (an "incidental take"), albeit reduced, to native fish. See Appendix 1 for a comparison.

8.) Proposed (3-22) RP8: Interface Caution Areas will be an average width of 150 feet from the ordinary high water mark.

E5-75

Response: The concept of an ICA is worthwhile in order to buffer streams from upland activities. But its usefulness is compromised by its use of an AVERAGE of 150 feet. Averaging allows potentially harmful activities to occur closer than 150 feet on up to 50 percent of a stream's length. Sediment transport from upland sources such as roads or skid trails can reach streams from distances exceeding 150 feet horizontal distance on steep slopes. In summarizing research on buffers, O'Laughlin and Belt (1995) say that buffers of 200-300 feet can be adequate but they also recognize that channelized runoff from logging practices can travel thousands of feet. Conservation strategies for protecting native salmonids on federal lands in the Pacific Northwest (FEMAT and PACFISH) have a minimum default buffer width of 300 feet. The default for fish-bearing streams in the Forest Service's interim conservation strategy for inland native salmonids is 300 feet. The Montana Bull Trout Scientific Group (1998) recommended 150 feet buffers that start from the edge of the 100 year floodplain. Scientific support is absent for the HCP's proposal that reduces ICA boundaries to the edge of a road in circumstances where a road is closer than 150 feet. Guidance related to skid trails stating, "Seek to avoid concentrating projects with below average widths in one fourth order watershed," is unclear. The HCP doesn't elaborate on what this means nor identify where this standard came from. The HCP also doesn't require professional qualifications for personnel who will be determining CMZs and ICAs. The HCP doesn't say these areas will be marked.

Recommendation: ICAs should be at least 150 feet and measured on the horizontal from the edge of the 100-year floodplain. Averaging should be dropped. Only trained specialists should be identifying CMZs and ICAs. These zones should be marked on the ground before projects commence.

9.) Proposed 3-24 (Rp9): Harvest will be deferred in several small-order watersheds for 10 years.

E5-76

Response: Past harvest in many drainages poses ongoing risk to watershed health and fisheries. Therefore deferral of activities can be important in order to induce recovery, especially in drainages that have highly erosive soil types. Bedloads in some streams are probably heavy and will take considerable time to recover to background levels. These drainages could be important to recovery of multiple species. The HCP is vague on why these specific drainages have been selected over

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E5-75	555
E5-76	594

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other areas, and why the deferral period is 10 years. Several of these areas have seen significant harvest in recent years, suggesting that for silvicultural reasons additional harvest in the near future might be unlikely anyway.

Recommendation: The HCP should detail the fish-specific criteria that were used to select these drainages. Scientific criteria as well as monitoring should be developed for these areas in order to ensure the deferral period is adequate. Until this information is developed, deferrals should last for the life of the permit period.

10.) *Proposed:* The HCP will restore LWD to stream systems.

E5-77

Response: Artificial recruitment of LWD could cost $12,000-20,000 per mile and it could be functional for only 20-30 years (Sedell, et al 1989; Robinson and Betcha 1990).

Recommendation: The HCP should include specific criteria and targets for projects that reintroduce LWD into streams.

Range Management Considerations

1.) Proposed (4-5): Performance Standards for Grazing BMPs (Table 4-1) are identified.

E5-78

Response: The HCP cites these standards as items that will be monitored: 1) *Streambank stability*: The definition of "livestock-caused bank disturbance" is unclear. For example, it's unclear if the disturbance to be monitored had to occur during the most recent grazing season, or if it includes historical damage. The HCP doesn't say if this standard includes bank sloughing that has been accelerated by grazing-induced transformation of the riparian community from native, long-rooted vegetation to short-rooted bluegrass. 2) *Riparian compaction:* The HCP should detail specifically how compaction can be evaluated visually. 3) *Grass utilization:* The HCP doesn't say how and where stubble heights will be evaluated. For example, will this be done by a permitee determining an average from fixed plots? Does the permittee choose the plots? The HCP doesn't say what the standard will be for determining an undesirable condition. 4) *Shrub utilization:* The 25 percent utilization standard is not sensitive to composition change, such as the conversion of a site from palatable species such as red osier dogwood and willow to alder and conifers. This type of conversion affects beaver utilization, and thus can affect habitat for native fish (Jakober 1995; Naiman 1984). The standard does not specify whether the current year's shrub leaders to be measured include those accessible to livestock. 5) *Shrub Regeneration:* This standard omits numerical and qualitative benchmarks. 6) *Weeds:* The HCP includes no standard for weeds,

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thereby ignoring the propensity of these exotic invaders to displace more desirable native species and reduce the forage base. Lacy (1989) found that sediment yield from knapweed dominated lands were 192 percent higher than on native bunchgrass sites. Outside of this vague standard for grazing, the HCP totally ignores the role weed impacts play in watershed health and thus fishery quality. Logging roads have long been acknowledged to be a prime pathway for weed spread, yet the HCP ignores this impact.

E5-78

Recommendation: Standards for range should be bulked up: 1) Streambank stability measurements should include all livestock-caused disturbance, including vertical bank sloughing accelerated by shrub loss; 2) A professional should design a measurable standard for compaction; 3) Utilization based on an 8-inch stubble height should occur on no more than 15 percent of the riparian community on individual stream reaches to ensure grazing isn't being concentrated; 4) Shrub utilization by cattle should be measured by examining only the most palatable species (usually dogwood and willow), as well as only those stems from the current year's growth that are accessible to livestock (maximum 4-foot-height and not protected by other vegetation); 5) shrub regeneration should be evaluated based on whether the most palatable species are regenerating in proportion to their presence in ungrazed riparian areas.

2.) Proposed (4-5): Leaseholders will monitor sensitive riparian sites twice yearly.

E5-79

Response: Monitoring performance standards is critical to evaluate grazing compatibility with riparian health. Requiring leaseholders who have an economic interest in the outcome of monitoring to be collecting the data is problematic. This arrangement introduces bias into what should otherwise be an objective process.

Recommendation: Spring and fall monitoring should occur. Reporting should be annual. Professional range conservationists should be collecting monitoring data, OR, the HCP should commit to adequate range training for leaseholders. If leaseholders collect monitoring data, then the HCP should include a compliance monitoring component that ensures a professional range specialist randomly tests the quality of the leaseholders' data and reporting. Compliance monitoring results should be included in five-year reports to the Services. Monitoring of performance standards should occur spring and fall, and it should concentrate on those portions of the leases most vulnerable to streambank damage by livestock (such as riparian areas along streams of less than 6 percent gradient) on B and C type channels (Clary and Webster 1989).

3.) Proposed (4-6) G2: Grazing exclosures will be established along damaged stream segments at the end of year 9 of the permit period on Tier 1 watersheds.

E5-80

Response: Fencing is a proven conservation measure. Waiting for 10 years before implementing exclosures, however, could pose risks to native fish species. Though

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some plant cover will respond in the first season after grazing is excluded, restoration of a full complement of riparian vegetation and stream channel stability can take much longer (Clary and Webster 1989; Platts and Nelson 1985a; Platts and Nelson 1985b). Platts (1991) concludes that riparian pastures, fencing and complete rest or exclosure is the best alternative for restoring or maintaining healthy riparian systems. Mosley et al (1997) recommend grazing critical riparian areas no more than one out of 3 or 4 years. Plum Creek land managers are probably already aware of stream reaches with acute grazing impacts. Thus, conservation measures could be implemented fairly immediately.

Recommendation: Plum Creek should commit to evaluating in the field all stream reaches with gradients less than 6 percent in allotment areas. Evaluations should establish baselines for range performance standards and channel stability. The evaluations should note circumstances that don't meet desirable conditions. The evaluations should also lead to development of action plans that favor the most conservative grazing systems first (Mosley et al 1997). These evaluations and commitments to use exclosures should not be limited to Tier 1 watersheds because native fish occupy streams in Tier 2 watersheds as well. Some exclosures should be required before year 10.

4.) Proposed (4-8)G3, AM-1: A network of monitoring plots will be established to evaluate the long term effectiveness of grazing BMPs.

E5-81

Response: Monitoring plots can be valuable for determining effectiveness of practices. However, their value diminishes when data from them is extrapolated to other watersheds with distinctly different topography, grazing history, past and present management practices and grazing patterns. Monitoring can be very effective, however, when it occurs on a site-specific basis. Monitoring should focus on the most sensitive portions of grazed stream reaches. It should combine fixed photopoints and randomly established vegetative plots that include representative vegetative species, including those favored by livestock. It should also document important stream channel components that can be measured for trends and which are affected by grazing, including height-to-width ratios and bank angles. Platts (1983) and the EPA (1993) present alternative methods for evaluating grazing impacts on streams and riparian areas.

Recommendations: The HCP should establish monitoring plots on each grazing lease with stream reaches that have gradients of 6 percent or less. Plots should be evaluated at least every five years (monitoring will occur twice a year). Plots that don't meet performance standards should trigger management changes by the first field season after the evaluation is complete. The HCP should include a commitment ensuring Plum Creek periodically evaluates the long-term wisdom of maintaining range allotments that cannot meet performance standards.

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5.) *Proposed:* The HCP relies heavily on adaptive management for grazing based on results from a few monitoring sites within demonstration watersheds.

E5-82

Response: The HCP does not demonstrate that the proposed study design can isolate causative factors responsible for aquatic changes. Therefore, interpretation of results will be vulnerable to dispute over causation. It is also inappropriate to extrapolate findings from one grazed area to another unless the study design demonstrates that the physical, biological and grazing components are the same in the two areas.

Recommendation: Rather than depending on demonstration watersheds to determine if grazing is harmful, the HCP should commit to a monitoring strategy that identifies the most vulnerable riparian areas on each lease, and develop monitoring protocol that are sensitive to change on those sites (as described above).

Miscellaneous Monitoring and Adaptive Management Considerations

1.) *Proposed:* The HCP commits to practicing adaptive management as a response to monitoring.

E5-83

Response: The HCP states that "Conservation of native salmonids is the overriding objective of the NFHCP" (8-5). But the overriding priority for monitoring and adaptive management seems to be minimization of costs. This is evidenced by references to "economic sideboards" (8-1); or statements such as:

"…any need to implement more costly measures is the conclusion of a scientifically rigorous process" (8-7).

"…trigger is really detrimental before requiring a costly management change" (8-7).

"…without expending scarce resources ….that are not cost effective" (8-11).

"…while continuing to consider the NFHCP business goals" (8-12).

"…additional commitment of resources will ….first seek to find NFHCP components that can be demonstrated to exceed conservation expectations ….and reallocate resources"(8-14).

Plum Creek deserves the opportunity to implement an HCP as cost effectively as possible. However, because meeting "business goals" is not a criterion of the Endangered Species Act, ESA regulations or the HCP handbook, costs should only influence decisions for monitoring or adaptive management when they are quantified and related specifically to practicability.

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E5-83	697

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E5-83 *Recommendation:* Until the business goals are quantified and costs of alternatives are compared to them, these vague criteria should not unduly influence adaptive management changes.

2.) *Proposed:* The adaptive management pathway requires the Services to demonstrate a statistically significant difference between performance expectations and actual results before management can be changed (8-8).

E5-84 *Response:* Many causal relationships between forest management activities and aquatic habitat change have already been scientifically established. These relationships should be reflected in the adaptive management triggers. As stated in the policy evaluation of this review, it should be unnecessary to require statistical exercises once a trigger is tripped.

Recommendation: Adaptive management triggers should not be subjected to showings of statistical significance. When Plum Creek disagrees that a tripped trigger is relevant, the company should be required to demonstrate within a reasonable confidence interval that a management practice shouldn't be changed.

3.) *Proposed:* The adaptive management pathway requires that biological relevance be established before a tripped trigger initiates a management change (8-8).

E5-85 *Response:* As detailed in the policy review of this evaluation, the question of biological relevance should be settled before the triggers are adapted for the HCP.

Recommendation: Delete this parameter of the pathway.

4.) *Proposed:* The adaptive management pathway requires a third test when triggers are tripped: causal linkage (8-8).

E5-86 *Response:* Causal linkages should be incorporated into the triggers. Changed circumstances such as a flood or fire, however, could create disputes over identification of causal agents.

Recommendation: Causal linkages should be incorporated into the triggers. If changed circumstances create doubt over causal agents, then a third party, such as the Oversight Team recommended by TU, should investigate the relevance of the changed circumstance and recommend whether a management change is necessary.

5.) *Proposed:* The HCP proposes monitoring strategies and protocol.

E5-87 *Response:* The HCP includes a number of fundamental weaknesses in its proposed monitoring. For example:

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E5-85	696
E5-86	698
E5-87	661

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a.) The HCP's proposed use of demonstration watersheds invites bias and selective application of practices. Study results will likely be suspect. It appears unavoidable that conclusions from studies in demonstration watersheds will be used as references for the effectiveness of practices in other watersheds that are either not comparable or which are managed less carefully. Demonstration watersheds are fine for refining management and establishing default practices. But they shouldn't be used as surrogates for monitoring practices in another watershed. Monitoring should favor protocol that are measured on site, "above and below," and "before and after."

b.) Monitoring fish populations at statistically significant levels can be very difficult because: 1.) natural events such as winter icing can result in population fluctuations of 50 percent or more annually; and, 2.) for some species that often occur in low densities, such as bull trout, population densities may be too low to get statistically significant sample sizes in a given stream reach. These limits should be considered when population estimates are used to correlate relationships with habitat.

c.) The HCP never defines what is statistically significant.

E5-87

d.) The HCP recommends virtually all monitoring and reporting be done by Plum Creek, which has an economic stake in the outcome. The conflict of interest potential in this arrangement is significant.

e.) Trends that are measurable and significant for variables such as LWD or pool frequencies and pool depths often occur only after long periods of monitoring. Determination of reliable long-term trends must also account for singular events, such as fires, floods, low-water years, etc. ("changed circumstances"). The proposed adaptive management pathway will promote disputes over causal agents and trends. This will be compounded by the additional burden placed on the Services to demonstrate "statistical significance," "biological relevance," and "causal linkage." The HCP doesn't require these same tests for Plum Creek's use of demonstration projects as a monitoring surrogate. Adaptive management changes will be very difficult to accomplish within the permit period, even when the evidence is compelling that the permitted take is being exceeded.

f.) Monitoring the implementation of grazing practices is left to leasees, which is a conflict of interest unless it is bolstered by independent compliance monitoring. Acceptable compliance rates of 90 percent are rendered meaningless by subjective monitoring standards such as "must look good." The 90 percent compliance rate is not explained in sufficient detail to be meaningful.

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g.) "Severe" impacts from grazing are required before exclosure fencing is implemented. "Severe" is not defined in Appendix Rp-4.

h.) Stream temperature monitoring is proposed only for summer temperatures. No monitoring protocol is recommended to ensure winter thermal conditions do not cause harmful icing.

i.) The HCP never details how the sediment-reduction target of 49 percent reduction was chosen.

E5-87

As proposed, the HCP insulates high-risk management actions from determinations of illegal take of important species. It proposes to monitor the effects of these activities with inadequate monitoring schemes. The proposed effectiveness monitoring could take at least a decade to determine significant trends; reliable trends may never be detected. But even if a downward trend is documented, its biological relevance and causative mechanism must be conclusively demonstrated before any corrective action is taken. And even if these cases are made, the result may only be development of another action plan. Meanwhile activities occur on the landscape and the term of the permit ticks on.

Recommendation: The HCP should approve only those on-the-ground practices that have little or no perceptible risk to native fish habitat. Monitoring of application and effectiveness should be performed, or at least randomly checked and regularly audited, by an independent third party. All self-monitoring should be subject to third-party compliance monitoring.

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Letter E5

Responses

See Response to Comment Table or click on link provided below.

Comment Response

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Letter E5

Responses

See Response to Comment Table or click on link provided below.

Comment Response

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Letter E5

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Appendix 1. Proposed HCP Riparian Commitments and Recommendations

Riparian Class	Timber Harvest along Stream	Remainder of Streamside Zone	Other Leave Protection	Estimated % of Plum Creek total perennial stream length
Tier 1 high sensitive w/ CMZ (B and C Channels)	No harvest full width	No harvest full width	50' of terrace slope = 88 tpa	Less than 2%
Recommendation	**Same**	**Same**	**No harvest 75' of terrace slope**	**Prescription less than federal requirement**
Tier 1 mod sensitive w/ CMZ (A,D,E channels)	No harvest 25'	Montana SMZ law	50' of terrace slope = 88 tpa	Less than 2%
Recommendation	**No harvest full riparian width in A; 100' no harvest in D & E**		**No harvest 75' of terrace slope in A**	**Prescription less than federal requirement**
Tier 1 high sensitivity w/o CMZ	No harvest 25'	Montana SMZ law	50' of terrace slope = 88 tpa	Less than 2%
Recommendation	**No harvest 100'**			**Prescription less than federal requirement**
Tier 2 w/ CMZ	Montana SMZ law	Montana SMZ law	50' of terrace slope = 88 tpa	Less than 28%
Recommendation	**No harvest full riparian width**		**No harvest 75' of terrace slope**	**Prescription less than federal requirement**
Other perennial fish bearing streams	Montana SMZ law	Montana SMZ law	Montana SMZ law	No estimate
Recommendation	**No harvest 75'**			**Prescription less than federal requirement**
Perennial headwater streams connected to fish bearing streams	Montana SMZ law	Montana SMZ law	Montana SMZ law	No estimate
Recommendation	**No harvest 25', incl. Ephem & intermit**		**75' buffer = 88 tpa**	**Prescription less than federal requirement**
Streams w/ past harvest at rates precluding additional harvest	Montana SMZ law	Montana SMZ law	Montana SMZ law	65%
Recommendation	**No harvest**	**No harvest**		

Letter E5

Appendix 2. Issues Raised by Plum Creek's Technical Paper Assessing the Role of LWD

The HCP includes a number of unsubstantiated conclusions related to LWD recruitment to streams. They include:

P 22. The report postulates that pools formed by woody debris are less important in some channel types. The HCP simplistically concludes that "management can emphasize economic objectives without high risk to fish resources."

Response: Though the HCP displays some evidence that some types of stream channels are less dependent on LWD for establishing pool frequency, the data displayed do not substantiate conclusions that LWD does not positively influence the quantity of pools in channel types A, D or E. The data also do not substantiate findings that pool quality and cover within the pool are not dependent on LWD. Most published literature strongly supports findings that the presence of native inland salmonids, particularly bull trout and westslope cutthroat trout, is strongly associated with cover within the pool, especially during daylight hours. Reductions of LWD sources on Plum Creek lands will likely reduce habitat quality as well as pool frequency.

P 28. LWD is quantified by number of pieces, with a minimum size of 10 cm (4 inches) by 2 meters (6 feet). This size is chosen because Plum Creek staff have observed pieces this size serving as habitat features.

E5-88

Response: The assessment does not acknowledge the relative size differences of LWD recruited from harvested stands that meet the minimum requirement of Montana's SMZ law (88 tpa @ 8 " dbh), and the larger pieces contributed from unmanaged stands. It can reasonably be concluded that most of the woody material recruited from stands managed under SMZ regulations would be 8-inch and smaller in diameter. Moreover, the average size of material from unlogged stands would be substantially greater than 8 inches in diameter and considerably longer in length. The larger material is more stable than the smaller material and it persists longer. Larger woody material serves as key pieces or anchors for LWD accumulations that are critical for pool formation, pool persistence and pool cover. Reductions in recruitment sources of the larger material can adversely affect fish habitat.

P 29. Targets are established based on data sets of three published and one unpublished study.

Response: The targets could have included evaluations done by the Kootenai, Flathead or Lolo National Forests, which include land forms and habitat types more geographically appropriate for comparison to Plum Creek lands.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E5-88	589

Letter E5

E5-88

P 32. The modeling for stand contributions of LWD assumes a tpa of 100 (p. 41), but natural stands (p. 32) actually commonly range from 200-500 tpa.

> ***Response:*** It's unclear whether Table 9 is for natural or for managed stands. If it is for natural stands, 100 tpa is far too low. Stands evaluated for temperature (Tech Report 12) averaged 165 trees per acre. If Table 9 was developed for managed stands, it is unlikely, based on historical harvest practices, that many trees 13-20 inches or more in diameter would be available within the 30-year time frame depicted. The origin of the assumed depletion rate of 1.5 percent per year is not documented.

P. 45. Table 11 depicts numbers of LWD pieces expected to be recruited into the stream from different management options.

> ***Response:*** If the no-cut Options 6-8 results are based on a stand density of 100 tpa, then they significantly underestimate the trees expected to be retained along the streambank and available for recruitment of LWD. This obscures the disparity between cut and no-cut options.

P. 37. The LWD recruitment table doesn't display assumptions used to determine the importance of regeneration and tree growth.

> ***Response:*** Overstory removal commonly leaves understory trees that are typically suppressed and have poor crowns. In many cases, the species left, such as alpine fir or grand fir, have low potential for both survival and growth. Additional LWD input dependent on regeneration or growth during the 30-year permit period is likely to be inconsequential. Mortality of leave trees is potentially high because of increased risk of blowdown. Blow-down trees may or may not be recruited into the stream.

B 10-15. Discusses the role of LWD in small, non-fish bearing streams. But it fails to substantiate how the minimum leave trees (35 tpa 8" plus) will provide for needed recruitment of LWD.

> ***Response:*** The plan recognizes LWD is important to these streams but then proposes a minimum (35 tpa 8"-plus) that might be insufficient to meet LWD needs for these streams based on comparisons with LWD from unmanaged stands.

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter E5

Appendix 3. Issues Raised by the Study Design of Plum Creek's Technical Paper on Stream Temperature

P 32. 10 study sites were selected. All analyzed data is from these sites. Among the criteria used to select these sites was: "must be harvested to a level that came close to meeting the intent of the regulations. In other words, if few or no trees were to be harvested in the SMZ, they were not included in the study." However, it appears that the average timber removal of the stand was far less than allowed by regulations. For example, Table 5.4, indicates the average stand condition did not change appreciably before and after logging:

	Before Logging	After Logging
Stand Density	165 trees per acre	117 trees per acre (¼ of stand)
Mean Tree Height	80 feet	78 feet
Mean DBH	15.3	14.7

E5-89

Only 4 of 10 sampled sites had significant canopy reduction. Table 5.4 indicates the stand canopy was reduced from 67 percent cover to 62 percent. Stream canopy was reduced from 69 percent to 56 percent in the worst case.

The study design has significant problems when conclusions imply that current regulations are sufficient to maintain stream temperatures. The retention in the stands studied significantly exceeded minimum allowed by Montana regulations. Thus the results cannot be extrapolated to any stand that the HCP allows to be harvested to the maximum allowed by the SMZ law. The study also doesn't specify how the retained trees were arrayed with respect to stream proximity.

Thus the validity of the conclusion (p. 34) that the change in stream temperature was less than 1 C. and canopy cover changes ranged from 0-13 percent when "the efficacy of state regulations" was tested is flawed.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E5-89	575

Letter E5

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Land Use Planning and Property Disposition

Letter E5

1

Plum Creek's Proposed HCP/Incidental Take Permit for Native Fish: Land Use Planning and Property Disposition

Plum Creek has rightfully identified land use planning and land disposition as items that could be modified to benefit conservation of native fish. A thoughtful land sales program could benefit both fish and Plum Creek's business goals.

1.) Proposed L1: Plum Creek describes its Land Use Principles.

E5-90

Response: As the document states, the principles do not provide conservation on the ground, thus their benefit as a meaningful commitment is limited to some unmeasurable empowerment Plum Creek says these statements provide employees. Their value is limited even more because the document says the principles "may be revised…from time to time," and that they "are not intended to be inflexibly applied." Thus, it's hard to say if these principles are the same principles that will be around next year, let alone at the end of a 30-year permit.

Recommendation: Rather than depend on vague principles that may be modified anyway, the land use commitments in the HCP could better benefit from a description of hard objectives and goals. For example, the HCP should identify a specific amount of riparian acres or stream reaches that Plum Creek will endeavor to place under conservation easement or other mechanisms with land use restrictions. These quantifiable goals could be broken down into mileposts. For example, Plum Creek could be required to have five year that incrementally will lead to fulfillment of the 30-year goal for protecting so many acres or stream reaches. The way the land use commitments are designed in the HCP, Plum Creek does not have to protect a single acre during the 30-year period, yet it will get habitat conservation credit (indeed 9 of 53 commitments) simply for creating incentives in an HCP. The HCP should prove that the incentives work by establishing quantitative goals for land conservation. The HCP should promote, if not require, Plum Creek to donate permanent conservation easements. Though the land use commitments create incentives for Plum Creek managers to look for conservation buyers, this part of the HCP (except for deals involving LUCAs) appears to depend mainly on the willingness of purchasers or partners in trades to be willing to protect native fish. The DEIS for the HCP should disclose reasonably foreseeable scenarios for Plum Creek land dispositions. For example, a description and map of the HBU lands would give the public a better idea of what is at risk.

2.) L2 land dispositions will get a proportionality factor of 1.0.

E5-91

Response: Dispositions to federal agencies and private entities such as land trusts is a beneficial way to help fish. However, the way the proportionality balance works for this commitment, it assumes all lands acquired by these other landowners will benefit

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E5-90	782
E5-91	785

Letter E5

native fish. In fact, many of the land deals Plum Creek has engaged in with agencies were engineered primarily to benefit recreation or wildlife species, such as elk.

E5-91

Recommendation: This commitment should include state agencies. Before a proportionality score of 1.0 is awarded, Plum Creek should be required to demonstrate that dispositions to agencies and land trusts involve tracts that are important to native fish. One way to do this would be to devise a system that awards a 1.0 score only to certain sized parcels abutting important streams.

3.) L3 dispositions involve the sale of development rights.

E5-92

Response: The density restrictions in this commitment are vague. They appear to allow the same amount of density on both sides of a stream. Moreover, the proportionality factor should be applied only to parcels on streams with demonstrated fishery value.

Recommendation. If these dispositions involve streams with important fishery values, and Plum Creek is to get a proportionality value on the positive side, then the density recommendation should allow only one dwelling per described stream reach. In addition, dispositions to federal agencies should include language on development rights that is equal to or greater in conservation value than the strategy that agency is using for protecting native fish.

4.) L4 describes restricted dispositions with Land Use Conservation Areas.

E5-93

Response: This alternative has potential conservation value but its proposed restrictions are not protective enough. In addition, conservation easements with third parties should be the preferred encumbrance, instead of covenants and deed restrictions.

Recommendations: LUCA measures should be guaranteed by conservation easements held by third parties. This better guarantees enforcement of restrictions will occur. Individual sales with LUCAs and which involve eventual development of dwellings should be limited to 160 acres in Tier 1 watersheds and along key migratory streams. A prohibition on timber harvest in LUCAs (except for trees demonstrated to be a hazard to dwellings) should extend at a minimum to at least 200-feet horizontal distance from the CMZ in Tier 1 watersheds. Landscaped lawns should not be allowed in the CMZ and there should not be exceptions for alternative drain fields and septic systems. Sanitarians in rural areas, even though they occasionally approve them, have little practical experience with these systems. Requirements for retaining natural vegetation should be more pointed. For example, terms such as "to the extent practical," and "generally representing" are vague and will promote disputes over violation of the restrictions.

5.) L5 dispositions are "conservation neutral" because they involve conveyances to entities that already have an incidental take permit.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E5-92	787
E5-93	789

Letter E5

E5-94

Response: This commitment makes sense as long as Plum Creek and the agencies demonstrate that the conditions of the permit and the purchaser's conservation plan is equal to or greater in value for fish than this HCP.

6.) L8 affects land exchanges

E5-95

Response: This commitment isn't clear on how net positive or net negative benefits with land exchanges will be determined. It appears, at least based on the proportionality scheme and the Elk Creek example that is provided, some exchanges credited as neutral could actually result in negative values. If the Elk Creek exchange had occurred under the proportionality scheme of the HCP, Plum Creek would have received a net benefit of 650 acres. If the company then were to dispose of 1,230 acres of Tier 1 lands under, say, L4's conditions, the net result would be neutral. But in effect, the on-the-ground effect would be that more acres would be put at risk than accounted for.

Recommendation: Land exchanges should include a scoring system that promotes deals in which on a per acre basis the values of the respective properties are roughly the same. When Plum Creek trades more valuable conservation lands than it receives, the net-proportional balance should be applied only to similar types of land conveyances. Using points scored on the positive side in a land exchange or sale to countervail the negative score from an unrestricted sale, according to the proposal, could possibly be scored as neutral. But in effect, on-the-ground there is potential for an actual net loss in conservation value.

7.) L9 Describes how the proportionality balance strategy works.

E5-96

Response: The HCP says Plum Creek will commit to disposing of no more than 8 percent of its lands within the permit period. Though this sounds like a small amount, it is approximately 132,000 acres. That amount could easily comprise much if not all of the riparian acres in all the Tier 1 watersheds and many of the Tier 2 watersheds. In fact, these are the very acres most likely at risk for sale to entities who could develop them in ways harmful to native fish. This underscores how important it for the Services to examine how well the Land Use Commitments will work, and how dispositions are scored. The way the balance is described, it appears Plum Creek could go the first 10 years of the permit period with a negative balance. In addition, the company could end up at the end of the permit with a negative balance. The HCP attempts to correct this by requiring corrective measures after the fact. This allows Plum Creek to enjoy the benefits the permit provides, such as insulation from ESA challenges, during periods when the company is in turn not providing conservation coverage for the fish as described in the HCP. The proportionality strategy appears to allow Plum Creek to score positive points once it sells an unrestricted parcel and after the new landowner puts the tract under conservation easement. This allows Plum Creek to then sell another unrestricted tract of equal conservation value to native fish without any land-use encumbrances. The combined score for the two transactions would be scored neutral

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E5-94	792
E5-95	793
E5-96	795

Letter E5

but Plum Creek didn't contribute anything except find a buyer who was conservation-oriented.

E5-96

Recommendation: Plum Creek should not be allowed to get positive proportionality scores for transactions when the new landowner gives up development rights. Or at least the score in an instance such as this should be less than, say, .25 (buyer "discovery points"), and only awarded if the landowner assumes an easement within a year of the purchase. The most important incentives in these commitments should be those that encourage Plum Creek to enact the restriction itself before it conveys the property. The land use commitments should clearly state that Plum Creek should not be able to sell a piece of land -- which takes it out of the HCP -- then be allowed to buy its timber. This reduces the conservation value of the original HCP. The HCP should prohibit the company from buying timber from lands it disposes of during the permit period. The grace period for having a running proportional balance in the negative should never exceed 3 years. If the company finishes the 30-year permit period in the negative, it should be required to get the score on the positive side of the scale within a year. This provides incentive for getting conservation protection on the ground in a timely fashion. It also ensures that 9 of the 53 commitments will result in a net benefit to fish. Final audits (see previous recommendation in the policy section of this review) should be done by an independent party or the Services immediately after full or partial suspension or termination of the permit. The audit should ensure Plum Creek corrects any negative proportional balance within a year.

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter E5

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Principal Investigators for this Review

Letter E5

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Trout Unlimited's Principal Investigators for this Review

Dr. Robert P. Davison of Tumalo Associates in Bend, Oregon, served as Interior Department Deputy Assistant Secretary for Fish and Wildlife and Parks from 1993 to 1996. In that capacity he oversaw development and implementation of U.S. Fish and Wildlife Service policy and led efforts to improve the Endangered Species Act. He served as U.S. Commissioner to the Great Lakes Fishery Commission from 1994 to 1996. From 1985 to 1993, Dr. Davison Served as a Professional Staff Member on the U.S. Senate Committee on Environment and Public Works. He was the majority staff person responsible for fisheries, wildlife, endangered species, wetlands, and oil pollution issues and legislation. He holds a Ph.D. in wildlife science from Utah State University.

Greg Munther is a consulting fishery biologist in Missoula, Montana. He worked for the U.S. Forest Service for 31 years. He has worked in timber inventory and wildland interpretation in Idaho and Utah. He was fisheries biologist for four years on the Sawtooth National Forest before spending 12 years as zone fisheries biologist for the Lolo, Bitterroot, Deerlodge and Helena National Forests. He was the district ranger on the Ninemile District of the Lolo National Forest for 10 years. Mr. Munther is past president of both the Idaho and Montana Chapters of the American Fisheries Society. He is a certified fisheries scientist and has a B.S. in forestry and a M.S. in fisheries management from the University of Idaho.

Bruce Farling has been executive director of Montana Trout Unlimited since 1994. He served as conservation director of the Clark Fork Coalition from 1988 to 1994. He previously worked for nine years as a wilderness ranger for the U.S. Forest Service in Region I, and supervised field-level investigations involving wilderness fire management, water quality, range, fisheries and special-use permits. He has been appointed to numerous state and federal advisory boards involving water policy and fishery management. He formerly served on Montana's work group for best management practices in forestry and has been a back-up field auditor for the state's every-other-year BMP audits. He holds a B.S. in environmental sciences from the University of Oregon.

Letter E5

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Trout Unlimited is the nation's foremost conservation group dedicated to conserving coldwater fish species. Trout Unlimited represents nearly 110,000 conservation-minded anglers organized into about 450 chapters nationally.

Trout Unlimited's mission is to conserve, protect and restore North America's coldwater fisheries and their watersheds.

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P.O. Box 7186, Missoula, MT 59807
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Letter E6

BIG BLACKFOOT CHAPTER
"Dedicated to preserving the fishery of the Big Blackfoot River and its tributaries."

March 10,2000

Ted Koch U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way
Room 368
Boise, ID 83709

Dear Mr. Koch:

This letter is in response to your request for comments regarding the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan proposed by the USFWS ,NMFS and Plum Creek Timber Company..

The Big Blackfoot Chapter of Trout Unlimited is a non profit corporation primarily involved in research and restoration of streams and wetlands in the Blackfoot River watershed of western Montana. In cooperation with Federal and State Agencies, foundations,and private citizens the organization has been involved in hundreds of thousands of dollars of restoration projects since 1988. Most of these projects have sought to restore streams and wetlands to their original state having been degraded by poor timbering methods, poor mining methods, poor grazing procedures and in some cases incorrect practices by government agencies.

The largest landowner in the Blackfoot River watershed outside the wilderness area is Plum Creek Timber Company. Consequently we are well aware of the economic, esthetic, and environmental impacts that Plum Creeks' practices have on the landscape. Our membership is made of a large cross section of persons some of which enjoy fishing and some of which do not. However all of them value the Black Foot River and its environs. Most of us are from professional or business backgrounds and we understand the importance of profitability to a viable company.

E6-1 [We have examined the voluminous Draft EIS and HCP and we have been briefed by the legal and scientific experts utilized by Montana Trout Unlimited to review the EIS and HCP. The Big Blackfoot Chapter of Trout Unlimited strongly urges the NMFS and USFWS not to approve the HCP and EIS and take permit unless the proposal is significantly modified. The HCP is supposed to include adequate conservation measures that minimize to the extent practical the taking of species under the permit. This permit is for a thirty year period during which legal assurances are given that the USFWS and NMFS cannot sue Plum Creek for harming endangered species.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E6-1	1

Letter E6

E6-2 The commitments proposed by Plum Creek are in most cases vague and unquantifiable and in many cases only involve paperwork and studies but no specific actions. Many of the more concrete commitments are steps that would be taken whether or not a HCP existed because of laws or good business practices.

E6-3 Enforcement and monitoring of the agreement are sorely inadequate. The agreement provides for Plum Creek to do the monitoring and provide the information to an independent auditor. No independent review that can scientifically measure whether or not harm to fish is being minimized to the maximum extent practical is provided for. The process for enforcing the provisions of the agreements is laborious and fraught with opportunities for delay. No monitoring reports for most commitments are even required for five years.

E6-4 The granting of an HCP would materially reduce the risk of doing business for Plum Creek and provide the opportunity for increased profitability for those operations in the areas covered by the HCP> It appears that the NFHCP alternative rather than the Simplified Prescription alternative is being proposed because it has less impact on the company rather than considering what is best for the watersheds and thus the people. Plum Creek should be in a position to take specific, measurable steps to reduce the possibility of takings and to increase the possibility for conservation of endangered species. These commitments have not been made. If major changes are not made we believe the people are better served with no HCP in place.

Thank you for considering these comments.

Sincerely

Henry W. Poett III
President

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E6-2	464
E6-3	317
E6-4	171

Letter E7

Idaho Trout Unlimited
Robert D. Dunnagan, President
57 Maxey Lane
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208-263-4433
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3-14-2000

Mr. Ted Koch, Project Manager
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, Id. 83709

Dear Mr. Koch:

Idaho Trout Unlimited (ITU) and our 1,300 members have a vested interest in the Plum Creek Timber Company "Habitat Conservation Plan" (HCP) currently being reviewed. Plum Creek has substantial land holdings in Central Idaho that are critical to certain coldwater fish. This HCP and take permit covers fish currently listed under the Endangered Species Act, including bull trout, Snake River Chinook and Snake River Steelhead in the state of Idaho. In addition this document will cover other native fish such as the westslope cutthroat and redband trout. The HCP would allow Plum Creek to incidentally "take" these species as long as the HCP is followed and its measures do not lead to further decline of the permitted species, for the proposed 30-year life of the permit. The take permit provides assurances that the United States Fish and Wildlife Service (USF&WS) and the National Marine Fisheries Service (NMFS) cannot sue for harming endangered species during the period of the permit.

E7-1

E7-2 ITU suggests that the USF&WS not approve the HCP and take permit unless the proposal is modified significantly. We suggest that, as a starting point, the HCP should include streamside

E7-3 protections included in federal native fish programs such a s INFISH. We believe that approval of the HCP in its present form, without major improvements, will establish a weak president for other private and state landowners.

E7-4 # The HCP needs an estimate of "the take". This level of information is required and will be essential in determining whether the company is proposing improvements that change the current situation.

E7-5 # The HCP should identify and evaluate specific alternatives that avoid take.

E7-6 # The HCP doesn't provide sufficient information demonstrating conclusively that Plum Creek's proposal "minimizes and mitigates the impacts of incidental take to the maximum extent practicable". If PC's business goals dictate what's practicable why doesn't the HCP detail why it is not economical for the company to invest in added easements or other protection for key lands?

E7-7 # The HCP should include an independent oversite committee to evaluate compliance with the plan and to determine, scientifically, whether biological goals are being met. We believe that there should be independent review that can scientifically measure whether harm to fish is being minimized to the maximum extent practicable using the 53 "conservation commitments."

Recycled paper

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E7-1	110
E7-2	1
E7-3	90
E7-4	109
E7-5	177
E7-6	369, 373, 375, 377, 696
E7-7	318

Letter E7

E7-8 #The HCP concludes that if spawning and rearing habitat for bull trout is protected, other species will be equally protected. This is not necessarily correct as other species have different habitat needs.

E7-9 #Sediment control measures on roads need to be quantified in terms of desigu and spacing to ensure they're effective. The HCP allows Plum Creek to make subjective calls in the field as to where sediment control features will be placed. Sediment controls should be installed along roads to reduce the amount of uncontrolled water and sediment approaching stream crossing.

E7-10 #Monitoring criteria and design for watersheds should come from the specific watershed in which the activity is occurring.

E7-11 # It appears that the company will get conservation credit for lands that it sells and are later placed under conservation easement or for tracts transferred to the USFS. This process would then give PC credit for complying with the take permit without giving up a thing. The HCP includes no targets for conservation land sales, yet nine of the 53 conservation commitments focus on land transaction. It appears that PC will get credit for nearly 20 percent of its commitments in the HCP for activities that are not necessarily completed during the permit period.

E7-12 #The HCP is subject to "adaptive management" changes during the permit period, if it is determined that a "conservation commitment" isn't minimizing impacts to fish as planned. The process is very laborious and fraught with opportunities for delay. In order to make this a smoother process it would be appropriate to adapt more rigorous and independent scientific monitoring in the plan. That will permit the management triggers to be initiated based on science that will be less subject to dispute. When triggers are exceeded the agency should be able to order changes without having to argue statistics or biological relevance.

These are a few of our concerns. The Montana office of Trout Unlimited will present a comprehensive review of the HCP. ITU stands by that detailed review and support the Montana findings.

Sincerely,

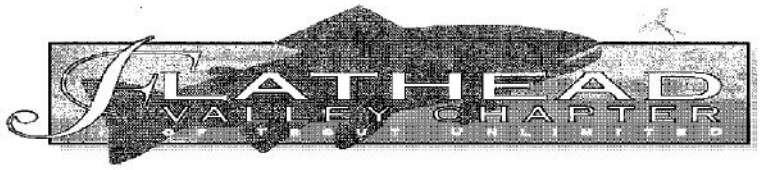
Robert D. Dunnagan

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E7-8	208
E7-9	430
E7-10	662
E7-11	778
E7-12	622

Letter E8



March 14, 2000

Mr. Ted Koch, Project Manager
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, ID 83709

RECEIVED
MAR 20 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

RE: Comments on draft EIS and proposed Habitat conservation plan/incidental take permit for native salmonids on Plum Creek's lands East of the cascades

E8-1 The plan includes 53 "conservation commitments" that when taken together supposedly minimize to an acceptable level the impacts Plum Creek's activities have on 17 native fish species. Many of the commitments are vague, or they involve paperwork. Other "commitments" are things the company is already doing because it's required by law or because it's good business. The "commitments" with some potential conservation benefit include proposals to fix up old roads, to reduce sediment and improve the "best management practices" it currently uses for new roads. Other proposals provide an additional increment of riparian protection from logging on a small portion of its streams (about 3 percent of its watershed acres), and promote conservation protection on some of its land sales.

E8-2 1. The HCP should include an estimate of "the take." That is, how many fish or how much corresponding habitat, is currently being harmed by PC activities, and how much will be "incidentally" harmed under the HCP? The document omits this legally required information. It is essential to determine whether the company is proposing improvements that significantly change the current situation. How extensive will the incidental take be?

E8-3 2. The HCP should identify and evaluate specific alternatives that avoid take. It doesn't and it should.

E8-4 3. The HCP doesn't provide sufficient information demonstrating conclusively that PC's proposal, in the language of the HCP regulations, "minimizes and mitigates the impacts of incidental take to the maximum extent practicable." PC says that its "business goals" (read profit margin) dictate what's practicable. But the HCP never details why it isn't economical for the company to invest in additional protective measures, including larger buffers along streams or placing conservation easements on key lands. In addition, without providing an estimate of the existing take, it's impossible to determine how the HCP can minimize it.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E8-1	1
E8-2	105, 109
E8-3	177
E8-4	109, 369, 373, 375, 377, 696

Letter E8

E8-5

4. The HCP must include an independent oversight committee to evaluate compliance with the plan AND determine scientifically whether biological goals are being met. Plum Creek proposes having its own people monitor the activities required under the plan. The company will take the monitoring information and give it to an "independent auditor" it will hire for determining whether the company is complying with the commitments in the HCP. Following the commitments is one thing, but determining whether they are scientifically valid on the ground is another. The plan includes no independent review that can scientifically measure whether indeed harm to fish is being minimized to the maximum extent practicable using the 53 "conservation commitments."

E8-6

5. The plan covers 17 different native fish species and stocks. The HCP concludes that if spawning and rearing habitat for bull trout is protected, other species will be equally protected. But other species, such as westslope cutthroats, have different habitat needs than bull trout. For example, cutthroats use headwater streams more extensively. And headwater streams are being afforded much less protection in the plan than areas where bull trout spawn. Thus, using bull trout spawning and rearing habitat as a habitat surrogate for other species is inadequate. Getting habitat-fish species relationships right is important because the plan includes no fishery inventory data. To minimize harm to cutthroats, the HCP should include additional protective measures, such as protective buffers of 50 feet along headwater streams as well as sediment reduction features (drainage features such as waterbars) on road crossings on small streams, both perennial and intermittent. Unless the HCP and take permit contains some species-specific conservation measures, it shouldn't be allowed to cover the 17 fish proposed.

E8-7

6. The HCP attempts to protect fish by focusing mainly on reducing existing and future sediment sources, which is important but not the only factor affecting fish. Two critical limiting factors for native fish conservation are overwinter habitat and woody debris recruitment. Overwinter habitat is affected by how much riparian vegetation is available for temperature insulation. Not enough streamside vegetation can cause icing in streams, which reduces habitat. Woody debris is important for hiding cover, pool formation and trapping sediment. Logging in stream zones affects both these habitat elements. The HCP should include more commitments for leaving larger trees along streams, including wider no-cut zones. As proposed, it focuses mainly on leaving the number and size of trees required by streamside management law, which was not developed scientifically. In some limited instances, Plum Creek proposes leaving more than the minimum, but that will affect only a few percent of the stream miles on its lands. The HCP should have larger buffers for streams, especially buffers for smaller headwater streams critical for cutthroats and downstream water quality.

E8-8

7. Sediment control measures on roads, including drain dips and waterbars, need to be quantified in terms of design and spacing to ensure they're effective. The HCP allows Plum Creek foresters to make subjective calls in the field as to where sediment control features will be placed and how often they will be spaced. Plum Creek proposes using sediment control mainly above stream crossings. But they should be installed all along roads to reduce the amount of uncontrolled water and sediment approaching stream crossings.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E8-5	316, 317
E8-6	208
E8-7	500, 587
E8-8	430

Letter E8

E8-9

8. The HCP makes much of Plum Creek's commitment to encourage and promote conservation protection in its land sales. Plum Creek has agreed to cap its "unrestricted land sales" at 8 percent of its total holdings. This is approximately 132,000 acres. However, most of the desirable real estate it holds is along streams and lakes, and these tracts could fit under the cap. Plum Creek will get conservation credit for lands it sells that are placed under conservation easement or for tracts it transfers to the Forest Service. However, the company isn't giving much up. If it sells lands to conservation buyers who in turn take on the easement, Plum Creek will get the "credit," and thus credit for complying with the take permit. The HCP includes NO hard targets for conservation land sales, yet nine of 53 "conservation commitments" focus on land transactions. In other words, nearly 20 percent of its commitments in the HCP are for activities that it doesn't have to do during the permit period. The HCP should require Plum Creek to meet certain targets for lands put under conservation easements, even if the company has to pay for them.

