

## 3.0 Alternatives Including the Proposed NFHCP

### 3.1 Introduction

Four alternatives representing a range of management strategies were selected for detailed analysis. They include a No Action Alternative, Plum Creek Timber Company's (Plum Creek's) proposed Native Fish Habitat Conservation Plan (NFHCP), and two other action alternatives, as follows:

- Existing Regulations—No Action Alternative
- Plum Creek's NFHCP—Proposed NFHCP
- Internal Bull Trout Conservation Plan Alternative
- Simplified Prescriptions Alternative

Analysis of these different management strategies takes advantage of the fact that activities are categorized similarly under all four alternatives. Activities proposed for coverage under the Permit are currently implemented by Plum Creek and were described in Chapter 2, Section 2.3.1, *Plum Creek's Land Management*. Analysis of potential project effects, presented in Chapter 4 under the Environmental Consequences heading for each resource area, addresses the effects of the four different management strategies (alternatives) as well as the effects of the covered activities. The analysis focuses on effects of the NFHCP and two other action alternatives at a proposed Permit length of 30 years, but also briefly examines potential effects at optional Permit lengths of 10 years and 20 years.

#### What is the Purpose of this Chapter?

This chapter describes the Environmental Impact Statement (EIS) alternatives including Plum Creek's proposed NFHCP. Because the NFHCP is part of Plum Creek's application to the Services for an Incidental Take Permit, the NFHCP is presented at the end of this chapter as a separate document prepared by Plum Creek. This chapter has three main parts:

- Sections 3.1 and 3.2 provide brief descriptions of the alternatives, how they were developed, alternatives considered but rejected, and an explanation of the conservation categories that comprise the components of the alternatives.
- Section 3.3 provides full descriptions of each alternative and a matrix chart showing components of the alternatives.
- The proposed NFHCP is presented at the end of this chapter.

This chapter describes the various conservation measures or commitments associated with the four alternative management strategies. Discussions of how these alternatives were developed, alternatives considered but not selected for further analysis, and overviews of alternatives selected for detailed analysis are presented below.

#### **3.1.1 How the Alternatives were Developed**

Alternatives were developed based on an understanding of project purpose and need, issues identified by the public during and following scoping meetings, and

Council on Environmental Quality (CEQ) regulations for implementing provisions of the National Environmental Policy Act (NEPA). The process of developing alternatives began by defining the purpose and need of the Proposed Action. The Proposed Action is the issuance of a Permit under the Endangered Species Act (ESA). Identifying why the Proposed Action is needed (the **need**) and what the Proposed Action is intended to accomplish (the **purpose**) focuses the subsequent development of alternatives, since there may be various methods (alternatives) of satisfying project needs. For this project, purpose and need for the U. S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) (used together, the Services) and for Plum Creek were first defined in the Scoping Report (FWS and NMFS 1998). The Scoping Report was prepared in July 1998 following scoping meetings and receipt of public comments.

Section 1.4.1, *Purpose of the Action*, and Section 1.4.2, *Need for the Action*, of this Environmental Impact Statement (EIS)/NFHCP reiterate the Services' perspective and Plum Creek's perspective of project purpose and need that was defined in the Scoping Report. These sections, as well as Section 1.4.3, *Context of the Action*, portray the sometimes differing perspectives but a common goal of the Services and Plum Creek regarding project purpose and need. Briefly, for the Services, project purpose and need is to authorize incidental take of the covered Permit species by Plum Creek while gaining assurances that take will be minimized and mitigated to the maximum extent practicable, and that habitat of Permit species will be sufficiently conserved to be consistent with long-term survival needs. For Plum Creek, project

purpose and need is to allow for long-term certainty of economic use of their lands while providing for the conservation of listed and unlisted native salmonids and their habitat. The range of alternatives eventually selected for detailed analysis encompasses the Services' and Plum Creek's differing perspectives on project purpose and need.