E8-10

9. The HCP is subject to "adaptive management" changes. That is, if sometime during the permit period, if it's determined that a "conservation commitment" isn't minimizing impacts to fish as originally planned, the HCP can be modified. However, the process is very laborious and fraught with opportunities for delay. For example, most commitments will not require monitoring reports for five years. If at the end of five years the Fish and Wildlife Service wants to tighten a commitment based on monitoring data, the HCP says the agency must determine that the effect on fish is statistically significant. Then it must demonstrate that the impact is "biologically relevant." Then if it survives arguments, roadblocks and delaying tactics that could come from reluctant Plum Creek foresters, the agency must sit down with the company and come up with a mutually acceptable alternative. Meanwhile the permit period is ticking and the company can continue potentially harmful activities. The opportunities to change the HCP based on new information are very difficult. The alternative is to have more rigorous and independent scientific monitoring in the plan. Then, the adaptive management triggers can be based on science that will be less subject to dispute. When triggers are exceeded, the agency should be able to order changes without having to argue statistics or "biological relevance."

E8-11

10. Many monitoring criteria will be judged on data generated in experiments in a handful of watersheds. The data from these watersheds are supposed to tell the Fish and Wildlife Service whether conservation commitments (such as sediment reduction measures) in other watersheds are working. This is flawed monitoring design. Data for monitoring should come from the stream or watershed the activity is taking place, not from surrogate drainages that may or may not be comparable.

E8-12

Do not approve the HCP take permit unless the proposal is modified significantly. The agency should instead recommend an HCP that includes, as a start, streamside protection included in federal native fish programs such as INFISH. If this HCP is approved without major improvements it will establish the wrong precedent for other private and state forest landowners.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E8-9	778
E8-10	64, 622, 677, 678, 696
E8-11	662
E8-12	1

Letter E8

E8-12 FVTU supports proper HCP's and well managed logging in Montana. Plumb Creek's HCP will be the outline for much logging that will take place in Montana and the Northwest. The HCP has to be well thought out to protect our native salmonid species. We want to be assured that this HCP works to preserve our native and wild fish.

Sincerely,

Glen D. Anacker
Vice-President Flathead Valley Chapter of Trout Unlimited

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter E9

The Blackfoot Valley Ranch Foundation

PO Box 149
Ovando, MT 59854

Phone 406 793-5064
Fax 406 793-5065

RECEIVED
MAR 2 0 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

March 15, 2000

Mr. Ted Koch, Project Manager
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, ID 83709

Dear Mr. Koch:

I am a rancher in the Blackfoot Valley and have observed first hand some of the damage that poor logging practices have done to the environment. This is an environment that the people in this valley, together with agencies such as the US Fish and Wildlife Service and Montana Fish Wildlife and Parks have spent many dollars and invested a considerable amount of time to preserve. The HCP as proposed by Plum Creek Timber Company does not provide sufficient protection nor does it make conservation commitments which come close to compensating for the "take permits" it asks in return. A take permit, if approved as requested, would grant to Plum Creek legal assurances that the U.S. Fish and Wildlife Service and the National Marine Fisheries Service cannot sue it for harming endangered species during the period covered by the permit, which Plum Creek proposed to be for 30 years. This is way to long.

E9-1

Many of the commitments which Plum Creek makes are vague or involve paperwork. Other "commitments" are things the company is already doing because it is required to do them by law or because it makes good business sense. Some other commitments do have potential conservation benefits if they would be more specific so as to be measurable and provide for compliance audit on a periodic basis by an independent third party and paid for by funds set aside by Plum Creek in an account administered by USFWS.

E9-2

Please do not approve this HCP without significant modification so as to accomplish the intended purpose of why the HCP process was set up. Your agency should recommend an HCP which includes streamside protection such as is included in federal native fish programs as INFISH. If this HCP is approved without major modification it will establish the wrong precedent for other private and state forest land owners. I personally have spent many thousands of dollars on a voluntary basis which has been matched by federal and state agencies for the direct benefit of improving the Blackfoot drainage. Let's not now take a backward step and undo the improvements we have been able to accomplish.

E9-3

The following are some specific suggestions:

1. The HCP should include an estimate of "the take." The document must estimate how many fish or habitat is currently being harmed by Plum Creek activities, and how much will be "incidentally" harmed under the HCP. This is legally required and the HCP as proposed does not include it. If this is not done, there is no way to determine if the improvement proposed by PC will significantly change the situation.

E9-4

2. The HCP must identify and evaluate specific alternatives that avoid take. It doesn't do this and it should.

E9-5

3. The HCP must include an independent oversight committee to evaluate compliance and determine scientifically whether biological goals are being met. PC proposes to use its own people to do this. The company proposes to take the information it collects as a result of its own monitoring and give it to an independent auditor, which it will hire, to determine if the company is complying with the commitments in the HCP

E9-6

4. The plan covers 17 different native fish species and stocks. The HCP concludes that if spawning and rearing habitat for bull trout is protected, other species will be equally protected. But other species, such as westslope

E9-7

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E9-1	280
E9-2	298
E9-3	1
E9-4	105, 109
E9-5	177
E9-6	316
E9-7	208

Letter E9

E9-7 cutthroats, have different habitat needs than bull trout. For example, cutthroats use headwater streams more extensively. And headwater streams are being afforded much less protection in the plan than areas where bull trout spawn. Thus, using bull trout spawning and rearing habitat as a habitat surrogate for other species is inadequate. Getting habitat-fish species relationships right is important because the plan includes no fishery inventory data. To minimize harm to cutthroats, the HCP should include additional protective measures, such as protective buffers of 50 feet along headwater streams as well as sediment reduction features (drainage features such as waterbars) on road crossings on small streams, both perennial and intermittent. Unless the HCP and take permit contains some species-specific conservation measures, it shouldn't be allowed to cover the 17 fish proposed.

E9-8 5. The HCP attempts to protect fish by focusing mainly on reducing existing and future sediment sources, which is important but not the only factor affecting fish. Two critical limiting factors for native fish conservation are overwinter habitat and woody debris recruitment. Overwinter habitat is affected by how much riparian vegetation is available for temperature insulation. Not enough streamside vegetation can cause icing in streams, which reduces habitat. Woody debris is important for hiding cover, pool formation and trapping sediment. Logging in stream zones affects both these habitat elements. The HCP should include more commitments for leaving larger tress along streams, including wider no-cut zones. As proposed, it focuses mainly on leaving the number and size of trees required by streamside management law, which was not developed scientifically. In some limited instances, Plum Creek proposes leaving more than the minimum, but that will affect only a few percent of the stream miles on its lands. The HCP should have larger buffers for streams, especially buffers for smaller headwater streams critical for cutthroats and downstream water quality.

E9-9 6. Sediment control measures on roads, including drain dips and waterbars, need to be quantified in terms of design and spacing to ensure they're effective. The HCP allows Plum Creek foresters to make subjective calls in the field as to where sediment control features will be placed and how often they will be spaced. Plum Creek proposes using sediment control mainly above stream crossings, But they should be installed all along roads to reduce the amount of uncontrolled water and sediment approaching stream crossings.

E9-10 7. The HCP makes much of Plum Creek's commitment to encourage and promote conservation protection in its land sales. Plum Creek has agreed to cap its "unrestricted land sales" at 8 percent of its total holdings. This is approximately 132,000 acres. However, most of the desirable real estate it holds is along streams and lakes, and these tracts could fit under the cap. Plum Creek will get conservation credit for lands it sells that are placed under conservation easements., or for tracts it transfers to the Forest Service. However, the company isn't giving much up. If it sells lands to conservation buyers who in turn take on the easement, Plum Creek will get the "credit," and thus credit for complying with the take permit. The HCP includes NO hard targets for conservation land sales, yet nine of 53 "conservation commitments" focus on land transactions. In other words, nearly 20 percent of its commitments in the HCP are for activities that it doesn't have to do during the permit period. The HCP should require Plum Creek to meet certain targets for lands put under conservation easements, even if the company has to pay for them.

E9-11 8. The HCP is subject to "adaptive management" changes. That is, if sometime during the permit period, if it's determined that a "conservation commitment" isn't minimizing impacts to fish as originally planed, the HCP can be modified. However, the process is very laborious and fraught with opportunities for delay. For example, most commitment will not require monitoring reports for five years. If at the end of five years the Fish and Wildlife Service wants to tighten a commitment based on monitoring data, the HCP says the agency must determine that the effect on fish is statistically significant. Then it must demonstrate that the impact is "biologically relevant." Then if it survives arguments, roadblocks and delaying tactics that could come from reluctant Plum Creek foresters, the agency must sit down with the company and come up with a mutually acceptable alternative. Meanwhile the permit period is ticking and the company can continue potentially harmful activities. The opportunities to change the HCP based on new information are very difficult. The alternative is to have more rigorous and independent scientific monitoring in the plan. Then, the adaptive management triggers can be based on science that will be less subject to dispute. When triggers are exceeded, the agency should be able to order changes without having to argue statistics or "biological relevance."

E9-12 9. Many monitoring criteria will be judged on data generated in experiments in a handful of watersheds. The data from these watersheds are supposed to tell the Fish and Wildlife Service whether conservation commitments (such as sediment reduction measures) in other watersheds are working. This is flawed monitoring design. Data for

Responses

See Response to Comment Table or click on link provided below.

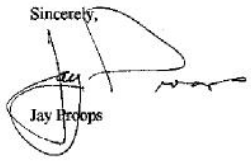
Comment	Response
E9-8	497, 504
E9-9	430
E9-10	790, 796
E9-11	677, 678, 696, 699
E9-12	662

Letter E9

E9-12 monitoring should come from the stream or watershed on which the activity is taking place, not form surrogate drainages that may or may not be comparable.

E9-13 I believe that the HCP as proposed by Plum Creek needs substantial modification for it to be a fair give and take proposition. I personally endorse and incorporate by reference Trout Unlimited's more extensive comments and analysis. Thank you for your fair and ongoing commitment to protect our forrests, waters, fish and wildlife.

Sincerely,



Jay Proops

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E9-13	1

Letter E10

March 17, 2000

Ted Koch
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, Idaho 83709

Dear Mr. Koch,

On behalf of the Montana Chapter Society for Conservation Biology (SCB), we would like to register several comments regarding the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan (HCP) for Plum Creek Timber Company. Although we address several issues that encompass the entire HCP, we focus most of our comments to areas within Montana. The Montana Chapter SCB is a non-profit, educational organization dedicated to the advancement of science in the service of conservation.

E10-1

We are discouraged with the general lack of conservation assurances in the draft HCP. In several cases, the conservation commitments offered under the proposed alternative are unacceptably similar to the same kinds of land management practices that have contributed to the original decline of many native fishes. In this letter, we outline our critique of the HCP on the basis of 1) species-specific considerations, 2) population-specific considerations, 3) land use and hydrology, 4) absence of quantitative standards, 5) adaptive management. We conclude with a list of summary recommendations to improve the draft HCP.

Species-specific considerations

E10-2

We believe that the requested Incidental Take Permit seeks coverage for more species than is justifiable under the terms of the draft HCP. Unfortunately, it appears that the HCP is essentially a bull trout conservation plan with other species added after the structure of the plan was intact. Although it is true that the high degree of sensitivity to disturbance makes bull trout a useful indicator species for physical landscape characteristics, it is unacceptable to use bull trout presence/absence as a binary measure to enact conservation measures for other candidate species. Simply put, the candidate species are too diverse in distribution, life history, metapopulation structure, genetic patterns, and habitat requirements to justify the "Tier I-Tier II" dichotomy.

Although the EIS acknowledges the variable distributions and life histories of the Permit species, the proposed actions remain focused on bull trout, possibly to the detriment of other species. For example, although the redband rainbow trout inhabits much of Plum Creek's ownership in the Middle Kootenai River basin (Appendix A), only the Parmenter Creek watershed is classified as a Tier I watershed. In the Swan River system, the Tier I designations fail to

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E10-1	1
E10-2	209

Letter E10

capture westslope cutthroat (*Oncorhychus clarki lewisi*) strongholds in Sixmile Creek, Holland Creek, and Kraft Creek (Frissell *et al.* 1995).

E10-2

Because Plum Creek Timber Company (PCTC) owns much of these watersheds (33%, 12%, and 18%, respectively), and because *O. c. lewisi* are currently petitioned for listing under the Endangered Species Act, it would be reasonable for the HCP to acknowledge the importance of westslope cutthroat trout strongholds. However, by focusing on bull trout as the major determining factor for Tier I designation, the HCP fails in this regard. Additionally, fish passage specifications (NFHCP Appendix 9-6) appear to be based on the requirements of bull trout – only one of the 17 candidate species. *We recommend extending Tier I commitments to westslope cutthroat trout and redband rainbow trout strongolds.*

E10-3

Finally, the HCP fails to describe "take" for each candidate species. This fact a) hinders our ability to critically evaluate the proposed action, b) hinders Plum Creek's ability to mitigate their impacts on candidate species, and c) violates a required component of an HCP (USFWS 1996). *We recommend that the proposed amount of "take" for each Permit species be defined.*

Population-specific considerations

The Habitat Conservation Planning Handbook (USFWS 1996) is very clear about the importance of population-level information for issuance of an Incidental Take Permit. For example, if "the authorization [of the ITP] requested threatens the continued existence of a wildlife or plant population…" then "the FWS cannot issue a permit…" (USFWS 1996). Accordingly, data from population genetics studies are needed to define 1) population size and distribution, 2) metapopulation structure, and 3) the appropriate scale of conservation.

E10-4

Given the central role of genetics in conservation and management of salmonid fishes, we were surprised by the nearly complete absence of genetic considerations in the draft EIS/HCP. In an investigation of westslope cutthroat trout, Leary *et al.* (1984) used protein electrophoresis to examine the genetic differences within and between populations. Populations were sampled from major basins throughout the native range of the subspecies: south Saskatchewan River, Columbia River, Flathead River, Clark Fork River, and the Upper Missouri River. Based on differences in average heterozygosity (the presence of different alleles at a single locus) at 21 diagnostic loci, the researchers observed two principal trends: a) low levels of variation within individuals and populations; and b) high levels of variation between populations (Leary *et al.* 1984).

Several factors supported the conclusion that within-population genetic variation was less than between-population variation in this study. First, most of the observed allelic variation was attributed to one or two populations and only one locus was found to be commonly variable throughout most

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E10-3	109
E10-4	210

Letter E10

E10-4

populations. Second, the observed average heterozygosities (H) and proportion of polymorphic loci (P) (Table 1) varied within populations in each basin. Third, approximately one-half of the observed genetic divergence was attributed to between-population differences (Leary *et al.* 1984).

Table 1. Average heterozygosities (H), proportion polymorphic loci (P), total heterozygosity (H_t), within population diversity (H_s), and heterozygosity due to divergence (D_g) from samples of *Oncorhynchus clarki lewisi* within the Saskatchewan, Flathead, and Clark Fork River basins (from Leary *et al.* 1984).

Basin	Population	H	P	H_t	H_s	D_g
Saskatchewan				0.155	0.0069	0.0086
	1	0.017	0.067			
	2	0.010	0.033			
	3	0.000	0.000			
	4	0.013	0.033			
	5	0.000	0.000			
	6	0.000	0.000			
Flathead				0.0152	0.0127	0.0025
	1	0.005	0.051			
	2	0.020	0.128			
	3	0.012	0.077			
	4	0.009	0.026			
	5	0.017	0.103			
	6	0.012	0.026			
	7	0.008	0.026			
	8	0.013	0.051			
	9	0.019	0.013			
Clark Fork				0.0294	0.0259	0.0035
	1	0.036	0.180			
	2	0.012	0.051			
	3	0.030	0.180			
	4	0.025	0.128			

Bull trout (*Salvelinus confluentus*) also exhibit this type of population differentiation within watersheds and within stream sections (Spruell *et al.* 1999). Metapopulation modeling by Rieman and McIntyre (1993), Rieman and Dunham (in press), and others has shown the importance of population-level information to estimate the probability of persistence for salmonids. Although the importance of populations has both legal and biological relevance, the draft EIS/HCP requests a "take" permit without acknowledging the fundamental patterns of the populations it proposes to diminish. *We recommend that the FEIS define populations of Permit species with genetic data.*

Land use and hydrology

E10-5

Although the NFHCP predicts that 1,300 miles of road (and an undisclosed number of skidder trails) will be constructed within the next 10 years, it does not fully address the cumulative effects of this construction. Without considerations of road densities and road-stream crossing densities, the draft HCP fails to utilize essential information on landslide rate and sediment delivery and the attendant effects of such impacts. Eaglin and Hubert (1993) and Bibly *et al.* (1989) showed that the volume of fine sediment delivered to streams increased as a function of stream crossing density. Amaranthus et al. (1985), McCashion and Rice (1983), Chamberlin et al. (1991), Ryan and Grant (1991), and Montgomery (1995) reported that landslides increased in frequency with increasing road densities. Trombulak and Frissell (2000) provided a recent review of the impacts of roads on aquatic ecosystems.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E10-5	261

Letter E10

E10-5

The EIS acknowledges the risk of landslides, but fails to address the relationship between road density and erosion risk. For example, the NFHCP considers road abandonment (R7) when it should consider road obliteration (i.e., restoration of approximate original contour). Several studies have found that one of the principal factors in determining the sediment delivery from a road surface is the rate of groundwater interception (Megahan 1972; Megahan 1983; King and Tennyson 1984; Jones and Grant 1996; Wemple and Grant 1996). However, under the proposed "abandonment" criteria, the rate of interception and erosion is not considered. Moreover, given the high degree of differentiation between populations of several permit species, a single landslide can pose serious threat to individual genetically-distinct populations of fish.

The hydrologic impacts of upland timber management also need to be better addressed in the NFHCP. Harr *et al.* (1975) and Chamberlin *et al.* (1991) recorded increased peak flows in logged and roaded areas, relative to undisturbed control areas. Troendle and King (1985) found a similar pattern of disturbed hydrology persisting 30 years after the logging and road building was complete. *Because peak flow intensities affect many aspects of riverine function (i.e., recruitment of LWD, stream channel movement, suspended sediment levels), we recommend that the proposed NFHCP mitigate these impacts with reasonable road density and clearing size standards.*

Absence of quantitative standards

E10-6

We appreciate your focus on "cold, clean, complex, and connected" habitat for native fish and agree that this can be a useful way to evaluate proposed management actions. The problem here, as in previous issues, is lack of quantitative standards for evaluation. Although the NFHCP touts "success indicators" as an essential component adaptive management (see below), we have little faith in an indicator system which gives PCTC the latitude to determine when water temperature is "suitable for fish" (ES-15) and when it is not. Furthermore, the basis of PCTC's water temperature-salmonid assumptions (Watson and Hillman 1997) are flawed because a) they had no control sites (i.e., undisturbed watersheds) for comparison, b) the water temperature inferences were extrapolated from unreplicated point-estimates during one season. *We recommend that the NFHCP develop quantitative water temperature criteria by which to evaluate land management activities.*

Adaptive Management Pathway

E10-7

The HCP is designed around an adaptive management pathway. If implemented as described in the draft EIS, this process would do more to generate conflict than to improve conservation of the Permit species. We see two main problems with the current adaptive management pathway. First, the adaptive management pathway needs to be continually reviewed. This is especially true considering the dynamic nature of the land-water ecotone covered by this HCP. Therefore, we believe that the five years proposed

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E10-6	567
E10-7	699

Letter E10

in this HCP is too long to wait until the first opportunity to review PCTC's compliance with the terms of the HCP. *We suggest an annual review for the first five years and then a review every other year.*

E10-7

Second, the PCTC HCP reduces the efficacy of using quantitative standards by allowing subjective management actions after a standard has not been met. The HCP is designed with "triggers" to warn biologists and managers whenever a parameter such as water temperature has changed too drastically or exceeded a threshold. Although this seems like a good plan, there are no planned actions when a "trigger" is "tripped." In fact PCTC is allowed to subjectively determine if the tripping of a trigger is biologically meaningful or just a statistical artifact. Without operationally defining a "biological" effect versus a "statistical" effect *a priori* conflict will arise. *We suggest that the USFWS and PCTC use a strategy similar to the "Scalable Decision Rules" outlined in Mapstone (1995).*

E10-8

Briefly, the "Mapstone Approach" primarily concerns itself with setting an effect size, not the typical setting of a Type I error rate (alpha = 0.05). After the biologically meaningful effect size is established, statistical decision criteria are chosen on the basis of perceived consequences and costs of Type I and Type II errors. In other words, the ratio of Type I to Type II errors are established (usually by negotiations between interested parties). This ratio of Type I to Type II errors thus establishes a Type I error rate. The null hypothesis, as usual, is rejected if the Type I error rate is not exceeded. The Mapstone approach has the advantages of focusing on a biologically meaningful effect size, establishing agreeable Type I and Type II error rates *a priori*, and allowing all players to agree up front on the size of the monitoring program needed to accomplish these biological and statistical goals.

E10-9

The importance of effective monitoring is paramount to the success of an adaptive management protocol. Unfortunately, however, PCTC's has a poor track record of monitoring and evaluation in their most recent conservation promise, the Swan Valley Conservation Agreement. After agreeing to annual monitoring reports, PCTC has failed to produce such documents for 4 years. Only after several denials and a Freedom of Information Act (FOIA) request was this information given to Arlene Montgomery of Friends of the Wild Swan. This situation is also troublesome because it exemplifies the potential for USFWS non-enforcement of the terms of conservation agreements with PCTC.

E10-10

Finally, although the EIS Summary describes the development of "site-specific plans" to react to "changed circumstances" (ES-28), the NFHCP explains that the No-Suprises rule would be operative under these circumstances. In accordance with the HCP goal of "scientific credibility" (ES-6), we believe that any application of the No-Suprises rule (FR 1998) would be a mistake. With the accelerating pace of new scientific information on fish biology and conservation, we cannot condone an "adaptive" management process which fails to adapt to new information. *We recommend abandonment of the undeliverable and inappropriate promise of "no suprises."*

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
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E10-9	306
E10-10	707

Letter E10

Summary of recommendations

E10-11

1. Identify and extend Tier I watershed commitments to westslope cutthroat trout and redband rainbow trout strongholds.
2. Define populations of Permit species with genetic data.
3. Define the proposed level of "take" of each Permit species.
4. Develop quantitative water temperature standards for evaluating the potential impacts of land management activities.
5. Develop and apply road density standards.
6. Develop and apply cumulative opening size limits within all Permit species-bearing watersheds.
7. Require annual effectiveness monitoring and reporting.
8. Eliminate conflict over the "biological significance" and "causality" of results by identifying "triggers" before monitoring is conducted (*sensu* Mapstone 1995).
9. Abandon the "No-Suprises" rule (FR 1998).

Thank you for the opportunity to comment on this important issue. We will be happy to clarify or expand our comments as necessary.

Nathaniel P. Hitt,
on behalf of the
Society for Conservation Biology
Montana Chapter

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Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E10-11	48

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See Response to Comment Table or click on link provided below.

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Responses

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Appendix A. Presence of Redband Rainbow Trout in Montana (MRIS 2000).

Stream Name	Trib Of	Begin	End	Total Stream Length(Mi)
ARBO CR	YAAK R	0	4.5	4.5
BARNUM CR	PLEASANT VALLEY FISHER R	0	7.9	7.9
BASIN CR	YAAK R, E FK	0	5.2	5.2
BASIN CR, E FK	BASIN CR	0	3.3	3.3
BASIN CR, W FK	YAAK R, E FK	0	1.8	1.8
BIG CHERRY CR	LIBBY CR	0	19.2	19.2
BLACKTAIL CR	YAAK R, E FK	0	4	4
BOULDER CR	KOOTENAI R	0	8.2	8.2
BOYD CR	NO DOWNLINK	0	1.8	1.8
BURNT CR	YAAK R	0	6.5	6.5
CALLAHAN CR	KOOTENAI R	0	7.7	7.7
CALLAHAN CR, N FK	CALLAHAN CR	0	2	2
CALLAHAN CR, S BRANCH	CALLAHAN CR	0	1.5	1.5
CALLAHAN CR, S FK	CALLAHAN CR	0	2.6	2.6
CALX CR	WOLF CR	0	3.2	3.2
CARIBOU CR	YAAK R, E FK	0	5.3	5.3
CEDAR CR	KOOTENAI R	0	7.2	7.2
CHINA CR	KOOTENAI R	0	3.5	3.5
DRY FORK CR	WOLF CR	0	6.4	6.4
FISHER R	KOOTENAI R	0	13.8	33.4
GRANITE CR	BIG CHERRY CR	0	10.5	10.5
HELLROARING CR	YAAK R	0	10	10
HIMES CR	EAST FISHER CR	0	4.9	4.9
KEELER CR	LAKE CR	0	2.8	8.3
KILBRENNAN CR	YAAK R	0	3.2	3.2
KOOTENAI R	COLUMBIA R	0	22.4	52.1
LIBBY CR	KOOTENAI R	0	21.5	29.1
LIBBY CR	KOOTENAI R	0	22.7	29.1
LITTLE CHERRY CR	LIBBY CR	0	3.1	3.1
LITTLE WOLF CR	WOLF CR	0	10.5	10.5
MARL CR	PLEASANT VALLEY FISHER R	0	3.4	3.4
MEADOW CR	YAAK R	0	0.8	0.8
PARMENTER CR	KOOTENAI R	0	8.1	8.1

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PETE CR	YAAK R	0	10.1	10.1
PORCUPINE CR	BASIN CR	0	5.1	5.1
SEVENTEEN MILE CR	YAAK R	0	8.8	15.1
SILVER BUTTE FISHER R	FISHER R	0	4.6	13.9
SOLO JOE CR	YAAK R, E FK	0	5.2	5.2
TAMARACK CR	CALX CR	0	3.3	3.3
WEIGLE CR	WOLF CR	0	5.7	5.7
WOLF CR	FISHER R	0	36.9	36.9
YAAK R	KOOTENAI R	0	8.9	49.2
YAAK R	KOOTENAI R	0	49.2	49.2
YAAK R, E FK	YAAK R	0	13.9	13.9
YAAK R, N FK	KOOTENAI R	0	4.2	4.2

Responses

See Response to Comment Table or click on link provided below.

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Letter E11

FRIENDS OF THE WILD SWAN
P.O. BOX 5103
SWAN LAKE, MT 59911

March 14, 2000

U.S. Fish and Wildlife Service
Snake River Basin Fish and Wildlife Office
Attn: Robert Ruesink
1387 South Vinnell Way, Room 368
Boise, ID 83709.

9 pgs
VIA FACSIMILE
208-378-5262

Dear Mr. Ruesink:

Please accept the following comments on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan for Plum Creek Timber Company on behalf of Friends of the Wild Swan, Alliance for the Wild Rockies and Montana Ecosystems Defense Council.

Inappropriate Purpose and Need

• The intent of the Endangered Species Act (ESA) is to determine which species are candidates for listing as threatened or endangered, to list those species worthy of listing, and to recover listed species. One of the express purposes of the ESA is "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved." 16 U.S.C. sec. 1531(b). Section 10 of the ESA is merely intended to provide the Fish and Wildlife Services (FWS) and National Marine Fisheries Service (NMFS) with the authority to "...permit, under such terms and conditions as he shall prescribe" ..." any taking otherwise prohibited by section 1538(a)(1)(B)" provided that such taking is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity". (16 U.S.C. sec. 1539(a)(1)(B)). It has not altered the fundamental intent of the ESA as expressed above.

E11-1 As such, while Plum Creek may have legitimate business interests, and can be expected to act with those interests in mind, finding that these interests constitute a "purpose" for the development of the NFHCP runs entirely contrary to the express intent of the ESA. Indeed, from reading the purpose and need statement of the DEIS for this project, one would conclude that the goal of Section 10 is to protect the business interests of Plum Creek, rather than to provide for the recovery of listed species on private lands.

E11-2 •More specifically, under §10 of the ESA, anticipated takings must be minimized and mitigated "to the maximum extent practicable". (16 USC §1539(a)(2)(B)(ii). In developing this provision, Congress could have chosen to exclude the word "maximum" from the above quoted phrase. They did not do so because they wanted to send a clear message to the FWS and NMFS that biological, and not economic or other considerations should largely determine what mitigation measures the FWS should require. As such, regulations implementing section 10 provide that the FWS must consider whether Plum Creek has made a "good faith" effort to develop and "fairly consider modifications or

1

Responses

See Response to Comment Table or click on link provided below.

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E11-1	172
E11-2	376

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reasonable and prudent alternatives [RPAs] to the proposed action that would not violate section 7(a)(2) of the Act". (50 C.F.R. sec. 452.03(a)(3)). Section 7(a)(2) requires that federal agencies insure that any action authorized, funded, or carried out by a federal agency "is not likely to jeopardize" the continued existence of a listed species. (16 U.S.C. sec. 1536(a)(2)). While "economic" feasibility is a consideration in developing RPAs, "[t]he 'guiding standard' for determination of RPAs is jeopardy, not economic impact". See, Greenpeace, et. al. v. National Marine Fisheries Service, 55 F.Supp.2d 1248, 1267 (W.D. Wash. 1999) (citations ommitted); See also, Aluminum Co. of America v. Bonneville Power Admin., 175 F.3d 1156, 1162 (9th Cir. 1999) (agency's exercise of statutory obligations to consider economic interests can only be accomplished within framework of environmental mandates). The FWS has therefore acted contrary to the intent of the ESA in finding that Plum Creek's business interests are tantamount to the intent of the ESA.

E11-2

Failure to Provide Adequate Analysis of Economic Impact

• While the economic interests of Plum Creek should not be considered tantamount to those of the aquatic species covered by the HCP, in that the FWS has chosen to include Plum Creek's economic interests as a purpose for this EIS, it is incumbent upon the agency to provide adequate analysis of the economic impacts from each alternative. Yet, in considering Plum Creek's interests as tantamount to the biological goals of the ESA, the FWS defined an analytical context in which the agency either failed to meaningfully consider other reasonable alternatives entirely or discounted alternatives, both based solely on the basis of unsubstantiated claims from Plum Creek that the particular alternative would significantly inhibit its business interests. For instance, in the Executive Summary, FWS states that a "combination of the most conservative features of the proposed NFHCP and Simplified Prescription Alternative provide the greatest likelihood, of the four alternatives analyzed, for moving rapidly towards achieving fully functioning habitat conditions", but dismisses any further consideration of this viable alternative with a one sentence statement, claiming that this alternative would "...not meet Plum Creek's economic needs and is therefore beyond the scope of this EIS". (ES, p. 9-10). Likewise, the DEIS dismisses Alternative 4, the Simplified Prescriptions Alternative, through simply stating that this alternative is "less practicable, particularly from an economic standpoint" for Plum Creek. (DEIS, p. 3-10).

The National Environmental Policy Act implementing regulations require that agencies fully disclose the information and analysis upon which they have based the conclusions. Notwithstanding our objections to placing such significance on Plum Creek's perceived business interests, the DEIS as currently written clearly does not meet NEPA's regulatory requirements.

E11-3

Failure to Fully Determine and Analyze "Take"

• The DEIS also fails to adequately disclose the basis upon which the FWS has determined when, where, and how "take" will occur on contravention to the NEPA regulatory requirements discussed immediately above. Sierra Club et al v. Bruce Babbitt et al recently found that HCPs need to determine how many individuals of affected species will be "taken," how many individuals will remain, what the distribution of the species is throughout its remaining habitat, and how this relates to the species' minimum viable population. [Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div.]

E11-4

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Comment	Response
E11-3	186
E11-4	105, 109

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Neither the Draft Environmental Impact Statement (DEIS) nor the Native Fish Habitat Conservation Plan (NFHCP) quantify how many individuals of the affected 16 species will be "taken," how many will remain, what the distribution is or how this relates to their minimum viable populations. In fact there is no discussion or evaluation in the DEIS or NFHCP that identifies strongholds or quantifies a minimum viable population. Furthermore, neither the NFHCP nor the DEIS account for the importance of maintaining and/or restoring genetically distinct metapopulations of these fish species.

A similar situation was also raised in Greenpeace, et. al. v. National Marine Fisheries Service, 55 F.Supp.2d 1248 (W.D. Wash. 1999). In Greenpeace, the court considered a Biological Opinion submitted by NMFS regarding the 1998 North Pacific Fishery Managment Plan (Plan). In their challenge, plaintiffs alleged that NMFS had failed to comply with the ESA and NEPA in failing to disclose or consider what catch levels would "reduce appreciably the likelihood of survival and recovery of the Steller sea lions, or would appreciably diminish the value of critical habitat". (Greenpeace at 1265). Instead, the BiOp only looked at what would be "consistent with past fishery practices and still provide a considerable reduction from the current levels". (Id). The court was therefore left with no means of evaluating the changes made within the Plan and no means of evaluating NMFS' approval of these changes. As such, the court found that NMFS had failed to comply with both the ESA and NEPA in failing to " articulate a rational connection between the facts found and the choices made". (Id.)

E11-4

Failure to Fully Evaluate Cumulative Effects

- The DEIS Affected Environment isn't described in enough detail to convey a sense of what the landscape currently looks like. How many acres of Plum Creek lands have been logged? Where has logging occurred on Forest Service and other lands? Where is past logging in relation to what's left on Plum Creek ownership? on Forest Service ownership? What stage of development are logged areas in (i.e., seedling, sapling, bare ground, mature)? How many miles of roads are in each watershed? Where are their locations? Plum Creek (PC) is currently aggessively logging in the Swan Valley (and probably other places as well), where is that described? This sets the framework for analyzing cumulative effects, yet this information is missing or incomplete in the DEIS.

E11-5

The DEIS/NFHCP discloses that PC plans to build 1300 miles of roads in the next 10 years. Where will these roads be located? Where is logging planned in the next 5 yrs, 10 yrs, and beyond? They have this information and it is crucial to analyzing effects to drainages that have already been heavily logged and roaded or in maintaining the integrity of areas that haven't as refugia. There isn't a pristine baseline any more, yet the actual baseline condition of watersheds in the NFHCP drainages isn't fully disclosed making the cumulative effects analysis deficient.

- The DEIS does not contain accurate information on Water Quality Limited Stream (WQLS) and waterbodies from state 303(d) lists. For example, page 4-27 lists seven "Planning Area basins" that have water quality conditions that may threaten subpopulations of bull trout yet Swan Lake which is a high priority for a Total Maximum Daily Load and the other impaired streams in the Swan drainage are not even on this list. Neither is Flathead Lake, Whitefish Lake and Swift Creek. Swift Creek flows through Plum Creek land into Whitefish Lake, Whitefish River and eventually into Flathead Lake. Furthermore, EPA must approve this HCP to ensure that it meets the provisions of §303(d) of the Clean Water Act.

E11-6

3

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E11-5	231
E11-6	813

Letter E11

Lack of Measurable Standards

• The NFHCP contains no measurable standards to determine whether the HCP is functioning properly and protecting fish and fish habitat. The science is clear that bull trout have specific temperature requirements, yet the NFHCP fails to set a temperature standard but rather relies on no increase in temperature. This does not consider that many streams are already above acceptable temperatures for bull trout and other salmonids. Temperature data is available for some streams yet this information was not used or disclosed.

E11-7

Furthermore, the NFHCP cannot rely on state temperature standards as these have been deemed inadequate. "Many areas within the species range have temperature standards that exceed levels identified as necessary to support various life stages of bull trout (Mt. Dept. of Health and Environmental Sciences 1994; Oregon Dept. of Environmental Quality 1996, EPA 1997; Washington Dept. of Ecology 1998). For example, in Washington, the current State temperature criteria are inadequate to protect bull trout (WDOE 1998); in 1996, EPA disapproved Idaho's standards after concluding they were inconsistent with the Clean Water Act (EPA 1997); and in Oregon, as recently as 1995, bull trout and other cold water species were not protected by Oregon's threshold temperature standards (Buchanan and Gregory 1997)." (USFWS Bull Trout Interim Conservation Guidance, 1998)

• Another parameter that is measurable and is a good indicator of fish habitat is sediment. Yet the NFHCP fails to provide a standard for sediment. Bull trout and westslope cutthroat trout are limited by sediments in spawning gravels. Studies in the Flathead Basin in Montana demonstrate a "significant negative relationship existed between fry emergence success and the percentage of substrate materials less than 6.35 mm in diameter." (Weaver and Fraley, 1991) Juvenile bull trout are also more substrate oriented than other trout species. Streams are considered "threatened" when the percentage of fine materials in spawning gravels in any given year is greater than 35% and "impaired" when the percentage of fine materials in spawning gravels in any given year is

E11-8

greater than 40%. (Flathead Basin Commission, 1991) McNeil coring data and other substrate scores are available for streams within the NFHCP area yet this data is not included in the DEIS nor is a measurable standard for sediment delineated in the NFHCP.

• The NFHCP contains no measurable biological goals such as populations or distribution of fish species and/or use of habitat by fish species covered by the HCP. We realize that there are various factors that influence fish distribution however, land management has been identified as a limiting factor for fish. Without measurable biological goals it is impossible to tell whether the NFHCP and other measures intended to recover fish are working.

The NFHCP instead relies on future studies and monitoring data which places the burden of proof on the Fish and Wildlife Service to demonstrate that there is "biological relevance" before any changes can be made to the HCP in order to protect fish. Our

E11-9

experience with Plum Creek is that they never admit that their land management activities result in any biologically relevant causal link to declines in fish or fish habitat. This places the USFWS in an impossible position which coupled with No Surprises guarantees means that there will not be any changes made to the NFHCP.

4

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E11-7	567
E11-8	32, 552, 711
E11-9	672, 685

Letter E11

Monitoring

• The NFHCP relies on complex monitoring and adapative management rather than up-front mitigation measures to protect fish. While we realize that monitoring provisions are mandatory for all HCPs and that monitoring provides important information to assess whether the NFHCP is providing benefits to fish, the ESA s.10(a)(2)(B) states that the terms and conditions necessary to assure the plan will be implemented include reporting requirements. Reporting cannot occur without monitoring. Monitoring is also required under the Service's regulations at 50 CFR 17.22(b)(1)(iii)(B) and 50 CFR 222(b)(5)(iii). According to the HCP Handbook, all HCPs must monitor their impacts over time. [USFWS et al (1996), pp. 1-7 & 3-10]

However, our past experience with Plum Creek and the U.S. Fish and Wildlife Service (USFWS) demonstrates that such reporting requirements are not always followed. And we believe that the more complex the reporting requirements it is less likely that the appropriate follow-up will be done. As an example the Swan Valley Grizzly Bear Conservation Agreement (SVGBCA) was signed by USFWS, Forest Service, Dept. of Natural Resources and Conservation and Plum Creek in December 1995. It required that the parties submit annual monitoring reports to the USFWS and contained monitoring provisions such as:

1) The parties acknowledge that the principles of "adaptive management" should govern management within the Conservation Area. As such, new information gained from monitoring and research, conducted either within or outside the Conservation Area, will be reviewed on an annual or more frequent basis, as necessary, to determine if changes in management direction are appropriate.

E11-10

2) The Parties will cooperatively monitor the application and effectiveness of the Guidelines on an ongoing basis and provide the Service with the results thereof on an annual basis. Monitoring will include: (i) an analysis of open and total road densities; (ii) levels of Administrative Use in Inactive Subunits, (iii) levels of Administrative Use on Restricted Roads within Linkage zones during the spring period (April 1 to June 15) and fall period (Sept 1 to Nov 15).

3) The Guidelines will be reviewed by the Parties annually and appropriately revised, pursuant to the procedures set forth in Section 10 hereof. Revisions will be commensurate with new research findings concerning Bear conservation practices and experience with the practicability of the strategies agreed to here.

On June 3, 1998 Friends of the Wild Swan (FOWS) requested the annual monitoring reports from USFWS. On October 5, 1998 FOWS received a letter that the reports were yet to be completed but when they were they would detail all activities by all parties carried out under the conditions of the SVCA. Since there had been no annual reports the first monitoring report would address activities during the 1996-1998 period. It was expected to be completed in April 1999.

On April 22, 1999 FOWS requested the report. On August 13, 1999 FOWS received a response which said that the report had not been completed but was expected to be done during spring, 2000. The USFWS provided FOWS with a draft interim report and some data on road closure effectiveness provided by DNRC, FS and PC. Also PC provided cover analysis data. To date, 4-1/2 years after signing the SVGBCA, no "annual" report has been completed.

Compared to PC's NFHCP the SVGBCA is a very small area with limited monitoring required and only one species, yet USFWS apparently didn't track compliance

5

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E11-10	319

Letter E11

with the monitoring reporting requirements and the other parties to the agreement didn't submit their reports on a timely basis. Given the scope of the NFHCP and the reporting requirements we are doubtful that PC will provide reports to USFWS in a timely manner nor that USFWS has the personnel or funding to adequately track and require compliance. Furthermore, we find it particularly disturbing when for years the Fish and Wildlife Service indicated it was without sufficient funds and personnel to take needed bull trout measures and provide bull trout with protection under the Endangered Species Act. How can the USFWS possibly monitor and keep tabs on this HCP?

E11-10

We believe that in light of past reporting violations that specific buffers that err on the side of the fish be included in the NFHCP. The DEIS even discloses that the Simplified Prescriptions alternative coupled with other provisions in the NFHCP is the most beneficial to fish. (Executive Summary page 9)

• The NFHCP commits to conducting Road Condition Inspections which will then be addressed under Hot Spots Treatments. The Montana Bull Trout Restoration Team's Science Group (which Plum Creek was a member) recommended Immediate Actions in 1994 which included: Conducting sediment source surveys in drainages containing bull trout. On Oct 5, 1994 Plum Creek said that "all of their people have been charged to identify and fix these and will cooperate with other entities on this. They are a big proponent of road management to minimize sediment and proud of 1994 BMP audit results. Would like to bring old roads up to current standards. Plum Creek also suggested using a hydrologist or other professionals that are out driving the roads every day."

E11-11

Why then is there no information in DEIS/NFHCP on where sediment source surveys have been done? This was a commitment Plum Creek made in 1994, so why do they need another 5 years to inspect their road system when all bull trout watersheds in Montana should have been inspected and fixed in the last 6 years?

• The NFHCP states as a Biological Goal: "Protect stream temperatures where they are suitable for fish, and contribute to restoration of temperatures where past Project Area management has rendered them unsuitable." Yet the trigger is a "statistically significant increase in stream temperature" with no mention of measures to lower water temperature if it is already too high and no measurable temperature standard.

E11-12

• Performance metrics for grazing won't even be developed or defined until year 5 of the HCP and reported every 5 years thereafter. Why isn't it already done?

E11-13

• Biological Goal #2 states: "Protect in-stream sediment levels where they are suitable for fish and contribute to restoration of in-stream sediment levels where they have been impacted by past Project Area management." Yet none of the measures are quantified by measurable habitat quality improvements such as reductions in fine sediment in streambeds.

E11-14

Watershed Tiers

• The development of Tier 1 and Tier 2 watersheds based on bull trout requirements presents obstacles and confusion to overall aquatic species protection. Since this NFHCP covers other species besides bull trout then the same protection and attention must be given to all watersheds. Activities in uplands have downstream effects. By dividing watersheds into tiers it appears that varying levels of protection will be given to certain drainages which can have impacts to the entire watershed.

E11-15

All watersheds are created equal and impacts flow through the entire watershed. Prioritizing watersheds based on the spatial habitat requirements of one species ignores the

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Responses

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Comment	Response
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E11-12	715
E11-13	773
E11-14	341
E11-15	208

Letter E11

effects to the entire watershed and the myriad of other species that inhabit it, which include not only fish but aquatic invertebrates, amphibians, and plants. We do not see how this watershed tiering provides an aquatic ecosystem approach to habitat protection and species recovery. This was an issue we raised during scoping that was not adequately addressed in the DEIS.

E11-15

Consistency with Recovery

• In the absence of a recovery plan for bull trout and other fish species covered by the NFHCP it is impossible for the USFWS or NMFS to determine whether this plan will contribute to recovery. This coupled with an inadequate depiction of the current condition and lack of data on other important habitat parameters is not consistent with the ESA's mandate to recover species. Futhermore, the USFWS has not designated critical habitat for bull trout as well as other species. Until habitat crucial to recovery is delineated it is premature for USFWS to authorize habitat degrading activities.

Moreover, according to the DEIS, the FWS views "survival and recovery as points on a continuum where, over extended periods of time and significant portions of a species' range, survival and recovery are the same". (DEIS, p. 1-15) From our reading of this interpretation, the FWS is therefore equating the mere survival of a species across a broad geographic range over time with recovery. Yet, the regulatory definition of recovery is " improvement in the status of listed species to the point at which listing is no longer appropriate under the criteria set out in section 4(a)(1) of the [ESA]". (50 C.F.R. sec. 402.02). This definition of recovery mandates more than mere "survival" of the species at any level. It mandates that the best available science be employed to determine the degree above survival that can be legitimately considered a recovery of the species. Coupled with the pervasive mandates of the ESA to recover listed species, the FWS here must ensure that until such time as recovery goals have been defined, no action authorized by the agency will preclude meeting those goals anywhere within the listed species' range.

E11-16

E11-17

• No Surprises guarantees violate the Endangered Species Act.

• The NFHCP is not consistent with Forest Plans for fish on federal lands such as the Inland Native Fish Strategy (INFISH) and PACFISH. The courts have found that interim measures such as INFISH and PACFISH are not adequate for the long-term protection of bull trout. Even the USFWS in the Biological Opinion for INFISH and PACFISH required additional commitments from the U.S. Forest Service and Bureau of Land Management to strengthen protections for aquatic species and their habitats. Plum Creek's NFHCP does not even provide the same level of protection as INFISH and PACFISH. With checkerboard ownership of federal and Plum Creek lands this presents a big problem. How can the USFWS possibly believe that these imperiled fish species will be recovered when there are such vast differences between the level of protection provided on federal lands versus Plum Creek's lands in the same watersheds? Plum Creek must be brought up to the same level as federal lands, not vice versa as was the case with the Swan Valley Conservation Agreement for the grizzly bear.

E11-18

Following is a comparison of habitat standards for bull trout based on scientific information, INFISH standards, PACFISH standards and NFHCP requirements. Clearly the NFHCP provides lesser protection for fish than federal plans therefore is inconsistent with federal land management to the detriment of imperiled fish populations. Bull trout and other listed species were provided with Endangered Species Act protection because of the inadequacy of existing regulatory mechanisms yet the NFHCP relies on inadequate

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Responses

See Response to Comment Table or click on link provided below.

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E11-17	358
E11-18	32, 552

Letter E11

state forestry practices acts or voluntary Best Management Practices that were already deemed inadequate by the Services.

	BT Habitat Standards	INFISH	PACFISH	NFHCP
Riparian Buffers	300 feet (outer floodplain edge)	300 ft (fish bearing streams)	300 ft	None
		150 ft (non-fish bearing streams)	150 ft	
		150 ft (wetlands, ponds, lakes, etc)	150 ft	
		50 ft (intermittent streams)	50 ft	
Water Temp	6-8°C spawning	<48°F spawn	<60°F spawn	None
	10-12°C rearing	<59°F rear	<64°F rear	None
Sediment	<20% over natural sediment delivery	None	None	None
	<20% fine sediment (<6.4 mm) in spawning habitat	None	None	None
Cobble Embeddedness	<30% summer rearing <25% winter rearing	None	None	None
Bank Stability	>/=90%	>80% stable (non-forested systems)	>80% stable	None
Lower Bank Angle	--	>75% w/<90° angle (non-forested systems)		None
Width/Depth Ratio	--	<10 mean wetted width divided by mean depth		None
Pool Frequency	--	Varies by channel width (chart provided)		None

E11-18

Other Concerns

E11-19 • The DEIS failed to disclose that Plum Creek has sold its lands in the St. Joe watershed to Crown Pacific Timber Company.

E11-20 • The NFHCP fails to take into consideration the effects of upland management on watersheds. The DEIS fails to analyze the effects of upland management on watersheds and fish.

E11-21 • The NFHCP fails to take into consideration genetically distinct populations of fish. The DEIS fails to analyze the effects of the NFHCP on genetically distinct populations of fish.

E11-22 • The NFHCP fails to disclose who will select the third party auditor and what criteria will be used in that selection.

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Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E11-19	151
E11-20	152
E11-21	210
E11-22	303

Letter E11

E11-23 • There is no Cumulative Effects analysis for soils yet all other alternatives refer to it.

E11-24 • The DEIS fails to adequately analyze landslide effects. They do occur in the NFHCP area, for example there were hundreds of landslides in Idaho during a rain on snow event and on the Blackfoot River on Plum Creek land during spring runoff.

E11-25 • The DEIS fails to adequately disclose and analyze whether the CMZs take into account past logging.

E11-26 • The DEIS fails to adequately assess the effectiveness of Best Management Practices to fish and fish habitat especially in light of the bull trout listing that finds existing regulatory mechanisms to be inadequate.

We expect our comments to be given full consideration and incorporated into a plan that provides actual on-the-ground protections and improvements for fish and fish habitat. We incorporate by reference comments submitted by the Society for Conservation Biology, the USFWS Bull Trout Conservation Guidance, the Montana Bull Trout Restoration Scientific Group reports and the Federal Register findings for listings of the fish covered by the NFHCP including all of the sources relied upon in those documents.

Sincerely,

Arlene Montgomery

Arlene Montgomery
Program Director, Friends of the Wild Swan
for
Mike Wood
Ecosystem Defense, Alliance for the Wild Rockies
and
Steve Kelly,
Co-Chair, Montana Ecosystems Defense Council

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Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E11-23	153
E11-24	480
E11-25	547
E11-26	604

Letter E12

Responses

See Response to Comment Table or click on link provided below.

Comment Response

LAND AND WATER FUND OF THE ROCKIES

RECEIVED
MAR 20 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

March 16, 2000

Mr. Ted Koch
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 S. Vinnell Way, Room 368
Boise, ID 83709

Re: Comments on Draft Environmental Impact Statement and proposed Native Fish Habitat Conservation Plan and Incidental Take Permit for Plum Creek Timber Company

Dear Ted:

The Land and Water Fund of the Rockies is a non-profit environmental organization with members in Idaho, Montana and other states. As attorneys, we represent many conservation groups in Idaho, Montana and elsewhere on public lands and natural resources issues.

For example, we represent The Wilderness Society, Idaho Conservation League, Idaho Rivers United, Ecology Center, The Lands Council, Friends of Clearwater, and Clearwater Biodiversity Project in challenges to timber sales, road projects and other management issues on the Clearwater National Forest, with particular concern for impacts on salmon, steelhead, bull trout, and other fish species. We also represent groups including Idaho Watersheds Project and Committee for Idaho's High Desert on grazing and other natural resources issues in Idaho watersheds, particularly as they pertain to impacts upon anadromous and native fish species.

We submit these comments on our behalf, and on behalf of the above-named client groups with respect to the Draft Environmental Impact Statement and proposed Native Fish Habitat Conservation Plan and Incidental Take Permit for Plum Creek Timber Company. Several of our client groups are also submitting comments, which we incorporate by reference.

In addition, we incorporate by reference the comments of Friends of Wild Swan, Alliance for the Wild Rockies, Pacific Rivers Council, and Earthjustice Legal Defense Fund. We will try to avoid duplication of those comments, although some overlap is necessary.

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ENVIRONMENTAL LAW AND POLICY CENTER
SERVING THE ROCKY MOUNTAINS AND DESERT SOUTHWEST

Letter E12

Mr. Ted Koch/USFWS
March 16, 2000
Page 1

GENERAL COMMENTS

E12-1 In general, we object to any action, including the proposed action, which would allow Plum Creek to maintain its current status quo management system. We are very familiar with Plum Creek's management of its private lands, both in Idaho and in Montana. Plum Creek has exhibited a high disregard for environmental and community values in its "cut and run" management, which has caused substantial environmental degradation and harm -- including harm to the listed ESA fish species now being considered under the proposed Plum Creek HCP/EIS. Although Plum Creek has proclaimed that there is a new era in its management attitudes, we have not found that to be the case, including in watersheds such as the Lochsa drainage where Plum Creek continues to undertake excessively degrading logging and road building activities.

E12-2 Plum Creek's logging and other operations on its lands have caused increased sedimentation and higher temperatures, as well as loss of woody debris, in numerous streams in Montana, Idaho, and Washington, and thereby have contributed to the decline of salmon, steelhead, and bull trout. Despite Plum Creek being directly responsible for harm to the listed species, the proposed action would forgive these sins of the past, and permit further degradation in the future.

E12-3 In general, the Services are proposing an HCP which essentially allows Plum Creek to continue its operations under existing regulatory mechanisms, defined largely by state forest practices requirements and Plum Creek's own supposed management policies. None of these were designed to maintain or recover threatened species, and they are plainly inadequate to achieve those goals. The Services have not demonstrated that the proposed action will create significant protections for listed fish species over and above existing regulatory requirements. To the contrary, the primary beneficiary of the proposed action is Plum Creek -- not fish.

E12-4 The Services must demand that Plum Creek commit to meaningful conservation measures, including: (1) More significant curtailment of new roadbuilding; (2) imposition of a proactive program to obliterate (not merely abandon) all roads which threaten streams with sedimentation; (3) use of far wider no-activity buffer zones alongside all streams; and (4) halt to logging on all steep slopes and other areas where delivery of sediment to streams is likely.

E12-5 If Plum Creek can not commit to such meaningful conservation measures, then the Services must not approve the proposed exemption from the "take" provisions of the ESA. There simply is insufficient benefit and protection to the listed fish species under the current proposals, while Plum Creek reaps enormous benefits from having its land management and other activities immunized from Endangered Species Act requirements for the next 30 years.

Responses

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Comment	Response
E12-1	1, 270
E12-2	86
E12-3	604
E12-4	49
E12-5	355, 361, 611, 701

Letter E12

SPECIFIC COMMENTS

"No Surprises" Policy Is Invalid

The current administration's "No Surprises" policy for habitat conservation planning is unlawful under the ESA, and the Services' reliance on this policy in approving the proposed HCP and Incidental Take Permit for Plum Creek likewise would be unlawful.

E12-6

The "No Surprises" policy violates the ESA for several reasons, which are beyond the scope of this comment letter to enumerate in detail. Fundamentally, the "No Surprises" policy fails to assure that the protections of the ESA will be available in the future to protect endangered species in light of new information, new or changed threats, further declines in the species, or other events. It thus violates the spirit and letter of the ESA -- which calls for the conservation and recovery of endangered and threatened species -- including, but not limited to, Sections 2(b) & (c), 7(a)(1) & (2), 9, and 10.

The "No Surprises" policy is currently being challenged on several grounds in the U.S. District Court for the District of Columbia. Those challenges may well go to the U.S. Supreme Court before final resolution. At a minimum, we believe it is plainly inappropriate for the Services to rely on such a disputed policy here, before these challenges are resolved.

Application of "No Surprises" Policy Would Violate The ESA

Moreover, even if the "No Surprises" policy is upheld on its face after court challenges, the Services' application of that policy here would be unlawful under the ESA. Most fundamentally, application of the "No Surprises" policy here, through the proposed Plum Creek HCP and Incidental Take Permit, will reduce the likelihood of survival and recovery of the listed fish species.

E12-7

The HCP and Incidental Take Permit would violate several ESA requirements, including that federal agencies (such as the Services in acting to approve the HCP/Incidental Take Permit) must "conserve" listed species, under ESA Section 7(a)(1); and federal agencies must avoid "jeopardizing" listed species, under ESA Section 7(a)(2).

Moreover, application of the "No Surprises" policy to issue the HCP and Incidental Take Statement here to Plum Creek would violates Section 10 of the ESA. Section 10 establishes several requirements before an Incidental Take Permit may be issued to shield a party from liability for "taking" under ESA Section 9. See 16 U.S.C. § 1539(a).

First, to obtain an incidental take permit, a conservation plan must specify:

(a) the impact which will likely result from such taking;

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E12-6	359
E12-7	50

Letter E12

(b) what steps the applicant will take to minimize and mitigate such impacts, and the funding that will be available to implement such steps;
(c) what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized; and
(d) such other measures that the Secretary may require as being necessary or appropriate for purposes of the plan.

16 U.S.C. § 1539(a)(2)(A). Second, the Services may only allow the proposed take upon finding that:

(a) the taking will be incidental;
(b) the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking;
(c) the applicant will ensure that adequate funding for the plan will be provided;
(d) the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and
(e) the measures [required as necessary or appropriate] by the Secretary will be met.

See 16 U.S.C. § 1539(a)(2)(B); 50 C.F.R. § 17.22(b).

E12-7

Here, the Plum Creek "conservation plan" fails the requirements of Section 10(a)(2)(A) in multiple respects, as identified in more detail in the comments submitted by Earthjustice Legal Defense Fund and other conservation groups. The proposed conservation plan does not identify, most critically, the scope of the "taking" by Plum Creek and the impact which likely result from such taking.

Moreover, the Services in proposing to issue the HCP and Incidental Take Permit for Plum Creek have failed to fulfill virtually every requirement of Section 10(a)(2)(B) as well. Most importantly, the Services have failed to ensure that the applicant "will, to the maximum extent practicable, minimize and mitigate the impacts of such taking," and that the "taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild."

Indeed, the Services' failure to ensure that incidental taking is minimized to the maximum extent practicable is demonstrated by the fact that the Services have not even required Plum Creek to adhere to INFISH/PACFISH standards, which the Services have previously deemed the minimum requirements necessary to protect listed native and anadromous fish from land management activities on federal lands in the region. Even these measures are probably not sufficient to minimizing incidental take to the maximum extent practicable; but they have been recognized by the Services as an interim step toward that goal with respect to federal land management. Where Plum Creek's lands are frequently located in a "checkerboard" pattern amid federal lands subject to INFISH/PACFISH, it is obvious that the same standards should apply; and use of the "No Surprises" policy to insulate Plum Creek from ESA liability based on

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the inadequate conservation measures of the proposed HCP plainly violates Section 10.

Moreover, also in violation of ESA Section 10(a)(2), application of the "No Surprises" policy here would give Plum Creek a 30 year Incidental Take Permit without adequate assurance that salmon, steelhead and bull trout will be protected from further declines as a result of both Plum Creek and other private, state, and federal activities. The scientific understanding about the needs of, and threats to, these species is growing rapidly as researchers study these fish. What may be deemed adequate today to protect the fish and their habitat may be revealed tomorrow as inadequate in critical respects. Likewise, the status of the listed fish may continue in its downward path as a result of numerous threats, requiring even more stringent protective measures in the future than are deemed necessary today. Again, a clear example is the federal INFISH/PACFISH measures, discussed below, which are only intended as "interim" protections for listed native and anadromous fish species, yet Plum Creek is not even being required to meet those standards for the life of the 30 year permit.

E12-7

Another specific example may help illustrate how application of the "No Surprises" policy here would violate the ESA. The proposed action would authorize the new construction of 1,300 miles of new road – the same amount as proposed under the "no action" alternative. Table 3.3-1. We recognize that under the proposed action, Plum Creek would abandon or upgrade 2 miles of existing road for every mile built. However, new roads, as well as abandoned and upgraded roads, still pose a great risk of landslides, slumping, and other sediment delivery to streams, which are well recognized to degrade habitat and cause "take" of the listed species through disruption of essential behavior for survival, including breeding, overwintering, and sheltering from predators. The Clearwater National Forest – in which Plum Creek holds "checkerboard" private lands in the Lochsa drainage – found in its review of hundreds of landslides which occurred in 1995-96 on national forest lands that 70% of all slides were related to management activities, including 59% from roads. The study further was unable to distinguish between "old" versus "new" roads as a source of landslides and sedimentation. See McClelland et al, "Assessment of the 1995-96 Floods and Landslides on the Clearwater National Forest, Part I," (USFS, Region X, Dec. 1997). These findings point to the continuing threat which both "new" roads and even abandoned roads pose in terms of catastrophic landslide risks, and sedimentation impacts to water quality and fisheries habitat.

At a minimum, the current scientific understanding thus shows that new road construction must be significantly curtailed, and existing roads proposed for abandonment under the HCP instead should be obliterated to remove risk of failure and sedimentation. It is very likely that even more stringent measures to protect streams from road impacts will be required during the next 30 years; yet the current HCP and Incidental Take Statement would insulate Plum Creek from having to satisfy such scientific requirements under the "No Surprises" policy.

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Comment Response

Letter E12

INFISH/PACFISH Standards Should Form the Minimum Level of Protection

As indicated above, the Services have violated the ESA by not requiring, as a minimum level of riparian protection to assure against adverse habitat destruction or unnecessary harm to the listed species, the INFISH/PACFISH standards. Again, §10 of the ESA requires that anticipated takings must be minimized and mitigated "to the maximum extent practicable," which the proposed HCP/Incidental Take Permit will not satisfy. 16 USC §1539(a)(2)(B)(ii).

Although INFISH/PACFISH do not represent the "maximum extent" of practicable protections for the listed fish, they certain represent the minimum requirements which the Services have previously determined necessary for land management practices that may affect the listed species and their habitat. Indeed, the INFISH/PACFISH measures were adopted by federal land managers, with the approval of the Services, as the minimum requirements deemed necessary, on an interim basis, to protect the listed anadromous and native fish from harmful impacts resulting from land management activities, including logging and road construction/reconstruction. It still is unknown whether these standards are sufficient to maintain existing populations of listed fish species -- much less recover populations to viable levels.

E12-8

Where INFISH/PACFISH were deemed minimum necessary requirements to protect the listed species five years ago by the Services, it is arbitrary and capricious for the Services now to fail to require Plum Creek to likewise adhere to these requirements, as federal land managers must do.

It bears noting that state law-imposed standards (such as the Idaho Forest Practices Act) do not even approach the protections of INFISH/PACFISH, and are plainly inadequate under the ESA. The Services' proposed reliance on State standards as the starting point of stream protection is thus unjustified to maintain and recover listed fish.

INFISH/PACFISH standards must be used as the starting point for protecting the listed species during the life of any HCP and Incidental Take Permit; and as noted above, even these measures may not be adequate over the 30 year permit life.

If Plum Creek is unwilling to abide by INFISH/PACFISH minimum requirements, then the Services must decline to approve the requested HCP and Incidental Take Permit.

Failure To Consider INFISH/PACFISH Violates NEPA

E12-9

It also violates NEPA for the Services to simply exclude consideration of an alternative requiring INFISH/PACFISH standards.

NEPA requires consideration of a full range of alternatives. 42 U.S.C. 4332(2)(F); 40 C.F.R. 1502.14; Citizens for a Better Henderson v. Hodel, 768 F.2d 1051 (9th Cir.

Responses

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E12-8	32, 552
E12-9	187

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1985); Bob Marshall Alliance, 852 F.2d 1253 (9th Cir. 1988); California v. Block, 690 F.2d 753 (9th Cir. 1982). An agency may not define the "purpose and need" of an action so narrowly as to unreasonably restrict the range of alternatives considered. Muckleshoot v. USFS, 177 F.3d 800 (9th Cir. 1999).

Here, the Services' reliance on Plum Creek's unilateral refusal to adhere to INFISH/PACFISH standards is arbitrary and capricious for several reasons. For one thing, it appears that the Services have simply accepted, at face value, Plum Creek claims that no "prudent" business manager would agree to "set aside" private lands under the INFISH/PACFISH standards; and that it would be uneconomical for Plum Creek to follow INFISH/PACFISH. However, Plum Creek has not demonstrated itself to be a "prudent" business manager in its past cut-and-run treatment of private lands in western Montana and Idaho; and neither have the Services evaluated Plum Creek's economic prospects if it continues to "manage" its private lands in violation of ESA Section 9's prohibition of "take." **E12-9**

Neither is it credible to assert that land management has become "uneconomical" under INFISH/PACFISH requirements, as Plum Creek seems to assert and the Service to accept. National forests and BLM lands in the Pacific Northwest continue to generate timber sales, which private industry is buying, under the INFISH/PACFISH standards. The day is long past when Plum Creek can claim a right to clearcut its private lands down to the streams (or down to the ridiculously narrow buffers required under laws like the Idaho Forest Practices Act). And the day is long past when Plum Creek can claim a right to build roads which bleed sediment into fish streams, particularly when its lands are closely intermingled with public lands.

Accordingly, at a minimum, the Services must consider and thoroughly explore an alternative based on the INFISH/PACFISH standards.

In summary, we urge the Services to deny the requested HCP and Incidental Take Permit for Plum Creek's management of private lands in Idaho, Montana and Washington. At a minimum, the Services must fully explore application of INFISH/PACFISH standards in any HCP/take permit. **E12-10**

Very truly yours,

Laird J. Lucas
Senior Staff Attorney

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E12-10	1

Letter E13

Author: Larry McLaud <lmclaud@moscow.com> at FWS
Date: 3/17/00 9:05 AM
Normal
BCC: Ted Koch at IPO-ESBO1
TO: Ted_Koch@mail.fws.gov at FWS
CC: josborn@landscouncil.org at FWS, jmccarthy@wildidaho.org at FWS, lawfund@rmci.net at FWS, foc@wildrockies.org at FWS
Subject: Plum Creek HCP
---------- Message Contents

March 17, 2000

Mr. Ted Koch, Project Manager
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, ID 83709

Sent via e-mail to: Ted_Koch@mail.fws.gov

Mr. Koch,

Please accept my comments on the DEIS for the Plum Creek Native Fish Habitat Conservation Plan on behalf of Idaho Conservation League and Friends of the Clearwater. These comments are in addition to comments made by the Land and Water Fund on our behalf.

Most of our comments will be focused on Plum Creek land holdings in the Lochsa River watershed. We realize that this is a small part of the whole area of impact but it is the area we are most familiar with and it is in Idaho. Many of my comments could be applied to the other areas of impact if they have similar characteristics.

E13-1 The base line data of native fish Idaho is incomplete and makes decisions about maintaining populations harder to make. The ICBEMP data on native fish done before the 1995-1997 mudslides is clearly outdated. Populations of native fish including salmon, steelhead, bull trout and westslope cutthroat trout were likely to be adversely impacted by the mudslide events that are not reflected by data used for this study. Data from Plum Creek is missing in regards to mudslides on Plum Creek land and impacts from those slides. The Forest Service did not inventory slides on state or private lands.

E13-2 The ICBEMP data shows the bull trout populations in watersheds directly impacted by Plum Creek land as depressed or no classification. There is no estimation of "fully functioning" populations for this area of impact so judging impacts on native fish is based on present fish populations and present habitat conditions. This is a weakness in the DEIS. Past harm and loss due to Plum Creek's activities is not disclosed.

E13-3 Critical habitat for threatened and endangered species of fish has not been set so there is no estimate on how important this area of impact is on the recovery or maintenance of each species. The headwaters of the Lochsa River may be very important to the long- term survival of native fish in Idaho.

Responses

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E13-2	246
E13-3	154

Letter E13

E13-4 Five of the six tier 1 sub-watersheds in the Lochsa area are on EPA's degraded stream list. No TMDL has been done for any of these streams, therefore no HCP should be finalized until the TMDL's are complete. Impacts on the Lochsa River, which is also on the 303d list, have not been adequately assessed. Also there is no TMDL done for the Lochsa River even though the state was to have completed this in 1999.

E13-5 A concern we have is the HCP will become a standard for other landowners in the watershed. We realize than the standard of protection for federal lands is higher than for Plum Creek land. If the FWS accepts this plan, then all others will see this as good enough for them (private lands). The Forest Service will use the HCP as a starting point for protection needed for federal lands. This is dangerous. If the bar is set too low it will cause future problems in native fish management

E13-6 The HCP is using the Best Management Practices (BMP) of the State of Idaho as a starting point to define protection. This is dangerous because the BMP's are inadequate and create a very low starting point. Reference streams used by the State to measure present conditions are in poor shape and have degraded habitat. Evidence of problems with the BMP's can be seen in the listings of threatened species in Idaho (loss of native fish populations) and by the mudslides of 1995-1997 that were over 70% related to roads and logging (see Forest Service study). The BMP's are not evaluated using wild native fish population data.

E13-7 Past destruction by Plum Creek has not been factored into future management. It is important that Plum Creek accepts some responsibility of poor land management in the past that adversely impacted native fish. Forgetting the history and accepting present conditions, in effect, forgives Plum Creek for past losses of native fish. Mitigation of road damage is a step in the right direction but doesn't begin to right the wrongs of past management. Roads alone are not the only problem. Clearcutting is clearly responsible for many ills brought on wild fish.

E13-8 The wild native fish are in trouble in the Lochsa River basin. Although the Lochsa River presently supports a good population of westslope cutthroats in part of the river system, there are many threats and problems in the watershed. Colt Killed Creek is holding the Lochsa together in terms of supplying clean water to the system. Plum Creek and the Forest Service degrade Crooked Fork from years of abuse, although it may be slowly improving. Future cutting plans could send the Lochsa over the edge. The native fish (bull trout, steelhead and salmon) numbers are declining due to a number of factors including poor forest management in the past by Plum Creek and the Forest Service. It is too late to embrace small marginal changes in management, as time will run out before populations can be recovered. This proposed HCP will likely improve habitat only slightly, not enough for positive long-term gains.

E13-9 If the Walton Creek cut is a good example of Plum Creek's new forestry, then we can expect more declines in wild native fish. Clearly there will be adverse impacts from that cut. I predict in the next 20 years there will be a mudslide related to that activity and will directly impact Walton Creek and produce sediment into the stream which will adversely impact native fish.

E13-10 The road on the west side of Walton Creek will very likely to fail even if "put to bed" or abandoned, and will compromise native fish habitat and lead to a take of a threatened species, bull trout.

E13-11 The Walton Creek cut is a good example of what will harm wild fish. Given the steepness and highly erodable soils in the area, it is very possible a

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E13-4	809
E13-5	90
E13-6	604
E13-7	51
E13-8	77
E13-9	481
E13-10	481
E13-11	482

Letter E13

E13-11 300 foot buffer would not be enough. I have photos showing a mudslide on the North Fork of the Clearwater River that went through 1,000 foot buffer and still did not stop sediment from ending up in the River. The steepness and soils are very similar to Walton Creek.

E13-12 The impacts on the streams, fish and other wildlife cannot be much different from the ways of old. This style of management will continue to push further declines of our wild fish. We need to see MAJOR changes in forest management before we can accept an HCP based on present Plum Creek conditions.

E13-13 The range of alternatives is too narrow. In addition to the present alternatives, we would like to see a "conservation biology" alternative, which would analyze a restoration alternative that could be compared to the present proposed alternative. Other alternatives could include decreasing road density, increasing no-cut buffer zones along streams and a ban on clearcutting.

E13-14 Mike Jostrom, Plum Creek's native fish project manager, said the conservation plan will provide the company with "greater certainty" in the long-term management of its timberland. "With an HCP (habitat conservation plan), we can look for ways to make conservation compatible with our business," he said. "We can avoid surprises." We would like to see an alternative that provides "greater certainty" of the long term survival of wild native fish. We want to "avoid surprises" to the viability of wild native fish populations that are compatible with a healthy ecosystem.

E13-15 As provided for in the Endangered Species Act, a habitat conservation plan is an agreement between the federal government and a private landowner under which the landowner is allowed to occasionally "take" or harm a species listed as threatened or endangered in exchange for a commitment to conserve the species over the long term. We don't believe this proposed HCP will do this.

E13-16 All roads no longer needed by Plum Creek will be identified and abandoned. The company has 20,000 miles of roads across its fish-habitat acreage. This road density is way too high, especially in Idaho. There needs to be a commitment to building no new, or very few new roads.

E13-17 If Plum Creek wants to sell land in some critical conservation areas, the sale must include a specified set of land-use restrictions, particularly near streams.

E13-18 Without a habitat conservation plan, Plum Creek would be subject to restrictions imposed by the federal government as part of its recovery plan for individual fish species. This might be more effective in conserving wild native fish than issuing an HCP.

E13-19 The emphasis must remain on recovering healthy fish populations, said Anne Badgley, regional director of the U.S. Fish and Wildlife Service. "Native fish habitat on Plum Creek land must be in better condition tomorrow than it is today." Badgley said government biologists insisted that the plan be based on "the four C?s" of habitat salmonids: cold stream temperatures, clean water, complex in-stream habitat diversity and connectivity (between different subpopulations of native fish). This is not good enough! Having "better conditions" is a step in the right direction but actual recovery of native fish populations should be the bottom line. The HCP is heavy on changing practices but light on monitoring actual wild native fish populations, this needs to be reversed.

E13-20 We don't want to see anything that would further fragment fish habitat. By not having critical habitat designated, fragmentation is not assured by

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E13-12	155
E13-13	188
E13-14	173
E13-15	1
E13-16	414
E13-17	779
E13-18	113
E13-19	52
E13-20	111

Letter E13

E13-20 this plan.

E13-21 Unrestricted land sales will be capped at 8 percent of the company's land base. A point system is being devised that will allow the company to sell more, but sales above the cap must be mitigated by conservation land sales, or conveyances of conservation easements. There needs to be a per cent limit of land sold near streams. The most valuable land is near streams but also the most important land for fish is near streams. Add a clause that limits land sales to 50% of the land within 300 feet of a stream and no more than 50% in one single watershed, such as the Lochsa.

E13-22 Road management will be a big item. Plum Creek manages 13,000 miles of its own roads, as well as another 7,000 of cost share roads. The company is agreeing to upgrade its road system to reduce sediment contributions. The existing effects analysis in the HCP means the company may abandon some 1,200 miles. However, it also plans on building approximately another 900 miles. The Lochsa watershed should not have any new roads and roads should not be "abandoned" but obliterated.

E13-23 Riparian management for timber is too weak for places like the Lochsa watershed. Given the highly erodable soil and steepness of the land, less timber harvest should be allowed in riparian zones.

E13-24 There is no conservation commitment that changes existing timber management in upland areas. Science shows that land management away of streams still impacts streams. For example, clearcuts will greatly change the runoff patterns in the spring that can greatly adversely impact wild native fish. A percent of canopy left after logging needs to be included in this plan.

E13-25 Does a road upgrade in one drainage containing, say, bull trout, allow the company to build more road in another occupied drainage, and how do you determine that the net effect is indeed overall improvement?

E13-26 Adaptive management criteria for re-opening terms of agreement needs work. How "occupied" and "unoccupied" habitat have been identified? How will riparian management in lower-order unoccupied streams contributing to occupied streams be handled? How do all the commitments work in concert across a network of watersheds so that "improvement" for species can be determined. How much improvement is enough?

E13-27 "Site specific" analysis for buffer zones that might merit more protection in the Lochsa area are needed due to the high probability of problems related to logging. Past history shows on-going problems of temperature, sediment and loss of wild native fish populations.

E13-28 There are no road density limits in the HCP. This is of major concern in the Lochsa area because densities are already too high, over 1 mile per square mile. ICEBMP analysis reveals that once road densities exceed 1 mile per square mile, fish populations plummet.
Road densities would be a far better indicator for assessing impacts than trying to monitor sediment delivery to streams. Most of the damage done is during high water events, such as rain-on-snow events, when no one is there to monitor.

E13-29 This HCP would cover 5,000 miles of perennial and intermittent streams (3,200 miles of intermittent non-fish bearing streams), several miles in the Lochsa watershed. There is very little commitment in the HCP by way of buffers for intermittent, headwater streams that impacts down stream conditions. The HCP is inadequate to protect these streams.

E13-30 Funding for monitoring needs to be written into the HCP. If the FWS signs

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E13-21	796
E13-22	439
E13-23	483
E13-24	251
E13-25	433
E13-26	700
E13-27	510
E13-28	417
E13-29	1
E13-30	320

Letter E13

E13-30 this HCP and talks away from any future commitment there is likely to be problems for wild native fish. The federal government's record of funding for monitoring is poor, so Plum Creek needs to fund monitoring with oversight from an independent source. A commitment to hire a full-time person, stationed in western Montana, to review monitoring reports and work with Plum Creek on adaptive management is not good enough. Spot checks by someone other than Plum Creek need to be funded.

E13-31 The HCP should include an estimate of "the take." That is, how many fish or how much corresponding habitat, is currently being harmed by PC activities, and how much will be "incidentally" harmed under the HCP? It is essential to determine whether the company is proposing improvements that significantly change the current situation.

E13-32 The HCP doesn't provide sufficient information demonstrating conclusively that PC's proposal, in the language of the HCP regulations, "minimizes and mitigates the impacts of incidental take to the maximum extent practical". Without providing an estimate of the existing take, it's impossible to determine how the HCP can minimize it.

E13-33 The HCP concludes that if spawning and rearing habitat for bull trout is protected, other species will be equally protected. But other species, such as westslope cutthroats, have different habitat needs than bull trout. For example, cutthroats use headwater streams more extensively. And headwater streams are being afforded much less protection in the plan than areas where bull trout spawn. Thus, using bull trout spawning and rearing habitat as a habitat indicator for other species is inadequate. Getting habitat-fish species relationships right is important because the plan includes no fishery inventory data, which is a major weakness of the HCP. To minimize harm to cutthroats, the HCP should include additional protective measures, such as protective buffers of at least 100 feet along headwater streams, both perennial and intermittent, as well as sediment reduction features for roads. Unless the HCP and take permit contains some species-specific conservation measures, it shouldn't be allowed to cover the 17 fish proposed.

E13-34 Two critical limiting factors for native fish conservation are overwinter habitat and woody debris recruitment. Overwinter habitat is affected by how much riparian vegetation is available for temperature insulation. Not enough streamside vegetation can cause icing in streams, which reduces habitat. Woody debris is important for hiding cover, pool formation and trapping sediment. Logging in stream zones affects both these habitat elements. The HCP should include more commitments for leaving all larger trees along streams. As proposed, it focuses mainly on leaving the number and size of trees required by streamside management law, which was not developed scientifically. The HCP should have larger buffers for streams, especially buffers for smaller headwater streams critical for cutthroats and downstream water quality.

E13-35 When triggers are exceeded, the agency should be able to order changes without having to argue statistics or "biological relevance." A set of "what happens if" directions should be included in the HCP.

E13-36 Please do not approve the HCP and take permit unless the proposal is
E13-37 modified significantly (see above comments). If this HCP is approved without major improvements, it will establish the wrong precedent for other private and state forest land owners.

E13-38 The public is being asked to gauge the costs and benefits of granting Plum Creek this HCP. Past evidence of the effectiveness of HCP's shows overall poor results. Although this HCP is somewhat different than past HCP's, it is unlikely to be much more effective. Our wild native fish deserve much

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E13-31	105, 109
E13-32	109, 375, 377
E13-33	208
E13-34	511
E13-35	611
E13-36	1
E13-37	90
E13-38	1

Letter E13

E13-38 better protection from human development than is presently included in this proposed HCP.

Thank you for the opportunity to comment on this proposal.

Sincerely,

Larry McLaud

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter E14

Author: Lynne Stone <lstone@micron.net> at FWS
Date: 3/17/00 1:28 PM
Normal
BCC: Ted Koch at 1PO-ESBO1
TO: ted_koch@fws.gov at FWS
Subject: Plum Creek DSEIS Habitat Conservation Plan
---------- Message Contents

Dear Ted:

We wish to comment on Plum Creek Timber Company's Habitat Conservation Plan for 1.7 million acres of their land in Montana, Idaho and Washington.
This would allow the "incidental take" of eight fish species federally listed as threatened as well as nine more unlisted species of native salmonids. The threatened species are bull trout, Snake River steelhead, Mid-Columbia River steelhead, Lower Columbia River steelhead, Snake River spring/summer chinook salmon, Snake River fall Chinook Salmon, Lower Columbia River chinook salmon and Columbia River chum.

We have these concerns with the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan for Plum Creek Timber Company Lands.

E14-1 Takings - The document does not adequately describe "take" and how Plum Creek practices will actually "take" fish.

E14-2 Stream Buffers - There needs to be a commitment by way of buffers for ALL streams, especially headwaters streams. Protection of perennial and intermittent non-fish bearing streams is essential for protection of water quality and temperature.

E14-3 Groundwater - The HCP fails to address the issue of how upland timber harvests will affect groundwater flows. Recent science shows that Bull trout in particular are very dependent on cold, clean groundwater as part of their habitat needs.

E14-4 Watersheds - A complete analysis of the habitat requirements of the 17 species is lacking from the HCP, without such an analysis it is impossible to assess if the plan will provide adequate protection.

E14-5 Road densities - The HCP fails to require Plum Creek to enforce road density limits. Current science shows that once road densities exceed 1 mile per a square mile, fish populations plummet. Over 1,300 acres of road are predicted, not including skidder trails over the next ten years. The cumulative effects of this construction are not addressed.

E14-6 Management - The plans for adaptive management are written such that it will be nearly impossible to increase protective measures once the permit is issued.

E14-7 Monitoring - The monitoring Proposals in the HCP are scientifically weak. USFWS needs to make a strong commitment to monitoring. Much of the monitoring in the proposal is self monitoring by Plum Creek.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E14-1	105, 109
E14-2	534
E14-3	252
E14-4	211
E14-5	418
E14-6	622
E14-7	319, 630, 665

Letter E14

E14-7 Quality Control - The HCP lacks a credible amount of quality control to ensure that the weak standards set forth in the current HCP are met.

E14-8 Large Woody Debris -The HCP fails to account for the importance of woody debris and it's recruitment as part of quality habitat. Winter habitat is also not adequately dealt with.

E14-9 Length of Agreement - It is poor judgment to approve a controversial plan with unclear results for such a long time (30 years). The permit should be reviewed at least every year.

E14-10 In addition USFWS should demand that Plum Creek engage in meaningful conservation measures including:

1. Significant curtailment of new roadbuilding.
2. A proactive program to obliterate all roads which threaten streams with sedimentation.
3. Use of far wider no-activity buffer zones alongside all streams.
4. Halt logging on steep slopes and other areas where delivery of sediment to streams is likely.

Sincerely,

Lynne Stone, Boulder-White Clouds Council, Box 6313, Ketchum, ID 83340

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E14-8	590
E14-9	281
E14-10	53

Letter E15

Responses

See Response to Comment Table or click on link provided below.

Comment Response

EARTHJUSTICE
LEGAL DEFENSE FUND

BOZEMAN, MONTANA DENVER, COLORADO HONOLULU, HAWAII
JUNEAU, ALASKA NEW ORLEANS, LOUISIANA SAN FRANCISCO, CALIFORNIA
SEATTLE, WASHINGTON TALLAHASSEE, FLORIDA WASHINGTON, D.C.

Mr. Ted Koch
U.S Fish & Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, ID 83709

March 17, 2000

Dear Mr. Koch:

On behalf of The Lands Council and American Wildlands, Earthjustice Legal Defense Fund submits the following comments on the Native Fish Habitat Conservation Plan and Incidental Take Permit for Plum Creek Timber Company, and the Draft Environmental Impact Statement thereon ("Draft EIS").

A. Introduction

The U.S. Fish and Wildlife Service and National Marine Fisheries Service (collectively, the "Services") propose issuing an incidental take permit ("ITP") to Plum Creek Timber Company, Inc. ("Plum Creek"), based upon Plum Creek's Native Fish Habitat Conservation Plan ("NFHCP") for approximately 1.7 million acres of Plum Creek's lands in Montana, Idaho, and Washington. Issuance of the ITP would violate the Endangered Species Act, 16 U.S.C. §§ 1531-1534 ("ESA"), as set forth below.

B. The Endangered Species Act Framework

The ESA was enacted in order to "provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved, [and] to provide a program for the conservation of such endangered species . . . ." 16 U.S.C. § 1531(b). The statute seeks to achieve such conservation by enjoining the Services to identify and list as "endangered" those species that are "in danger of extinction throughout all or a significant portion of its range," and as "threatened" species that are "likely to become an endangered species within the foreseeable future throughout all or significant portion of its range." 16 U.S.C. §§ 1532(6) & (20). Upon listing, the Services must designate the species' critical habitat. 16 U.S.C. § 1533.

1. Protections Afforded Listed Species

The ESA requires the Services to develop recovery plans for listed species, 16 U.S.C. § 1533(f), and provides a series of legal protections designed to conserve such species and promote such recovery. Among those protections is a general prohibition on "take" of endangered species, which the Services may by regulation extend to threatened species. 16 U.S.C.

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Responses

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Comment Response

1538(a)(1)(B). That prohibition, contained in Section 9 of the ESA, forbids not only direct harm or harassment, but also activities resulting in "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering." 50 C.F.R. § 17.3. Unless specifically allowed by an incidental take statement or permit, Section 9 precludes "incidental taking" as well, defined as "any taking otherwise prohibited, if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful act." 50 C.F.R. § 17.3.

Section 7 of the ESA further requires that all federal agencies ensure that their actions are not likely to jeopardize the continued existence of any listed species or result in the adverse modification of those species' critical habitat. 16 U.S.C. § 1536(a). By demanding that the Services provide a formal analysis and biological opinion on any agency action that could affect a listed species, Section 7 provides a specific mechanism to assure that agency action conforms to this standard. 16 U.S.C. § 1536(b).

2. Permits Allowing Incidental Take

Under limited circumstances, described in Section 10 of the ESA, the Services may issue a permit excepting an incidental take from Section 9's general prohibition. 16 U.S.C. § 1539(a). To obtain an incidental take permit, an applicant must submit a "conservation plan" specifying:

(i) the impact which will likely result from such taking;

(ii) what steps the applicant will take to minimize and mitigate such impacts, and the funding that will be available to implement such steps;

(iii) what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized;

(iv) such other measures that the Secretary may require as being necessary or appropriate for purposes of the plan.

16 U.S.C. § 1539(a)(2)(A).

The Services may only allow the proposed take upon finding that:

(i) the taking will be incidental;

(ii) the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking;

(iii) the applicant will ensure that adequate funding for the plan will be provided;

(iv) the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and

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(v) the measures [required as necessary or appropriate] by the Secretary will be met.

16 U.S.C. § 1539(a)(2)(b). See also 50 C.F.R. § 17.22(b).

Section 10 of the ESA thus provides a mechanism where, under certain statutorily limited circumstances, the Services may approve incidental take of a listed species. The Services propose to issue a permit to Plum Creek under these provisions, based upon the the NFHCP.

C. The Plum Creek NFHCP Fails to Specify the Incidental Take or Impact Authorized By the Proposed Permit

E15-1

The ESA demands that Plum Creek's NFHCP specify both the incidental take for which Plum Creek seeks exemption, as well as "the impact which will likely result from [the] taking." 16 U.S.C. § 1539(a)(2)(a). The NFHCP and Draft EIS disclose neither the take to be authorized by the proposed ITP nor its impact.

1. The NFHCP Fails to Specify the Impact of the Authorized Take on Covered Species

Plum Creek seeks the Services' permission to take members of 17 salmonid species that are either currently listed under the ESA, or could be listed within the life span of the permit. Plum Creek does not, however, describe the take for which it desires a permit, stating only: "Although Plum Creek believes its activities would not result in 'take,' Plum Creek does acknowledge that some of its management activities can affect fish habitat. . . . [T]hose impacts are described in Chapter 4 of the EIS." NFHCP pp.1-4, 1-18.

As an initial matter, the Services' estimate of anticipated impacts in the Draft EIS does not substitute for inclusion of those impacts in the NFHCP. Only the NFHCP is explicitly incorporated into Plum Creek's obligations under the proposed Implementing Agreement ("Implementing Agreement"). Implementing Agreement at ¶ 4.1. In contrast, Plum Creek makes no commitment, either in the NFHCP or the Implementing Agreement, to adhere to the Services' estimate of impacts in the Draft EIS.

E15-2

More importantly, the Draft EIS itself lacks an adequate description of the impact of the take. The Services offer only a comparative discussion of mitigation commitments under the four alternatives considered in the Draft EIS, with no corresponding discussion of the impacts of the take that are the subject of mitigation. Accordingly, while the Services note the impact of those mitigation commitments, they fail to describe the impact of the take itself. See 16 U.S.C. § 1539(2)(A)(1) (plan must describe "the impact which will likely result *from such taking*") (emphasis added).

In setting forth the impacts of the NFHCP the Services state only:

> Overall, habitat conditions for native salmonids in Project Area streams would improve to a greater extent under the NFHCP than the No Action Alternative. Compared to other alternatives, the NFHCP is expected to result in the greatest reduction in sediment delivery, the most attention to connectivity problems, the most attention to non-native species, the most concentrated attention to important

Responses

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Comment	Response
E15-1	105, 109
E15-2	105, 109

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native fish assemblages, and a higher average canopy closure after 30 years than the No Action alternative.

Draft EIS at 4-192.

E15-2 The Services' discussion of the "impacts" of the NFHCP is thus entirely limited to a comparison of the relative merits of identified mitigation measures. Nowhere do the Services set out the corresponding detrimental impacts allowed under the NFHCP – that is, the effects of the take for which Plum Creek seeks permission. That failure violates the ESA and its implementing regulations, which explicitly require an estimate of the impact of the take upon listed species. 16 U.S.C. § 1539(2)(A)(1); 50 C.F.R. § 17.22(b).

2. The NFHCP Does Not Include a Complete Description of the Permitted Activities.

The NFHCP, moreover, contains no complete description of the activities that might result in incidental take under the proposed ITP and NFHCP. The Draft EIS and NFHCP list a series of "Activities to Be Covered Under the Permit." E.g., Draft EIS at 2-11. Those activities and their effects, however, are stated in the most generic terms, for example: "Plum Creek uses even-aged and uneven-aged timber harvesting methods in riparian and upland habitat types of the Project Area." Draft EIS at 2-13.

E15-3 Most critically, Plum Creek and the Services fail to provide any limitations on the management activities permitted by the proposed ITP and NFHCP. In describing timber harvest, for example, the NFHCP offers no limit on the extent of harvest that would be authorized, stating only that it will "[m]aintain a cost-effective production level while meeting state and federal safety guidelines." Draft EIS at 2-14. Similarly, with regard to new road construction, Plum Creek states only that it "expects to construct an estimated 1,300 miles of road during the 30-year term of the NFHCP." NFHCP at 2-1. A binding commitment to limit new road construction to this level is, however, conspicuously absent from the NFHCP or Implementing Agreement. The other "Activities" that would be covered in the requested ITP are similarly unlimited; while the manner in which logging, road construction, and grazing would be conducted is set out, the maximum extent of such activities to be conducted on Plum Creek's lands is not.