A number of issues related to alternatives development were identified by the public during the scoping process. These issues helped shape the alternatives eventually selected for detailed analysis. They are listed in the Scoping Report (FWS and NMFS 1998) and briefly summarized, as follows:

1. Include a fully developed range of alternatives for each species affected by Plum Creek's activities and address whether the HCP meets the Services' objectives.
2. Examine alternatives that promote conservation efforts on a watershed landscape basis, irrespective of land ownership.
3. Alternatives considered should include longer timber rotations and habitat reserves, no-cut buffer zones, no new roads, and obliteration of roads adversely affecting habitat, together with valid scientific reasons if they are rejected.
4. One action alternative should include the environmental forestry measures Plum Creek currently practices, which are not required by law.

5. All alternatives must define potential costs and impacts for fish, anglers, and the aquatic system throughout the Planning Area.
6. Provide an ecologically realistic alternative to the “taking” of species that would provide for their recovery in numbers and distribution.
7. The FWS should adopt the “no project alternative/no take alternative.”
8. The No Action Alternative should not include the environmental forestry measures Plum Creek currently practices, which are not required by law.
9. The No Action Alternative should presume bull trout would be listed.
10. Evaluate whether state forest practice rules represent the long-term status quo or No Action Alternative given Clean Water Act requirements and the need for 303(d) protection (avoidance of violations).

All issues except issue 10 are either wholly or partially covered in the alternatives analyzed in detail in this document. Issue 10 is beyond the scope of the Proposed Action. None of the issues regarding alternatives development that were submitted by the public represented new stand-alone alternatives with enough detail that further analysis was warranted.

CEQ regulations provide important guidelines on the development and evaluation of alternatives. They require that federal agencies rigorously explore and objectively evaluate all “reasonable” alternatives. CEQ regulations stress that agencies not disregard the “common sense realities” of a given situation in the

development of alternatives. In addition, when considering the range of viable alternatives to the Proposed Action or Proposed Plan, agencies should seek a reasonable range of practical and feasible alternatives that will accomplish project objectives. Based on CEQ regulations and guidelines, the definition of project purpose and need for the Services and for Plum Creek, and scoping comments received from the public, the Scoping Report identified four alternatives that the Services anticipated would be evaluated in the EIS (FWS and NMFS 1998). Those four alternatives included the following:

1. An action alternative of Permit issuance and HCP approval.
2. An action alternative that would provide a different package of conservation measures on Plum Creek lands that could result in issuance of a Permit by the Services.
3. An action alternative of Plum Creek completing and implementing an internal conservation plan consistent with their Environmental Principles, and complying with federal and state laws, including state forest practice regulations and guidance.
4. A No Action Alternative consisting of compliance with federal and state laws, including state forest practice regulations and guidance.

The four alternatives identified in the Scoping Report were refined during EIS planning and preparation phases and are analyzed in detail in this document. The first Scoping Report alternative listed above is represented by Plum Creek’s proposed NFHCP in this document. The second Scoping Report alternative is represented by the Simplified

Prescriptions Alternative. The third Scoping Report alternative is represented by the Internal Bull Trout Conservation Plan Alternative; the initial concept for this alternative was modified such that it could potentially be used by the Services to authorize Permit issuance for some aspects of Plum Creek’s operations. The fourth Scoping Report alternative listed above is represented by the Existing Regulations—No Action Alternative in this document.

The reasonable range of management strategies spanned by the proposed NFHCP, two other action alternatives, and the No Action Alternative is reflected in the themes associated with each, as follows:

- **Existing Regulations—No Action Alternative.** This alternative would provide compliance with federal and state laws, including forest practice regulations, but no Permit would be issued and the NFHCP would not be implemented. It would lack the regulatory certainty and conservation commitments offered by a Permit under the ESA that any take that may occur would be authorized.
- **Plum Creek’s Proposed NFHCP.** This represents Plum Creek’s HCP to conserve 17 species of native salmonids (the Permit species) and their habitat under the ESA. The proposed NFHCP offers a focused conservation approach that is intended to satisfy the requirements of the ESA so the Services can issue the Permit authorizing the incidental take of ESA-listed fish species.
- **Internal Bull Trout Conservation Plan Alternative.** This alternative

could be developed and implemented by Plum Creek to minimize risk of take of ESA-listed fish species. Incidental take for some aspects of Plum Creek’s operations might be authorized through issuance of a Permit.