Without information as to both the degree and type of activities permitted, the Services cannot know the take they are asked to authorize, or the impact of that take on the affected populations. Lacking such knowledge, the Services cannot issue a permit exempting those virtually unlimited and unspecified activities from the ESA. 16 U.S.C. § 1539(a)(1)(B) (Services may permit "any *taking* . . . if such *taking* is incidental to . . . the carrying out of an otherwise lawful activity") (emphasis added); 16 U.S.C. § 1539(a)(2)(A) ("No permit may be issued . . . unless the applicant therefore submits a conservation plan that specifies – (i) the impact which will likely result from such taking"); 16 U.S.C. § 1539(a)(1)(B) (to approve permit, Services must find that "the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild.").

Responses

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Comment	Response
E15-3	228

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Responses

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Comment	Response
E15-4	377

D. The Plum Creek HCP Fails to Mitigate and Minimize the Take to the Maximum Extent Practicable.

Plum Creek's proposed NFHCP will not minimize and mitigate the impact of the permitted take "to the maximum extent practicable," as it must to support the requested ITP. 16 U.S.C. § 1539(2)(A)(2). See Sierra Club v. Babbitt, 15 F. Supp. 2d 1274, 1283 (S.D. Ala. 1999) (incidental take permit requires agency finding that take will be mitigated "to the maximum extent practicable").

As an initial matter, without disclosure of the anticipated take, the impacts of the permitted take, or the boundaries of the activities resulting in a possible take, the Services cannot measure the NFHCP's proposed mitigation measures against the standard established by the ESA: whether that take will be mitigated "to the maximum extent practicable." Any such measurement must begin with a description of the permitted take and its anticipated impacts. The NFHCP, as set forth in the preceding section, lacks such a description.

That absence to one side, Plum Creek's own description of its proposed mitigation measures indicates a refusal to minimize and mitigate its take "to the maximum extent practicable." See Biodiversity Legal Foundation v. Babbitt, 146 F.3d 1249, 1254 (10th Cir. 1998) ("[T]he phrase 'to the maximum extent practicable' 'imposes a clear duty . . . to fulfill the statutory command to the extent that it is feasible or possible.") (citation omitted).

E15-4

Rather than devising mitigation measures that fulfill the ESA's requirement that any take be mitigated to the maximum extent possible, the NFHCP explicitly makes mitigation subordinate to Plum Creek's "business goals." NFHCP at p. 1-9. Indeed, the Draft EIS admits that:

> While the suite of specific NFHCP conservation measures is expected to create *improving* habitat conditions for Permit species, there is some uncertainty associated with the adequacy of sediment reduction and riparian buffer commitments, and grazing, land use planning, and legacy and restoration commitments in meeting the conservation needs of all Permit species. . . . A different approach to conservation planning would be to require such high levels of conservation commitments from Plum Creek up front in the Plan that there is very little uncertainty whether biological goals would be met . . . . However, Plum Creek has indicated that they would not be interested in a permit under this alternative *for business* . . . .

Draft EIS at 4-187 (emphases added). The Services and Plum Creek thus openly eschew maximum minimization and mitigation commitments, not because those commitments are impossible or infeasible, but simply because they would not serve Plum Creek's business interests.[1]

---

[1] While the Services claim that the "adaptive management" provisions of the NFHCP compensate for this uncertainty, those provisions include only Plum Creek's commitment to respond to "foreseeable" circumstances, and to implement responses that

Letter E15

E15-4

"Practicable" means "possible," not "profitable." Black's Law Dictionary 1172 (6th ed.1991) ("Practicable is ... that which is performable, feasible, [or] possible...."). Yet throughout the ITP, Plum Creek's proposed mitigation and minimization of its activities' impacts are limited by the criterion of profitability. Thus, under the NFHCP, where conservation benefits *exceed* goals, Plum Creek will adopt "relaxed practices" providing "more economical approaches." NFHCP at pp. 8-10. Such a ceiling upon conservation benefits flatly contradicts the ESA's mandate of "maximum" mitigation.[2]

The Services cannot find, therefore, that Plum Creek's NFHCP meets the ESA's standard of maximum practicable mitigation and minimization of impacts. 16 U.S.C. § 1539(a)(2)(B).

E. The NFHCP Lacks Adequate Funding Commitments.

E15-5

In order to approve the NFHCP, the Services are required to find that Plum Creek "will ensure that adequate funding for the plan will be provided." 16 U.S.C. § 1539(a)(2)(b)(iii). The Draft EIS and NFHCP contain nothing, however, allowing the Services to confirm that such funding will be provided.

The NFHCP openly conditions its conservation commitments upon the availability of "finite resources." NFHCP at p. 1-9. Nowhere in the NFHCP or Draft EIS, however, is there any quantitative commitment as to what funding Plum Creek will make available. The only assurance provided by Plum Creek is its warrant "that it has, and will expend, such funds as may be necessary to fulfill its obligations under the NFHCP." Implementing Agreement at p. 8. In light of Plum Creek's limitation of many of those commitments to 'cost effective' actions, e.g. NFHCP at p. 6-8 ("[S]uppression efforts may focus on channel types where recovery of native stocks can be accomplished with minimum cost and/or effort"), that promise is ineffectual.

Absent a more substantive financial commitment, the Services cannot find that adequate funds will be made available to ensure that all impacts are mitigated to the maximum extent practicable.

F. The NFHCP Fails to Account for All Foreseeable Circumstances

E15-6

Plum Creek commits in the NFHCP to address only the following changed circumstances: stand-replacing forest fires between 300 and 5,000 contiguous acres; floods with

"improve the certainty of the plan being equal to or better for conservation *while at the same time being equal or better for business.*" NFHCP at 8-11 (emphasis added).

[2] Despite its nominal commitment to "pay as you go" mitigation, the NFHCP nevertheless relies on speculative benefits to be derived from future actions to mitigate the immediate effects of Plum Creek's proposed activities. E.g., NFHCP at p. 2-13 (upgrade of old roads to occur by 2015). The Implementing Agreement, however, allows Plum Creek to relinquish the Permit at any time, without any obligation to perform those future mitigation activities. Implementing Agreement at p. 7. In this, the Agreement violates the ESA's mandate that all impacts be minimized and mitigated to the maximum extent practicable.

Responses

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E15-5	291
E15-6	708

Letter E15

a recurrence interval of 25-100 years; and landslides smaller than 5,000 square yards. NFHCP 8-26 to 8-28.

First, while fires, floods, and landslides greater than those planned for in the NFHCP may be unlikely, they are not unforeseeable. For example, according to the formula relied upon in the NFHCP there is 26% chance of a flood with a recurrence interval exceeding 100 years occurring during the term of the ITP. Yet the NFHCP deigns such an event "unforeseeable," and places no response obligation on Plum Creek should such a flood occur. Neither the Draft EIS nor the NFHCP contains any discussion of what management response to such a flood – or a fire encompassing more than 5,000 contiguous acres, or a landslide greater than 5,000 square yards – would be required to ensure that impacts on listed species continue to be mitigated and minimized to the maximum extent practicable, or what response would ensure that the survival and recovery of the species in question are not compromised.

E15-6

Second, the NFHCP contains no commitments to accommodate the possible decline and listing of "permit species" not currently listed under the ESA. The Implementing Agreement explicitly foresees such listing, assuring the ITP will "take effect for an Unlisted Covered Species upon the Listing of such species, without the need for further action by the Services." Implementing Agreement at p. 5. Under the NFHCP's own terms, therefore, the decline of those species to a level at which they are deemed threatened or endangered under the ESA is a foreseeable event. Plum Creek's NFHCP, however, contains no additional commitments to accommodate such a decline.

Lacking contingent commitments designed to accommodate all foreseeable changed circumstances, the NFHCP cannot minimize and mitigate the effects of the take "to the maximum extent practicable." Issuance of the ITP would, therefore, violate the ESA and its implementing regulations.

G. The Plum Creek HCP Violates the Endangered Species Act By Committing The Services' to Future Actions, the Effects of Which They Cannot Know.

According to the NFHCP and Implementing Agreement, "[s]ubject to compliance with all other terms of this Agreement, the Permits will take effect for an Unlisted Covered Species upon the Listing of such species, without the need for further action by the Services." Implementing Agreement at p. 5. The Services would thus provide a permit allowing, at an unspecified future date, incidental taking of species not currently listed under the ESA. And the only prerequisite of the proposed permit is the species' decline to the point at which listing is necessary.

E15-7

As set forth above, in order to issue an permit allowing the take of a listed species the Services must find that "the taking will not appreciably reduce the survival and recovery of the species in the wild." 16 U.S.C. § 1539(a)(1)(B)(iv). For those species addressed in the NFHCP that are currently unlisted, the Services cannot now know what habitat and mortality conditions are required to assure "the survival and recovery of those species in the wild," or what habitat will prove critical to the species at the time of their listing. The Services cannot, therefore, find that issuance of an ITP to Plum Creek under the terms proposed will "not appreciably reduce the survival and recovery" of the species, as Section 10 requires.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E15-7	212

Letter E15

E15-7

Nor can the Services comply with their obligations under Section 7 of the ESA. That section requires the Services to provide "a written statement, and summary of the information on which the opinion is based, detailing how the agency action affects the species or its critical habitat." 16 U.S.C § 1536(b)(3)(A). Until a species is listed, and critical habitat designated, however, the effects of the proposed agency action – that is, allowing an incidental take of the species under the terms of Plum Creek's NFHCP – on the species and its habitat cannot be known.

Under the terms of the proposed ITP, the Services would allow Plum Creek to take all species listed in the NFHCP, without any conditions entailing a greater expenditure of funds or commitment of land from Plum Creek. For currently unlisted species the Services can neither determine the effect of that decision, as required by Section 7 of the ESA, or ensure that it will "not appreciably reduce the survival and recovery of the species," as required by Section 10. Accordingly, such a decision would violate the ESA.

H. The Draft EIS Fails to Acknowledge the Ramifications of Plum Creek's Acquisition of Title to the NFHCP Lands.

E15-8

The scoping matrix for the project states that the EIS will "[d]etermine if Plum Creek is the legal title holder for lands proposed for inclusion in the [NF]HCP." The Draft EIS contains neither discussion nor analysis of this issue and, as such, fails to meet the requirements of the National Environmental Policy Act, 42 U.S.C. §§ 4321 et seq. ("NEPA").

The question of title is pertinent to the Services' consideration of Plum Creek's application for the ITP. The 1864 and 1870 Northern Pacific railroad land grants, from which title derives for these lands, set forth specific conditions governing transfer of title from the public domain to the railroad corporation. Many of these conditions were not met. As a result, the validity of Plum Creek's title to the lands covered by the NFHCP remains in dispute.

Because these lands were alienated from the public domain based on specific law and unique history, there is a continuing public interest in their management. This public interest should be acknowledged in the Draft EIS, but is not. While the framework for the ITP makes a number of concessions to Plum Creek's alleged economic needs, there is no acknowledgement that restrictions on logging, road densities, and other disturbance activities are appropriate given the special history of these lands. Failure to consider these issues undermines the purpose of the NEPA process, to fully analyze all potential significant adverse environmental impacts of the proposed federal action, in this case issuance of an ITP to Plum Creek.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E15-8	54

Letter E15

I. Conclusion

E15-9 For the above stated reasons, The Lands Council and American Wildlands object to issuance of the ITP under the terms proposed in Plum Creek's NFHCP and the Draft EIS.

Sincerely,

Sanjay Narayan
Earthjustice Legal Defense Fund

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E15-9	1

Letter E16

NORTHWEST ECOSYSTEM ALLIANCE

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RECEIVED
MAR 2 2 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

Ted Koch
US Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Rm 368
Boise, Idaho 83709

March 17, 2000

RE: Comments on Plum Creek's Habitat Conservation Plan, Incidental Take Permit, and Implementation Agreement and USDI's DEIS.

Dear Mr Koch;

I'm writing on behalf of the Northwest Ecosystem Alliance, Pacific Crest Biodiversity Project, and Gifford Pinchot Task Force to provide comments on the Plum Creek habitat conservation plan (HCP), draft environmental impact statement (DEIS) for the incidental take permit (ITP), and implementation agreement (IA), and include in these comments, by reference, the comments and materials submitted by American Lands Alliance, EarthJustice, Land and Water Fund, Trout Unlimited, Pacific Rivers, and the Montana Chapter Society for Conservation Biology

We object to issuance of an incidental take permit by the US Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) for the eight federally listed species and nine unlisted species. The HCP fails to meet the most basic requirements of the Endangered Species Act (ESA), 16 USC §§ 1531-1534, and for this reason alone, the permit request must be denied. E16-1 E16-2

The DEIS does not meet the requirements of the National Environmental Policy Act and its implementing regulations, 42 U.S.C. § 4331 et seq., 40 C.F.R. § 1500 et seq. The DEIS fails to provide a reasonable range of alternatives, evaluate a credible "no action" alternative, consider, evaluate, or document the direct, indirect, and cumulative effects of the destruction of terrestrial and aquatic habitat on Plum Creek lands, and evaluate or document how the considerable loss of habitat and lack of mitigation measures will permit attainment of the objectives of the Endangered Species Act and other federal statutes and regulations. E16-3

The DEIS entirely fails to consider, evaluate, or document the environmental effects of logging old-growth and riparian forests, fragmenting late-successional forests, isolating forest parcels, and eliminating critical wildlife habitat. Impacts to species dependent on terrestrial and aquatic environments are wholly impossible to determine as few or no scientifically-defensible surveys have been conducted on Plum Creek lands. The amount of "take" and effectiveness of measures to minimize and mitigate "take" are equally impossible to determine. E16-4

1

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E16-1	1
E16-2	56
E16-3	189
E16-4	156

Letter E16

E16-5 Our analysis indicates that the HCP fails to meet the requirements of the Endangered Species Act (ESA) and associated regulations. Consequently, we recommend the incidental take permit for Plum Creek lands be denied unless the HCP, EIS, and IA are significantly modified. Furthermore, as the

E16-6 HCP process relies heavily on the accurate application of scientific information, we recommend that future iterations of the HCP be reviewed and evaluated by an independent panel of academic and agency scientists, and by a citizen review board.

E16-7 1. Best available science
NEPA and ESA section 7(a)(2) and the Act's administrative rules require agencies to use the best available science. The HCP does not apply or consider the best available scientific information. For example, the HCP's discussion of fish habitat does not adequately account for chemical pollution, or detrimental changes to stream temperature, invertebrate food sources, and to the timing and intensity of water flows that are caused by upslope logging and other practices. Logging prescriptions for riparian and upslope areas ignore available information describing distribution, quality, and quantity of old-growth forest structural features that serve as habitat for wildlife.

2. Protecting Aquatic Habitat
Riparian forests provide important habitat for wildlife. About eighty-five percent of Washington's terrestrial vertebrate species use riparian areas for nesting, feeding, roosting, mating, dispersal, and other life history functions (Thomas and others 1979, Brown 1985). Canning and Stevens (1989) estimate that between thirty-three and fifty percent of riparian areas of Washington have been lost. Most of the habitat loss has occurred in the biologically productive lowlands of Washington where about seventy percent of riparian areas have been converted to other uses. These authors also estimate that roughly 2,000 acres of riparian habitat is lost each year.

E16-8 Plum Creek's logging prescriptions for riparian areas are inconsistent with available scientific information and, if implemented, will likely result in adverse impacts and jeopardy of listed species. Over the last decade, several scientific studies identified management guidelines to provide functional riparian forests (see e.g. Pollock and Kennard 1998, USDA at al. 1993, WDFW 1997, NMFS 1998, WDNR 1997). Functional riparian areas are those which provide large and small woody material and litter inputs, shade, microclimatic conditions and protection from windfall. The prescriptions proposed in the HCP fail to provide for a functional riparian area that endangered salmon and trout require.

E16-9 The HCP fails to adequately address water quality through impact assessments, mitigation measures, and monitoring and adaptive management provisions to ensure water temperature standards needed for the survival and recovery of endangered aquatic species are attained.

E16-10 Streamside trees and other vegetation are needed throughout all stream reaches and aquatic features to protect and restore habitat, prevent erosion, trap debris flows, provide shade, nutrients, and large woody debris and maintain other ecological functions. A significant body of scientific literature exists and must be applied in conservation proposals. No incidental take permits should be issued until the HCP addresses it's scientific deficiencies.

2

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E16-5	1
E16-6	321
E16-7	157
E16-8	512
E16-9	92, 246
E16-10	513

Letter E16

3. Quantifiable data

According to ESA regulations and rules, the HCP must "include specific biological goals and objectives...." for measuring the effectiveness of conservation planning. In addition, biological objectives represent "…specific measurable targets for achieving the goals of the operating conservation program." (Draft Addendum to the Final Handbook for Habitat Conservation Planning and Incidental Take Permitting Process." Federal Register, 64;45, March 9, 1999. Biological goals must correspond to full mitigation of impacts to the species, minimization and mitigation of impacts to the maximum extent practicable, and species' recovery needs, and other basic impact minimization and mitigation standards.

E16-11 The HCP fails to establish measurable biological goals for recovery, and for measuring "take" minimization and mitigation. Generally, the HCP's goals are extremely vague, unverifiable, and unenforceable. The HCP fails to consistently discuss how the HCP and ITP and their resulting habitat conditions, population levels, and other outcomes will relate to the biological goals and standards proposed in available scientific literature. The HCP also fails to provide adequate quantitative analyses or other analyses of how impacts to most of the covered species will affect survival and recovery.

E16-12 *Sierra Club et al v. Bruce Babbitt et al* found that current data on species' conditions and recovery needs must be used; goals included in recovery plans are not sufficient if conditions have changed since those plans were written. Civil Action No. 97-0691-CB-C, Order August 4, 1998, S. Dist., AL, S. Div. The HCP and DEIS fail to meet these requirements. The HCP generally fails to identify species population levels and habitat conditions that would correspond to genuine recovery across the species' ranges, and fails provide concrete quantitative assessments of how the populations and habitat conditions stemming from the ITP and HCP will compare to these recovery standards.

4. Minimize and Mitigate Take

E16-13 Under the ESA, an HCP must satisfy issuance criteria described in section 10(a)(2)(B) before an ITP can be issued. The amount, extent, and type of "take" to species and habitat must be identified and quantified, and "take" must be minimized and mitigated to the maximum extent practicable. The HCP fails to quantify the amount of "take" expected under the HCP for all species covered by the IPT, and fails to minimize and mitigate "take" to the maximum extent practicable. The HCP will likely adversely affect and reduce the likelihood of survival and recovery of listed and unlisted species.

E16-14 As described above in Section I(A), habitat sufficient to provide for cover, shelter, foraging, breeding, meeting nutritional or physiological needs, reproducing, rearing of offspring, dispersal to new unoccupied sites for cover or shelter, and individual and population growth will not be provided to species identified in the incidental take permit request.

5. Implementation Agreement

E16-15 In determining the appropriate duration of an incidental take permit, the FWS and NMFS must consider the "anticipated duration and geographic scope of the . . . planned activities, including the amount of listed species' habitat that is involved and the degree to which listed species and their habitats are affected." (50 C.F.R. §§ 17.22(b)(3), 17.32(b)(3); *see also* 50 C.F.R. § 222.22(e).) The FWS and NMFS also must consider the extent to which the HCP "is likely to enhance the habitat of listed species or *increase* the long-term survivability of the species or its ecosystem." (House Report No. 97-835, 97th Cong., 2d Sess.; 50 C.F.R. § 222.22(e).) Given the inflexibility of regulatory assurances being

3

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E16-11	334, 342
E16-12	55
E16-13	109
E16-14	14, 77, 246
E16-15	360

Letter E16

E16-15 granted to Plum Creek under the "no surprises" policy and the fact that this policy places virtually the entire risk of plan failure on covered species, the ESA's species protection requirements can be achieved only if the incidental take permit is for a minimal period of time, or requires the FWS and NMFS to periodically reopen and reevaluate the permit.

E16-16 The proposed Implementation Agreement does not permit adjustments in the amount of habitat protected under the HCP in the event of catastrophic and stochastic events, changes in the management of adjacent lands, new knowledge, or improved understanding of ecological processes. The Agreement prohibits additional mitigation except under 'extraordinary circumstances" (for which the burden of proof is on the federal government) and prohibits additional land use restrictions on Plum Creek. This puts public agencies in a position of responsibility for demonstrating problems exist, and then absorb costs associated with mitigation. There are no assurances that the federal agencies will be able to response adequately to these situations.

E16-17 Adaptive management reviews and decisions during implementation of the HCP must be subject to independent scientific review and a thorough cumulative effects analysis conducted to address all federal and non-federal actions affecting each species covered by the ITP/HCP. The analysis should include all present, past and reasonably foreseeable actions across the species range.

E16-18 Furthermore, the IA exempts Plum Creek from any additional responsibilities to accommodate currently unlisted species. Considering the rate of development in our knowledge of species associated with Pacific Northwest forest and stream ecosystems, it is completely unreasonable to trade up to 30 years of economic certainty to Plum Creek for a high-risk to hundreds if not thousands of species.

For example, an early look at species/habitat relationships in Pacific Northwest forests identified around 70 terrestrial vertebrate species associated with old-growth forests in the Pacific Northwest (Brown, 1985). Several years later, the recovery plan for the northern spotted owl identified 194 species of plant and animal life associated with this habitat. In the following year, the Scientific Assessment Team identified 667 species - 312 plants, 149 invertebrates, 112 stocks of anadromous fish, 4 species of resident fish, and 90 terrestrial vertebrates - as closely associated with old-growth. Three months later, the FEMAT team identified over 1100 species associated with late-successional forest and considered an additional 10,000 species of arthropods in their analysis of management strategies. Given that our knowledge base is rapidly growing, we strongly oppose century long implementation agreements that insulate Plum Creek from protecting public resources – including species which have high social value.

E16-19 The 30 year term of the HCP with "No Surprises" provisions is excessive given the uncertainties engendered by climate change, the effectiveness of salmon conservation strategies and future cumulative effects just to name a few. (In fact the HCP will significantly contribute to the cumulative effects on the imperiled species.) While we acknowledge the need for flexibility in the implementation of the ESA, providing "No Surprises" assurances for 50 years to a corporation entrusted in part with the conservation of endangered species flies in the face of societal responsibility.

E16-20 The "No Surprises" policy, which provides the basis for potential revocation of the permit is unacceptable and counter to the intent of the Endangered Species Act. It puts the onus for changing

4

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E16-16	621
E16-17	322
E16-18	224
E16-19	278
E16-20	361

Letter E16

E16-20 conditions, information gaps and other uncertainties on the backs citizen taxpayers and the species that the HCP is intended to protect, while absolving the permittee of responsibility.

E16-21 Plum Creek is making a handsome profit by conducting industrial logging operations while placing a public resource (endangered, threatened and sensitive species) at risk, including some (like salmon) that have direct economic benefit to a large segment of the community. Therefore, it is incumbent on Plum Creek that they assume a large part of the risk and in the interest of the public good, the economic welfare of the region and the preservation of our collective natural heritage and make a better effort to preserve those values.

E16-22 Plum Creek can establish itself as a leader in this effort by moving toward better long-term stewardship of its lands by moving toward a long rotation based "Community Forestry", for example. A longer rotation (140 years) maximizes the land's productivity, minimizes cost in the long term, provides high quality saw timber and better protection for biodiversity and local communities.

Thank you for the opportunity to comment on the Plum Creek HCP, DEIS, and ITP. Please incorporate into the administrative record all literature and other materials cited above.

Sincerely,

Dave Werntz
Director of Scientific Programs

For the following organizations:
Jasmine Minbashian, Executive Director
Pacific Crest Biodiversity Project
4649 Sunnyside Ave. N.
Seattle, WA 98103

David Jennings, Chair
Gifford Pinchot Task Force
3932 Biscay St NW
Olympia WA 98502

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Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E16-21	46
E16-22	271

Letter E17

Kootenai Environmental Alliance

P.O. Box 1598 Coeur d'Alene, ID 83816-1598

Feb 14, 2000

Ted Koch
U.S. Fish and Wildlife Service
Snake River Basin Office,
1387 South Vinnell Way, Room 368,
Boise, ID 83709

Dear Mr. Koch:

We have the following comments regarding the Draft EIS and Native Fish Habitat Conservation Plan as they apply to the 132,000 acres of Plum Creek lands in Idaho.

1. Water quality/quantity:
Volume I of the Draft on pages 1-23 and 1-24 mention the Clean Water Act (CWA) and water quality. There are a number of other pages in Vol 1 that discuss watersheds, Tier 1 watersheds, Tier 2 lands, State BMPs, and logging on Plum Creek lands in relation to water quality.

E17-1 We have serious concerns that there are no detailed discussions with detailed analysis and data in Volumes 1 or 2 regarding the issue of bedload movement in streams and creeks on Plum Creek lands. Degradation of important fisheries habitat due to bedload movement should be a major concern for any proposed NFHCP.

I am including a number of statements that concern peak flows and bedload movement, taken from the May 1991 EPA document "Monitoring Guidelines to Evaluate Effects of Forestry Activities on Streams in the Pacific Northwest and Alaska." [EPA 910/9-91-001, Lee H. MacDonald, et al, Center for Streamside Studies in Forestry, Fisheries & Wildlife, Univ of Washington]

From Part II, Chapter 3, page 92 "Changes in the size of peak flows can have important implications for the stability of the stream channel, size and quantity of the bed material, and sediment transport rates." On page 93 it is stated "Peak flows have important effects on stream channel morphology and bed material particle size (Chapter 5). Specifically, since higher flows move larger particles, peak flows determine the stable particle size in the bed material (Grant, 1987). Large, stable particles provide important habitat niches for invertebrates and small fish. A highly unstable bed will reduce periphyton and invertebrate production (Hynes, 1970)".

1

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E17-1	262

Letter E17

Also from page 93 "The effects of forest management on peak flow size are quite different when the largest floods are caused by rain-on-snow events. In these areas, forest management-by increasing snowpack accumulations in openings and increasing the rate of snowmelt in clearcuts and young plantations (Berris and Harr, 1987)- can increase the size of peak flows in major flood events". From page 95 "Forest harvest can increase the size of the largest peak flows in areas where the largest floods are caused by rain-on-snow events. This increase in the size of peak flows is due to the combination of increased snowpack (caused by a reduction in interception losses) and an increase in snowmelt due to increased turbulent heat transfer. Recent research in the Washington Cascades has indicated that harvested plots can yield up to 95% more runoff than unharvested areas, and runoff from 18 to 20-year plantations is around 40% higher(R.D. Harr, U.S.F.S. Pac.Northw.Res.Sta. Seattle, pers. comm.)".

Part II, Chapter 4 has a section concerning bedload and on page 105 it is stated "Streams with high volumes of bedload and erodible banks often are braided, and the rapid changes in channel location characteristic of braided streams result in continuing high erosion and sediment transport rates. The unstable channels in braided reaches provide relatively poor habitat for salmonids, and the large amounts of sediment transported downstream from braided reaches can adversely affect reservoir storage capacity and other designated uses such as fisheries and irrigation."

I have also enclosed for the record a copy of 12 pages from the July 1997 Forest Service Report "An Assessment for the St. Joe Area, as Attachment #1. Page 29 has a section that discussed Bedload Increases and it includes the following statement

E17-2 "Tributary conditions are critical not only to spawning and early life histories of the native trout but excessive bedload from the tributaries contribute to the risk of habitat modification in over--wintering habitat far downstream."

E17-3 It is clear that there is a significant relationship between bedload movement and degradation of fisheries habitat. NEPA requires accurate scientific analysis, expert agency comments, and also that the cumulative impact and effects, direct and indirect, be analyzed in an EIS.

E17-4 We are unable to locate in either Volumes 1 or 2 in the Draft EIS a indepth and scientific analysis with data, of the amount of current bedload movement that exists in the streams and creeks on the Plum Creek lands in the Upper St. Joe River Area, the Lochsa River Area, and the Little North Fork Clearwater River Area.

E17-5 The Final EIS needs to provide the results and data from detailed scientific analysis that has been performed regarding the amount of, and extent of bedload movement in the streams and creeks in

2

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E17-2	263
E17-3	262
E17-4	262
E17-5	262

Letter E17

the 3 Areas.

E17-6 The Final EIS also needs to describe the current impacts to Bull Trout habitat in the streams and creeks from the bedload movement, along with anticipated effects from the continued bedload movement in each of the 3 areas. If there is a finding in the Final EIS that bedload movement and associated channel instability possess no problems to Bull Trout fisheries habitat on Plum Creek lands, the scientific data and analysis that supports such a finding must also be supplied in the FEIS.

E17-7 Included in the Final EIS water analysis should also be a discussion of any computer models that were used in the water quality analysis for the Draft EIS. If Models such as WATBAL or WATSED Model were used, then it is important to point that both Models have significant flaws.

Concerning WATBAL, page 15 of the 1989 Technical User Guide stated regarding Sediment Routing "WATBAL uses a primitive equation based on a function of the area of the watershed to perform this function. It is recognized that this lack of accurate stream routing and insufficient recognition of stream dynamics is the weakest and as a critical element must be given top priority in future developments." I have included a copy of correspondence from the Forest Supervisor of the Clearwater National Forest that indicates the Technical User Guide is still accurate and not in need of a revision, as Attachment #2.

Regarding WATSED, the Model does not account for major storm events such as rain on snow events, and does not calculate the peak flows from such storm events. The North Fork St. Joe River Project FEIS, Oct 1999, Appendix G, page 12 stated "It is true WATSED outputs only model average annual water yields, peak flows and duration from canopy openings (including openings created by roads) but does not account for specific storm events or stream network extensions." [IPNF, St. Joe Ranger District]

The Model does not have the capability to calculate sediment and water yields from the hillslope lengths of individual logging units. [Douglas Fir Beetle FEIS, US Forest Service, IPNF, Page A-7]

The Model also does not account for the delivery of coarse material (larger than sand size) to stream channels and thus greatly underestimates the volume of material that may actually be delivered to stream channels. [Prichard Creek FEIS, Wallace Ranger District, April 1994, Chapter III, page 27].

E17-8 Regarding the IDL Forest Practices Cumulative Watershed Effects (CWE) Process mentioned page 1-28, the Final EIS should supply data that will indicate how many CWE's have been performed, since 1995, on both private lands and State Lands in Idaho that have Bull Trout habitat. The Final EIS should also indicate whether the CWE is voluntary or mandatory for private landowners.

3

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E17-6	262
E17-7	158
E17-8	159

Letter E17

2. Plum Creek logging:
Vol 1 of the Draft EIS, page 1-33 stated that in 1991 Plum Creek adopted a set of Environmental Principals for forest management activities. The Draft EIS also indicated that PC limits the amount of clearcutting on their lands. NEPA requires that environmental information must be made available to the public before decisions are made and before actions are taken.

We are requesting that the following data from PC databases be supplied in the Final EIS.
(a) How many acres of PC forest lands have been clearcut logged in each of the 3 Idaho areas between the years 1980 and 1990?

(b) How many acres of PC forest lands have been clearcut logged in each of the 3 Idaho areas between the years 1991 and 1999?

(c) How many acres of PC forest lands have had regeneration logging in each of the 3 Idaho Areas between the years 1980 and 1990?

(d) How many acres of PC forest lands have had regeneration logging in each of the 3 Idaho Areas between the years 1991 and 1999?

E17-9

(e) For the PC lands in each of the 3 Areas in Idaho that have had regeneration logging since 1991, how many acres are classified as having 20 Trees Per Acre (TPA) or fewer?

(f) For the PC lands in each of the 3 Areas in Idaho that have had regeneration logging since 1991, how many acres are classified as having 20 or more TPA, with a average dbh greater than 15"? The Final EIS should indicate if there are no PC lands that are in this category.

(g) For the PC lands in each of the 3 Areas in Idaho that have had regeneration logging since 1991, how many acres are classified as having 20 or fewer TPA, with an average dbh 4" or smaller?

The requested data to be supplied in the Final EIS should indicate the number of logged acres on PC lands that have a very few number of small diameter TPA. These lands should be considered as functionally equivalent to clearcuts when the hydrologic effects, including bedload movement, are analyzed in detail in the Final EIS.

3. Road mitigation:

E17-10

We do not believe that the road mitigation work being proposed by the Plum Creek Conservation Plan addresses the hydrologic issues surrounding peak flows and bedload movement. The road mitigation plan ignores the cumulative effects as defined by NEPA from: rain on snow events, increased peak flows from large areas that are in

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E17-9	236
E17-10	264

Letter E17

E17-10 fact clearcuts, the large scale bedload movement in streams and creeks, continued channel instability due to increased peak flows, and associated industrial logging on adjacent State and private lands.
Forest Service documents have clearly shown that excess bedload movement is believed to be the major factor limiting fish habitat on the Coeur d'Alene National Forest. There is no reason to believe that there aren't any streams and creeks in heavily logged Plum Creek forest lands in Idaho that do not have similar bedload movement problems and channel instability problems that affect fish habitat and fish populations.

E17-11

4. BAGs/WAGs:
Page 1-28 mentions BAGs and WAGs and page 4-274 of Volume 2 mentions Plum Creek's cooperation with adjacent land management. An example cited on 4-274 is Idaho Basin and Watershed Advisory Groups. It has been our experience that the Basin Advisory Group and Watershed Advisory Groups that have been established for the Coeur d'Alene River Basin and the St. Joe Area are composed primarily of representatives for timber, mining, and agriculture and also local government officials. There is not an equal representation of environmental interests in these Groups. The majority oppose new restrictions on land management activities, including logging. We do not agree with the statement on page 4-274 concerning cooperative watershed management forums contributing to healthy dialogue among stakeholders, when the timber industry continually calls for no new logging regulations or logging restrictions.

E17-12

5. INFISH: INFISH and the INFISH strategy is mentioned on pages 1-32, 2-24, 2-25, and 3-6 in the Draft EIS. We wish to enter into the record pages 76 and 77 of the 1998 Forest Plan Monitoring and Evaluation Report of the Idaho Panhandle National Forests, Attachment #3.
On page 77 of the Monitoring Report it is stated "Inland Native Fish Strategy offered the best scientific data on key elements for productive streams at the time it was adopted, but as knowledge of stream habitat requirements has increased concerns associated with INFISH's recommendations have arisen. Some of the issues associated with INFISH are as follows:". There are 9 issues mentioned.
The Final EIS should address the concerns mentioned on pages 76 and 77 as they relate to assumptions made in the Draft EIS concerning the effectiveness of INFISH and protection of Bull Trout fisheries and fish habitat.

E17-13

6. Riparian Areas/Old Growth: Pages 4-39 thru 4-42 have information concerning riparian vegetation structure. Pages 4-40 and 4-41 indicate that logging of large trees with a dbh 12" and larger would continue on Plum Creek lands.
No data is supplied on pages 4-39 thru 4-42 for the percent of Riparian Forest areas that currently exist in the 3 Idaho Areas.

E17-14

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E17-11	262
E17-12	801
E17-13	160
E17-14	237

Letter E17

E17-14 We also did not see data on these pages for the estimated number of Riparian Forest acres that could be logged by Plum Creek in the Idaho Areas. Due to the importance of stands of large diameter trees in Riparian Forest areas, the Final EIS needs to supply data for the number of acres with large diameter trees that currently exist in Riparian Forest areas for each of the 3 Idaho Areas.

E17-15 The Final EIS also needs to supply analysis and scientific data that explain how continued logging of large diameter trees in Riparian Forest areas in Idaho will improve Bull Trout habitat and fisheries. Data also needs to be provided in the Final EIS that will show how stream temperatures will be lowered and thus improved in creeks and streams after a large number of the large diameter trees are logged from the creeks and streams.

E17-16 The Final EIS needs to supply data that will indicate how many acres of Riparian Forest areas in Idaho, containing large diameter trees, could be logged by Plum Creek under each of the Action Alternatives.
Data also needs to be supplied in the Final EIS that will indicate how many large trees per acre would be left in the Riparian Forest areas after Plum Creek has finished logging in each of the Riparian Forest areas in each of the 3 Idaho Areas.

E17-17 Plum Creek's Environmental Principals should indicate the actual number of large diameter trees they typically leave after logging in Riparian Forest areas in Idaho. We did not find this data in the Draft EIS.

E17-18 Data should also be supplied in the Final EIS that will indicate how many acres in Riparian Forest areas in Idaho, with large diameter trees, have been logged by Plum Creek since the inception of their 1991 Environmental Principals.

6. State FPA/BMPs:
Pages 1-27 and 2-27 discuss the Idaho FPA and Best Management Practices and pages 3-32 thru 3-34 also list BMPs as they relate to roads and riparian management in Idaho. The Idaho BMPs have been in existence for over 25 years. During these years protection of fisheries, fisheries habitat and water quality was supposed to occur when logging operations took place. We are unable to locate in the Draft EIS a significant discussion of why, in spite of the State BMPs that have been continually updated, fisheries, fish habitat, and water quality have been severely impacted from logging operations in watersheds that are on private lands. NFHCP page 1-7 under Biological Goals for Cold, Clean and Complex all point to past logging that has negatively impacted fisheries. The Draft EIS should have indicated whether site specific Monitoring data is available that supports the contention that State BMPs have protected and improved fisheries and fish habitat in streams and creeks on private lands in Idaho.

E17-19

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E17-15	238
E17-16	239
E17-17	239
E17-18	240
E17-19	604

Letter E17

NFHCP Page RP-1-2 indicates that for a Class 1 stream, in the first 50 feet of SPZ, a minimum of 55 TPA are to be left in streams over 10' wide. There are apparently no restrictions on logging in the remaining 25' of the 75' SPZ. The Final EIS needs to supply specific Monitoring data and analysis that will support a conclusion that the Idaho State FPA Riparian Prescriptions are sufficient for the protection and propagation of Bull Trout fisheries and that fisheries habitat is protected.

E17-20

NEPA at 1502.22 discusses incomplete or unavailable information. If Monitoring data and analysis regarding the effectiveness of FPA Riparian Prescriptions for both Class 1 and Class 2 streams is incomplete or unavailable, as described in 1502.22(a) and (b), the Final EIS needs to indicate the extent of the incomplete and/or unavailable information. The Final EIS also needs to indicate if there is any incomplete or unavailable information regarding the effectiveness of Montana and Washington Riparian regulations.

E17-21

The 3 Action Alternatives described in the Draft EIS lack the analysis and data required by NEPA that conclusively show Plum Creek logging will assure the protection and propagation of Bull Trout fisheries, with measurable improvements to the fisheries habitat in each of the 3 Idaho Areas.

E17-22

The potential significant impacts to Federally Protected Native Fish Species and the intensity of the impacts to the species, from proposed Plum Creek logging must be examined in the Final EIS. NEPA at 1508.27(b)(1) and (7) contain requirements that are of special concern when the Final EIS addresses 1508.27 in it's entirety.

E17-23

We wish to receive a copy of the Final EIS when it is released.

Sincerely,

Mike Mihelich

Mike Mihelich Forestry Committee

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E17-20	604
E17-21	99
E17-22	14, 77
E17-23	161

Letter E18

Kettle Range Conservation Group

RECEIVED
MAR 2 0 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

March 15, 2000

Ted Koch
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, Idaho 83709

Re: DEIS and Native Fish HCP for Plum Creek Timber Company Lands

Dear Mr. Koch,

Please accept these comments on behalf of the memberships and board of the Kettle Range Conservation Group.

Regarding...

E18-1 **"Takings":** The document does not adequately describe "take" and how Plum Creek practices will actually "take" fish. Without such a baseline, it is impossible to assess the impact of this document and Plum Creek's activities on fish populations in the planning area. This essentially misses the boat on what this document was meant to cover. Without knowing what kind of "take" Plum Creek wants to engage in, there is no way to measure the integrity and effectiveness of the conservation "commitments" meant to reduce the impact from such takings.

E18-2 **Economics:** Economic concerns are the reasoning behind many of Plum Creek's decisions to avoid important habitat conservation practices, such as stream buffers. However, the document does not detail these economic concerns into a table or narrative, which would attempt to support their rationale.

E18-3 **Stream Buffers:** There needs to be a commitment in the HCP by way of buffers for ALL streams, especially headwater streams. Protection of perennial and intermittent non-fish bearing streams is essential for protection of water quality and temperature. Reliance on state BMPs for Washington forest practices falls short of the essential protection that should be afforded fish listed under the ESA.

E18-4 **Groundwater:** The HCP fails to address the issue of how upland harvest activities will affect groundwater flows. Recent science shows us that Bull trout in particular are very dependent on cold, clean groundwater as part of their habitat needs. The behavior of groundwater within upland, mountainous terrain is not well understood and as such, the HCP should be conservative in the activities it allows in Bull trout habitat, both upland and riparian. Please take into consideration the following paper which supports the need to protect groundwater, if you do not have a copy I would be happy to send you one:
Frissell, C. A. 1999. An ecosystem approach to habitat conservation for bull trout: groundwater and surface water protection. Open File Report Number 156-99. Flathead Lake Biological Station, The University of Montana, Polson, MT.

E18-5 **Tier I Watersheds:** Using Tier I streams to provide protection for 17 different species is not using good science. The ecological elements of these waterways are not necessarily the same as those of water ways important to species other that Bull trout. A complete analysis of the habitat requirements of the 17

600 S. Clark Street, P.O. Box 150, Republic, WA 99166 (509) 775-2667 • 517 S. Division, Spokane, WA 99202 • (509) 747-1663

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E18-1	105, 109
E18-2	140, 373, 376
E18-3	514
E18-4	162
E18-5	208

Letter E18

E18-5 different species is lacking from the HCP, and without such analysis, it is impossible for the USFWS to assess whether this plan will indeed provide adequate protection.

E18-6 **Road densities:** Current credible science from the ICBEMP documents reveals that once road densities exceed 1 mile per square mile, fish populations plummet. The HCP fails to take this into consideration by not requiring Plum Creek to enforce road density limits. Road construction is one of the most important factors regulating the quality of fish habitat and any plan meant to comply with ESA standards must regulate road construction. It makes a lot more sense to regulate the degrading practice (i.e. road construction) than to monitor the effects that we already know result in decimation of fish habitat, such as sediment delivery from roads. The HCP falls back on monitoring as a way to avoid negative effects to fish, however, this is an expensive and ineffective approach when funding does not exist and we already know the effects of certain practices. A more proactive approach is called for. The current proposal does not even provide the band-aid for the wound it will most likely inflict.

E18-7 **Adaptive management:** The plans for adaptive management are written such that it will be nearly impossible to increase protective measures once the permit is issued. For example, it could take at least 7 years, and more likely 15 or so, to change a practice that is degrading fish populations due to the many hoops which the plan sets in place. As we are all aware, 15 years can lead to a serious amount of harm, including extinction of native fish from certain waterways. The adaptive management process being proposed here is nothing short of a bureaucratic process that is not in the best interest of the fish species in consideration. It surely does not take 5 years of monitoring to indicate that logging in riparian areas is negatively affecting native fish species. Correct me if I'm wrong, but I believe that the science is already out on such practices and it's effects to fish and fish habitat. Clearly this process is set in place to protect Plum Creek and it's economic interests and does nothing short of compromising rare fish species from the beginning.

E18-8 **Monitoring:** Current monitoring proposals in the HCP are scientifically weak, as they not founded in specific in-situ monitoring but on "reference" sites. There is no assurance that these "reference" sites will directly relate to what is actually occurring as a result of Plum Creek activities. Where will the funding come from for monitoring activities on private land? Plum Creek should certainly be involved in providing funding; however, they should not be involved in who does the monitoring. At the very least, one full-time employee who is not tied to the financial investment of Plum Creek should be stationed in western Montana to do such work. The USFWS needs to make a real commitment to such monitoring, especially during critical times such as rain-on-snow events when a significant amount of sediment is moving.

E18-9 **Subdividing Forests:** Eight percent of 1.8 million acres is an incredible amount of land to be sold to developers. If this conversion happened in just a few key watersheds, the impact could be monumental. We are disappointed that the USFWS would condone such a high number.

E18-10 **Quality Control:** The HCP lacks a credible amount of quality control to ensure that the weak standards set forth in the current HCP are met.

E18-11 **Large Woody Debris:** The HCP fails to account for the importance of woody debris and it's recruitment as part of quality habitat. In addition, overwinter habitat is not adequately dealt with.

E18-12 **Length of Agreement:** It is poor judgement to approve a controversial plan with unclear results for such a length of time (30 years). Clearly this is bowing to industry pressure. This permit should be reviewed at least every year until clear and definable impacts are understood that result from this permit. Those impacts should then be assessed to figure back into the plan and how portions of it could be changed to avoid such impacts. The adaptive management program set forth in the HCP will not provide such regulation or review and should not be relied upon for quality control.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E18-6	419
E18-7	677, 678, 699
E18-8	664
E18-9	790
E18-10	323
E18-11	500, 587
E18-12	281

Letter E18

E18-13

In short, the USFWS would be failing to provide the necessary protection and consideration to rare native fish species as required by the ESA if they approve this plan. The 53 "conservation commitments" in the HCP are anything but commitments, as they don't commit to anything that could be considered conservation. In some cases these "commitments" are flexible and can even be changed. A supplemental plan should be written which takes into account credible science and realistic habitat protection considerations before moving forward.

While we recognize the opportunity here to work with a major landowner to provide for native fish protection, this HCP does not have enough benefits in it to outweigh the negatives of what Plum Creek is currently doing. Approval of this permit would set a precedent, proving that the USFWS is willing to make deals with private industry to accept weak and inadequate protection "commitments". This does nothing for the fish species at stake and everything for the pocketbooks of private industry with a little sugarcoated PR for the federal agencies involved. Please reconsider the importance of your role in the future of rare species and do not cave in to industry pressure.

Thank you for the opportunity to comment, please keep us informed of your decisions.

Sincerely,

Marlene Renwyck

Marlene Renwyck
Forest Watch Coordinator

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E18-13	1

Letter E19

Montana Chapter Sierra Club
PO Box 231
Missoula, MT 59806

RECEIVED
MAR 2 0 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

March 15, 2000

Ted Koch
U.S. Fish & Wildlife Service
Snake River Basin Office
1387 South Vinnell Way
Room 368
Boise, Idaho 83709

Dear HCP Team:

I am writing to comment on the Plum Creek Habitat Conservation Plan and Environmental Impact Statement for the Montana Chapter and Bitterroot-Mission Group of the Sierra Club. Our club members our found throughout the region and are vitally interested in the protection of listed and native aquatic species. We have several comments about the proposed plan. We do not support any of the alternatives proposed. E19-1

The USFWS Has Applied an Inappropriate "Maximum Practicality" Standard

The HCP DEIS states that the purpose of the HCP process includes achievement of P;lum Creek business goals:

The NFHCP articulates the dual purpose of and need for this action with a set of both biological and business goals.

Plum Creek has stated its NFHCP business goals to the Services in the NFHCP, expressing its motivation as a landowner seeking an Incidental Take Permit. These business goals are intended by Plum Creek to help the Services determine whether the E19-2
conservation measures offered meet the "maximum extent practicable" criterion for Permit issuance discussed below in Section 1.4.3, *Context of the Action* because the business goals describe "practicability" in more detail from Plum Creek's point of view. The NFHCP business goals are as follows:

1. **Long-Term Sustainability and Business Certainty.** Create an environment of regulatory predictability to preserve the ability to confidently make long-term business decisions.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E19-1	1
E19-2	140, 373, 375, 377

Letter E19

03/15/00

2. **Cost-Effective Conservation.** Implement cost-effective conservation so that finite resources can be allocated where they provide the most benefit.
3. **Scientific Credibility.** Apply a high level of scientific rigor to the task of generating creative solutions.
4. **Operational Practicality and Flexibility.** Ensure a high degree of implementation success by developing a plan that is practical to implement and preserves management flexibility.

To the extent that these business goals form the basis for judging "maximum practicable" mitigation or minimization of take they represent and improper abdication of authority to Plum Creek and fail to measure practicality by the correct standard. Maximum practicality is not to be measured by maximum profitability, not is it to be measured by minimum marginal cost. Moreover, the economic analysis within the DEIS fails to address practicality, but only deals with relative cost. There is no independent assessment by USFWS of what maximum practicality is, but simply an acceptance that the allegedly higher short-term costs of the NFHCP as proposed by Plum Creek make it the maximum plan of those analyzed. There is no assessment of how much total costs will be over the period, there is no assessment of reduction in profit, there is no assessment of practicality from a physical standpoint, simply the application of some shorthand cost vignettes that fail to place the plan in perspective.

E19-2

Maximum practicality is not just an economic calculation, but an assessment of available technology and management methods to conserve species. The range of alternatives fails to capture possible management methods and assess costs of those methods. Unpalatibility of those management methods to Plum Creek should not be the basis for ruling out certain alternatives. For instance, analysis of an HCP that created areas with greater protections in bull trout or other species strongholds was not examined. This is a practicable management policy. Plum Creek can still obtain returns from other lands. Recovery strongholds should be protected with the highest possible standards.

The DEIS lays out the mandate of the ESA for HCPs:

The Services must issue a Permit pursuant to Section 10(a)(1)(B) of the ESA to Plum
Creek if their NFHCP adequately provides conservation for species covered by the Permit according to issuance criteria specified in that section. In reaching their decision, the Services must consider these five criteria for Permit issuance:

1. Is the proposed take incidental to an otherwise lawful activity?

2. Are the impacts of the proposed taking minimized and mitigated to the maximum extent practicable?

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter E19

3. Has the applicant ensured that adequate funding will be provided to implement the measures proposed in the HCP?

4. Is the proposed take such that it will not appreciably reduce the likelihood of survival and recovery of the species in the wild?

5. Will other required measures, if any, be met by the HCP?

Absent specific recovery goals for Permit species, the Services concluded that the effects of covered activities under the NFHCP must result in a net positive trend of change in habitat quality of sufficient magnitude to allow for recovery. First, the direction of change in habitat quality must be positive—that is, habitat quality on Plum Creek lands must improve over the Permit period. Second, the magnitude of change, or degree of improvement, must be sufficient to ensure that any taking will not
appreciably reduce the likelihood of the [species survival].

It goes on to make the following cost-based rationale:

E19-2

> In general, the NFHCP contains the highest direct costs among the action alternatives because it is an active conservation strategy; however, it has lower indirect costs than the passive measures of the Simplified Prescriptions Alternative. However, the combination of direct and indirect costs makes the NFHCP much more costly than the No Action or the Internal Bull Trout Conservation Plan Alternatives.

While the plan may have the highest direct costs or the highest overall cost that does not mean that it is "maximum practical" mitigation or minimization of impacts. In this sense the USFWS and Plum Creek have failed to meet their burden under the ESA and have failed to meet the analysis burden of NEPA.

For instance, a flow rate of 4 cfs is recommended by many agencies through culverts. Yet the plan only requires 6 cfs. Therefore, it does not require maximum practicable mitigation or minimization of impacts on listed or candidate species. It therefore fails the test required by the ESA. There is no analysis of cost burdens to show that this is not economically impractical. Nor should such analysis be controlling. If the technology exists, and it apparently does, then it should at least be analyzed as a potential alternative consistent with the direction of the ESA and NEPA.

The Scope of the Permit Is Unclear

E19-3

The purpose and plan of Plum Creek is to develop many of its holdings in Montana as real estate. It is for this reason that it has become registered with the state to

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E19-3	780

Letter E19

conduct such activities. Moreover, the HCP refers to "land use" standards that refer the company to local land use planning standards. Such a referral is completely inadequate in a state with little of no land use regulation of the counties in western Montana covered by the HCP, only Missoula has any sort of comprehensive land use regulation.

Yet, the DEIS indicates that the only activities covered are silvicultural and forest products related activities:

> Activities to be Covered under the Permit
> Current management activities on PlumCreek lands and activities that Plum Creek seeks coverage for under the Permit are described briefly below. The management activities for which Plum Creek seeks Permit coverage are regulated according to federal, state, and local regulations and BMPs. Specific governing regulations for each of the Plum Creek management activities proposed for coverage under the Permit are listed in Chapter 3,
> Section 3.3.1, Existing Regulations—No Action Alternative. Plum Creek manages its lands in Montana, Idaho, and Washington primarily to grow, harvest, and sell timber, while seeking to use environmentally and economically sound forest management practices. ...
>
> These activities consist of silvicultural activities (tree planting, site preparation, prescribed burning, timber harvest in riparian and upland areas, stand maintenance, forest nurseries, and seed orchards), as well as associated activities, including logging road construction and maintenance and gravel quarrying for roads. These activities are described below. (DEIS 2-11)

E19-3

Are these the only activities covered? If so, why aren't subdivision development issues covered with a single landowner that owns 1.4 million acres in western Montana. Protection of bull trout and other aquatic species would greatly benefit from requirements for cluster development, limiting hilside development and putting into place hillside standards, putting erosion control standards, minimizing roading, preventing development within sensitive watershed areas or riparian zones. These terms could be made covenants that run with the land. It would prevent the Service from having to deal piecemeal with many individual owners later.

The Permit Fails to Require the Highest Possible Protection for the Species

Protections should include such measures as a 4 cfs fow rate through culverts or other diversions, the prohibition of roading of areas that are unroaded and 5000 acres or more or adjacent to publicly held roadless land, limiting silvicultural practices

E19-4

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E19-4	190

Letter E19

03/15/00

E19-4 to exclude clearcutting entirely in aquatic strongholds. These types of provisions are required to maintain habitat that is in good condition and restore degraded habitat. They are required by the standards of the ESA.

Consonant with the No Surprises Policy USFWS Should Give Strong Conservation Direction to the USFS and other Federal Agencies

E19-5 While we disagree with the No Surprises Policy, if it is to be implemented the only way to even begin to buffer listed species from the uncertainty of the long term viability of the HCPs is to grant the greatest possible protection to these species on public lands. This requires the USFWS and NMFS to require the strongest possible protection on public lands for these species. For instance, as part of their conservation direction and consonant with the conservation direction to all public agencies in Section 7 of the ESA, the Services should direct the USFS to enact a strong roadless area policy that prohibits roadbuilding, logging and other activities detrimental to the species on roadless USFS lands. In consultation with these agencies on individual projects, the benefit of the doubt must go to the highest possible protection of listed species on those lands. There is no other way to try and cover any mistakes that may be irreversible under the No Surprises Policy. If private landowners are to be given a break, the slack must be made up elsewhere. That place is on other public lands.

E19-6 Thank you for the opportunity to comment. I note that there are several references in the document to technical papers or white papers that were not available in the DEIS or its appendices. Failure to provide this inofrmation undercuts the public disclosure requirements of NEPA. Please keep us on the mailing list for the plan.

Sincerely,

Len Broberg
Montana Chapter Sierra Club
Bitterroot-Mission Group Sierra Club

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E19-5	57
E19-6	163

Letter E20

To: Mr. Ted Koch, Project Manager
U.S. Fish and Wildlife Service
Snake River Basin Field Office
1387 S. Vinnell Way, Room 368
Boise, Idaho 83709

RECEIVED
MAR 2 0 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

From: Friends of the Bitterroot, Inc.
P.O. Box 442
Hamilton, Montana 59840

Subject: Comments on the Draft EIS for Plum Creek Timber Company's Native Fish Habitat Conservation Plan.

Date: March 17, 2000

Dear Mr. Koch:
We appreciate the opportunity to comment on your Draft EIS for Plum Creek Timber Company's (PCTC) Native Fish Habitat Conservation Plan. This is for a "proposed permit for taking of Federally protected native fish species on Plum Creek Timber Company Lands".

E20-1 Plum Creek Timber Company (PCTC) has previously been termed the "Darth Vader of the timber industry" due to their logging and roading practices. Their logging practices have caused extensive adverse impacts and apparently that legacy continues in spite of PCTC's public relation campaign's to convince the public otherwise.

E20-2 According to a 1/12/00 Ravalli Republic newspaper article, Plum Creek owns approximately 11,000 acres in the Bitterroot and Sapphire Mountains. In 1998 and 1999, Plum Creek created "one of the largest clearcuts to ever appear on the Bitterroot Face. It's over 1000 acres and getting larger each day" according to Mr. Clint Carlson (USFS) in a Missoulain newspaper letter to the editor, (10/24/99). PCTC claimed this was "needed" for mistletoe control.
Other PCTC lands that are in the north end of the Sapphires have been excessively roaded and cutover and are very visibly evident.
PCTC has also extensively roaded and logged their intermingled lands in the upper portions of the Lolo Creek area and the headwaters of the Lochsa in Idaho.
In a 10/2/97 letter to the editor (Missoulain newspaper), Mr. Chuck Spoon, a retired USFS forester stated that "Plum Creek liquidates most commercial timber over entire drainages, leaving just enough unnatural understory Douglas fir to create the illusion of an intact forest. Look into Fish Creek, Deep Creek, Lolo Creek just to mention a few drainages and see for yourself".

E20-3 The "Purpose" of this DEIS action is "to authorize incidental take of the Permit species by Plum Creek and to provide Plum Creek with reasonable assurances consistent with the 'No Suprises' Final Rule." The "Need" of this DEIS action is apparently to avoid "regulatory uncertainty" for PCTC because, "this uncertainty could result in significant curtailing of timber harvest, or could otherwise reduce management flexibility, which may reduce economic viability for Plum Creek."

The DEIS also states that implementation of the proposed "Plum Creek NFHCP would serve to reduce impacts and multiple threats to Permit species and their habitat, while allowing Plum Creek to achieve their business goals". Under this current DEIS proposal, PCTC would be issued a 30 year "incidental take permit" which supposedly would

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E20-1	1
E20-2	58
E20-3	12, 46

Letter E20

E20-3 provide protection for PCTC from this "Regulatory Uncertainty", but there seems to be scant assurances of protection for the fish species involved.

E20-4 The Habitat Conservation Plan (HCP) apparently contains no standards for measuring the basic needs of fish such as temperature and sediment, and no measurable biological goals like populations and use of habitat.

E20-5 The Habitat Conservation Plan (HCP) provides lesser protection for watersheds than is currently afforded on BLM and FS lands. PCTC lands are heavily intermingled with sections of public lands and a key question (not disclosed in the DEIS) is whether Federal land's management will then eventually be reduced to this lower common denominator.
This has previously happened with the Swan Valley Conservation Agreement for grizzly bears where the road densities in the intermingled ownership lands are greater, and therefore provide less protection than on the rest of the Flathead National Forest.

E20-6 The Draft EIS for Plum Creek Timber Company's Native Fish Habitat Conservation Plan proposes adaptive management that supposedly will be monitored, reported back to the USFWS, and changes made - if necessary.
The Region's Forest Plans required various monitoring efforts but in many cases that was ignored or inadequately done. The Swan Valley Conservation Agreement also required annual monitoring reports but none have been done in over four years.
The proposed "Permit" must assure that adequate monitoring will take place. Failure to adequately monitor and/or to provide the required reports should be immediate grounds for revoking the PCTC "Permit".

E20-7 Additionally, there is as yet no Federal recovery plans for bull trout and other salmonids covered by this proposed DEIS. There is no assurances that this PCTC "Permit" (which will be locked in for thirty years) will then be in compliance with eventual Federal recovery efforts.
The DEIS's "Project Area" includes 1.7 million acres of PCTC's lands in Montana, Idaho and Washington. The DEIS's overall "Planning Area" is ten times larger (17.3 million acres) which includes and surrounds the PCTC "Project Area".
The USFWS should instead focus on developing recovery plans across the larger "Planning Area" before handing PCTC a "Permit" that likely would hinder Federal efforts for recovery of these species.

E20-8 In the 1/12/00 Ravalli Republic newspaper article, Plum Creek was described as owning "more bull trout habitat than any other landowner outside the Federal government. Additionally, only 14 HCPs were written between 1982-92, but since then nearly 400 HCPs have been written. The outcomes of these HCPs are still unknown and the public and the USFWS should be wary of depending extensively on the HCPs to reverse the downward trends of the species concerned.

Please send us the FEIS and ROD for Plum Creek Timber Company's (PCTC) Native Fish Habitat Conservation Plan when it becomes available.

Sincerely,

John D. Mouat

John D. Mouat, President

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E20-4	342
E20-5	32, 552
E20-6	665
E20-7	246
E20-8	46

Letter E21

Responses

See Response to Comment Table or click on link provided below.

Comment Response

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RECEIVED
MAR 2 0 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

March 17, 2000

Mr. Ted Koch
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way
Room 368
Boise, ID 83709

Re: Plum Creek Timber Co. Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan

Dear Mr. Koch:

The Central Cascades Alliance (the "CCA") has reviewed the Draft Environmental Impact Statement and the Native Fish Habitat Conservation Plan (the "NFHCP/DEIS") submitted by Plum Creek Timber Company ("Plum Creek") for a proposed incidental take ("ITP") permit for 1.7 million acres of land in Washington, Montana and Idaho. The CCA works to achieve a viable regional ecosystem and sustainable communities in the area between Mt. Rainier and the Three Sisters, and the NFHCP could impact almost 70,000 acres of land owned by Plum Creek in this region. We complement Plum Creek on its efforts to develop a responsible long-term management program for these lands. We have concerns, however, that the NFHCP does not meet the requirements of the ESA.

Section 10(a)(2)(B) of the Endangered Species Act and the implementing regulations mandate that HCPs meet the following six requirements before an ITP can be issued:

1. all takings must be incidental;
2. impacts must be minimized and mitigated "to the maximum extent practicable";
3. there must be both adequate funding, and provisions to address "unforseen circumstances";

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Letter E21

4. the taking must "not appreciably reduce the likelihood of the survival and recovery of the species in the wild";

5. the applicant must ensure that additional measures required by federal regulators will be implemented; and

6. federal regulators must be certain that the HCP can and will be implemented.

The standards applicable to HCPs apply to all species covered by the HCP whether or not they are listed under the ESA. The NFHCP covers a wide variety of listed and unlisted species, particularly in the Central Cascades Region. The conservation measures of the NFHCP, formulated upon data specific to bull trout, do not meet the applicable requirements for many of the covered species in this region. The NFHCP failed to establish that impacts to these species will be minimized and mitigated to the maximum extent practicable and that the takings would not appreciably reduce the likelihood of survival and recovery.

E21-1

I. The NFHCP fails to meet the ESA's requirements for covered species other than bull trout.

The NFHCP covers 1.7 million acres of land in the Columbia River Basin, and almost 70,000 acres of land in Washington. Plum Creek developed the conservation measures contained in the NFHCP based primarily upon bull trout as a focal species. The NFHCP also, however, covers several other species in the Central Cascades region, including the Southwestern Washington/Columbia River coastal cutthroat trout distinct population segment ("DPS"). A brief discussion of the Southwestern Washington/Columbia River DPS illustrates how the NFHCP fails to meet the requirements of the ESA with respect to covered species other than the bull trout.

Plum Creek concedes that with respect to species other than bull trout, "less is known about their distribution or habitat needs in the project area," but concludes that "habitat needs of other species are generally similar." The NHFCP/DEIS at 1-16. Plum Creek believes that applying the conservation commitments developed for the bull trout broadly across the entire Project Area will "provide the greatest likelihood of plan adequacy" but states at the same time that "adaptive management may play a more important role for conserving Permit species other than bull trout, since generally less information was available in the Project Area for those species during Plan development." Id. General conclusions regarding the habitat needs of covered species do not meet

E21-2

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E21-1	1
E21-2	208

Letter E21

E21-2 the requirements of the ESA, and the adaptive management program proposed by Plum Creek cannot provide adequate protections.

A. The NFHCP does not provide data adequate to determine whether takings of the Southwestern Washington/Columbia River coastal cutthroat DPS will "appreciably reduce the likelihood of survival and recovery of the species in the wild."

The Fish and Wildlife Service (the "FWS") proposed to list the Southwestern Washington/Columbia River DPS as threatened on April 5, 1999, concluding that "[r]eturns of * * * anadromous coastal cutthroat trout in almost all Columbia River streams have declined markedly over the last 10 to 15 years." 64 Fed Reg 16397, 16407. Plum Creek concedes that restoration of native runs in the Lewis and Cowlitz River portions of the Planning Area may be considered necessary for the recovery of this DPS. The NHFCP/DEIS at 4-101.

E21-3 Plum Creek, however, has not presented any species-specific data on habitat requirements. For instance, the NFHCP does not provide any information on temperature requirements for anadromous coastal cutthroat. Plum Creek concludes that bull trout can occur in waters up to 68° F. Id. at 4-84. Plum Creek also states that the life history of the coastal cutthroat is similar to that of the westslope cutthroat, which Plum Creek concludes spawns in water temperatures near 50°F. Id. at 4-96. The NFHCP, however, contains no detailed discussion of the habitat requirements of the coastal cutthroat.

Despite this lack of information, Plum Creek proposes to apply common conservation measures over the entire Project Area for all covered species. The conservation measures have been developed by Plum Creek based on their assumption that bull trout can survive in habitat markedly different from the habitat that is apparently required by anadromous coastal cutthroat. Yet the NFHCP does not even discuss the impacts of the ITP on the habitat and potential habitat of the coastal cutthroat in the Project Area. The FWS has concluded that habitat degradation has combined with other factors to severely deplete runs of the Southwestern Washington/Columbia River DPS, yet Plum Creek now asks for an ITP without even establishing minimum habitat requirements against which to compare the conservation programs. The NFHCP fails to establish whether takings of the Southwestern Washington/Columbia River DPS "will appreciable reduce the likelihood of survival and recovery of the species in the wild."

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E21-3	213

Letter E21

B. The NFHCP fails to establish that impacts to Southwestern Washington/Columbia River coastal cutthroat will be minimized to the "maximum extent practicable."

This determination understandably requires a balancing of the ecological benefits and the difficulty and cost of implementing conservation measures. In this case, however, the NFHCP has not even discussed potential ecological benefits to the Southwestern Washington/Columbia River coastal cutthroat. Again, Plum Creek bases all of its conclusions on information developed with respect to the bull trout. Plum Creek has made no attempt to determine what the potential benefits of additional conservation measures are for the coastal cutthroat and has certainly made no attempt to compare these benefits to the potential costs of implementing these measures.

E21-4

For instance, Plum Creek, in its final draft of the Native Fish Habitat Conservation Plan released in December of 1999 (the "DNFHCP"), cites evidence that Western Washington landslide rates were 15 to 25 times higher than dry sites in Eastern Washington and 50 times higher than in Western Montana. The DNFHCP at 2-3. Yet, in developing road management commitments, Plum Creek did not consider whether the higher landslide rates and the unique habitat requirements of the coastal cutthroat may warrant more protective practices in Western Washington. Plum Creek did not consider the feasibility of implementing more protective practices over this limited region of the Project Area and whether this species- and region-specific approach would be practicable.

Plum Creek does not have to sacrifice all of its business goals pursuant to the requirements of the ESA. It does, however, have to balance the benefits of conservation against the costs and feasibility of implementing these measures, and the language of the requirements clearly places on emphasis on conservation in requiring protection "to the maximum extent practicable." The NFHCP does not contain any information on more protective measures for coastal cutthroat and why or why not these measures are practicable. There is no information on minimum habitat requirements, the current plan's impacts on those requirements, additional measures that may improve habitat protection or whether implementing additional protections are feasible. Without at least some of this information, we cannot conclude that the NFHCP protects all covered species to the maximum extent practicable.

II. Conclusion

E21-5

We appreciate the opportunity to comment on the NFHCP. This is clearly an important process that will have a substantial impact on the natural

Responses

See Response to Comment Table or click on link provided below.

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E21-4	484
E21-5	1

Letter E21

E21-5 resources of the Project Area as well as the development and implementation of habitat conservation plans generally. We complement Plum Creek and the United States Fish and Wildlife Service and the National Marine Fisheries Service in their efforts.

E21-6 This plan, however, applies to a huge region covering numerous imperiled species, yet many of the conservation measures have been tailored to a single species. The NFHCP essentially claims that bull trout can be used as focal species for the entire Project Area. Particularly in the Central Cascades, this approach fails meet the requirements of the ESA. We understand the time and resources required to assemble and process the information required for such a diverse area, but Plum Creek selected the scope of the ITP. The requirements of the ESA apply equally to every covered species throughout the entire Project Area.

E21-7 CCA suggests that the proposed ITP be denied, because 1) the NFHCP fails to demonstrate that the permitted acts will not appreciably reduce the likelihood of the survival and recovery of covered species in the wild, and 2) the NFHCP does not guarantee that impacts of the permitted acts will be minimized and mitigated to the maximum extent possible.

Very truly yours,

Christopher G. Winter
Board Member

CGW:mlh

Portland1-2032196.1 0099895-00001

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E21-6	214
E21-7	1

Letter E22

Northwest Environmental Defense Center
10015 SW Terwilliger Blvd., Portland, Oregon 97219

March 17, 2000

RECEIVED
MAR 20 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

TO: Ted Koch
Project Biologist
FWS
1387 S. Vinnell Way, Room 368
Boise, Idaho 83709
Fax (208) 378. 5262

Bob Ries
Project Biologist
NMFS
1387 S Vinnell Way, Room 377
Boise, Idaho 83709
Fax (208) 378.5243

RE: Plum Creek Timber Company's Incidental Take Permit, Draft EIS, and Native Fish Habitat Conservation Plan for Inclusion of Eight Additional Species

The Northwest Environmental Defense Center (NEDC) is a non-profit environmental organization dedicated since 1969 to protecting the Pacific Northwest's environmental and natural resources. NEDC provides legal support to individuals and grassroots organizations with environmental concerns throughout the Pacific Northwest. NEDC engages in litigation on its own behalf and in conjunction with other environmental groups. NEDC appreciates the opportunity to comment on this proposed project.

A copy of this comment via U.S. Mail will follow a facsimile copy.

The ESA Recovery Standard.

The purpose of the ESA is to "provide a program for the conservation of endangered and threatened species" and to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved." 16 U.S.C. § 1531(b). Thus, the Secretary must make all efforts necessary to recover the listed species so that it may be delisted.

Section 10(a).

E22-1

Issuance of an Incidental Take Permit under section 10(a) of the ESA requires that the landowner show that it is minimizing and mitigating incidental take to the maximum extent practicable. NMFS and FWS (the Services) and the landowner are required to ensure that the HCP or mitigation plan adequately meets the ESA purposes of habitat conservation and species recovery. The term "practicable" has been defined under the Clean Air Act to mean economically or technologically possible. *Union Electric Co. v. EPA*, 447 U.S. 246 (1976). When deciding the economic practicability, the alternatives should only be viewed in light of other alternatives with the same level of environmental protection. *Friends of the Earth v. Hall*, 693 F.Supp. 904, 947 (W.D. Wash. 1998).

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E22-1	370

Letter E22

E22-1 NEDC feels that this is a case where ESA section 10(a)(2)(A)(iv) and 10(a)(2)(B)(v) should be used by the Services. These sections authorize the Services to require mitigation measures beyond the "practicable" mitigation measures required by section 10(a)(2)(B)(ii). We feel that this is necessary because of the heightened requirement of cold water for bull trout.

Section 7(a)(2) of the ESA.

E22-2 Section 7(a)(2) of the ESA and its administrative rules require agencies to use the best available science. NEDC does not feel that this requirement has been met. Although the NFHCP alternative is

E22-3 an improvement over current state forest practice rules, this alternative is not the best alternative for species recovery. It is clear that the forest practice rules in Washington currently require the greatest amount of environmental protection. Although these rules are an improvement over past rules they do not go far enough. As explained in the April 29th review of FFR prepared at the request of American Fisheries Society and the Society for Ecological Restoration (AFS),

> [i]f past regulations were inadequate for compliance [with ESA and CWA legislation], and new regulations are still inadequate, compliance remains impossible even if the new regulations are marginally better then the previous ones. Clearly, it would be unthinkable that a plan known to be inadequate could be accepted as having 'no significant impact' simply because it is slightly better than a pre-existing inadequate plan.

E22-4

(Review prepared at the request of the American Fisheries Society and the Society for Ecological Restoration, *Review of the 29 April 1999 "Forests and Fish Report" and of associated "Draft Emergency Forest Practice Rules,"* 31 January 2000, p.28). Although this report addresses the use of Washington's proposed forest practice rules as a take prohibition plan, the gist of the comment pertains to PCTC's use of state forest practice rules. PCTC claims that its HCP improves upon the Washington rules through the use of BMPs. However, an improvement on something that isn't currently preventing take does not necessarily result in the prevention of take itself. NEDC is concerned that none of the EIS alternatives presented represent the use of best available science, in contravention of the ESA.

Alternatives.

E22-5 NEDC believes that PCTC should consider an alternative that includes longer timber rotations, habitat reserves, and site protections to provide habitat for sensitive species. We are disappointed with the alternatives presented in the EIS. We would recommend that PCTC adopt a single-species approach in this case because of the large amount of terrain, and consequently habitat, that is covered under PCTC's proposed NFHCP. NEDC seriously questions whether adequate mitigation measures and cumulative effects analysis can be conducted for 1.7 million acres of forestland.

E22-6 Moreover, PCTC's reliance on the standards set out in the 303d list may not be adequate for bull trout. NFHCP P.4-28. The water quality standards adopted in Washington for temperature do not meet the temperatures required by bull trout.

E22-7 NEDC requests that the selected EIS alternative contain measures to adequately monitor the plan, mitigate the effects of logging and associated road building, and access cumulative effects. The HCP handbook indicates that an HCP's monitoring provisions should be as specific as possible. USFWS & NMFS, Endangered Species Habitat Conservation Planning Handbook, P. 3-26 (1996).

Responses

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Comment	Response
E22-2	245
E22-3	59
E22-4	353
E22-5	191
E22-6	809
E22-7	664

Letter E22

E22-7 NEDC believes that monitoring reports should estimate the amount of take that occurs under the adopted alternative in addition to the other requirements set out in the Handbook and the ESA.

E22-8 NEDC has detailed its concerns about mitigation in the section 10 discussion above. We would like to emphasis the size of PCTC's HCP in light of their ability to effectively address cumulative effects. NEDC is concerned that cumulative effects analysis for 1.7 million acres of land will not be adequate for species recovery. PCTC's HCP covers a wide range of species habitat and a number of diverse activities including logging and grazing. Cumulative effects analysis has not been adequately implemented on private lands for logging and road building impacts at the watershed level. (See Collins and Pess (1996), critiquing the adequacy of Washington's watershed analysis program.) NEDC is concerned that cumulative effects will not be adequately addressed over the numerous watersheds contained in the 1.7 million acres and for the number of activities covered by PCTC's HCP.

Assurances.

E22-9 NEDC feels that a plan that does not ensure conservation of native salmonids, as the ESA demands, should not be given long term regulatory certainty. Thirty years is a very long time in terms of the progress that science is making in this field. NEDC does not believe that species recovery will occur over the next thirty years based on PCTC's NFHCP and their request of "no surprises" for thirty years should therefore not be granted.

Conclusion.

NEDC would like to be added to the mailing list that receives copies of notices to add new species to PCTC's Tri-state HCP. Please send any further notices to:

Northwest Environmental Defense Center
ATTN: Tanya Sanerib
10015 SW Terwilliger Blvd.
Portland, Oregon 97219
(503) 768-6673

Thank you for considering the foregoing comments. If you have any questions regarding our comments, please do not hesitate to contact me through the information above.

Sincerely,

FOR Susan Jane B

Tanya Sanerib, Volunteer
Northwest Environmental Defense Center

3

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E22-8	232
E22-9	14, 77

Letter E23

John Osborn, M.D.
2421 W. Mission
Spokane, WA 99201

Ted Koch
U.S. Fish and Wildlife Service
Snake River Basin Planning Office
1387 South Vinnell Way, Room 368
Boise, Idaho 83709

Re: comments on proposed Plum Creek NFHCP and DEIS

March 17, 2000

Dear Mr. Koch,

I wish to thank you for this opportunity to provide comment on the largest proposed Habitat Conservation Plan (HCP) in history, and for the time and energy required to publish this draft environmental impact statement (DEIS). I also appreciate that the DEIS was made available on CD to reduce costs and save paper.

These comments are submitted on behalf of the Northern Rockies Chapter of the Sierra Club regarding the (DEIS) and Native Fish HCP for Plum Creek Timber Company. I wish to include in these comments, by reference, the comments submitted by EarthJustice, Land and Water Fund, Trout Unlimited, Pacific Rivers, and the Montana Chapter Society for Conservation Biology.

In understanding problems with this HCP/ITP (Incidental Take Permit), several issues can be more clearly understood by looking back, and then looking forward.

E23-1 In looking back, there are issues that arise from the unique history of the checkerboard estate resulting from the Northern Pacific railroad land grants of 1864 and 1870: the checkerboard estate's creation by President Abraham Lincoln and Congress, as well the extensive logging and road-building in recent decades. I have had the opportunity to discuss some of these issues with officials from both USFWS and Plum Creek Timber Company. During the scoping process, the USFWS was also provided a copy of the book, Railroads & Clearcuts: Legacy of Congress's Northern Pacific Railroad Land Grant (Jensen, Draffan/Osborn, 1995). The checkerboard estate's unique history, unresolved issues of title, and intended role in promoting the public interest and welfare are absent from this DEIS.

E23-2 In looking forward to the upcoming decades in the Columbia River ecosystem, this proposed HCP/ITP will be one of several critical decisions that will determine the fate of native fisheries in the ecosystem. For example, if the four lower Snake River dams are not removed, then recovering salmon and steelhead runs will require a markedly higher level of habitat protection and restoration on all ownerships. And even if the four lower Snake River dams are bypassed, there will still need to be a "new paradigm" of habitat management in this ecosystem in order to protect and recover native fisheries. There may be opportunities to achieve gains on National Forest and BLM-administered lands, but most of the opportunities will probably occur on other

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E23-2	21

Letter E23

E23-3 land ownerships -- including the checkerboard estate that is the subject of this HCP/ITP. While this view is publicly articulated by USFWS officials and the "federal family" of agencies, the new paradigm is not reflected in the DEIS. While there may be some gains by Plum Creek Timber Company closing roads and other measures, these will not offset the profoundly adverse impacts of Plum Creek logging thousands of miles of riparian zones, logging thousands of miles of headwater streams, bulldozing hundreds of miles of new logging roads, and subdiving into ranchettes important fish and wildlife habitat in the checkerboard estate.

E23-4 As you and I have discussed, there are problems with this HCP/ITP that are more clearly understood by using a "medical model" on the issues of baseline data, treatment interventions, and monitoring. If you are caring for patients, then it is essential to have baseline data before beginning interventions. Once those interventions are made, then it is necessary to monitor closely to insure that the interventions have the desired effect and do not harm the patient. For the river ecosystem, this DEIS lacks the necessary baseline data. The monitoring scheme is inadequate – both in its scope and lack of secure funding. This DEIS, because of its deficiencies, is a plan that will further "harm the patient" – in this case, river ecosystems across the states of Montana, Idaho, and Washington. First of all, do no harm – *primum no nocere* – is valuable in for caring for sick patients as well as for already-damaged river ecosystems.

E23-5 And finally, I wish for the USFWS to reconsider its objectives and strategies in the context of the federal government's public trust responsibilities to protect and recover native fisheries. As you and I have discussed, this proposed HCP/ITP does not envision protecting the "full loaf". Nor does it even envision protecting "half a loaf". Rather, this document takes a position that the federal government under the Endangered Species Act is relatively powerless to protect the fisheries and public interest on the checkerboard estate, and thus is willing to accept a "few slices from the loaf". As those of us who have been involved with the checkerboard estate over past decades know, this approach means a grim prognosis for native fisheries on the checkerboard estate.

E23-6 In closing, the challenge of protecting and restoring the Columbia River ecosystem will be a major national undertaking – and an entirely appropriate way for the United States to celebrate the Lewis & Clark Bicentennial. I again thank you and your staff for your efforts, and wish you well in trying to achieve the "new paradigm" articulated by the federal family of agencies in managing habitat to protect and recover native fisheries in Northwest river ecosystems.

Sincerely,

John Osborn, M.D.
Conservation Chair, Northern Rockies Chapter, Sierra Club

Responses

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Comment	Response
E23-3	21
E23-4	61, 77
E23-5	61
E23-6	1

Letter E24

MONTANA LOGGING ASSOCIATION

RECEIVED
MAR 2 0 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

Ted Koch
U. S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, Idaho 83709

March 16, 2000

Dear Mr. Koch:

These comments are submitted on behalf of the members of the Montana Logging Association, all of whom operate independent, family-owned timber harvesting and log hauling businesses. We are pleased to offer the following comments on the **Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan on the Proposed Incidental Take Permit for Plum Creek Timber Company** (64 FR 70695-70697, 17 Dec 99).

E24-1

Traditional applications of the Endangered Species Act, particularly Section 7 consultations with federal agencies, have often resulted in overkill restrictions on timber harvesting activities. Such restrictions have often not made scientific sense, have caused great hardship in the timber industry – and most importantly – have often done little to improve habitat quality, and thus recovery, for listed species. We support the intelligent use of the Endangered Species Act so that recovery of threatened and endangered species is actually realized. We are particularly pleased that Section 10 of the Act advances the negotiation of voluntary private conservation efforts such as the plan referenced in this notice. Through these negotiations, landowners can work with the Fish and Wildlife Service and National Marine Fisheries Service (the Services) in creative partnership leading to scientific conservation and regulatory certainty. It is about time for federal land management agencies to engage in similar processes with the Services and to retire, through congressional action, the archaic, reactive, Section 7 process.

We are particularly pleased that the NFHCP alternative seeks to create the synergy necessary to realize both the biological goals and the regulatory certainty that Plum Creek needs to make the considerable business investments required to improve fisheries habitat: " … the assurance of conservation of native salmonids and the assurance of long-term regulatory certainty for Plum Creek" (DEIS p. 1-12). And: "The proposed NFHCP would best achieve the stated, dual purpose and need for this project by reducing threats to Permit species while also allowing Plum Creek to implement viable timber management actions on their lands with reduced uncertainties regarding future ESA-related regulation (DEIS p. 5-10 *et seq.*).

E24-2

While we recognize that professionals disagree as to the risk of forestry harming listed species when forestry is conducted under existing state regulation in Montana, we strongly maintain that such regulations and practice poses no risk of harm to listed species. The Services maintain there is risk of harm, saying: "Commercial timber harvest and associated activities can

P.O. Box 1716 • Kalispell, MT 59903 • (406) 752-3168 • Fax (406) 756-9574 • Email: mla@digisys.net

Responses

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E24-1	1
E24-2	62

Letter E24

potentially negatively impact habitats essential to [listed fish]" (DEIS, p. 1-14). The Services wisely do not attempt to estimate or characterize this alleged risk.

We also suggest that the Services have made this question moot by negotiating a set of commitments that "provides a sufficient and significant contribution to the conservation of native salmonids that would allow for, or not preclude, the recovery of listed Permit species and would help remove threats to unlisted species" (DEIS p. 1-12). As a result, if the NFHCP alternative is selected, the Services have secured conservation results. Whether or not risk of harm exists, the landowner and the Services are working together in partnership to improve the likelihood that listed species will persist. With this approach, a subjective and indeterminate question of risk becomes a certainty of measurable results.

E24-3

We also offer the following specific comments on the DEIS:

Plum Creek has offered both passive and active management commitments that will ensure the protection of existing habitat characteristics as well as sustaining such characteristics over temporal and spatial scales. While management exclusion zones are a fashionable concept, as illustrated in the Simplified Prescriptions alternative, such strategies do little for the predictable future of desirable habitat characteristics. Direct management of riparian vegetation is desirable for maintaining a continuum of shade, large woody debris, and bank stability. Intermountain forests are fire-dependent; the natural course of events - eventual stand replacement by fire - usually results in a "feast and famine" situation where riparian shade is intermittently removed for long periods of time by disturbance events and large woody debris recruitment is a pulse event following disturbance. Worse yet, many areas exhibit subsequent re-burning of downed trees several years after the initial disturbance event (Arno *et al*). Montana's SMZ rules provide for active vegetation management in streamside areas – while placing operational restrictions to ensure the integrity of the SMZ. We are pleased to see that the NFHCP Riparian Management standards affords such opportunities to manage streamside vegetation with the intent of providing a continuum of shade, woody debris and bank stability. We are also pleased to see that the NFHCP will use existing SMZ regulations as the foundation of the Riparian Management standards.

In broad terms, we support the NFHCP Riparian standards. However, Plum Creek is uniquely capable of stratifying its land into tiers and levels of sensitivity and this complex structure should not be expected from other landowners. We also offer some specific operational issues that we feel will be problematic for timber harvesting operations:

E24-4

Rp2 will present an operational problem when timber is proposed to be harvested from a harvest area on the other side of the CMZ. Rp2 specifies that no harvest will be allowed in the CMZ; when no road access is available to access timber on the other side of the stream, it may be necessary to cut cable yarding corridors through the CMZ to enable the extraction of logs. Such a scenario appears not to be allowed under Rp2. Similarly, other "no-harvest" zones will present similar operational problems. This is important because an alternative and permissible solution would be to build a new road across the stream to access timber on the other side. Obviously, this would entail far more impacts that full suspension yarding over and through the SMZ or CMZ.

E24-5

The CMZ Equipment Exclusion Rule should be modified. The proposed standard restricts equipment operation to winter conditions; we submit that the standard should be modified to include dry conditions as well. Many CMZ's in Montana exhibit upland plant

E24-6

Responses

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E24-3	62
E24-4	90
E24-5	515
E24-6	548

Letter E24

E24-6 community types and very dry conditions during the summer months. Timber harvesting equipment can be operated in these CMZ's under dry conditions without causing damage to the integrity of the CMZ.

Rp8 will also present operational problems. Interface caution areas don't appear to offer any scientifically proven benefit to fish. These ICA's will be very challenging to locate in the field and will be technically challenging for Plum Creek to track the average ICA width as proposed. There will also be situations where the application of ICA's on steep gradient Class I streams will not make sense. Many such streams don't exhibit a well-defined valley landform; thus the hydrologic divide may only be a few feet from the stream channel. In such a case it would be ridiculous to require a 150' ICA. We suggest that if ICA's are included in the final NFHCP, they are limited to Montana Class I streams of 6% gradient, or less, that exhibit an associated valley land form. E24-7

The premise of using existing state riparian standards is well founded. The Montana Logging Association, Montana DNRC, Plum Creek and other timber industry entities have invested a great deal of time and effort into operational SMZ and BMP training for foresters, timber harvesting contractors and their employees. The results speak for themselves: The table on page 2 of the 1998 BMP/SMZ Audit Report (enclosed) indicates the application and effectiveness ratings for these practices since the protocols were standardized in 1990. We firmly believe that operational training we have conducted over the last ten years has resulted in the institutionalization of these performance standards. To try and change these clear and concise, effective, well regarded and well-understood rules would likely confuse and disenfranchise these constituents. We commend Plum Creek and the Services for using existing standards as the basic framework for conservation. E24-8

Similarly, in broad terms, we support the NFHCP Road standards. However, Plum Creek is uniquely capable of managing its road system and such commitments should not be expected from other private landowners. We also note that elements of the Simplified Prescriptions alternative would create impractical "Cook Book" prescriptions for road abandonment that would not allow for sufficient access to Plum Creek timberlands – particularly R7. Road density and road miles have become fashionable surrogates for sediment delivery and other negative effects on fish. The facts are that it is road design, location, condition, use parameters and maintenance standards that directly relate to sediment delivery. Plum Creek's NFHCP Road commitments advance an intelligent solution that will result in both fisheries habitat improvements and operational efficiencies for timber harvest transportation. We have one specific comment on R5 as it relates to culvert replacements outlined in Appendix R3, item 3: E24-9

There is no need to indiscriminately replace existing culverts when there is no evidence of any undercapacity or failure. R5 prescribes replacing all culverts with those suitably sized for the passage of a 50-year flood event. As a matter of fact, the Montana portion of the project area experienced a 50 (or even 100) – year event during the spring of 1997, with nearly all existing culverts successfully passing the event. We suggest that this standard be modified to require culvert replacement during upgrade of old roads only when direct evidence exists that culvert failure is imminent or probable. It would be foolish to incur the short-term sediment delivery risk of culvert replacement when direct evidence suggests that the culvert in question is functioning properly. E24-10

The Montana Logging Association affirms its commitment to continued timber harvesting education programs that advance the application and effectiveness standards of timber harvesting, road construction, use and maintenance. We have committed that we will

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E24-7	556
E24-8	604
E24-9	383
E24-10	449

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work with Plum Creek to develop and deliver an effective training program in NFHCP prescriptions. We completely agree with Plum Creek: "Plum Creek recognizes that the strength of the NFHCP will lie in its on-the-ground implementation (NFHCP p 7-1 *et seq.*). We support A2 and A4 and will continue to strive for implementation excellence of Montana Forestry BMP's, the SMZ Law & Rules and other additional operational standards as necessary.

E24-11

To summarize: We support the adoption of the NFHCP alternative with the modifications suggested above. We reject the Simplified Prescriptions alternative, as it has no scientific basis in Montana's fire-dependent ecosystems and would likely fail to maintain desirable riparian vegetation characteristics over time. We welcome the cooperation of the Services to improve the application of the ESA so that we can work together to restore at-risk wildlife populations to achieve recovered status. We applaud Plum Creek and the Services for their commitment to research, document, improve and apply scientifically based management systems that provide both a brighter future for native fish and Plum Creek as well as providing local employment opportunities for our members and our local communities.

Thank you for the opportunity to comment.

Sincerely,

Patrick Heffernan

Patrick Heffernan, MLA Staff Forester

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E24-11	1

Letter E25

RECEIVED
MAR 20 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

F. H. STOLTZE LAND & LUMBER CO

Lumber Manufacturers

Box 1429 • Columbia Falls, Montana 59912
Phone (406) 892-7000 • FAX (406) 892-1612
E mail fhstoltz@cyberport.net

Established in 1912
Affiliations:

Montana Wood Products Association
Charter Member

Flathead Valley Family Forestry
Co-founder

Tree Farm
Member Since 1950

March 16, 2000

FAXED 3/17/00

Ted Koch
U.S. Fish & Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Rm. 368
Boise, ID 83709

Dear Mr. Koch:

Please consider the following comments regarding the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan on the Proposed Incidental Take Permit for Plum Creek Timber Company.

F.H. Stoltze Land & Lumber Company own 35,000 acres of forested land in northwestern Montana. About 1/3 of this land has been owned by our Company since the early 1900's and has been managed to supply forest products for the last 100 years. Stoltze has been good stewards of the land allowing the needs of the land to be the determining factor in management decisions. We also manage and/or do timber harvesting on many privately owned forested tracts in the area. Quality land management is our goal and reputation.