- **Simplified Prescriptions Alternative.** This alternative represents the Services uniform and simplified approach that focuses on road, riparian buffer, and grazing restrictions. It is intended to provide adequate species conservation benefits and assurances for the Services to issue a Permit.

The proposed NFHCP and the two other action alternatives were selected for detailed analysis because they span a full range of reasonable management strategies and could each potentially result in the issuance of a Permit by the Services to Plum Creek. They also represent a reasonable range of viable alternatives that do not disregard the “common sense realities” of simultaneously needing to meet the project purpose and need for the Services as well as Plum Creek. All of the proposed management strategies comply with federal and state land management regulations. However, they vary from one another in several ways:

- Approaches to ESA compliance
- Number and extent of conservation commitments
- Degree to which adaptive management would be implemented
- Consistency with recovery actions on federally managed lands

The No Action Alternative may not meet project purpose and need from the Services' or Plum Creek's perspectives, but its analysis is required in an EIS under NEPA regulations.

### **3.1.2 Alternatives Considered but not Selected for Further Analysis**

Various land management alternatives or their components were considered but not selected for further analysis during the EIS/NFHCP planning and development process. Reasons for their dismissal included not meeting project purpose and need either from the Services' or Plum Creek's perspectives; not meeting CEQ (NEPA) guidelines of being reasonable, feasible, and viable; or being beyond the scope of this EIS. They are described below under the following general categories:

- Alternatives considered by Plum Creek while developing their NFHCP.
- Alternatives or components of alternatives identified and considered for the EIS by the Services with input from the public during the scoping process.

#### **Alternatives Considered by Plum Creek for the HCP**

Plum Creek considered two other alternatives while developing their proposed NFHCP that were not selected for further analysis. The first was an "All-Species HCP Alternative." This alternative would have included all aquatic and terrestrial species known to occur in the Project Area, as well as any additional species found to occur in the Project Area

#### **Why were Some Alternatives Not Considered in the EIS?**

According to NEPA, alternatives considered in an EIS must meet the project's stated purpose and need (Section 1.4). The exception is the No Action Alternative, which must be evaluated regardless of whether it meets purpose and need. The NEPA process fosters innovation and creativity by encouraging interaction among the Services, the HCP applicant, and the public prior to the release of the Draft EIS. During the scoping process, several ideas for alternatives or their components were proposed by all parties. Some of them are not considered in detail to focus the EIS analysis on reasonable, workable alternatives.

in the future. Plum Creek dismissed this alternative, in part, because of the lack of comprehensive scientific data for all species that could be applied and defended at an appropriate level of detail and rigor over such a large Project Area (1.6 million acres). In addition, the Services originally advised Plum Creek that they would consider an "All-Species HCP Alternative," but later advised otherwise after the release of the new "no surprises" final rule that makes approval of "All-Species HCPs" difficult, if not impossible.

The second alternative considered but not selected for further analysis by Plum Creek was similar to the No Action Alternative (Section 3.3.1), except that it would have included implementation of the Environmental Principles currently practiced by Plum Creek. Under the rejected alternative, Plum Creek would have managed its lands according to existing federal and state regulations and BMPs promulgated by the states of Montana, Idaho, and Washington. In addition, Environmental Principles

developed by Plum Creek would continue to be employed so long as it remains prudent for Plum Creek to do so. Plum Creek dismissed this second alternative as not being reasonable or viable because it would not have provided the regulatory certainty desired for long-term business planning defined in the project purpose and need. Plum Creek also believed it would be consistent with their mission to pursue more specific conservation commitments for species that become listed under the ESA.