We support the concept of voluntary private conservation efforts under the Endangered Species Act. These efforts can insure that the resource is protected and the real winner is on the ground management. In the past too often we have gotten tied up in writing rules and regulations and forgotten why they are being done – **on-the-ground conservation of the resource!** E25-1

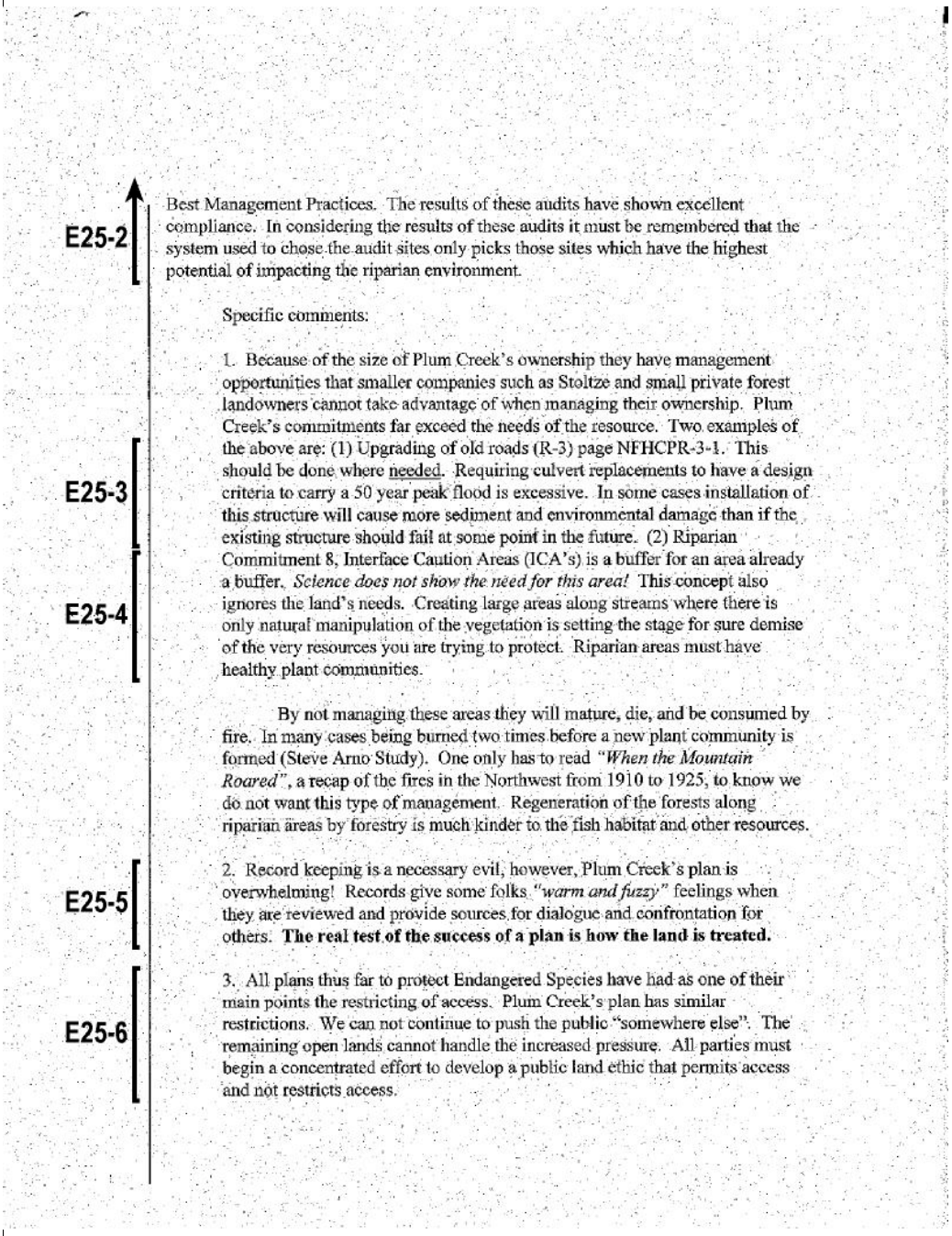
In Montana the current Streamside Management Act and the Voluntary Best Management Practices program have proven to be effective in directing lawful forestry activities so that there is no risk of harm to listed species. The biannual audits provide a creditable framework for evaluating the effectiveness of the SMZ law and voluntary E25-2

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E25-1	1
E25-2	100

Letter E25



E25-2

Best Management Practices. The results of these audits have shown excellent compliance. In considering the results of these audits it must be remembered that the system used to chose the audit sites only picks those sites which have the highest potential of impacting the riparian environment.

Specific comments:

E25-3

E25-4

1. Because of the size of Plum Creek's ownership they have management opportunities that smaller companies such as Stoltze and small private forest landowners cannot take advantage of when managing their ownership. Plum Creek's commitments far exceed the needs of the resource. Two examples of the above are: (1) Upgrading of old roads (R-3) page NFHCPR-3-1. This should be done where needed. Requiring culvert replacements to have a design criteria to carry a 50 year peak flood is excessive. In some cases installation of this structure will cause more sediment and environmental damage than if the existing structure should fail at some point in the future. (2) Riparian Commitment 8, Interface Caution Areas (ICA's) is a buffer for an area already a buffer. *Science does not show the need for this area!* This concept also ignores the land's needs. Creating large areas along streams where there is only natural manipulation of the vegetation is setting the stage for sure demise of the very resources you are trying to protect. Riparian areas must have healthy plant communities.

By not managing these areas they will mature, die, and be consumed by fire. In many cases being burned two times before a new plant community is formed (Steve Arno Study). One only has to read *"When the Mountain Roared"*, a recap of the fires in the Northwest from 1910 to 1925, to know we do not want this type of management. Regeneration of the forests along riparian areas by forestry is much kinder to the fish habitat and other resources.

E25-5

2. Record keeping is a necessary evil, however, Plum Creek's plan is overwhelming! Records give some folks *"warm and fuzzy"* feelings when they are reviewed and provide sources for dialogue and confrontation for others. **The real test of the success of a plan is how the land is treated.**

E25-6

3. All plans thus far to protect Endangered Species have had as one of their main points the restricting of access. Plum Creek's plan has similar restrictions. We can not continue to push the public "somewhere else". The remaining open lands cannot handle the increased pressure. All parties must begin a concentrated effort to develop a public land ethic that permits access and not restricts access.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E25-3	450
E25-4	557
E25-5	307
E25-6	491

Letter E25

E25-7

4. Management of grazing is necessary, however, Plum Creek's plan is excessive. To insure the health of the grasses, forbs, and shrubs along streams they must be grazed. A recent study in eastern Montana has shown that removal of the cows made the grass unpalatable for elk and deer. These animals are a part of the riparian area and ecosystem. The plan should encourage fencing, watering access, and herd management but not totally exclude grazing.

E25-8

5. The plan encourages disposition of Plum Creek lands to Federal, State, Private and/or Conservation groups with the idea that this will lead to more protection of the resource. In some cases this can be true, however, in many cases the burden is shifted to other ownerships. Further limiting of land available for recreational opportunities only concentrates the problems and demise of the fish habitat as well as other resources.

E25-9

6. The Adaptive Management Plan is an important part of the plan, however in its present form it is unworkable. There is no recognition of changing factors which Plum Creek has no control over such as long term climatic changes, fire, windstorms, flood events, etc. The trigger point must allow for ecosystem changes. Needed changes must be science based, practicable, and approached in a good faith manner by all parties.

In summary, the success of any plan relies on its ability to be implemented on the ground and the results it achieves on the ground. Simple is better and the fish habitat and other resources will be the winner.

Sincerely yours,

Ronald Buentemeier

Ronald Buentemeier
Timber & Lands Manager

RB/tc

cc: Cary Hegreberg
Greg Schildwachter
Kris Russell
Mike Jostrum
Mike Covey
Patrick Heffernan

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E25-7	756
E25-8	781
E25-9	675

Letter E26

MONTANA Wood Products ASSOCIATION

RECEIVED
MAR 2 0 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

March 17, 2000

Ted Koch
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 S. Vinnell Way, Room 368
Boise, ID 83709

Dear Mr. Koch:

On behalf of the member companies of Montana Wood Products Association (MWPA), I offer the following comments on the **Draft EIS and Native Fish HCP on the Proposed Incidental Take Permit for Plum Creek Timber Company.** MWPA is a voluntary organization of forest products manufacturers, forest landowners and associated businesses.

E26-1 We support voluntary conservation efforts such as those reflected in this proposal. We also appreciate the Agencies' recognition that private entities require regulatory certainty as they pursue conservation goals in partnership with public agencies.

Current forest practices provide adequate protection

First and foremost, we believe that Montana's Streamside Management Zone (SMZ) law, in conjunction with our forestry best management practices (BMPs) are adequate to prevent unlawful "take" of listed species. While alleging current forest practices may pose harm to listed species, the Agencies have astutely refrained from estimating or quantifying this risk.

E26-2 Plum Creek, as a major landowner, is to be commended for offering conservation commitments that go well beyond the legal requirements any private landowner would be held to. The company has agreed to measures that no other private landowner in Montana is capable of providing, and has over compensated for any perceived risk of harm to listed species. From the perspective of average forest landowners, Plum Creek goes too far in making management concessions, because

New address: 2027 - 11th Avenue Helena, MT 59601

Recycled Paper 4 Aspen Court, Suite 2-B, 33 S. Last Chance Gulch, Helena, MT 59601 Phone (406)443-1566 - Fax (406)443-2439

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E26-1	1
E26-2	1

Letter E26

E26-2 other private landowners do not have the options and the operational latitude that are available to Plum Creek. It appears Plum Creek, as a large industrial landowner, is being held hostage under a "guilty until proven innocent" cloud of legal jeopardy.

Interface Caution Areas are unnecessary and impractical

E26-3 There appears to be no scientific rationale for the riparian "interface caution areas" referenced in Riparian Commitment 8 on p. 3-22. We find the entire concept of buffer zones for buffer zones to be unwarranted and impractical. This provision seems to result from political negotiation rather than from scientific risk analysis. Forestry operations already abide by proven water quality protection measures embodied in the BMPs and SMZ law, which together eliminate risk of harming fish. We question the practicality of applying ICAs, especially on steeper gradient perennial streams. If ICAs must be included in the plan for political reasons, they should apply only to fish-bearing streams.

It should be noted that forestry operations already provide more far more protection for streams and fish than other land uses do. If Riparian Commitment 8 was universally applied, many county roads, state/federal highways, campgrounds, fishing access sites and recreation facilities would be shut down. Routine highway sanding operations and county road maintenance cause far more direct sediment to enter Montana waters than all timber operations combined.

Management of riparian areas is needed for long-term protection

E26-4 We oppose elements of the plan which call for a no-harvest zone in riparian areas. We believe this is extremely short-sighted and lacks objective scientific rationale. Riparian areas require management in order to continuously function in a manner that provides shade and recruitment of large woody debris. A management regime which allows for conditions that will sustain a crown fire in riparian forests is a recipe for jeopardizing fish. As fire-killed trees fall into a riparian zone, they will ultimately re-burn, eliminating shade for decades, removing sediment-trapping vegetation, and unnecessarily interrupting the continuous, but gradual, recruitment of large woody debris. It is pure fallacy that a "no-cut" approach to riparian management is in the long-term best interest of water quality or fish.

Replace stream crossings only when necessary

E26-5 We believe stream crossing structures should only be replaced when the existing structure is failing or failure is imminent. Stipulating that all stream crossings should be adequate to handle a 50-year flood event will unnecessarily increase short-term risk of sediment with little or no actual

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E26-3	552, 557
E26-4	516
E26-5	451

Letter E26

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E26-6	716
E26-7	63
E26-8	1

E26-5 advantage to the stream. Again, most landowners do not have financial resources to commit to this type of costly improvement that is only marginally beneficial. It is important to keep in mind that healthy bull trout populations are currently thriving in managed forest areas in which BMPs and the SMZ law have guided professional foresters. There is absolutely no evidence whatsoever to suggest these provisions are inadequate when consistently and properly applied.

Adaptive management provisions should be modified

E26-6 Provisions for "adaptive management" are of serious concern to us. "No increase in stream temperature" as a trigger is unreasonable because it demands a no-impact standard rather than a minimizing-impact standard. Numerous variables could impact stream temperature, some of which have nothing to do with forest cover or forest practices. This trigger for adaptive management should be modified to be more practical and more realistic. We are also concerned the ability to modify triggers subjects the agreement to endless negotiation.

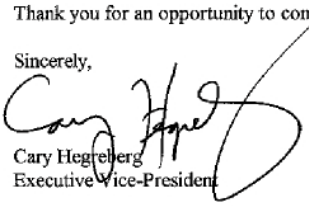
E26-7 In addition, we are concerned that as currently written, the adaptive management provisions may set a bad precedent for a landowner giving up assurances with vague economic sidebars. The adaptive management CAMP studies also set a bad precedent by requiring an individual landowner to conduct costly basic research as a condition of issuing the permit. This is above and beyond the scope of a private landowner's legal obligation.

Summary

E26-8 Plum Creek and the Agencies are to be congratulated for developing this creative partnership. We encourage you to move forward in implementing a Habitat Conservation Plan that benefits fish and provides certainty to the landowner. Our primary concern centers around how other, smaller landowners will ultimately be effected. Clearly, Plum Creek's commitment far exceeds its legal obligation under the ESA, and other landowners will not have the resources to follow the company's lead.

Thank you for an opportunity to comment.

Sincerely,



Cary Hegreberg
Executive Vice-President

Letter E27

WASHINGTON FOREST PROTECTION ASSOCIATION
724 Columbia St. NW, Suite 250
Olympia, WA 98501
360-352-1500 • Fax: 360-352-4621

March 14, 2000

Ted Koch, U.S. Fish and Wildlife Service
Snake River Basin Office
1387 S. Vinnell Way, Room 368
Boise, Idaho 83709

Dear Mr. Koch:

E27-1

The Washington Forest Protection Association representing industrial forestland owners in the state of Washington strongly supports the Native Fish Habitat Conservation Plan (NFHCP) developed by Plum Creek Timber Company, L. P., your agency, and the National Marine Fisheries Service. The NFHCP is another excellent example of the bold conservation steps taken by the timber industry in Washington, and will add to the base of scientific knowledge about riparian habitat in managed forests.

The NFHCP is a good compliment to the recently enacted *Forests & Fish Report* in the state of Washington, and will enhance our overall ability to sustain productive, working forests for the long term. Due to work of companies such as Plum Creek and other landowners in the state, almost every acre of public and private forestland in Washington will be under plans designed to protect aquatic habitat and water quality. WFPA is very supportive of the kind of collaborative private and public partnerships the NFHCP and the *Forests & Fish Report* represent. We are also supportive of the public processes these plans have created for the key stakeholders and public. A key value of the NFHCP has been its extensive public process, which has involved numerous organizations in more than one hundred meetings over the past two years. Plum Creek is to be commended for the efforts it has taken to inform and listen to the public in the development and acceptance of the NFHCP.

WFPA wants to specifically endorse the NFHCP's use of adaptive management as a method of making adjustments to the plan over its 30-year duration. As in the *Forests & Fish Report*, adaptive management is a valuable tool in providing necessary assurances to the landowner while offering the flexibility to react and respond to monitoring results. Both the NFHCP and the *Forests & Fish Report* will help to provide new information about aquatic habitat and different protection measures. This information should be invaluable for continuously improving management prescriptions as needed.

WFPA applauds the NFHCP and strongly supports Plum Creek in its efforts to have the plan approved by the agencies. Please don't hesitate to call me at 360-352-1500 if you have questions.

Sincerely,

Bill Wilkerson
Executive Director

We're managing private forests so they work for all of us.®

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E27-1	1

Letter E28

Potlatch Corporation PO Box 1388 Lewiston, ID 83501

RECEIVED
MAR 17 2000

March 17, 2000

Mr. Ted Koch
U. S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, Idaho 83709

Dear Ted:

Please consider the following comments from Potlatch on the **Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan on the Proposed Incidental Take Permit for Plum Creek Timber Company** (64 FR 70695-70697, 17 Dec 99).

Potlatch is an integrated forest products company with forest lands in Idaho, Minnesota and Arkansas, as well as a hybrid poplar farm in Oregon. In addition, we operate solid wood, pulp, and paper operations in Idaho, Minnesota, Arkansas and Las Vegas. In all of our businesses, we strive to be responsible stewards of natural resources (an example with the USFWS is Potlatch's HCP on red-cockaded woodpeckers in Arkansas). Therefore, we are particularly interested in the HCP proposed by our neighbors, Plum Creek Timber.

E28-1 First, we would like to support the comments submitted separately by the Intermountain Forest Association. Second, we would like to specifically state that we believe the Permit should be granted for the HCP as proposed by Plum Creek. Our specific comments and questions are given below.

E28-2 1. Plum Creek has offered a set of commitments that far exceed the capabilities of most landowners and that we believe far exceed the threat to species from forest land management under current Best Management Practices. A specific example is the research proposed under the program. We support this work, but have great concerns that the conduct or funding of research become a necessary component of HCPs. Can you provide assurance that this HCP will not set a one-size-fits-all standard, and that the specific nature of each landholder must be considered in developing future conservation programs?

E28-3 2. Beyond stewardship ethics, the principal reason for companies to enter into ESA agreements is to receive business certainty, or "no surprises". We still struggle in reconciling the "no surprises" commitment with Adaptive Management. Can you please provide an explanation of what "no surprises" means in an Adaptive Management program? In the particular case of this HCP, the "zero tolerance" trigger for temperature appears to provide no certainty whatsoever. We believe this is important for two reasons. First, if the Services are really not offering "no surprises", then they should say so directly. Second, a "zero tolerance" tends to reinforce the erroneous concept that Best Management Practices equate to zero changes. The more accurate definition of Best Management Practices acknowledges that changes will be minimized through the application of practicable (doable and affordable) technology and actions. Therefore, we would support a temperature trigger in the neighborhood of 1 C, or perhaps a sliding scale with triggers being a function of current stream temperature. Can you please articulate the Services' position on BMPs and the acceptable effects on resources?

E28-4 3. We believe that harvest exclusion zones are an indefensible management strategy on private or public lands. The ultimate consequence has been well illustrated in the "forest health" and wildfire occurrences in recent years. We strongly agree with the concept of careful management in streamside areas that balances economic activity with resource protection. Can you provide

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E28-1	1
E28-2	90
E28-3	701
E28-4	516

Letter E28

March 17, 2000

E28-4 empirical evidence that demonstrates the relative impacts of modern forest practices compared to the impacts of wildfire?

4. We believe the plan over-emphasizes habitat at the expense of other factors that affect native fish. In particular, fishing and exotics. It never ceases to amaze us the amount of time, money and effort that are directed at reducing sediment that might end up in a stream, that might end up on incubating eggs, that might reduce survival to emergence, while at the same time adult fish (and all the future generations they would surely produce) are certainly killed by fishermen. Can you provide, for even one or two streams, empirical evidence that modern forest practices reduce either fish density or distribution? Can you compare this evidence to the effect of fishing? The plan does address non-native interactions, at least experimentally. It seems to us that the Service or other fishery management agencies should be doing, or funding, this work. Can you articulate the Services' plan for experimentally or operationally addressing the effects of non-native fish?

E28-5

E28-6

5. The proposal contains a management guideline that practically provides a "buffer to the buffer" (NFHCP, p. 3-22). Can you provide any technical information supporting such a need, or a demonstration by empirical data of the benefits of such an approach?

We appreciate the chance to comment and look forward to the answers to our questions. We believe these questions are relevant to the broad range of forest land owners who are watching this process carefully. The answers will be important as they evaluate their opportunities to pursue similar agreements.

Sincerely,

Terry Cundy

Terrance W. Cundy
Resource Hydrologist

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E28-5	229
E28-6	558

Letter E29

Kalispell Area Chamber of Commerce

RECEIVED
MAR 14 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

March 10, 2000

Ted Koch
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, Idaho 83709

RE: Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan

Dear Mr. Koch:

On behalf of our members, the Kalispell Chamber appreciates the opportunity to provide comments on this Native Fish Habitat Conservation Plan. The Kalispell Chamber represents 560 businesses and organizations located primarily in Flathead County, Montana. The timber industry is the largest basic industry in Flathead County – and Plum Creek is the county's largest private employer. Therefore, our members have a vital interest in providing a stable economic future while providing conservation for the native fish that we all enjoy.

The Kalispell Chamber of Commerce congratulates the Services for their hard work with Plum Creek in developing this plan and supports the issuance of an incidental take permit.

E29-1

We are encouraged to see a problem solving and collaborative approach to addressing environmental issues. It is our experience that contentious as well as consensus approaches often lead to gridlock which is neither good for the businesses impacted nor for the environment. We encourage you to complete this process with Plum Creek in spite of political pressures that may arise as a result of public comment that could threaten to delay or derail it.

E29-2

The Endangered Species Act, while an important provider of protection to threatened and endangered species, has had a detrimental impact on the economic welfare of our region. The Act has been used as a tool to reduce and, indeed, largely halt the availability of timber from Federal Forests. Several mills have had to close in the last decade and high wage paying, full benefit jobs have been replaced by lower paying part-time employment in the service and retail sectors of the economy. The net effect has been the reduction of per capita income in this county and the state. Fortunately, Plum Creek has helped to moderate this impact because of their continuing good management of their private

15 Depot Park • Kalispell, MT 59901
(406) 758-2800 • Fax (406) 758-2805 • Email: chamber@digisys.net • www.kalispellchamber.com

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E29-1	1
E29-2	1

Letter E29

E29-2 forestlands. The NFHCP is important to our region because it will provide economic and regulatory predictability while at the same time providing conservation for the native fish we enjoy.

E29-3 The Kalispell Chamber is concerned that the Adaptive Management provisions may make it too easy to change the NFHCP in the future and take away the regulatory assurances that will help provide the economic stability that will benefit our community. We encourage the Services to ensure that the Adaptive Management approach does not allow for an endless negotiation that would undermine the regulatory certainty that gives Plum Creek and many other businesses the confidence to invest in their companies and this community.

E29-4 Some of the provisions in the Simplified Prescriptions alternative would create a direct hardship on businesses other than Plum Creek. Examples include the elimination of cattle grazing on Plum Creek land and the severe reduction of public access to Plum Creek land. The Kalispell chamber also represents members in the cattle industry who depend on Plum Creek lands as well as retail and attractions that rely on a healthy outdoor recreation market. The NFHCP represents a better alternative for these other businesses while still providing conservation for fish.

Sincerely,

Joseph H. Unterreiner
Executive Vice President

CC: Congressional Delegation

2

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E29-3	702
E29-4	1

Letter E30

RECEIVED
MAR 2 0 2000
S. FWS

March 10, 2000

MONTANANS FOR MULTIPLE USE
P.O. Box 3050 Columbia Falls, MT 59912
406-755-6368 FAX 406-892-2318

Ted Koch
U.S. Fish & Wildlife Service
1387 South Vinnell Way; Suite 368
Boise, ID 83709

SUBJECT: Comments on Plum Creek Native Fish Habitat Conservation Plan, due March 17, '00.

FROM: Montanans For Multiple Use. A non-profit organization representing over 300 members in Western Montana.

--- PUBLIC ACCESS: MFMU is alarmed that the simplified prescriptions alternative would block public access to Plum Creek lands. We recommend that you do not include this drastic approach in the NFHCP, the preferred alternative. Such a move would alienate the public who already has been locked out of public lands. Alienating the public can be more detrimental to conservation objectives than any gain made by closing roads.

E30-1 --- PRIVATE PROPERTY RIGHTS: MFMU recognizes that an HCP is a voluntary action on the part of a company that pursues one. But to the extent that a company takes this course of action out of fear of having their land taken away because of the ESA, HCPs are an intrusion of the federal government on private property rights. Many of the NFHCP measures go beyond what is necessary to protect fish. The Services should not pressure Plum Creek into giving up more than they already have.

E30-2 --- ROAD ABANDONMENT: Forest roads not only serve as a tool for long term sustainable forest management, they provide for public recreation on forest lands which Plum Creek is gracious to permit. Taking culverts out can create serious short-term risks for fish. The road abandonment requirements of the NFHCP should be taken out. Road abandonment and destruction by culvert excavations is occurring in Western Montana on public lands. It is an absolute disaster and is not about saving the environment as it is not completed according to any water quality laws or regulations.

E30-3 --- ADAPTIVE MANAGEMENT: The Adaptive Management provisions give the Services the right to come back and ask for more. Since "no-surprises" is the only thing Plum Creek receives in exchange for expensive conservation, changes that make the plan more restrictive should not be allowed unless there is clear proof of jeopardy. Also, the triggers are a one way street, specifying when further restrictions are required but not when the government should ease up on Plum creek. The NFHCP should be made more equitable by taking away the imbalance that favors the government.

Thank you for the opportunity to comment. Please place us on your mailing list for any further information.

Respectfully:

Clarence Taber, President
MONTANANS FOR MULTIPLE USE
P.O. Box 3050
Columbia Falls, MT 59912
by:

Chuck Samuelson, Public Access Dir.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E30-1	64
E30-2	383
E30-3	622

Letter E31

ROADTECH, Inc.

"Specialized Maintenance Equipment"

9 B Meadowhurst Dr. St. Maries, Idaho 83861 Business/fax 208-245-9628

RECEIVED
MAR 13 2000
CH2M HILL
BOISE

March 5, 2000

Ted Koch
U.S. Fish & Wildlife Service
Snake River Basin Office
1387 S. Vinnell Way, Room 368
Boise, Id 83709

RE: Plum Creek Timber Company's NFHCP.

E31-1 Roadtech Inc. has worked for many different landowners over the years as an independent contractor specialized in road maintenance. We have watched the practices of all these companies evolve to more responsible land stewardship. The most dramatic changes have been with Plum Creek. This company has shown the management commitment with finical resources to meet or exceed the objective.

E31-2 Last summer (1999), we worked for Plum Creek on a Bull Trout restoration project in Rutledge Cr. on the Little N. F. Clearwater River in Idaho. The project area had been harvested in the early 70's and impacted hard. P.C. provided the management criteria, contractor training, and funding; while Roadtech supplied the specialized equipment and experienced operators. The finish product was checked internally by P.C. personnel with spot third party external audits. Bottom-line, the results were outstanding. Not only did we meet the sediment reduction target; their ground now has lower sediment yields and less potential hazards than the adjacent USFS lands.

E31-3 To date, Plum Creek's NFHCP is the only realistic and workable solution. With their resources and professional commitment we can correct past practices and improve on future methods. The other options are sure to grind to a halt in red tape and lawsuits!

E31-4 Roadtech Inc. supports, without reservation, the request by Plum Creek for the incidental take permit. Hopefully others in the industry will endorse their efforts and follow suit.

Respectfully,

Sid Clark

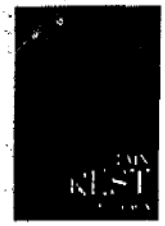
Sid Clark Forest Engineer
President, Roadtech Inc.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E31-1	65
E31-2	384
E31-3	66
E31-4	1

Letter E32



RECEIVED
MAR 20 2000

300 E. Pine
Missoula, Montana 59802
406•542•1220
Fax 406•542•8274
www.intforest.org

March 17, 2000

Ted Koch
U. S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, Idaho 83709

Dear Ted:

Please consider the following comments from the Intermountain Forest Association (IFA) on the **Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan on the Proposed Incidental Take Permit for Plum Creek Timber Company** (64 FR 70695-70697, 17 Dec 99).

IFA is an organization of wood-products manufacturers, timberland owners and related businesses in the northern Rockies. We seek a stable and sustainable supply of timber on public and private forests, and we help our neighbors meet their wants and needs from forests. We focus on solving problems in conservation so trees, wildlife, water, and other parts of the forest are managed in concert, and so people interested in forests are satisfied. We encourage and help our member companies cooperate among themselves and with conservation groups, scientists, and local communities.

E32-1

In general, we support the use of the Endangered Species Act to negotiate voluntary private conservation efforts such as the plan referenced in this notice.

Through these negotiations, landowners can work with the Fish and Wildlife Service and National Marine Fisheries Service (the Services) in creative partnership leading to scientific conservation and regulatory certainty. We are gratified that the Services also see this dual purpose, having described it for the Plum Creek action as "the assurance of conservation of native salmonids and the assurance of long-term regulatory certainty for Plum Creek" (DEIS p. 1-12).

Negotiating voluntary conservation efforts secures conservation results for listed species that usually suffer from legalistic controversies that drain money away from conservation results. This benefit of Habitat Conservation Planning warrants explanation.

First, we recognize that professionals disagree as to the risk of forestry harming listed species when forestry is conducted under existing state policies in Montana and Idaho. We maintain that such modern lawful forestry poses no risk of harm to listed species. To the contrary, the Services maintain there is risk of harm, saying, "Commercial timber harvest and

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E32-1	1

Letter E32

associated activities can potentially negatively impact habitats essential to [listed fish]" (DEIS, p. 1-14). The Services accurately avoid any attempt to estimate or characterize this alleged risk as no reliable estimate or characterization exists.

E32-1

Second, rather than invest in solving this very difficult technical question of risk, the Services have made the question moot by negotiating a set of commitments that "provides a sufficient and significant contribution to the conservation of native salmonids that would allow for, or not preclude, the recovery of listed Permit species and would help remove threats to unlisted species" (DEIS p. 1-12).

We applaud both the Services and Plum Creek for by-passing this controversy and working together in partnership to improve the likelihood that listed species will persist. With this approach, an impossible question of risk becomes a certainty of results.

Comments about the Services' Role

We ask that the Services consider this plan as a starting point toward similar creative partnerships elsewhere in the intermountain forest. We are gratified that the Services anticipate this HCP will "generally result in improvements in fisheries and aquatic resources in the Planning Area", but we agree that the cumulative effects of a decision on this plan "could be driven by activities on lands that Plum Creek does not own" (DEIS, p. 4-198). To reduce the uncertainty about these cumulative effects, we urge the Services to move quickly to accept offers from other landowners and managers to negotiate additional plans. As more HCPs are put in use, we can all be more certain about how conservation on federal, state, tribal, private and other non-federal lands will work together to increase the likelihood of persistence for listed species.

E32-2

Without a network of conservation plans in Montana, or a single statewide HCP, the Services must be clear with other landowners and managers in the planning area on how this HCP affects their obligations under the Endangered Species Act. We believe that a neighbor's HCP does not affect the obligations of adjoining landowners, but it does present an opportunity to extent conservation benefits and better know the cumulative effects of land uses across large areas. The first HCP in an area increases the certainty that the underlying private tract is contributing toward the recovery of listed species. Accordingly, every additional HCP in an area will incrementally increase this certainty ever higher. During this incremental process of adding conservation benefit, the Services must not pressure any landowner or manager, federal or non-federal, to change their land uses on account of the status of the network of HCPs. This means no changes should be required of national forest management or any other federal actions on account of the decision on this plan.

Comments about Plum Creek's Commitments

1. **Plum Creek has offered an impressive and overwhelming set of commitments that far exceed the capabilities of most landowners and overcompensate for the alleged risk of harm to listed species.**

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E32-2	67

Letter E32

E32-3 Whatever level of risk of harm that the Services believe exists, this set of commitments must greatly overcompensate. For example, Riparian Commitment 8 (Rp 8), is described as a buffer for the Streamside Management Zone (SMZ): in short, a buffer for the buffer (NFHCP, p. 3-22). Rp 8 is explained as an approach advocated by the Services based on a generic recommendation, and apparently lacking technical basis (NFHCP, p. 3-23). These "caution" zones appear to be an artifact of negotiation instead of the result of risk analysis. Consider that all law abiding foresters in Montana comply with existing state law and policy on streamside protection and audits of Best-management Practices. These protections alone eliminate risk that forestry operations would harm fish, and places forestry far above many other normal and necessary activities in the state in effective protection of fish. Compare forestry precautions, for example, with the routine and liberal spreading of fine sediment in snow removal operations on public roads regardless of proximity to fish-bearing waters. While these other lawful activities continue immediately beside streams, and while fish in those streams continue to recover, Rp 8 takes foresters two buffers away from streams. This is overcompensation for perceived risk that has not materialized.

E32-4 Rp 8 is also an example of the sort of commitment that a large landowner might offer, but that a small landowner could not possibly offer. Buffers on buffers would likely extend past the ownership boundary of a small landowner.

Plum Creek is uniquely capable of stratifying its land into tiers and levels of sensitivity and this complex structure should not be expected from other landowners. The system of land guilds driving this complex stratification of land was developed by Plum Creek's own research staff and published in a professional journal. It take another large landowner with a research staff to replicate this work for other land bases. Also, the resulting system is far too complex for consistent application.

These are only a few of the specific examples of commitments that overcompensate for perceived risk and that would never be possible from smaller landowners.

2. **The underlying concept of exclusion zones is flawed, and actually creates more risk than it purports to eliminate.**

E32-5 The flawed underlying concept of exclusion zones is that trees providing shade today will continue providing shade indefinitely. As stands of trees continue to grow, they continue toward regeneration. In the intermountain west, most of these stands regenerate by burning down, which poses greater risks to fish habitat than managed regeneration using forestry. To exclude forestry is to guarantee regeneration by fire. These fires often burn not only once, but twice. The second fire consumes the trees killed by the first fire.

We remained greatly concerned that the limitations on modern forest practices offered in this proposal would prevent the managed regeneration of stream-side stands.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E32-3	559
E32-4	90
E32-5	516

Letter E32

3. We appreciate the Plum Creek's commitment to fish management projects and research and urge the Service to honor these overtures by seeking additional money and project partners to share the cost and extend the benefit of this public service.

E32-6

We support the concept of focusing conservation efforts where they will create the most benefit. As stated above, we believe this plan applies far too much effort on habitat features. We applaud Plum Creek for including on top of these habitat commitments a number of fish management projects and research. By improving fish populations, definite results can be had such as expanded ranges and connectivity. Through research we all benefit from better information.

Like many of the habitat commitments, these projects commitments are out of reach for most landowners, but these projects go even further to constitute a public service. We urge the Services to take up part of this burden for public service by helping to arrange partners who will share in this work.

4. The Adaptive Management Plan should be governed by the same principles as the original negotiation.

E32-7

Two important principles behind this negotiation to date are the focus on activities and results that the landowner can influence, and the concept of "practicability."

The concept of influence makes sense, as the Services explain, because some results such as fish population sizes "could be influenced by a variety of factors unrelated to Plum Creek's actions" (DEIS, p. 4-65). For this same reason, we oppose an adaptive management trigger set at zero change. This requires the landowner to eliminate water temperature changes in streams. This and all other triggers should allow for ecosystem dynamics unrelated to the landowner's actions.

The concept of practicability comes from the criteria for permit issuance (DEIS, p. 1-15). Because it applies to the original negotiation for a permit, it should also apply in the adaptive management pathway step labeled as "Development of a Management Response." Should the need for a management response negotiation ever to occur, that re-negotiation of the commitments in the plan should be governed by the same practicability criterion as the original negotiation.

We appreciate the chance to comment.

Best Regards,

Greg Schildwachter, Ph.D.
Wildlife Program Manager

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E32-6	68
E32-7	703

Letter E33

Joe Keller Trucking

183 Fairmont Road
Kalispell, Mt. 59901

Phone 406-756-7168
Fax 406-756-7168

March 17, 2000

Ted Koch
US Fish and Wildlife Service
1387 South Vinnell Way, Suite 368
Boise, ID 83709

To Whom It May Concern:

I am a small business, Joe Keller Trucking, that hauls logs for loggers contracted to Plum Creek on Plum Creek lands and roads into Plum Creek mills.

E33-1

Forest roads on Plum Creek lands and national forests serve as a tool for long-term sustainable forest management. To ask them to take out their roads is to say that they cannot manage their lands for the long term is absolutely ridiculous. To subject private lands to the same hands-off mangement that increases forest health problems is a serious mistake for our forests. In Idaho, private industrial lands forests are 50% healthier than public lands. Plum Creek, and/ or their contractors would have great and unnecessary expense in taking out culverts and then rebuilding them when needed again. Modern road engineering does not pose short- or long-term problems for fisheries, but taking out culverts poses serious short-term risks for fish. Consider the following:

Dr. Victor Kaczynski, a fisheries specialist who has worked on salmon recovery, listed the post-fire impacts on watersheds as increased spring runoff, decreased summer water volumes, increased erosion, decreased stream-side vegetation, increased summer water temperatures, decreased winter water temperatures, loss of spawning gravel and loss of soil nutrients. In September, 1994, Dr. Kaczynski said, "*No single forest practice - not timber harvesting, not road building - can compare with the damage wildfires are inflicting on fish and fish habitat. It is a paradox that the very fish we are trying to protect from extinction are now being threatened by fires many so-called environmentalists believe should be allowed to burn unchecked.*"

E33-2

Plum Creek lands are private property and this HCP is a voluntary action on their part, perhaps in part to be good neighbors and perhaps an action to avoid losing the use of their land under the Endangered Species Act. The Adaptive Management provisions need to be taken out because the "no surprises" is the only thing Plum Creek receives in return for expensive conservation measures.

Plum Creek has also been a good neighbor by allowing public access to their lands. Such a move would alienate the public who already has been locked out of public lands.

Sincerely,

Joe Keller
Sheila Keller

Joe and Sheila Keller, Owners
Joe Keller Trucking

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E33-1	440
E33-2	701

Letter E34

american fisheries society

MONTANA CHAPTER

March 28, 2000

RECEIVED

APR 0 3 2000

SNAKE RIVER BASIN OFFICE
U.S. FWS

U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, ID 83709

Dear U.S Fish and Wildlife Service:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan (HCP) for Plum Creek Timber Lands. The Montana Chapter of the American Fisheries Society is particularly interested in this plan since most of Plum Creek's timber lands are in Montana. We prefer the NFHCP alternative to the No Action alternative, and our comments are offered with the hope that they may strengthen the Plan and help assure that bull trout populations can be recovered and conserved.

E34-1

Probably our greatest concerns revolve around the issues of implementation and the adaptive management process. In order for the plan to be implemented properly and objectively, the Service needs to be able to commit staff to ensure that the commitments in the HCP are being met and that the bull trout populations are truly being maintained and protected. With respect to the adaptive management process we feel that the pathway, as described, is cumbersome and impractical. The requirement that statistical significance, biological relevance, and causal linkages need to be established before management changes can be made will be difficult to achieve, particularly in drainages with mixed ownership and different land uses. First, it will be hard (if not impossible) to pin down the appropriate level of statistical significance that actually translates into biologically relevant changes. Second, proving causal linkages is virtually impossible if someone wants to take issue with the data. Since we anticipate that Plum Creek will take a conservative approach toward their interpretations of biologically relevant changes and causal linkages, we feel it is necessary to counterbalance this tendency by establishing an advisory committee of outside experts to review the CAMPS findings and data and recommend changes as needed.

E34-2

Other comments are provided below

1) Tier 1 and Tier 2 lands are "locked in" in terms of their designation for the life of the permit, which is 30 years. Our feeling is that all streams that are tier 1 should remain that way but there should be an opportunity for tier 2 lands to get converted to tier 1 as additional surveys are conducted. This issue should be revisited every 5 years (about the generation length of a bull trout).

E34-3

2) The adaptive management approach must have some mechanism for incorporating

E34-4

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E34-1	1
E34-2	324
E34-3	527
E34-4	677

Letter E34

E34-4 information that shows changes in bull trout populations. For example, if surveys show bull trout in a particular tier 1 stream to decline in abundance by 90% in 10 years, there needs to be a way for this information to cause change in their management prescriptions.

E34-5 3) Water yield must be addressed. Of particular concern is the possibility that flood events will cause much more channel erosion in drainages with intensive clear-cutting than in drainages with little or no harvest. These effects will be more profound in unstable streams that have already been compromised in terms of form and function. Therefore, we suggest that Plum Creek develop and implement a quantitative scoring technique for assessing the stability of stream channels (or use an existing scheme such as the "User guide for assessing proper functioning condition and supporting science for lotic areas." Technical Report 1737-15 (USDI, 1998)). All tier 1 streams would be ranked with this or some other method, and if a stream ranks out low, then Plum Creek should commit to less intensive management in that drainage until the score improves. Exactly what form this less intensive management should take is uncertain, but it could involve no clear-cutting or putting a ceiling on the percent of the drainage that can be cut.

E34-6 4) Bringing old roads up to current BMP standards is a good plan, but what happens when Plum Creek has finished bringing all their roads up to BMPs and they don't have any more they are willing to reclaim? Will there then be any restrictions on the amount of new roads?

E34-7 5) Their road improvement schedule is odd (R5). Why does it take Plum Creek 10 years to bring up to standards just 20% of the roads? But then they can get all the remaining 80% done in just 5 years.

E34-8 6) The BMP list on R3 seems very incomplete. Situations that should be addressed include: 1) drive-through fords, 2) unstable cut and fill slopes, 3) surfacing of wet, muddy roads, and 4) culverts that are in place (even if they meet 50 year floods). These are not mentioned for BMP work. And also, just how will they abandon roads? There is no language about whether they will pull out culverts or leave them in place.

We hope these comments can help improve this HCP, which we generally consider to be a worthwhile and promising endeavor.

Sincerely,

Buddy Drake
President, Montana Chapter
American Fisheries Society
PO Box 4183
Bozeman, MT 59772

Cc: Ken Hashagen, Western Division AFS

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
E34-5	265
E34-6	434
E34-7	446
E34-8	452

Letter F1

To: Ted Koch
From: Karen Smith
Fisheries Biologist, Clearwater NF
Rt. 2, Box 191
Kamiah, ID 83536
208-935-7992

Date: March 16, 2000

Re: Draft EIS and Native Fish Habitat Conservation Plan for Plum Creek Timber Lands

Ted-
I've reviewed the Draft EIS and NFHCP and have a few comments with regards to the proposed stream crossing guidelines. My interest is ensuring that adequate upstream passage is provided for all life history stages of native fish and other aquatic organisms. It is my experience that if culverts are designed to simulate the natural stream in width, depth and substrate, then passage for all aquatic organisms can occur. In the event that some small amphibian or non-game fish (such as sculpin) becomes listed, then upstream migration does not become an issue if crossings were designed for "stream simulation".

F1-1 Stream simulation designs require that: 1) a culvert be as wide as the bank full or active channel width, 2) it be placed at the natural stream gradient, and 3) the outlet of the culvert be in contact with the stream bottom. A culvert that is as wide as the active channel offers no constriction to the stream. Water velocities therefore remain "natural" or unaffected. In undersized culverts, the normal constriction increases water velocities, which inhibit or prevent the upstream movement of small fish (juvenile salmonids, sculpin) and amphibians. Properly sized culverts placed at the natural stream gradient will collect and retain natural substrates (cobble, gravel) inside the pipe. Substrates reduce velocities and create small resting areas for fish and amphibians during their upstream migration. A culvert whose outlet is in contact with the stream bottom provides access to all aquatic organisms by providing a continuous surface from the stream bottom into the pipe. This combined with a natural bottom substrate mimics natural conditions. The past requirement for "jump pools" at culvert outlets is useful only for salmonid fishes that have good jumping abilities. Some juvenile salmonids cannot negotiate these jumps due to their small size, especially when velocities are high. Sculpin, dace and amphibians are poor jumpers and are therefore prevented from moving upstream in these situations.

My recommendations for the NFHCP are as follows:

F1-2 1) Increase the culvert sizing criteria from a 50-year event sizing to a 100-year event sizing for all 3rd order or larger streams on permanent roads. In most cases the 100-year sizing correlates very closely with the active channel or bank full width. Sizing culverts for a 50-year event would still lead to a channel constriction, velocity increases and a lack of substrate in the culvert. Scouring at the outlet would also likely occur. In general, sizing a pipe to meet a 100-year event equates to about a 20% increase in pipe size from the 50-year event pipe size. The increased cost is relatively small and since culverts are a long-term investment (50 years), the additional size increase may be worth the extra money spent.

Responses

See Response to Comment Table or click on link provided below.

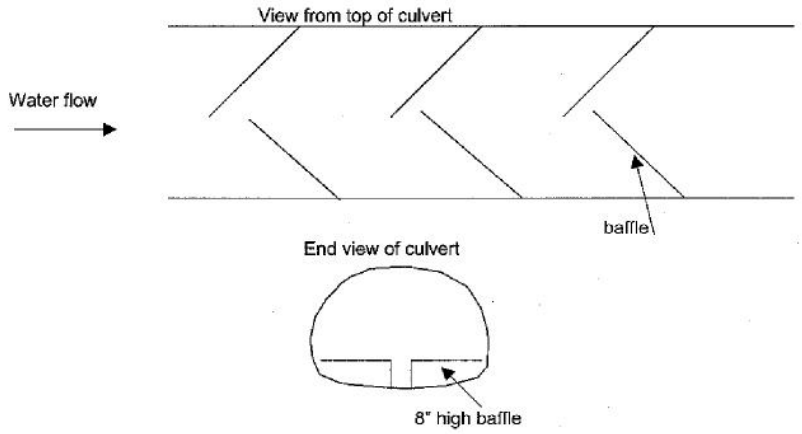
Comment	Response
F1-1	401
F1-2	402

Letter F1

F1-3 2) Install triangular squash pipes on all fish-bearing streams where bridges or bottomless culverts are not installed. This culvert shape best mimics the natural channel configuration and would provide the optimum shape for retaining substrate in the pipe.

F1-4 3) Culverts should be slightly countersunk below the existing streambed to allow for gravel deposition and retention, as well as to provide connectivity from the stream bottom to the culvert outlet. On steeper gradient pipes (3-5%), short baffles can be installed to improve substrate retention (see Figure 1 below).

Figure 1. Culvert with herringbone baffles welded into the bottom of a triangular squash pipe.



F1-5 Other comments:
In reviewing Appendix R-6, Fish Passage Insert, I find it to be too complicated. If any pipe is not in contact with the stream bottom at the time of survey, then it is likely a juvenile salmonid and non-game fish barrier (if you're only concerned about fish). In addition, there is little evidence that aquatic organism passage can be obtained on stream gradients of more than 10% without the installation of a bridge or bottomless arch pipe. I can see the usefulness of the manual in helping to prioritize culverts for replacement, but in all honesty, most culverts installed in the last 40 years are barriers.

In my recent experience in surveying over 300 culverts on Clearwater National Forest lands, I rated about 90% as fish barriers. They weren't considered passable unless they passed both adults and juveniles. This high percentage is based on the fact that most culverts were originally installed flatter than the stream gradient and were sized only for 25-year flow events. The small size in all cases contributed to additional scouring at the culvert outlets, which in turn increased the spill height at the outlet.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F1-3	403
F1-4	404
F1-5	405

Letter F1

F1-6 In closing, and in this day of single species management, I would recommend that all agencies and landowners look at the bigger picture with regards to aquatic organism passage. Connectivity of aquatic habitats is as important for amphibians and non-game fish species as it is for trout and salmon. In properly sizing, installing and maintaining stream-crossing structures, all aquatic organisms, and the aquatic ecosystem, will benefit.

F1-7 Lastly I would like to say that the NFHCP is a step in the right direction for industrial forest lands. The combined effort of federal and state agencies, with private landowners, offers the greatest opportunity for recovery of the aquatic ecosystem. Carry on with the good work!

Sincerely,

/s/ Karen A. Smith
Karen A. Smith

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F1-6	406
F1-7	1

Letter F2

Mr. Ted Koch, Project Manager
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, Idaho 83709
May 8, 2000

Dear Mr. Koch,

The following are comments I wish to submit on the draft EIS for the Plum Creek HCP.

F2-1 First some general comments. The concept of an HCP is a good one which can provide certainty for both landowners and fisheries. After spending time with the Plum Creek HCP I do not think it provides certainty for the fisheries. As such, unless the proposal is significantly modified to provide such certainty the HCP and take permit should not be approved.

F2-2 I would like to direct my comments to the Land Disposition/ Sales portion of the HCP. -The scoring system proposed acknowledges fish deleterious land dispositions but offsets them with beneficial dispositions across the PC holdings. The problem with this is that deleterious sales could be in one ecologically important place and the beneficial sales could be cluster in a less significant place. The net result is not even as far as the fish are concerned. Thus the scoring system is flawed in that it doesn't provide certainty for preservation.

F2-3 -The scoring system is complicated and requires active monitoring by USF&WS. The only way to assure the scoring system accuracy is extensive monitoring. This is both cumbersome and expensive. You might as well implement your own scoring based upon fish impacts and have PC submit dispositions to you!

F2-4 -Five-year updates on overall scores are proposed to be given to monitor the dispositions. The scores can be negative with the hope that they will become positive in the next five-year period. If at the end of thirty years the scores are negative then, at that time, PC will place restrictions on lands to balance the scores. This is absurd. The point here is ongoing protection not remediation.

F2-5
- The HCP proposes to give positive scoring for lands placed under conservation easement by third parties after they are disposed. Why should PC get credit for someone else's conservation? The generic term conservation easement sounds positive but no two easements are alike. It is possible to have easements which do not provide the level of protection desired or contemplated. The devil is in the details.

F2-6
- Under the proposed system PC could dispose of lands to a third party thus removing them from the HCP and then purchase the timber without having to comply with the HCP. Pc should be precluded for entering into any timber agreements on disposed lands to prevent abuse of the HCP.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F2-1	1
F2-2	790, 796
F2-3	783. 785
F2-4	790, 796
F2-5	795
F2-6	797

Letter F2

F2-7 - The lands exchanges (L8) is problematic. As proposed PC could log, develop and otherwise diminish habitat and watershed on a parcel of land currently under the HCP. Then they could trade it to a third party for a different piece owned by the third party within the HCP and do the same thing again. Plus the traded piece is then not subject to the HCP. This is considered a neutral trade for scoring by PC. Its not. It's a downward spiral. After thirty years of exchanges the landscape will have changed considerably. The exchange portion is flawed significantly.

F2-8 - The best way to assure the conservation of fish and fish habitat is to protect the lands prior to disposition. PC can and should place all lands within 150' of the CMZ on tier 1 and key migratory rivers under conservation easement (not covenants or other legally enforceable documents) with a third party land trust capable of monitoring and enforcing the easements. Conservation easement provisions should include as a minimum:

F2-9 - 1. Restriction of transfer parcel size to 160 acres in tier 1 or migratory river corridor

F2-10 2. New roads across wetlands or streams are not permitted unless the owner can positively show no viable alternative exists or in cases of eminent domain.

F2-11 3. No landscaped lawns to or in CMZ.

F2-12 4. If land under conservation easement is used for livestock it must be fenced to limit grazing to appropriate use and duration.

F2-13 5. Move the "no timber harvest" to 100' from the CMZ

F2-14 In closing, until acceptable and enforceable take limits are made part of the HCP and certainty for habitat and fish is included I do not favor giving PC the permit. I do think these things can be accomplished and should be made a goal of the EIS process.

Sincerely,

John L Wilson

John L Wilson
405 Monroe Ave
Helena, Montana 59601

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F2-7	794
F2-8	791
F2-9	788, 789
F2-10	788, 789
F2-11	788, 789
F2-12	788, 789
F2-13	788, 789
F2-14	1

Letter F3

STEVEN L. WOLPER
P.O. Box 4287
Ketchum, Idaho 83340
(208) 726-5196
FAX (208) 788-6140

March 15, 2000

U.S. Fish and Wildlife Service
Snake River Basin Fish and Wildlife Office
Attn: Robert Ruesink
1387 South Vinnell Way, Room 368
Boise, ID 83709

Dear Mr. Ruesink:

Please accept the following comments on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan for Plum Creek Timber Company.

F3-1 The FWS failed to adequately analyze economic impact because FWS accepted Plum Creek's rationale that an alternative that did not meet Plum Creek's economic needs was ". . . beyond the scope of this EIS." The intent of the ESA is that all alternatives be analyzed equally regardless of economic impact.

F3-2 The FWS incorrectly interprets the ESA provision 1531(b) that gives FWS discretion to grant "incidental takings." This provision is in itself incidental to the intent of the ESA and not a purpose that in any way should place Plum Creek's financial rationale's above the stated intent of the ESA to list and recover endangered species. Takings must be minimized and mitigated by Congressional mandate ". . . to the maximum extent practicable." The DEIS does not meet this challenge.

F3-3 The DEIS does not describe in a complete manner the existing conditions and ownership of the subject lands and the lands adjacent to enable an accurate assessment of the cumulative effects of the proposal. How will the proposed 1,300 miles of roads effect drainages that have already been logged? How will these additional roads and subsequent logging add to existing runoff, siltation and water quality issues? As an example, Swan Lake, Flathead Lake and Whitefish Lake. Aren't these lakes and the streams that feed them WQLS and part of 303(d) lists? Why has not this been addressed?

F3-4 The DEIS does not appear to have measurable standards to assess if the HCP is functioning as proposed. Bull Trout have very critical temperature requirements for survival and the DEIS does not set standards but assumes only no increase in temperature. Simply, how can the DEIS ignore such a critical component of Bull Trout survival? Why is the trigger for mitigation a rise in stream temperature, ignoring stream segments that already have excessive water temperatures?

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F3-1	184
F3-2	369, 377, 696,
F3-3	233
F3-4	343

Letter F3

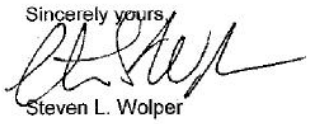
F3-5 The DEIS also fails to provide similar standards and measurements for sediment. In 1994, Plum Creek committed to a sediment source survey and repair of their existing roads. Why do they need another 5 years to inspect their road system when all roads in Bull trout watersheds should have been surveyed and repaired in the last six years?

F3-6 Biological Goal #2 proposes to protect or improves in-stream sediment levels but the measures provided are not qualified by habitat improvements such as stream bed sedimentation.

F3-7 There is no recovery plan for Bull trout and other species and therefore it is impossible for agencies to access whether this plan will contribute to recovery. There is an inadequate description of the current conditions. Critical Bull trout habitat has not been designated by FWS. Until crucial habitat is reserved it is premature for any proposal that may degrade that habitat.

F3-8 One of the least appealing suggestions of the DEIS is that survival and recovery of species can be equated for the purpose of this plan. Mere survival is the lowest end of a continuum that rises just above extinction. Only true recovery places a species in a population and habitat that is protected from extinction, especial accidental extinction. This is the intent of the ESA (sec. 402.02) and therefore any plan that equates survival with extinction is in violation of that intent.

Sincerely yours,



Steven L. Wolper

SLW:alg

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F3-5	472, 696
F3-6	344
F3-7	246
F3-8	112

Letter F4

Author: larksey@juno.com at FWS
Date: 3/17/00 1:34 PM
Normal
BCC: Ted_Koch at 1PO-ESBO1
TO: ted_koch@fws.gov at FWS
Subject: Plumb Creek's Habitat Conservation Plan is a flawed document
---------- Message Contents

Dear Mr. Koch,

F4-1 Plumb Creek's HCP needs to specify much wider riparian buffer zones even around small or intermittent streams in order to protect water quality and optimum temperatures for fish.

F4-2 Plumb Creek must be prevented from logging on steep slopes because, obviously, upland logging affects groundwater flows as well as water quality in the lower-lying watershed areas. This has a direct impact on the 17 wildlife species, and yet the "Plan" makes no provision for assessment of this impact on species.

F4-3 The "Plan" also provides for as many as 1300 acres of new logging roads without any assessment of road density within the FWS guidelines. Furthermore, Plumb Creek is allowed to monitor its own road density program, clearly another case of naivete on the part of the FWS to expect such self-regulation by a company bent on logging profits at the expense of everything else that is not forced upon them

F4-4 Approving this "Plan" for 30 years is a move that fails totally to take into account the inevitable changes that will take place both in logging and in environmental protection standards during the course of that long period. There must be built into this agreement provisions for reviewing the adequacy and execution of this plan on a yearly basis to make sure Plumb Creek is living up to the law and the intent of the agreement.

This proposed plan needs to be tightened so that the essential gaps and omissions listed above are properly dealt with before any approval is given.

F4-5 Finally, it continues to be a source of astonishment to me that a federal agency such as the one you represent whose mandate is to protect and enhance the fauna of the region is so weak when it comes to dealing with the logging industry, from whose depredations to the environment we all continue to suffer.

Yours for some Federally mandated back-bone on your part.

Leon & Laura Arksey
742 E. 26th Ave,
Spokane, Wa. 99203
[509-747-5393]

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F4-1	517
F4-2	252, 485
F4-3	420
F4-4	281
F4-5	14, 77, 246

Letter F5

Author: lfkrcg@bossig.com (Lupito Flores <lfkrcg@bossig.com>) at FWS
Date: 3/17/00 12:29 PM
Normal
BCC: Ted Koch at 1PO-ESBO1
TO: ted_koch@fws.gov at FWS
Subject: COMMENTS
---------- Message Contents

Dear Ted,
I'd like to comment on the Draft Environmental Impact Statement and Native
Fish Habitat Conservation Plan for Plum Creek Timber Company Lands.

F5-1 - The document does not adequately describe "take" and how Plum Creek practices
will actually "take" fish.

F5-2 - There needs to be a commitment by way of buffers for ALL streams, especially headwaters streams. Protection of perennial and intermittent non-fish bearing streams is
essential for protection of water quality and temperature.

F5-3 - The HCP fails to address the issue of how upland timber harvests will affect
groundwater flows Recent science shows that Bull trout in particular are very dependent on cold, clean groundwater as part of their habitat needs.

F5-4 - A complete analysis of the habitat requirements of the 17 species is lacking from
the HCP. Without such an analysis it is impossible to assess if the plan will provide adequate
protection.

F5-5 - The HCP fails to require Plum Creek to enforce road density limits. Current
science shows that once road densities exceed 1 mile per a square mile, fish populations plummet. Over 1,300 acres of road are predicted, not including skidder trails over the next ten years. The cumulative effects of this construction are not addressed.

F5-6 - The plans for adaptive management are written such that it will be nearly
impossible to increase protective measures once the permit is issued.

F5-7 - The monitoring Proposals in the HCP are scientifically weak. USFWS needs to
make a strong commitment to monitoring. Much of the monitoring in the proposal is self monitoring by Plum Creek.

F5-8 It is poor judgment to approve a controversial plan with unclear results for such a long time (30 years). The permit should be reviewed at least every year.

F5-9 In addition USFWS should demand that Plum Creek engage in meaningful conservation measures including:
1. Significant curtailment of new roadbuilding.
2. A proactive program to obliterate all roads which threaten streams with sedimentation.
3. Use of far wider no-activity buffer zones alongside all streams.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F5-1	109
F5-2	517
F5-3	266
F5-4	215
F5-5	413, 414
F5-6	611
F5-7	313, 611
F5-8	278, 281
F5-9	69

Letter F5

F5-10 * 4. Halt logging on steep slopes and other areas where delivery of sediment to streams is likely.

F5-11 Most importantly the current administration's "No Surprises" policy in the HCP is unlawful under the Endangered Species Act. "No surprises" fails to assure that protection offered by the ESA will be available in the future to protect endangered species in the light of new information, new threats and further declines in species.

Sincerely,
Lupito Flores
517 S. Division
Spokane, WA 99202

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F5-10	476, 477, 533
F5-11	358

Letter F6

Author: "sara kohan" <skohan@hotmail.com> at FWS
Date: 3/17/00 10:34 AM
Normal
BCC: Ted Koch at 1PO-ESBO1
TO: TED_KOCH@FWS.GOV at FWS
Subject: PLUM CREEK DEIS-COMMENTS
---------- Message Contents

Dear Mr. Koch,

In response to Plum Creek Timber Company's request for a taking Permit authorized by the Endangered Species Act, I feel the following questions must be answered. Each question has been derived from specific sections within the DEIS. I will be referring to page numbers and section numbers throughout.

F6-1 Beginning on page ES-1, section ES.1. The Permit authorizes the take of federally listed species covered in the NFHCP for a proposed 30 years. Never specifically mentioned is a) which federally listed species will be affected, b) which other species will be affected and c) approximately how many fish on the T and E list are estimated to be taken. How does this

F6-2 Permit provide the incentive to conserve listed species while simultaneously removing them?

F6-3 Also in this section is mention of the sources of information used to prepare this DEIS. One of these are "white papers" prepared by Plum Creek. What are these? WHat do they include?

F6-4 On page ES-2 is the claim that, "The NFHCP is designed to maintain, improve or provide habitat that serves the biological needs..." of the affected species. What constitutes the biological needs aside from food, spawning ground and shelter? What genetic alterations over time have a high occurrence potential, if any?

F6-5 Page ES-2 section ES.3 contains a phrase that is especially confusing. What does the statement, "...because fish do not stay within property lines and an ecosystem approach is needed" mean? Fish are mobile creatures. By ecosystem approach, is the implication that all of the species of flora and fauna within the 17.3 million acres and their interactions will be considered before any action is taken via the Permit? If so, surely this DEIS is a test in futility as nothing will ever be done to benefit either Plum Creek or the salmonoids.

F6-6 Page ES-5 mentions that bull trout presence would determine the amount of priority given to the conservation efforts in a specific area; with Tier 1 giving the most attention to habitat requirements, Tier 2 less, and so on. However, Tier 2 watersheds are depended on for, "...forage, migration and overwintering habitat." To what degree will lesser conservation efforts be practiced? Although bull trout generally don't migrate too far from the place of their birth, what would prevent them from being in a Tier 2, 3 or other Tier? Will conservation

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F6-1	216
F6-2	21
F6-3	164
F6-4	217
F6-5	70

Letter F6

F6-6 efforts be more heavily enforced in these higher numbered Tiers should bull trout be present? Missing from this DEIS is the spatial distribution of the Tiers.

The second column of page ES-6 explains the business motivations cited by Plum Creek for seeking a Permit. I do not feel these goals substantially represent why a Permit is being sought. Terms I find most confusing under the heading of each goal are:

Goal: Long Term Sustainability and Business Certainty
Confusion: "regulatory predictability"

Goal: Cost Effective Conservation
Confusion: "where [resources] provide the most benefit"

F6-7 Goal: Scientific Credibility
Confusion: "scientific rigor" and "creative solutions"

Goal: Operational Practicality and Flexibility Confusion: "implementation success" and "management flexibility"

The need for obtaining a permit is derived from the listing of bull trout and other species as threatened under the ESA. Timber harvesting could be a potential crime should it interfere with the critical habitat of listed species. There is no mention of
the economic losses Plum Creek may be subject to should they not get the Permit.

Page ES-7 section ES.6 presents the four management strategies from which the management plan will evolve. Plum Creek has determined that the a combination of the Proposed NFHCP and the Simplified Prescriptions Alternatives would best meet their [however ambiguous] goals. This combination apparently complies with Section 10 (a)(2)(A) of the Endangered Species Act. There are four general criteria
under this Exceptions and Permits section. No Permits shall be issued unless the following has been specified by the Permit holder:

1. the impact which will likely result from such taking
2. what steps the applicant will take to minimize and mitigate such impacts and the finding that will be available to implement such steps
3. what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized; and
F6-8 4. such other measures that the secretary may require as being necessary or appropriate for purposes of the plan

I did not see reference to any of these criteria in the DEIS. Will they be provided in the final version of the EIS? The Simplified Prescription Alternative makes, "...no or minimal commitments to other practices that conserve fish." Also, it, "...contrasts
with the focused conservation approach of the Proposed NFHCP." I am confused. Am I to understand that Plum Creek would like to implement the Proposed NFHCP only to follow it by its antithesis?

On page ES-9 are eight categories of conservation measures said to be

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F6-6	529
F6-7	347
F6-8	71

Letter F6

criteria by which actions within the alternatives may be grouped. What are some examples of the environmental principles that are being referred to? Page E-23 Table ES-2 mentions monitoring but only in the contexts of grazing and the costs and benefits of restoration (p.E-25). Absent is an effort to monitor the health of the population of salmonoids for which conservation efforts are being sought.

F6-9

F6-10 Page ES-9 section ES6.1 claims that the Proposed NFHCP and the Simplified Prescription Alternative provide the, "...greatest likelihood...towards achieving fully functioning habitat conditions." What are fully functioning habitat conditions?

F6-11 Page ES-10 claims that the No Action Alternative minimizes fish conservation. Is the implication that if Plum Creek does not obtain the sought Permit, then fish populations will be at very serious risk? What about the legal consequences of violating the ESA? Also on this page is mention of Shroder Creek. Who built the irrigation diversion? What will its removal do to the fish populations in this Tier 1 area? Why is Plum Creek concerned with the migrating opportunities of the fish in this area? How will the removal of the diversion affect the high real estate values? Who will pay for the removal?

F6-12 Three-quarters down page ES-10 is reference to, "the figure" that will, "...illustrate how the comprehensive approach of the NFHCP would address a spectrum of threats." Which figure is this?

F6-13 Page ES-1 3 section ES6.2 claims that improvements under the No Action Alternative would be, "...realized slowly". Would the results realized with any of the alternatives be faster? If so, what makes this so? Right-hand column one-third down is the claim, "Longer Permit terms generally provide greater benefits for Permit species." In what ways is this true?

F6-14 Page ES-1 4 refers to the, "...best scientific data". What is the origin of this data and from what fields of science? Who will pay for this information? Half down the left-hand column of this page is the phrase," . .... trigger set at 49%..." What does this mean? When referring to the services revoking a Permit, what are the conditions under which this action would be the result? What reparations must be made by the violator? How much time is the violator allowed to make the reparations?

F6-15 Page ES-1 6 refers to, "interested scientists." What incentives made these scientists more interested than others? What organization(s) are they employed with? References to requests by the FWS to 14 Native American tribes are noted here. Did the tribes comply with this request? What was their reaction?

Environmental Impact Statements are very confusing and take a great deal of time to read through and understand. Any clarification you can offer with regards to this DEIS would be greatly appreciated.
Perhaps many questions asked herein will be answered upon the publishing of the Final EIS.

Thank you very much for your time.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F6-9	623
F6-10	282
F6-11	72
F6-12	165
F6-13	166
F6-14	624
F6-15	73

Letter F6

Sincerely,

Sara Kohan

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter F7

Author: David Kliegman <kliegoha@televar.com> at FWS
Date: 3/17/00 11:26 AM
Normal
BCC: Ted Koch at 1PO-ESB01
TO: ted_koch@fws.gov at FWS
Subject: Plum Creek HCP
---------- Message Contents

Ted Koch
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnel Way, Room 368
Boise, Idaho 83709

Re: Plum Creek Timber Company DEIS and Habitat Conservation Plan

Dear Mr. Koch

Please consider the following comments on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan for Plum Creek Timber Company Lands.

F7-1 Takings - The document does not adequately describe "take" and how Plum Creek practices will actually "take" fish.

F7-2 Stream Buffers - There needs to be a commitment by way of buffers for ALL streams, especially headwaters streams. Protection of perennial and intermittent non-fish bearing streams is essential for protection of water quality and temperature.

F7-3 Groundwater - The HCP fails to address the issue of how upland timber harvests will affect groundwater flows Recent science shows that Bull trout in particular are very dependent on cold, clean groundwater as part of their habitat needs.

F7-4 Watersheds - A complete analysis of the habitat requirements of the 17 species is lacking from the HCP, without such an analysis it is impossible to assess if the plan will provide adequate protection.

F7-5 Road densities - The HCP fails to require Plum Creek to enforce road density limits. Current science shows that once road densities exceed 1 mile per a square mile, fish populations plummet. Over 1,300 acres of road are predicted, not including skidder trails over the next ten years. The cumulative effects of this construction are not addressed.

F7-6 Management - The plans for adaptive management are written such that it will be nearly impossible to increase protective measures once the permit is issued.

F7-7 Monitoring - The monitoring Proposals in the HCP are scientifically weak. USFWS needs to make a strong commitment to monitoring. Much of the monitoring in the proposal is self monitoring by Plum Creek.

F7-8 Quality Control - The HCP lacks a credible amount of quality control to ensure that the weak standards set forth in the current HCP are met.

F7-9 Large Woody Debris -The HCP fails to account for the importance of woody debris and it's recruitment as part of quality habitat. Winter habitat is also not adequately dealt with.

F7-10 Length of Agreement - It is poor judgment to approve a controversial plan with unclear results for such a long time (30 years). The permit should be reviewed at least every year.

F7-11 In addition USFWS should demand that Plum Creek engage in meaningful conservation measures including

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F7-1	109
F7-2	517
F7-3	252
F7-4	218
F7-5	413, 414
F7-6	611
F7-7	313, 611
F7-8	325
F7-9	500, 587
F7-10	281
F7-11	53, 69

Letter F7

F7-11

1. Significant curtailment of new roadbuilding.
2. A proactive program to obliterate all roads which threaten streams with sedimentation.
3. Use of far wider no-activity buffer zones alongside all streams.
4. Halt logging on steep slopes and other areas where delivery of sediment to streams is likely.

F7-12

Most importantly the current administration's "No Surprises" policy in the HCP is unlawful under the Endangered Species Act. "No surprises" fails to assure the that protection offered by the ESA will be available in the future to protect endangered species in the light of new information, new threats and further declines in species.

Sincerely,

David Kliegman
Okanogan Highlands Alliance
PO Box 163
Tonasket, WA 98855
phone/fax 509/485-3361
email: kliegoha@televar.com
website: http://www.televar.com/~kliegoha

"Pure water is more precious than gold!"

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F7-12	358

Letter F8

March 18, 2000

RECEIVED
MAR 23 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

Ted Koch
U.S. Fish & Wildlife Service
Snake River Basin Office
1387 South Vinnell Way
Room 368
Boise, Idaho 83709

Dear Mr. Koch

I am writing to comment on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan Proposed Permit for Taking of Federally Listed Native Fish Species on Plum Creek Timber Company, Inc. Lands. I would like to begin by recognizing the interagency effort to improve fish habitat and populations for not only threatened and endangered fish species, but for potentially "to be listed species" as well. Acknowledgement of the multitude of habitat factors and their relations to land management practices is an important step in the implementation of the Endangered Species Act, and you should be commended for your through consideration. Nevertheless, I have some comments about how these policies could be improved. My comments are three part, and directly relate to habitat restoration and preservation.

F8-1

First of all, an accepted necessity for the assurance of viable bull trout populations (used as a modeling species for your overall Tier 1 and Tier 2 plan) is the removal of potential fish barriers which fragment spawning habitat. You certainly acknowledge this in your DEIS:

> … **Connected.** Protect and contribute to the restoration of connectivity among sub-populations of native fish in the Project Area. (ES-6)

Yet, when defining fish barriers created by road crossings you refer to a 6 feet/second velocity measurement as the upper limit of acceptable velocity in a corrugated culvert less than 90 feet long, that has a minimum thalweg depth of 4 inches, with a less than 20% slope. I refer to Appendix R-6 of the DEIS:

F8-2

> 9a Water velocity through the culvert is equivalent to average velocity above and below the culvert. The velocity does not exceed six feet/sec. (Culvert passes)
> 9b Water velocity though the culvert is very swift. The water velocity exceeds six feet/sec. (Does not pass)

This velocity maximum does not adhere well to other federal regulations mandating a lower velocity. I will begin by citing the Washington Department of

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F8-1	1
F8-2	407

Letter F8

Fish and Wildlife Habitat and Lands Program Environmental Engineering Division's Fish Passage Design at Road Culverts Manual put out on March 3, 1999:

> Adult trout ≥6 inches (150mm) have a maximum velocity of 4.0 feet/second when navigating corrugated culvert ≤100 feet in length.

This document also discusses much lower velocity requirements for trout <6 inches in length. Furthermore, the Fish Passage Through Culverts Manual put out by the USDA Forest Service for the US Department of Transportation and Federal Highway Administration concurs with the lower maximum velocity value.

> Adult cutthroat trout of age 1+ have an acceptable maximum velocity range of 3-4 feet/second. (Saltzman and Koshki, and Metsker referenced).

Furthermore, this government document refers to G.L. Ziemer's (Alaska Department of Fish and Game) and Evans and Johnson's extrapolated curves to depict a range of velocity based on allowable distance between resting pools (feet). Even the shortest length (10 feet) dictates a 5.6 feet/second impediment, while a 35 foot culvert over 4.0 feet/second in velocity would prove to be a barrier. F8-2

Thus, I strongly believe that the current proposed culvert fish passage analysis technique to be used on Plum Creek lands is inadequate. It is inadequate in assuring migrational access to spawning habitat, and thus does not provide mitigation or restoration of migrational corridors. In accordance with the directives dictated in both the Endangered Species Act and the Habitat Conservation Plan, this inadequacy in the proposed plans must be addressed. The documented problem above is then compounded by the ambiguity that Appendix R-6 of the HCP refers to when analyzing culverts for drop height and plunge pool requirements at culvert outlets. Directives to refer to measurements concerning output heights are not well documented (Appendix R-6 4b), and the analysis of adequate plunge pool at the downstream end of the culvert (Appendix R-6 5a) is very hard to follow. Implementation of said analysis would certainly be hampered by said ambiguity when actual field analysis measurements were taken by field personnel. This process should be better outlined with accompanying diagrams/formulas for the Implementation Manual, and the standards should accommodate fish capabilities referred to by currently accepted scientific literature used by the USFS.

F8-3 My second concern about habitat preservation revolves around the Tier 1 and Tier 2 status of the planning area. There are more management restrictions on

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F8-3	530

Letter F8

the Tier 1 areas, which the plans delineate as a more imperative habitat zone for the bull trout:

> Those portions of Planning Area basins with known bull trout spawning and rearing are identified as Tier 1 watersheds, where some protection measures are prioritized or enhanced to ensure protection of those sensitive life-history stages. All other portions of Planning Area basins are Tier 2 lands, where bull trout may use foraging, migration and over wintering habitat. (ES-5)

This along with the study on historic occupation of the planning area concerns me, as it is accepted that critical habitat for bull trout is undefined according to the US Fish and Wildlife Service as quoted from the DEIS:

> Bull Trout. FWS listed the bull trout as threatened on June 10, 1998 (Federal Register [FR] 1998a). Critical habitat has not been designated for the bull trout because it could not be determined (FR 1997b).(1-10)

F8-3 Thus, I do not believe that a distinguishing value of habitat can be isolated at this time for the bull trout. The requirements from the Endangered Species Act Section 10(b) (iii) states "the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking". I believe that defining variations in habitat value and their accompanying management conservation levels may jeopardize said minimization and mitigation of an undefined resource. Furthermore, the DEIS would allow Plum Creek to continue adverse management on Tier 1 or Tier 2 lands even after bull trout critical habitat was defined. I look again to the DEIS to prove my point:

> **provided for in the HCP.** If additional conservation and mitigation measures are deemed necessary to respond to changed circumstances that were not provided for in the HCP's operating conservation program, the Services will not require any conservation and mitigation measures beyond those in the HCP without the consent of the permittee, provided the HCP is being properly implemented.

Under this agreement Plum Creek would have discretionary right for the next 15 years to refuse alterations to their management practices via Endangered Species regulation augmentation produced by future critical habitat studies. If their Tier 1 or Tier 2 lands should be required to comply with a state or federal conservation regulation, it would be up to the company's discretion to apply the mandate.

F8-4 Another improvement that should be made to the Final EIS and NFHCP, should be the inclusion and thorough compilation of all scientific materials used to determine the proposed HCP. Frequently, the DEIS refers to materials not available in the document:

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F8-4	167

Letter F8

> Two major data sources were used during preparation of this document. The first source consists of technical white papers, and other data prepared by Plum Creek Timber Company (Plum Creek). These reports are summarized in this section. Other important data sources, including states and primary scientific literature, are listed at the end of this section. (2-1)

These summaries are too broad, and in light of the constant referral to the technical reports 1-13 and their accompanying white papers, the data should be included in the document, and the source cited in full. Analysis of practices such as riparian buffers, bull trout presence determination, livestock grazing, and other important facets of the HCP are issues frequently disagreed upon:

> A complex issue facing the forest industry is the management of riparian areas. These sensitive areas surround streams and affect fish habitat in a number of ways. Scientists often disagree on the amount of riparian area required to maintain healthy fish habitat. (2-3)

F8-4

Thus, if these technical reports are to be used, they should be illustrated in full as would any other scientific evidence regarding a chosen management technique. The issue of technical reports is further confused by (perhaps an isolated incident) gaps in the distributed CD-ROM DEIS and NFHCP. Two of such copies I personally had access to were missing key chapters. One of said copies was missing most of Volume II. Furthermore, these CD-ROMs contained poorly labeled PDF files. This made analysis of the HCP much more difficult. Upon requesting a new copy of the DEIS and NFHCP, I was readily accommodated. I was also readily supplied with the technical reports and white papers, but I had to contact two different sources to obtain these items, which should have all been included with distributed materials. This information gap caused delays and gaps in my comments specifically regarding roads, riparian area management, and livestock grazing.

In summary, I would like to leave the council with three suggestions. First, I would like to see the critical maximum velocity barrier for culverts drop to 4.0 feet/second or lower, as is applied on most National Forests. This measure should be accompanied by a streamlining and clarification of the fish passage barrier determination process. This alteration of Appendix R-6 would significantly reduce habitat fragmentation and improve migration. Adjustment of Appendix R-6 to assure migrational capabilities of bull trout should also include illustration of adequate funding for culvert improvements, removals, and replacements throughout the historic range of bull trout. These alterations for Appendix R-6 are called for in the Endangered Species Act:

F8-5

> ii) the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking;
> iii) the applicant will ensure the adequate funding for the plan will be provided;
> iv) the taking will not appreciably reduce the likelihood of the survival and recovery

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F8-5	458

Letter F8

F8-5 of the species in the wild; (ESA Section 10 (B)).

F8-6 Secondly, I would like to see bull trout habitat protection uniform throughout the area in accordance with the Tier 1 policies outlined by the DEIS. This uniformity in conservation practices should be accompanied by written acceptance that Plum Creek will employ any new conservation mandates (state or federal) regarding critical habitat for bull trout and other endangered species in the plan area if the HCP does not already account for said practices. This practice of adaptive management is currently used by most National Forests where ecosystem management plans provide for measures of the ESA that become directives on private lands when applying for incidental take permits as outline in section 10 of the ESA.

F8-7 Thirdly, I would like to see the Final EIS include all technical reports and white papers referred to by the Draft EIS, as this measure would greatly improve the ability the analyze the proposed HCP. I suffered dilemmas of inadequate information from which to determine my analysis of proposed road regulations, livestock grazing, and riparian quality regulations. I suggest, that the Final EIS contain all data relevant to and referred to by the EIS and HCP. Furthermore, this material should be presented as clearly in the CD-Rom versions as it is in the hard copy versions. To comply with the plan requirements laid out in section 10(A) of the ESA, all information used to determine impacts of takings, funding, alternative actions, and mitigation measures must be made available in the EIS for the proposed HCP.

Sincerely,

Ethan Mace

Ethan Mace
91 Campus Drive PMB#1405
Missoula, MT 59801
(406) 829-9130

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F8-6	77, 525
F8-7	167

Letter F8

Literature Cited

Baker, C. O. F. E. Votapka. 1990. Fish passage through culverts. Report No. FHWA-FL-90-006. USDA - Forest Service. Technology and Development Center. Sand Dimas, CA.

Bates, K. 1999. Fish passage design at road culverts. WAC 220-110-070. Washington Department of Fish and Wildlife, Habitat and Lands Program, Environmental Engineering Division. Olympia WA.

Bell, M. C. 1973. Fisheries handbook of engineering requirements and biological criteria. Fish. Eng. Res. Program. Corps. Eng., North Pac. Div. Portland, Oregon.

Metsker, Howard E. July 1970. Fish versus culverts, some considerations for resource managers. USDA-Forest Service, Tech Report ETR-7700-5. Ogden, UT.

Saltzman, William; Koski, R.O. 1971. Fish passage through culverts. Special Report, Oregon State Game Commission. 9 P. Oregon.

Ziemer, G.L. 1965. Culvert design. Alaska Dept. Fish and Game. 2 p. Alaska.

Ziemer, G. L. 1961. Fish transport in waterways. Alaska Dept. Fish and Game. 2 p. Alaska.

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter F9

Provide Your Comments

We would like you to provide comments on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan. Please use this form to express your opinions. You may complete and return this form before leaving the meeting, or you may complete the form later and mail it to:

RECEIVED
MAR 20 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

TED KOCH, PROJECT MANAGER
U.S. FISH & WILDLIFE SERVICE
SNAKE RIVER BASIN OFFICE
1387 SOUTH VINNELL WAY, ROOM 368
BOISE, ID 83709

The comment period ends March 17, 2000. Thank you for your participation.

PLEASE PRINT!

Name: Roy O'Connor

Address: 5015 Larch Lane, Missoula, MT 59802

My comments are as follows (if needed, attach additional pages): I'm very concerned

F9-1 that Plum Creek will be monitoring themselves. This is a situation which has in the past proven to be unworkable. Funding in this HCP should be provided by Plum Creek for either U.S. Fish & Wildlive Service or an independent monitor to follow up on their practices. This would require Plum Creek provide a forecasted timber harvest plan, as well as location and timing of these harvests. These would then be spot checked, without prior notification of Plum Creek, to insure that proper management techniques were being used. 2) In

F9-2 sensitive bull trout/cutthroat corridors, i.e. drainages, the riparian areas should be protected completely. Also, there should be a widening of the impact area to allow for retainage of snow cover, and improvement of water temperature gradient. Also, trees need to be left throughout the cuts so that we will have some type of natural spring run-off, rather than the peaks which occur in clear-cut ares. 3) This

F9-3 plan should include penalties should Plum Creek not follow up to their commitment. Also, there should be remedies to any non-compliance. These should be designated as well as an independent mediator so that court cases could be avoided if possible.

The above comments are intended to be used if the HCP is accepted.

F9-4 It is my opinion, based on reading the plan, that Plum Creek is not giving up enough in their harvest practices to justify giving them an incidental take permit on bull trout and other endangered/listed/proposed species. They have offered to give up very little with regards to their management techniques, and they have offered to recover some roads which they would probably be forced to do anyway. Many years of data, both scientific and with local observers, have shown that timber harvest practices as utilized by Plum Creek have a very detrimental affect on the fisheries. This is due to increased sediment load, increased temperature, as well as a hydrological profile which is detrimental to the environment and the fish. I would strongly recommend that the U.S. Fish & Wildlife Service go back to

BOI99351007.DOC/JI

(OVER)

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F9-1	317, 319
F9-2	517
F9-3	331
F9-4	1

Letter F9

F9-4 the drawing board and force Plum Creek to offer up much more substantial and concrete benefits to the fishery prior to considering any type of a takings permit. Thank you for considering my comments.

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter F10

Mr. Ted Koch, Project Manager
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, ID 83709

March 15, 2000

RECEIVED
MAR 20 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

Dear Mr. Koch:

In regard to the Draft EIS and proposed Habitat Conservation Plan / Incident Take Permit for native salmonids on Plum Creek's land east of the Cascades, please consider the following:

F10-1 There seems to be no base to work from in the way of current, "take", so how can future improvements be measured without knowing what is currently being harmed by PC activity?

F10-2 Why are PC's ,"business goals", the basis for, "minimizing the impact of incidental take to the maximum extent practicable", rather than protection of the habitat and the 17 native species?

F10-3 Plum Creek's proposal to have its own people monitor activities required under the plan is analogous to having an employee fill out his or her own job performance form. Shouldn't the monitoring and independent auditing be done by people with no strings attached to PC?

F10-4 The reduction of existing and future sediment sources seems to be the primary focus for protecting all 17 native fish species. Shouldn't the plan also include more protective buffers along headwaters where native cutthroat are found?

F10-5 History tells us, that in the past, the logging industry's focus on,"harvest", precluded any deep-seated concern for the environment. There have been signs of improvement over the last decade. But , whether this is due to a,"new environmental conscience", or simply a shallow appeasement to the demands of an environmentally concerned public is not yet clear. Would it not seem prudent, then, to disallow the HCP unless the proposal is modified to be a little less corporate friendly and a little more environmentally friendly?

William F. Dodson
William F. Dodson
3573 Bull Lake Road
Troy, Montana 59935

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F10-1	105, 109
F10-2	369, 377, 696
F10-3	317, 319
F10-4	518
F10-5	74

Letter F11

February 14, 2000

Ted Koch, U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way
Room 368
Boise, ID 83709

Dear Mr. Koch:

My comments concern the DEIS Native Fish Habitat Conservation Plan on the proposed Take Permit for Plum Creek Timber Company.

F11-1 First of all, DO NOT grant the permit. Choose an alternative which does not allow the permit.

F11-2 If the permit is granted we are putting at risk for extinction eight species of native fish (bull trout, steelhead, salmon) that are federally listed under the Endangered Species Act. The permit would also authorize the future incidental take of nine unlisted species of native fish (trout, whitefish, steelhead, salmon). These potentially-devastating forest management activities on Plum Creek lands in Montana and Washington state would put all of the above species at risk for extinction and also devastate a potential food supply source for humans which will be badly needed as nutritional protein as other sources of protein will likely become scarce.

F11-3 Sources of protein will likely become scarce in our lifetime because of global warming resulting in increased drought and desertification caused by deforestation. As humanity becomes less civil, politics become more corrupt, and political leaders become more radical and further to the right, ethics will decay including what is proper to eat when sources of protein dry up. I'm sure when you think about it you have an idea of what that could mean; therefore, it is IMPERATIVE that we protect our remaining native fishers and therefore the Take Permit would be unthinkable. We MUST look at a worse-case scenario when the decision of a final alternative is being made!

F11-4 An additional alternative needs to be considered and that is a No Take Permit Alternative with the issue of worse-case scenario included. The public should be allowed to choose this alternative along with the No Action alternative and the three others BEFORE a final decision is made. Global warming IS real and should be included as PART of the No Take Permit Alternative along with the dwindling protein source statement and possible worse-case scenario. Ample comment

F11-5 time 60 to 90 days needs to be allowed with adequate public notice.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F11-1	1
F11-2	46, 77
F11-3	80
F11-4	184
F11-5	168

Letter F11

F11-6 I also feel that the issues that were identified during the Scoping are reasons for not permitting logging and the Take Permit on these lands: 1- native fish Permit species and their habitats (where my statement would fit in), 2- other wildlife and plant species and their habitats would be threatened to the point of ecological collapse. (There is already a worse-case scenario where ecological collapse has occurred this season in British Columbia), 3- physical environmental factors (again my statement would fit in there along with the other concerns already stated plus now the fact that ecological collapses are taking place due to logging activities, and 4- local and regional impacts on other elements of the human environment (such as dwindling protein supplies, watershed destruction, mental depression due to eyesores caused by tree removal, etc.)

F11-7 It is for all of the above reasons that no take should be granted and that these lands SHOULD NOT BE LOGGED.

Thank you for the opportunity to comment and for sending me the DEIS on CD-Rom. These are and would still have been my concerns whether of not I had received a copy of the DEIS.

Sincerely,

Marilyn Dinger

Marilyn Dinger
164 North 650 East
Kaysville, UT 84037

Phone: (801) 544-9229

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F11-6	75
F11-7	76

Letter F12

HENRY W. POETT III
380 KLEINSCHMIDT FLAT ROAD
OVANDO, MONTANA 59854

Ted Koch
U.S. Fish & Wildlife Service
Snake River Basin Office
1387 Vinnell Way
Room 368
Boise. ID 83709

Dear Mr. Koch;

This letter is in response to requests for comments regarding the proposed HCP and EIS on Plum Creek Timber Company lands.

I live in Ovando, Montana which is located in the Black Foot River Valley. Plum Creek Timber Company is the largest land owner in the area outside the wilderness areas and therefore I am very familiar with the political, economic, environmental, and esthetic impacts that Plum Creek has on the areas in which it operates. My professional background is that of general management in fields of food manufacturing and distribution,real estate management and development, agriculture and various distribution businesses. With this background I am well aware of the importance of profit to a viable company in spite of the appearances of the internet companies.

With respect to the proposal I have the following comments. As I understand the HCP process the land owner is requesting that he be protected against prosecution for incidental takings of species listed under the Endangered Species Act for a period of 30 years over a wide area of land holdings. In return the land owner is supposed to take certain actions that will reduce the risk to those species. In my view the consideration offered by the landowner in this case is inadequate when one considers the benefits accruing to the landowner. The landowner is reducing the risk in its operations and thus should increase its opportunities for increased profits. However the landowner is offering little more than some administrative measures that would probably be taken whether or not there was an HCP in place. I believe that they should be some concrete alterations in the company's timbering procedures if this HCP is agreed to. At a minimum I believe that that the buffer zones around streams,tributaries,and wetlands should be increased to those proposed in the Simplified Prescriptions contained in the alternatives considered. I also recommend that requirements be instituted to alter timber practices on side hills to reduce erosion,silting of streams,and to reduce the esthetic damage done to the landscapes timbered.

F12-1

F12-2

In closing I strongly oppose the approval of this HCP as proposed and believe the public is better served by denying the HCP and maintain the status quo or adoption of the Simplified Prescription unless major changes are made in the HCP.

F12-3

Thank you for your consideration of this letter.

Sincerely,

Hy W Poett

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F12-1	46, 77
F12-2	519
F12-3	1

Letter F13

March 3, 2000

Ted Koch
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 Vinnell Way
Room 368
Boise, Idaho 83709

Dear Ted:

Thank you for the opportunity to review the Draft Native Fish Habitat Conservation Plan and Environmental Impact Statement.

F13-1 The plan appears to represent a substantial amount of work by the Fish and Wildlife Service and Plum Creek and a significant commitment on the part of Plum Creek toward habitat and fish conservation.

F13-2 I cannot answer your fundamental question about whether the NFHCP will result in a net improvement of habitat. I am not a physical scientist so I don't have the expertise or experience to make informed judgments about how those systems work or about the predictions of others. It is logical that if there is a net reduction in bad roads, grazing effects, and an improvement in riparian standards, that conditions will improve. The problem seems to be that we cannot know how quickly and by how much. We cannot be sure that lag effects will not lead to continuing degradation of some systems for years to come. My guess is that the plan does represent a better alternative than the status quo or no action alternative and that trends will be positive in some systems.

Given the uncertainty that is inherent in any attempt to predict the effects of plans like this, there are two issues that seem important. (I admit that my reading of the plan was incomplete, so if I have missed the relevant material you can disregard the remainder of my comments).