### **Alternatives Considered by the Services for the EIS**

The Services generated and considered one partial alternative—the “All Aquatic Species Alternative”—and one complete alternative—the “Extensive Conservation Alternative”—that were not selected for further analysis. The “All Aquatic Species Alternative” would have included all aquatic and semi-aquatic species known to occur in the Project Area. Like the “All-Species HCP,” this alternative would have added additional species if found to occur in the Project Area in the future. The Services and Plum Creek dismissed this alternative, in part, because of the lack of comprehensive scientific data for many aquatic species that could be applied and defended at an appropriate level of detail and rigor over the large Project Area (1.6 million acres). The number of species would have been too great to address effectively and efficiently, making this an unreasonable and probably infeasible alternative especially given the Services’ and Plum Creek’s definition and perspectives on project purpose and need.

The Services’ “Extensive Conservation Alternative” would have extended similar management of aquatic habitats on federal

lands to the Plum Creek ownership for more consistent implementation of conservation measures across ownership boundaries within the Planning Area. Management would have resembled policies such as those contained in the federal interagency Northwest Forest Plan, Pacific Anadromous Fish Strategy (PACFISH), Inland Native Fish Strategy (INFISH), and NMFS’ proposed changes to the Oregon State Forest Practice Act. Commitments to fish conservation would have included the eight supplemental conservation categories of the proposed NFHCP. The federal land conservation strategies have been determined to provide significant conservation benefits for native salmonids, and the alternative would have presumed that conservation benefits may have been adequate for the Services to issue a Permit to Plum Creek for potential incidental take. There would be long-term regulatory certainty that Plum Creek could manage its lands without the risk of noncompliance with ESA. However, the economic costs of implementing the conservation measures were anticipated by Plum Creek to be not practicable.

Plum Creek developed NFHCP business goals (see NFHCP Section 1, located at the end of Chapter 3) to aid in the determination of practicability to provide a context for determining appropriate levels of conservation for the NFHCP. Using this context, Plum Creek management has stated that the practicability of the “Extensive Conservation Alternative” for a business is non-existent and that, faced with these kinds of measures, they would legally be obligated to their stockholders to pursue other available options for ESA compliance rather than pursuing an HCP (Plum Creek 1999d). Plum Creek provided the following statements:

- Conservation measures such as those in the “Extensive Conservation Alternative” have not been accepted by other industrial forest landowners because they do not represent a reasonable and prudent compromise between conservation concerns and a landowner’s need to profitably manage private lands.
- Plum Creek stated that the “Extensive Conservation Alternative” is clearly impracticable as an HCP alternative.

Therefore, 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, nor would it meet the CEQ guidelines followed by the Services during alternatives development of being reasonable, feasible, or viable.

Some components of alternatives that were generated by the public are either wholly or partially covered in the alternatives analyzed in detail, as described in Section 3.1.1, *How the Alternatives were Developed*. Other components of alternatives that were not selected for further analysis were grouped into three categories and dismissed for the following reasons:

- Components that require land management actions on lands not owned by Plum Creek are beyond the scope of this EIS.
- Components that are inconsistent with federal or state law do not meet the purpose and need from the Services’ or Plum Creek’s perspectives.
- Components representing commitments to programs and actions

inconsistent with project purpose and need were not analyzed in detail.

### **3.1.3 Overview of Alternatives Selected for Detailed Analysis**

#### **Existing Regulations—No Action Alternative**

**Theme:** The No Action Alternative would provide applicable compliance with federal and state laws, including forest practice regulations. This alternative would lack the regulatory certainty offered by a Permit under the ESA that any take that may occur would be authorized.

**Overview:** Under the No Action Alternative, Plum Creek would seek to comply with federal and state regulations pertaining to forest management and other covered activities addressed in the proposed NFHCP, without acquiring a Permit. Plum Creek would not commit to implementing its Environmental Principles, nor engage in voluntary actions or supplementary conservation-related efforts, except where necessary to comply with federal and state laws. In addition, Plum Creek would not address unlisted Permit species, except to the extent that they would benefit from the existing regulatory regime, and few if any opportunities would arise for proactive conservation actions affecting listed Permit species. As a consequence, Plum Creek would not receive assurances leading to regulatory certainty for covered Permit species while managing its lands. Similarly, the Services would not receive assurances that supplemental fish conservation measures would be implemented in the Project Area.

The No Action Alternative provides no assurance that the collective actions under the varying existing regulations would result in coherent, long-term conservation value to the Permit species. However, land management activities on non-federal land would be subject to review by the states on a project-by-project basis, and generally would be consistent.

Regulations and best management practices (BMPs) would evolve over time to address new issues; however, setting the baseline for analysis of the proposed NFHCP and other NEPA alternatives requires that a regulatory “snapshot” be taken at the time this environmental review is prepared. Doing so enables the Services to predict a coherent, reliable baseline for comparing predicted environmental outcomes under each of the other alternatives. Doing otherwise would require the Services to unreasonably, and perhaps arbitrarily, speculate about the outcome of future regulatory scenarios, without enhancing the usefulness of this environmental review.

ESA compliance could occur through modification or avoidance of operations in areas where the risk of affecting listed species or their habitats is high. Without a clear definition of the specific habitat effects that would constitute take of listed species, there would be a risk that take could occur inadvertently. The role of science would range from proactive (integrated surveys for species presence) to defensive (minimal surveys for species presence).

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, or to comply with any other specific state

or federal laws. 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. However, since the Project Area spans numerous habitat types as well as different states with different forest practices rules, it is unknown how site-specific, take-avoidance measures would translate to landscape level prescriptions over the entire Plum Creek ownership. Therefore, the various state forest practices rules are used only for analytical purposes. The No Action Alternative simply represents what is likely occurring on non-federal land in most portions of the Planning Area today.

### **Plum Creek’s Native Fish Habitat Conservation Plan (NFHCP)— Proposed NFHCP**

**Theme:** This plan represents Plum Creek’s HCP to conserve native salmonids and their habitat as required under Section 10(a) of the ESA. The proposed NFHCP is intended to satisfy the requirements of Section 10(a)(2)(A) of the ESA so the Services can issue the Permit authorizing the incidental take of the covered fish species.

**Overview:** The proposed NFHCP was prepared by Plum Creek with technical assistance from the Services. The proposed NFHCP seeks to minimize and mitigate take of listed species and comply with the ESA under the regulatory certainty afforded by a federal Permit. Its multi-species approach contrasts with other alternatives that exclude unlisted species.

The NFHCP is a set of conservation commitments and land management prescriptions that Plum Creek agrees to

follow for 30 years. They are consistent with Plum Creek’s Environmental and Land Use Principles, Plum Creek’s Environmental Forestry philosophy to address federal fish conservation goals, and are intended to meet the Services’ objectives for fish conservation.

The NFHCP includes existing state and federal regulations as a foundation, and supplements them with a broad array of conservation commitments that minimize or mitigate effects of covered land management practices. The conservation commitments would provide long-term benefits for the conservation of Permit species, but some take of listed species would be authorized. The Services would have assurances that conservation measures would be implemented for activities or areas that pose the greatest risk of harm to Permit species.

Plum Creek would receive long-term regulatory certainty that they could manage their lands without the risk of noncompliance with ESA. Monitoring of NFHCP implementation and performance would occur throughout the proposed 30-year Permit period, and results reported to the Services. Adaptive management provisions would address issues of uncertainty and provide a mechanism to improve the commitments if needed.

### **Internal Bull Trout Conservation Plan Alternative**

**Theme:** This alternative consists of a package of defensive, science-based land management practices and conservation measures that could be developed and implemented by Plum Creek designed to avoid take of ESA-listed fish species, but could be adequate as HCP commitments to authorize incidental take for some of the

proposed Permit species. This alternative could potentially be used to authorize incidental take for a single-species or listed-only species HCP. This alternative and the NFHCP alternative serve to contrast a single-species approach with a multi-species approach that includes unlisted species.