F13-3 - Context and coordination. The species distribution maps provide some sense of the relevance of Plum Creek lands to the different species. They do not make it clear whether Plum Creek lands represent a key element of the systems of concern. For example, if Plum Creek controls virtually all of the land influencing remnant bull trout populations in one system, management there may be considerably more important than a system where they may influence relatively little or where many populations remain. The point is that management outlined in this plan is essentially one-size-fits all (for bull trout in any case). A fundamental concept in conservation management is the prioritization of limited resources based on ecological significance and risk. Although the NFHCP seems to represent a significant concession toward more conservative management it still represents an important risk. In some systems where ecological risks are great, far more conservative management may be warranted. In others there may be relatively little concern. An ability to tailor management based on the importance of the result would

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F13-1	1
F13-2	77
F13-3	78

Letter F13

F13-3 seem useful. Conservation management should, to the degree possible, be tailored to the biology of the systems of interest. That implies that land management planning in areas of mixed ownership would ideally be coordinated with biological priorities rather than land ownership guiding the selection of conservation and restoration priorities.

-Adaptive management and monitoring. Given the uncertainty associated with land management "adaptive management" is a critical concept. There are two problems. First is the ability to even measure the conditions of interest. There is not a good track record demonstrating that it is possible to measure habitat variables in a meaningful way across the scale implied in the plan. We do not know what sorts of changes are possible to detect. Second, and perhaps more importantly, the lags in habitat response to changes in the landscape are likely to be large. It is unlikely that any monitoring program could detect important changes in time to affect any meaningful change in the life of the plan (see Harding et al. 1998; Peterson et al. 1992; Montgomery 1995).

F13-4 Adaptive management was originally conceived as a way to build better understanding and thus predictive models that would be useful before the fact. In that sense management activities are conceived as experiments that probe the system (Ludwig et al. 1993; Walters 1997) and contribute to greater understanding. That would seem to favor a range of alternatives applied across Plum Creek lands that would ultimately demonstrate both the effectiveness of conservation activities and the ability to predict the results of management. Where uncertainty is great risky experiments will be necessary. The cautionary principle favors actions that are reversible so experimentation must be done where there is little to lose. Linking true adaptive management to the context of species status and distribution should identify watersheds where experimentation is reasonable and those where extreme caution is warranted until effective management can actually be demonstrated.

F13-5 I hope these comments are useful. Thank you for the opportunity to review this work. Your are to be complemented on a substantial and important contribution to the continuing discussion on effective land management.

If you have questions regarding these comments or anything that you think I could clarify don't hesitate to ask.

Sincerely,
Bruce Rieman

References

Harding, J. S., E. F. Benfield, P. V. Bolstad, G. S. Helfman, and E. B. D. Jones. 1998. Stream biodiversity: the ghost of land use past. Proceedings of the National Academy of Science 95:14843-14847.

Ludwig, D., R. Hilborn, and C. Walters. 1993. Uncertainty, resource expoitation, and conservtion: lessons from history. Science 260:17,36.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F13-4	625
F13-5	1

Letter F13

Montgomery, D. R. 1995. Input- and output-oriented approaches to implementing ecosystem management. Environmental Management 19(2):183-188.

Peterson, N.P. , Hendry, A., and Quinn T.P. 1992. Assessment of cumulative effects on salmonids habitat: some suggested parameters and target conditions. Report for Washington Department of Natural Resources and the Coordinated Monitoring, Evaluation, and Research Committee, Timber Fish and Wildlife Agreement. TFW-F3-92-001. Center for Stream side Studies, University of Washington, Seattle.

Walters, C. 1997. Challenges in adaptive management of riparian and coastal ecosystems. Conservation Ecology. Online V 1(2) art. 1.

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter F14

Provide Your Comments

We would like you to provide comments on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan. Please use this form to express your opinions. You may complete and return this form before leaving the meeting, or you may complete the form later and mail it to:

TED KOCH, PROJECT MANAGER
U.S. FISH & WILDLIFE SERVICE
SNAKE RIVER BASIN OFFICE
1387 SOUTH VINNELL WAY, ROOM 368
BOISE, ID 83709

The comment period ends March 17, 2000. Thank you for your participation.

PLEASE PRINT!

Name: Gordon Johnson

Address: 504 Sylvan Dr. Kalispell MT 59901

My comments are as follows (if needed, attach additional pages):

F14-1 The NFHCP is a win-win situation for both Plum Creek and the public. It guarantees way above the norm habitat protection that we won't get from most other private companies. I think the fact that it can be adjusted as new scientific facts come into play is also a good solution to any new problems that may arise. A job well done and praise goes to all those involved in making this kind of commitment happen.

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Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F14-1	1

Letter F15

1/14/00

RECEIVED
JAN 18 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

Dear Ted Koch

In reference to proposed agreement with Plum Creek and US Fish & Wildlife et al.

F15-1 I am opposed to this agreement as it has the potential to damage or destroy the already gotten gains that have been

F15-2 obtained over the past years. It also potentially opens the doors to other agreements with logging companies, mining and industry that may be harmful to the fisheries or other wildlife programs. Even if a 'bond' fund were to be set up

F15-3 there is no guarantee that the money would be sufficient for remediation or if the parent company would still be in existence.

We now have "one bird in the hand and it is worth more than two in the bush"

Deanna Hills
926 Orchard Dr
Hamilton, MT
59840

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F15-1	79
F15-2	80
F15-3	299

Letter F16

Plum Crook's 'take' of various imperiled species

Brian Parks
MT Hwy. 83
Swan Lake, MT 59911

Ted Koch,
USFWS
1387 S. Vinnell Way #386
Boise, ID 83709

Dear Ted,

F16-1 My family and I live on a 40 acre homestead in Montana's Swan River Valley. We have lived here for most of our lives and our children were, and still are being raised here. We live here because it is a beautiful, clean and natural place with an abundance of fish and wildlife. There are so few places left in the United States where life is this good.

Unfortunately, much of what I am saying is quickly becoming past tense, because if you look at a Forest Service map of the Swan Valley you'll see that it is checkerboard with pink squares amongst the green squares. The reality of what this means is really hitting home (literally) in these past few years as the "owners" of the pink squares are putting the map upon the actual landscape at a speed that seems unimaginable.

F16-2 Take a ride in a small plane over the Swan Valley and you'll see what I mean. Except the map is flat, and the landscape isn't. What this means to those that call the Swan Valley home, human and non-human alike, is that our once beautiful forest home is being destroyed. It's not just the felling of "timber", but the hundreds of miles of tax-payer subsidized roads, the silted-in streams, the ruined fisheries, the vanishing wildlife, the ugly scarred, denuded mountainsides, the roaring industrial noise day and night that has replaced the wonderful peace and quiet that was so much a part of what made living here so wonderful.

F16-3 All that made this a quality place to live is going, going, gone. And now Plum Creek wants to apply for an incidental "take" permit so they can destroy what's left of one of the last strongholds of imperiled species left in temperate North America? Will they stop at anything?

F16-4 I suppose you get the gist of what I am saying. This is my comment on the take permit. As for PC's HCP, it is terribly inadequate. And from what I am observing as a neighbor of Plum Crook, they aren't waiting for the process, they are in a big hurry to get the cut out before they become subject to any environmental regulations. By the time this process is reviewed and completed they will have cashed in and liquidated all their assets. This is a big victory to their share-holders and CPO's but a terrible loss to the wildlife, the world and future generations.

Sincerely,

Brian Parks

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F16-1	1
F16-2	1
F16-3	81
F16-4	82

Letter F17

Beth Gardner

282 Fir Terrace
Kalispell, MT 59901
Phone (406)756-1268

March 13, 2000

Ted Koch
U.S. Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way, Room 368
Boise, Idaho 83709

COMMENTS ON DIES/ NATIVE FISH HABITAT CONSERVATION PLAN (PLUM CREEK)

Dear Ted Koch,

Thank you for the opportunity to comment on the proposed Native Fish Habitat Conservation Plan and Draft Environmental Impact Statement developed jointly by your office and Plum Creek Timber Company. My background is that I am a fisheries biologist in the Flathead Lake basin and I am familiar with issues and opportunities that surround recovery of bull trout in this area. I am not writing on behalf of my employer or any conservation group, I am simply representing myself as a citizen. The opportunity to comment on a proposal this far reaching doesn't come along everyday and I wouldn't miss this for the world.

F17-1 First, let me congratulate the team that built the Native Fish Habitat Conservation Plan (HCP). I think the HCP they have prepared is off to a great start. I can appreciate the need for Plum Creek to have stability in environmental regulations and still be able to commercially manage their lands. I think the HCP does a good job in improving bull trout habitat and other native fish habitat over the long run. The HCP alternative is far better than the No Action Alternative. My comments should be viewed as suggestions to "tweak" the HCP to be even better.

In the Flathead Lake basin, I believe the three greatest problems for native fish recovery are exotic fish species, gradual cumulative decline of habitat quality and private land development. Plum Creek has no role in exotic species management (unless the company wants to, such as apparently the case in the Gold Creek project) so I will not discuss that further. Plum Creek does have a role in the later two.

F17-2 In regards to the gradual, cumulative decline of fish habitat quality, research has found that the most important factor is the amount, location and "quality" of roads in a watershed. I am pleased that the HCP spells out 11 various commitments on the roads issue. The new road construction commitments (R2) are satisfactory. But I am puzzled where did the notion of reclaiming or improving 2 miles of road for every 1 new mile of road come from? The HCP tries to be built on "best science" but there is no mention of where this 2:1 ratio came from. New road construction can have a profound, negative impact on fish habitat. What is there to say that 2:1 is enough to mitigate? Or how do we know it is not an unnecessary burden on Plum Creek?

F17-3 Then, what happens when all the roads in a given watershed are brought up to BMP standards? Does Plum Creek have free reign to just build more roads then? At that point new road construction would probably "undo" all the good achieved so far. I do not understand how the DEIS determined that net sediment production would decrease over the 30 year period (Figure 4.6-13). The key assumption seems to be that Plum Creek will no longer need to build new roads after year 2010. Why do you think is true? I also question what appears to be the total reliance in the DEIS on the road sediment analysis to determine the *direct* effect of sedimentation. Roads also have the *indirect*

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F17-1	1
F17-2	435
F17-3	433, 434

Letter F17

F17-3 effect of increasing peak flows and water yields. This results in reduced channel stability and can lead to sedimentation. I simply did not see in the DEIS where this effect was considered.

F17-4 As new roads are built or old roads are brought up to BMP standards, would it be possible to commit that reseeding will be done with only native seed mixes? I am weary of all the exotic grasses and plants being sown across the landscape. Can Plum Creek commit to leading the way on saving our native grasses and plants?

The road tracking and road condition inspection commitments are very good and I am grateful that Plum Creek will share information with other landowners as problems are found on their lands or on jointly managed roads.

F17-5 In regards to the upgrading of old road commitments (R5) it is disheartening to see that Plum Creek would need 10 years to upgrade the highest priority watersheds (just 20% of planning area) and yet admits it can get the remaining 80% done in just 5 more years. This does not speak well of Plum Creek. Wouldn't it be more beneficial to fish habitat to restore the 20% of highest priority watersheds in the first 20% of the time budget?

F17-6 I think the specific steps that will be used to upgrade old roads (appendix R-3) is incomplete. I suggest that Plum Creek also commits to replace culverts that are too short, even if they adequately pass 50 year flood events. Insufficient culvert length is a fairly common problem in the Flathead valley in that it leads to oversteepened, unstable road fill which can erode into the stream. I also think graveling of poor road surfaces near culverts is helpful in reducing surface erosion. I was uncertain if the plan calls for stabilization of unstable cut and fill slopes in order to reduce erosion into ditches and if this is overlooked, I urge you to consider it.

I feel the road abandonment criteria (appendix r-7) is excellent and if this criteria is met, the road should have very little effect on fish habitat. I am pleased Plum Creek has the courage to remove culverts on abandoned roads, especially since this is an emotional issue in the Flathead valley.

F17-7 I am somewhat familiar with the Road Sediment Delivery Analysis promised in commitment R-9 and I am pleased Plum Creek plans to conduct this. I wonder if it would be possible for Plum Creek to expand the scope of this analysis while they are in the watershed anyway? Could Plum Creek also conduct other planning analysis at the same time? Could an effort be made at looking at the cumulative effect of past harvest and private land development before deciding on the next land management activity? What about grazing allotment improvements? It seems like Plum Creek is committing to numerous monitoring and analysis but I am confused on how this work would be prioritized. I think it would be better use of Plum Creek's time to focus on only 3 watersheds per year for all this planning and monitoring. Better yet, if Plum Creek could jointly identify which 3 watersheds they plan to work on with state and federal agencies, there could be real opportunities to develop bona-fide watershed assessments across multiple ownerships. These days, watershed assessments are the rage and everyone is trying to do them. By working together on just a few at a time, this would help focus the public comment and spell out good partnership projects.

I believe the riparian harvesting guidelines would be adequate to protect fish habitat and should be easy to implement.

F17-8 I can appreciate the difficulty in establishing grazing BMPs and I know that a one-size-fits-all standard for grazing allotments would never work. The recommendations in Appendix G-1 are useful but I think there are two features that were overlooked. First, the leaseholder's self-monitoring of range conditions is adequate but I think it falls well short of adequately monitoring stream channel conditions. How do we know that restricting cattle trampling to just 10% of the riparian area is sufficient to improve habitat? What if more than 10% is trampled and yet other factors appear OK, such as good willow growth? Validation monitoring of these BMPs is needed. I suggest some actual stream channel monitoring is needed such as permanent cross sections, fish habitat inventories or core samples. My other recommendation is that the HCP develop a guideline for soil moisture. Very wet soils, such as springtime, are especially vulnerable to problems. Some Forest Service grazing allotments have BMPs that set guidelines for when cattle may be turned out in the spring based on soil moisture so to protect fish habitat and I encourage you to investigate this.

F17-9 As Montana's population continues to grow, private land development gives concern for maintaining high quality fish habitat. Here in the Flathead valley, Plum Creek has sold or traded off a considerable amount of waterfront property. Some of the land was traded or sold with conservation needs in mind and are commendable (Elk Creek, Lindbergh Lake). Others left anglers and conservationists sorely disappointed (Bitterroot Lake). I read the Land Use Planning Commitments with eagerness, hoping that the HCP would make steps towards resolving this problem.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F17-4	436
F17-5	443, 446
F17-6	453
F17-7	388
F17-8	774
F17-9	790, 796

Letter F17

F17-9

I'm not sure if it helps any. I understand the various disposition categories but I am uncertain just how the decisions will be made. It seems the DEIS concluded this alternative does help provide long term land use planning but I could find the rationale on why this would be true. Why does the DEIS conclude that disposition of up to 8% of the project area lands is still acceptable? Where did that number come from? What if the 8% sold just happens to be critical habitat?

F17-10

One other note, the selection of Teir 1 watersheds is very important to the success of the HCP. The selection criteria is not defined and the DEIS simply states "Plum Creek categorized watershed units based on bull trout biology" (page 2-19) and the HCP states those "known to be important for bull trout spawning and rearing". What is considered important? The map 2.2-1 appears arbitrary. Why was Kraft and Glacier Creek in the Swan Valley excluded? Why is Dog and Cat excluded? Why is Dayton Creek, a tributary of Flathead Lake excluded? These streams all contain bull trout. I would not consider them to have a large migratory run but since we know so little about bull trout historic use and since this species is federally threatened, couldn't all spawning streams be considered "important"? Perhaps Plum Creek meant to build this map on other agency classifications. It is true the above streams are not considered "core" watersheds by the state of Montana nor "priority" watersheds by the Forest Service. And yet Holland watershed and Lost Creek watershed are each "core" and "priority" and but these also are excluded from the map. Why? Why is Fitzsimmons in the upper Stillwater basin excluded? Most baffling is why is upper Sheppard/Logan/Griffin Creeks above Tally Lake included since these do not have bull trout? I urge you to reconsider this teir 1 delineation or at the very least provide rationale on how they were selected. Furthermore the HCP and DEIS admit that the Teir 1 selection was based solely on bull trout concerns. So if the HCP is meant to protect all native fish, shouldn't there be some consideration for watersheds that are critical to other native fish?

Thank you for considering my comments and I wish you the best in completing and implementing the HCP.

Sincerely,

Beth Gardner

Beth Gardner

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F17-10	528

Letter F18

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F18-1	1
F18-2	83
F18-3	313

255 Boon Road
Somers, MT 599332
February 5, 2000

Ted Koch
U. S. Fish and Wildlife Service
1387 S. Vinnell Way Room 368
Boise, ID 83709

DEIS
Plum Creek NFHCP

Dear Mr Koch:

F18-1 I am grateful that Plum Creek is giving the appearance, at least, of being a conscientious steward of habitat. I hope that over the next 30 years their performance matches the promise.

F18-2 I do not have the scientific or legal expertise to comment intelligently on the Plan. However, without being too insulting to Plum Creek, I'll admit to having a lot more trust in the two Services.

F18-3 So what I am really concerned about are the resources necessary for the Services to adequately monitor Plum Creek's performance to hold them to, at least the spirit of the Plan, if not the letter. The politically motivated public officials in Montana, Idaho, and elsewhere keep harping on the F&WS to speed up various environmental reviews. How, therefore, is the enforcement of the Plum Creek Permit going to fit into the Services' budgets without a cooperative Congress providing some additional funding?

I hope I can find some assurance on this matter at least in a cover letter or some attachment to the final EIS.

Thank you for the opportunity to comment.

Yours very truly,

Franklin E Schroeter

Franklin E Schroeter

Letter F19

Provide Your Comments

We would like you to provide comments on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan. Please use this form to express your opinions. You may complete and return this form before leaving the meeting, or you may complete the form later and mail it to:

TED KOCH, PROJECT MANAGER
U.S. FISH & WILDLIFE SERVICE
SNAKE RIVER BASIN OFFICE
1387 SOUTH VINNELL WAY, ROOM 368
BOISE, ID 83709

RECEIVED
JAN 31 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

The comment period ends March 17, 2000. Thank you for your participation.

PLEASE PRINT!

Name: Mark L. Ude

Address: PO Box 635 Powell WY 82435 1305 Rd. 9

My comments are as follows (if needed, attach additional pages): It shows

F19-1 responsibility and good stewardship for Plum Creek to plan and institute this native fish habitat plan. It seems the best and most efficient way for the imposed regulations to be met on the great amount of corporate lands. Not being a

F19-2 fish biologist I can't say if the plan has flaws. The four C's seems like a good goal. The success of all this will be in the

F19-3 actual institution by Plum Creek and the enforcement by the U.S.F.W.S.

F19-4 Speaking personally, I find it hard to swallow government encroachment on private property and rights. I am a logger and I'm dealing with specifications of this plan now. I

F19-5 would hope Plum Creek would stick to what is important and not add unnecessary specs just for show.

F19-6 I hope both parties would realize that all this comes down to another pressure against the timber industry and the working man's ability to earn a living. A low priority I know from past experience. But perhaps you might keep it in mind.

BOI99\$10CO1.DOC;1

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F19-1	1
F19-2	1
F19-3	313
F19-4	85
F19-5	348
F19-6	85

Letter F20

Provide Your Comments

We would like you to provide comments on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan. Please use this form to express your opinions. You may complete and return this form before leaving the meeting, or you may complete the form later and mail it to:

TED KOCH, PROJECT MANAGER
U.S. FISH & WILDLIFE SERVICE
SNAKE RIVER BASIN OFFICE
1387 SOUTH VINNELL WAY, ROOM 368
BOISE, ID 83709

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FEB 0 3 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

The comment period ends March 17, 2000. Thank you for your participation.

PLEASE PRINT!

Name: Jeanne Olson

Address: 160 WestValley Acres , Kalispell, MT 59901

My comments are as follows (if needed, attach additional pages):

F20-1 I'm delighted to see such a plan, planning ahead involving the private sector, rather than trying to react afterwards.

Much of this plan looks very good, on paper. (The NFHCP)

F20-2 Will ths NFHCP be monitored, evaluated etc.m, and is sufficient flexibility allowed to meet changing conditions or results of evaluations??

F20-3 Has sufficient attention been paid to the habitat of Westslope Cutthroat trout?

BOI99510007.DOC/jl

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F20-1	1
F20-2	84
F20-3	208

Letter F21

Provide Your Comments

We would like you to provide comments on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan. Please use this form to express your opinions. You may complete and return this form before leaving the meeting, or you may complete the form later and mail it to:

RECEIVED
JAN 3 1 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

TED KOCH, PROJECT MANAGER
U.S. FISH & WILDLIFE SERVICE
SNAKE RIVER BASIN OFFICE
1387 SOUTH VINNELL WAY, ROOM 368
BOISE, ID 83709

The comment period ends March 17, 2000. Thank you for your participation.

PLEASE PRINT!

Name: Ginny Ude

Address: P.O. Box 635 1305 Rd. 9 Powell, WY. 82435

My comments are as follows (if needed, attach additional pages):

F21-1 I am pleased to see the results of Plum Creeks hard work. I have read most of the information that I picked up at the meeting in Missoula, Montana.

F21-2 My biggest concern about the F.W.+ Parks listing of the bull trout are the jobs that will be lost to the middle or low class wage earner in these states. I am also concerned about the very big increase in the Osprey and Eagle populations. Has this increase been taken into consideration? These birds eat several fish a day each.

F21-3

F21-4 Also along the stream and river banks. The trees that are dieing, are they going to be taken out and young healthy trees planted in there place. If these adult trees die and fall into the rivers and streams they could cause ~~them~~ water to become dammed up and cause unnecessary low water levels further down stream. That could cause the water

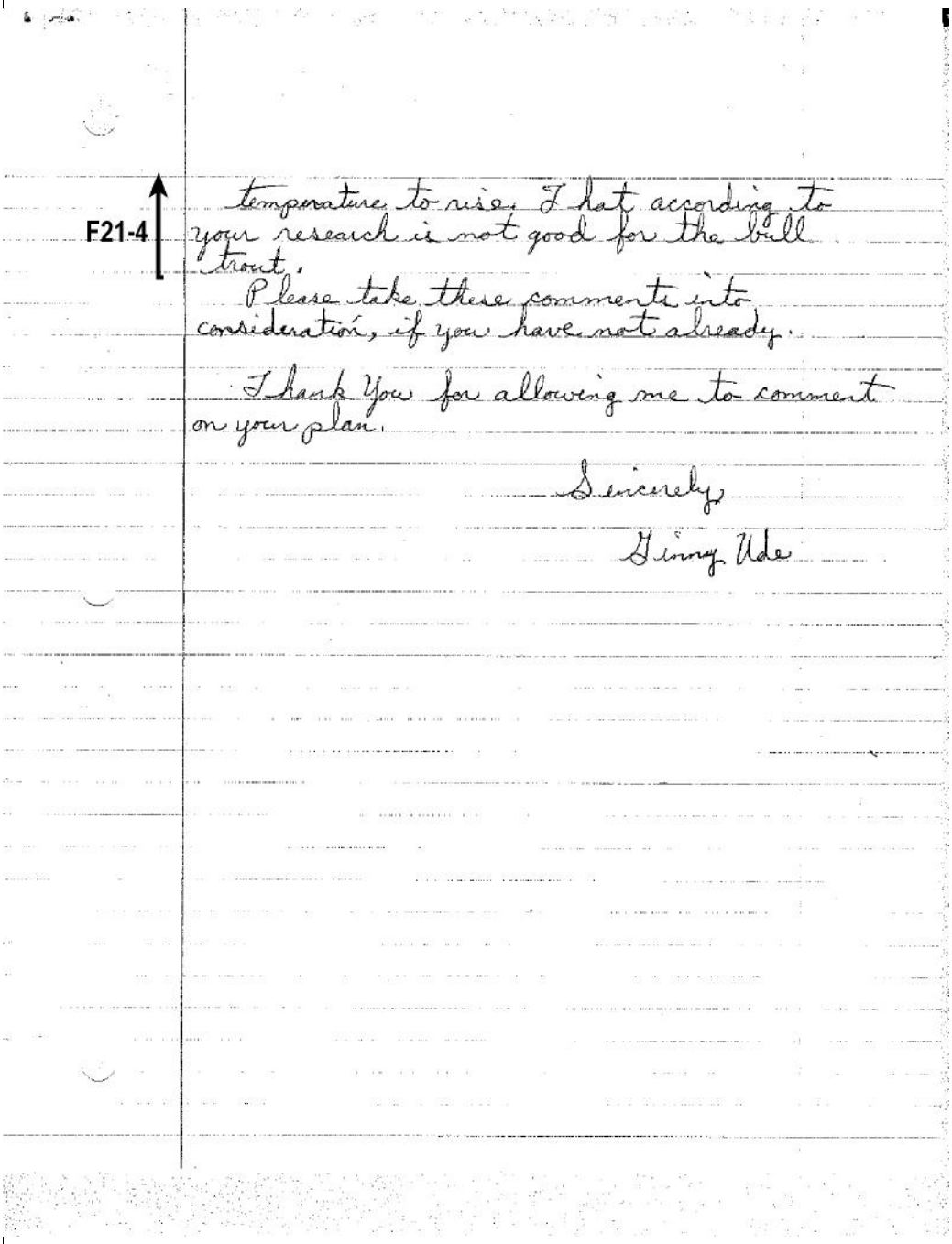
BOI990510007.DOC/JI

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F21-1	1
F21-2	85
F21-3	276
F21-4	576

Letter F21



F21-4

temperature to rise. I hat according to your research is not good for the bull trout.

Please take these comments into consideration, if you have not already.

I thank You for allowing me to comment on your plan.

Sincerely,

Ginny Ude

Responses

See Response to Comment Table or click on link provided below.

Comment Response

Letter F22

1-18-2000

Steve MacLemore
604N 4th St
Hamilton,MT 59840

Dear Mr. Koch,

F22-1 At this time I wish to express my strong opposition in regards to the issue of Plum Creeks negotiation with the Forest Service and activities which in any way negatively effect trout waters. Furthermore if they are in fact not up to standards presently in regards

F22-2 to either roads or practices as stated in the local paper my question is why haven't they been severely fined and made to meet these standards. The record of the timber and mining industry in America is clear proof of the totally disregard to the environment. Future generations require the hard decisions be made now not in 30 years. Being a steward of the lands as you have chosen is I'm sure like walking the razors edge-torn by the issues of jobs and environment. People can be retrained much easier than the

F22-3 environment can be healed. Please help to stem the always moving flow of get it now- fix it later ideals and put forth your weight if the fight to begin a new policy that will truly safe the forests and all that dwells therein for future generations.

Thank you for your time and if I may in anyway serve you to help in these goals call on me.

Truly,

Steve MacLemore

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F22-1	1
F22-2	86
F22-3	87

Letter F23

Carie Hett 994 West Loucks Sheridan, WY 82801

January 16, 2000

Mr. Ted Koch
US Fish & Wildlife Service
1387 S. Vinnell Way, #368
Boise, ID, 83709

Dear Mr. Koch:

I'd like to comment on the Plum Creek Timber Company's "Incidental Take Permit" for bull trout and salmon across the Company's remaining Washington, Idaho, and Montana timberlands. The permit would allow Plum Creek to kill, harm, or otherwise "take" various imperiled salmon, trout, and other species associated with their habitats. It is my understanding that in order to get the permit, Plum Creek must develop a "Habitat Conservation Plan" (HCP).

F23-1 I'd like to request a full 90 day comment period, due to the plan's immense size and complexity, Much of the comment period was taken up by the holidays, and because of other major plans and policy decisions which are also out for public comment many, including myself, haven't had enough time to comment. Often HCPs developed by wood companies can be inadequate and fail to offset impacts to endangered species, and they can also saddle the public with the burden of paying for additional mitigation measures needed for species recovery.

F23-2

Please extend the comment period for a full 90 days. Thanks for your interest in public comments.

Sincerely,

Carie Hett

Carie Hett

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F23-1	168
F23-2	1

Letter F24

RECEIVED
JAN 24 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

Judith Pressmar
POB 2063
Kalispell, MT 59903

January 19, 2000

Ted Koch
US Fish and Wildlife Service
Snake River Basin Office
1387 South Vinnell Way
Room 368
Boise, Idaho 83709

Dear Mr. Koch:

I am writing to comment on the draft EIS and Native Fish Habitat Conservation Plan currently under consideration. I know that such a conceptual agreement is allowed under the EPA, but I see no reason why we need to allow a level of mortality of aquatic species to benefit a private corporation.

F24-1 We are spending a great deal of time and money to protect and save species such as the endangered bull trout. It seems counterproductive to allow a timber company such as Plum Creek to engage in timber management practices that will further endanger this and other species.

F24-2 I understand it can be more costly for timber companies to do business in a manner that does not promote stream degradation, but it is imperative that we all assume the cost of a healthy environment.

F24-3 I feel strongly that no incidental take is acceptable in this situation. Our native species are struggling enough as it is. Thank you.

Judith Pressmar

Judith Pressmar

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F24-1	77, 181
F24-2	1
F24-3	88

Letter F25

Provide Your Comments

We would like you to provide comments on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan. Please use this form to express your opinions. You may complete and return this form before leaving the meeting, or you may complete the form later and mail it to:

TED KOCH, PROJECT MANAGER
U.S. FISH & WILDLIFE SERVICE
SNAKE RIVER BASIN OFFICE
1387 SOUTH VINNELL WAY, ROOM 368
BOISE, ID 83709

RECEIVED
JAN 18 2000
SNAKE RIVER BASIN OFFICE
U.S. FWS

The comment period ends March 17, 2000. Thank you for your participation.

PLEASE PRINT!

Name: Dwight Lee Bates

Address: 1509 Brick Road Ellensburg WA 98926

My comments are as follows (if needed, attach additional pages): I do not

F25-1 think any threatened species including Bull Trout should be in the EIS. Only endangered species should be listed. The Bull Trout requires much colder water than the other species so it is not a good example.

F25-2 I do not think the Cold biological goal can be met. I disagree that for every 1 mile of new road built 3 miles will be abandoned. It should be 1 to 1.

F25-3 I do not agree that the public access should only be limited to 10% of Plum Creek's road system. The public needs the roads for recreation (P.19). I

F25-4 think the limited harvest rule should be 10 feet from the CMZ - not 50 feet. (P 20-21 & 22).

BOI992510007.DOC;1

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F25-1	89
F25-2	345
F25-3	441
F25-4	1

Letter F26

Ted Koch, US Fish & Wildlife Service, 1387 S. Vinnell Way, #368, Boise, ID, 83709.

Thomas Tereszkiewicz
315 Park View Terrace #203
Oakland Ca 94610

Dear Mr. Ted Koch:

F26-1 I have just heard that Plum Creek Timber company is applying for a "Take" Permit which to me reads as, give us unbridled permission to rape, pillage and destroy. No Corporation has a right to destroy what Mother Nature has taken millions of years to produce. According to the DEIS of Plum Creek, it seems as if they want to "Take" about 17 different species which to me, is totally unacceptable. I don't

F26-2 care how valuable they supposedly are to rural economies. The resource must always come first and Plum Creek should be no exception. Lord knows this company has done enough raping and pillaging to make our pioneers proud. It's time to put a halt to this kind of rough shod treatment of nature and time to start

F26-3 taking back our heritage. Incidentally, I think I would like to review exactly how Plum Creek acquired their land holdings in Idaho. It would be interesting to examine how exactly they came to own huge swaths of the Idaho hinterlands. Anyway, let's do what's right for the earth instead of worrying about maximizing the profits of timber barons.

Thank you for your time.

Sincerely,

Thomas Tereszkiewicz

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F26-1	1
F26-2	1
F26-3	54

Letter F27

Jan 18

SONIA ALLEN SPALDING

Dear Mr Koch,

I am upset to learn of Plum Creek's "Endangered Species 'Take' permit".

F27-1 I feel there should be a full 90 day comment period, due to the holidays interrupting the plan's huge size + complexity.

F27-2 This is a project not in the best interests of U.S. citizens who love the outdoors and do not want to pay taxes to help Plum Creek develop this land.

Sincerely,

Sonia A Spalding
PO Box 954
Camden ME 04843

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F27-1	168
F27-2	1

Letter F28

Author: Paul Lindholdt <plindholdt@mail.ewu.edu> at FWS
Date: 3/17/00 9:52 AM
Normal
BCC: Ted Koch at 1PO-ESBO1
TO: ted_koch@fws.gov at FWS
Subject: Comments on Plum Creek HCP
---------- Message Contents

I am writing on behalf of a student club named Eastern Environmental, which I serve
as faculty advisor. Thanks for this offer to give comments on the proposed
Habitat Conservation Plans.

F28-1

The USFWS should demand that Plum Creek

1. Significantly curtail new roadbuilding

2. Obliterate all roads which threaten streams with sedimentation

3. Employ no-activity buffer zones alongside all streams

4. Halt logging on steep slopes to prevent sedimentation of streams.

Thank you,

--
Paul Lindholdt
plindholdt@mail.ewu.edu
509 / 359-2812
http://www.class.ewu.edu/class/engl/plindholdt/plindholdt.html

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F28-1	53

Letter F29

Author: LunellH@aol.com at FWS
Date: 3/18/00 5:36 PM
Normal
BCC: Ted Koch at 1PO-ESBC1
TO: ted_koch@fws.gov at FWS
Subject: Plum Creek EIS
---------- Message Contents

F29-1 Please consider this a comment related to the EIS for Plum Creek's management plan. I have reviewed it and do not think it adequately addresses water...buffers around small streams which form headwaters, affecting groundwater and watersheads. The lack of significant restraint related to roads not only affects the water and associated fish, but wildlife and human enjoyment as well.

Thank you for your time.

Lunell Haught
7802 S. Cheney Spokane Road
Spokane, WA 99224

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F29-1	1

Letter F30

Author: "Jessica McNamara" <jmcnamar@nvinet.com> at FWS
Date: 3/17/00 1:22 PM
Normal
BCC: Ted Koch at 1PO-ESBO1
TO: <ted_koch@fws.gov> at FWS
Subject: Plum Creek Timber HCP
---------- Message Contents

Mr Koch:

F30-1 __ We understand that the Plum Creek Timber Co. HCP for their lands in Montana, Washington, and Idaho is remiss in many ways, especially in regard to watershed analysis, riparian buffers, groundwater, large wood debris and takings.
__ Most importantly, the No Surprises policy is unlawful under the ESA.
__ We request the the USFWS deny this HCP.
_____ Sincerely,
_____ Jessica McNamara
_____ Tonasket, WA_ 98855

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F30-1	1

Letter F31

Provide Your Comments

We would like you to provide comments on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan. Please use this form to express your opinions. You may complete and return this form before leaving the meeting, or you may complete the form later and mail it to:

TED KOCH, PROJECT MANAGER
U.S. FISH & WILDLIFE SERVICE
SNAKE RIVER BASIN OFFICE
1387 SOUTH VINNELL WAY, ROOM 368
BOISE, ID 83709

The comment period ends March 17, 2000. Thank you for your participation.

PLEASE PRINT!

Name: Jerry Wolcott

Address: 5500 Kootenai River Rd

My comments are as follows (if needed, attach additional pages):

F31-1 [This will be a good compromise if implemented properly

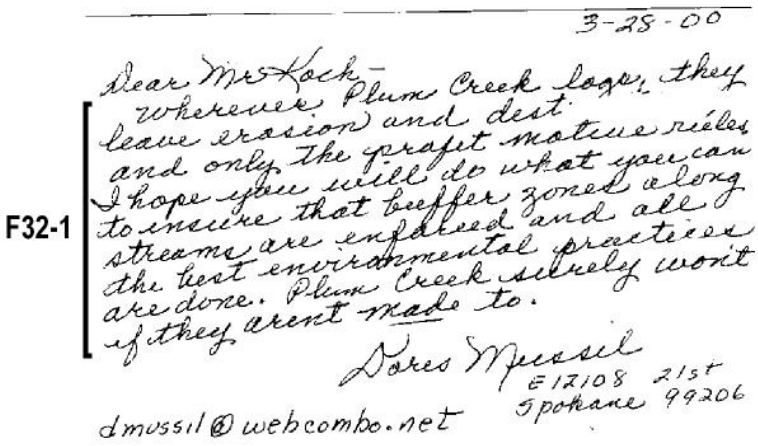
BO990510007.DOC/1

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F31-1	1

Letter F32



3-28-00

Dear Mrs Koch -
Wherever Plum Creek logs, they leave erosion and destruction and only the profit motive rules. I hope you will do what you can to insure that buffer zoned along streams are enforced and all the best environmental practices are done. Plum Creek surely won't if they aren't made to.

Dores Mussil
E 12108 21st
Spokane 99206

dmussil@webcombo.net

F32-1

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
F32-1	1

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Letter G1

Provide Your Comments

We would like you to provide comments on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan. Please use this form to express your opinions. You may complete and return this form before leaving the meeting, or you may complete the form later and mail it to:

TED KOCH, PROJECT MANAGER
U.S. FISH & WILDLIFE SERVICE
SNAKE RIVER BASIN OFFICE
1387 SOUTH VINNELL WAY, ROOM 368
BOISE, ID 83709

The comment period ends March 17, 2000. Thank you for your participation.

PLEASE PRINT!

Name: Public Comment

Address: Missoula, Montana, Public Meeting

My comments are as follows (if needed, attach additional pages):

- Existing forest practices/regulations do not result in "take."
  - Where will "bar" be set for private landowners? G1-1
- Make sure FWS has staffing and budget for monitoring. G1-2
- Full disclose, in the document, how the HCP will be funded on the part of the FWS. Money now; future budget; staff. G1-3
- Plum Creek has "0" (zero) credibility; monitoring is critical. G1-4
- Set up field tours with local people to see past projects and discuss HCP (Bitterroot/Florence area). G1-5
- Are the differences among fish species and their requirements being addressed? For example, thresholds for temperature. G1-6
- Is there consistent management across state boundaries? G1-7
- Is the HCP a big change for Plum Creek from present management? G1-8
- No Action Alternative would have more adverse effects than the EIS represents. G1-9
- We should consider making all Tier 1 streams in the Swan into Native Fish Assemblages. G1-10
- Some roads should be obliterated and not just abandoned. G1-11
- Adaptive Management pathway is too long and has too many loopholes. G1-12
- Consider core areas at watershed level. G1-13
- Consider metapopulation structure with "connected" goals. G1-14

BOI00670217.DOC/JI TRANSCRIBED BY JANIE ISERICH2M HILL JANUARY 27, 2000

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
G1-1	90
G1-2	313
G1-3	313
G1-4	666
G1-5	324
G1-6	208
G1-7	101
G1-8	269
G1-9	169
G1-10	718
G1-11	442
G1-12	611
G1-13	531
G1-14	346

Letter G1

G1-15 [• Consider species-specific requirements.

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
G1-15	208

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Letter G2

Provide Your Comments

We would like you to provide comments on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan. Please use this form to express your opinions. You may complete and return this form before leaving the meeting, or you may complete the form later and mail it to:

TED KOCH, PROJECT MANAGER
U.S. FISH & WILDLIFE SERVICE
SNAKE RIVER BASIN OFFICE
1387 SOUTH VINNELL WAY, ROOM 368
BOISE, ID 83709

The comment period ends March 17, 2000. Thank you for your participation.

PLEASE PRINT!

Name: Public Comment

Address: Coeur d'Alene, Idaho, Public Meeting

My comments are as follows (if needed, attach additional pages):

G2-1 • Why does the Lower Kootenai Planning Area basin stop at the state border?

G2-2 • Why aren't Kootenai River white sturgeon a covered species?

G2-3 • Plum Creek should fund Conservation Officers to reduce poaching on Plum Creek lands.

G2-4
- Monitoring:
  - Where?
  - When (time of year)?
  - Cost and who pays for it?
  - How do you cover a landscape of this size?

G2-5 • HCPs may force state regulatory agencies and state forest practices acts out of business.

G2-6 • State forest practices acts are adequate protection.

SCM0006\0216.DOC/ll TRANSCRIBED BY JANIE ISERICH2M HILL JANUARY 27, 2000

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
G2-1	102
G2-2	277
G2-3	490
G2-4	667
G2-5	103
G2-6	104

Letter G3

Provide Your Comments

We would like you to provide comments on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan. Please use this form to express your opinions. You may complete and return this form before leaving the meeting, or you may complete the form later and mail it to:

TED KOCH, PROJECT MANAGER
U.S. FISH & WILDLIFE SERVICE
SNAKE RIVER BASIN OFFICE
1387 SOUTH VINNELL WAY, ROOM 368
BOISE, ID 83709

The comment period ends March 17, 2000. Thank you for your participation.

PLEASE PRINT!

Name: Public Comment

Address: Kalispell, Montana, Public Meeting

My comments are as follows (if needed, attach additional pages):

G3-1 • Looks great!

G3-2 • EIS should include analysis of FWS commitment ($, manpower) required under each alternative to do the job RIGHT!

G3-3 • Will Plum Creek's permit cover streambank/bed alteration not exempted for silviculture use under CWA Section 404(f)?

G3-4 • Stillwater State Forest not included in Flathead Basin acreage. Correct for FEIS.

G3-5 • The Service needs to have $ and people to implement! (comment recorded twice)

G3-6 • Important to address effects on other forest landowners (i.e., are these parameters expected for other private landowners?)

G3-7 • There is a move for small private landowners to develop an HCP. How would that differ from Plum Creek's HCP?

G3-8 • Agencies and private companies need to get together to develop creative ways to share knowledge and talent to meet common objectives on the ground. Don't follow tight contract stipulations—but more adaptive/interactive approach.

G3-9 • This process should be concerned with more than just fish—like weeds.

G3-10 • This plan must include sufficient Adaptive Management flexibility to balance "No Surprises" assurances.

BOI00870218.DOC/JI TRANSCRIBED BY JANIE ISERI/CH2M HILL JANUARY 27, 2000

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
G3-1	1
G3-2	313
G3-3	814
G3-4	170
G3-5	313
G3-6	90
G3-7	91
G3-8	611
G3-9	284
G3-10	355

Letter G4

Provide Your Comments

We would like you to provide comments on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan. Please use this form to express your opinions. You may complete and return this form before leaving the meeting, or you may complete the form later and mail it to:

TED KOCH, PROJECT MANAGER
U.S. FISH & WILDLIFE SERVICE
SNAKE RIVER BASIN OFFICE
1387 SOUTH VINNELL WAY, ROOM 368
BOISE, ID 83709

The comment period ends March 17, 2000. Thank you for your participation.

PLEASE PRINT!

Name: Public Comment

Address: Kelso, Washington, Public Meeting

My comments are as follows (if needed, attach additional pages):

G4-1 • Address mass wasting and mass failures on roads with respect to sediment delivery.

G4-2 • Assess current frequency of mass failures and size of failures.

G4-3 • Monitor number and size of failures to determine if measures to reduce mass wasting are succeeding.

BOI00367015?.DOC/JI TRANSCRIBED BY JANIE ISERI/CH2M HILL JANUARY 27, 2000

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
G4-1	485
G4-2	486
G4-3	487

Letter G5

Provide Your Comments

We would like you to provide comments on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan. Please use this form to express your opinions. You may complete and return this form before leaving the meeting, or you may complete the form later and mail it to:

TED KOCH, PROJECT MANAGER
U.S. FISH & WILDLIFE SERVICE
SNAKE RIVER BASIN OFFICE
1387 SOUTH VINNELL WAY, ROOM 368
BOISE, ID 83709

The comment period ends March 17, 2000. Thank you for your participation.

PLEASE PRINT!

Name: Public Comment

Address: Libby, Montana, Public Meeting

My comments are as follows (if needed, attach additional pages):

G5-1
- Need Montana Fish Wildlife (U.S. FWS) staff to track and implement the HCP with Plum Creek. There needs to be local contacts for this plan to work and commitment from the State to make sure it works.

G5-2
- How does the recovery standards for bull trout in small systems compare to large system standards (dam flow)? Are some standards being applied to BPA and private land flows? Seems like Feds get wider flow variability than private lands. Remaining connected habitat should have a higher priority than broken connections. High flows for salmon may have adverse impacts to bull trout (high July, August, September flows—not used to it—concern). Will bull trout get the same protection as salmon? There are advantages to BPA to implement IRCs. Can measure and see results.

G5-3
- Involve local publics. For example, local Trout Unlimited person to work with Plum Creek folks to discuss fish issues related to HCP.

G5-4
- How did the Service evaluate watershed-scale effects of land management on hydrology?

G5-5
- Plum Creek should give $$ to FWS to fund MDFWP to monitor.

G5-6
- U.S. FWS doesn't consider local citizen's needs. FWS has no credibility.

G5-7
- Will U.S. FWS be staffed for 30 years to implement and monitor?

BOI00367019.DOC/JI TRANSCRIBED BY JANIE ISERI/CH2M HILL JANUARY 27, 2000

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
G5-1	326
G5-2	92
G5-3	802
G5-4	267
G5-5	668
G5-6	83
G5-7	313

Letter G6

Provide Your Comments

We would like you to provide comments on the Draft Environmental Impact Statement and Native Fish Habitat Conservation Plan. Please use this form to express your opinions. You may complete and return this form before leaving the meeting, or you may complete the form later and mail it to:

TED KOCH, PROJECT MANAGER
U.S. FISH & WILDLIFE SERVICE
SNAKE RIVER BASIN OFFICE
1387 SOUTH VINNELL WAY, ROOM 368
BOISE, ID 83709

The comment period ends March 17, 2000. Thank you for your participation.

PLEASE PRINT!

Name: Public Comment

Address: Yakima, Washington, Public Meeting

My comments are as follows (if needed, attach additional pages):

G6-1 [• Monitoring: Make sure you ask the questions of why and how instead of just checking a "yes" box to say the monitoring or mitigations were implemented.

BOI03670143.DOC/JR TRANSCRIBED BY JANE ISER/CH2M HILL JANUARY 17, 2000

Responses

See Response to Comment Table or click on link provided below.

Comment	Response
G6-1	669