**Overview:** The Internal Bull Trout Conservation Plan Alternative is a set of regulated and voluntary land management practices that resemble Plum Creek’s Environmental and Land Use Principles, and its Environmental Forestry philosophy. Under this alternative, Plum Creek would seek to achieve ESA compliance by implementing its own version of a conservation plan for listed salmonids (including primarily bull trout, but also steelhead, chinook salmon, and chum salmon). The alternative may satisfy the Services’ conservation objectives for a single-species, or listed-species only HCP, but unlisted species would receive no special consideration, or may receive different emphasis or priority. This approach to fish protection includes existing federal and state regulations as a foundation, supplemented with an array of conservation commitments that address forest road and upland, riparian, and range management; conservation land sales; and initiatives to continuously improve the quality and performance of land management. Plum Creek’s Environmental and Land Use Principles would guide overall plan implementation and continued participation as a cooperator in existing watershed groups and collaborative conservation projects.

Conservation measures implemented under this alternative would likely reduce the risk of take under ESA Section 9 or minimize and mitigate authorized take for

some activities, should it occur, as Plum Creek conducts land management. Emphasis would be placed on activities or areas that potentially pose the greatest risk of harm to listed species. Some legal protection could be afforded Plum Creek because of the ability to demonstrate a science-based approach to avoiding take under Section 9.

Monitoring would be performed where it is desired to demonstrate this alternative's effectiveness at conserving species. Monitoring and reporting of plan performance or the condition of listed species would not occur, except as required under the No Action Alternative or in a Permit, should one be issued.

### **Simplified Prescriptions Alternative**

**Theme:** This represents a general approach to road, riparian buffer, and grazing restrictions, with either no or minimal commitments to other practices that conserve fish. This alternative, if developed, is intended to be adequate for Permit issuance. This general approach contrasts with the focused conservation approach of the proposed NFHCP.

**Overview:** The Simplified Prescriptions Alternative seeks to augment the implementation of fish conservation measures, focusing on three land management categories:

- Forest road and upland
- Riparian
- Range management

The Services believe land management actions taken under these three categories generally have the greatest potential to influence aquatic health and result in take of listed species. Prescriptions for manage-

ment activities would be more uniform and simplified for ease of Permit implementation and monitoring, but are based on less specific scientific information and have fewer opportunities for adjustment. By focusing more intensively on three conservation categories, it is less practicable, particularly in an economic sense, for Plum Creek to offer the broad range of possible conservation commitments that are addressed under the proposed NFHCP. Supplemental conservation measures would be minimal or voluntary. Adaptive management provisions would focus on management of roads, riparian areas, and range conditions and would be narrower in scope because the uncertainties associated with the prescriptions would be fewer.

Should a Permit be issued under this alternative, take of listed species would be authorized, and there would be long-term regulatory certainty provided by No Surprises assurances.

## **3.2 Conservation Categories**

### **3.2.1 General**

Impact avoidance and minimization and mitigation activities in the proposed NFHCP and each alternative may be grouped within eight categories of conservation measures that affect native fish, specifically native salmonids:

- Environmental Principles
- Forest Road and Upland Management
- Riparian Management
- Range Management
- Land Use Planning
- Legacy and Restoration
- Administration and Implementation
- Adaptive Management and Monitoring

The eight conservation categories were developed for the NFHCP to counter potential adverse effects of forest management and associated activities proposed for coverage under the Permit. The conservation categories are used in Chapter 4 to evaluate potential effects associated with all alternatives. Table 3.1-1 shows the extent of conservation commitments within each category for the proposed NFHCP, each of the other action alternatives, and the No Action Alternative. Generally, the number of conservation categories and the extent of conservation commitments that would be implemented are greatest under the proposed NFHCP and least under the No Action Alternative.

The overall objective of management commitments under the eight conservation categories is to maintain or improve habitat conditions important to the survival of native fish (salmonids), especially bull trout. These habitat conditions or requirements are referred to as the Four C's. They consist of Clean water, Cold water, Complex water, and Connected water and are discussed in detail in Chapter 4 (Section 4.6, *Fisheries and Aquatic Resources*). Implementation of conservation measures is intended to maintain or improve salmonid habitat conditions encompassed by the Four C's. The goal of providing management commitments under each of the eight conservation categories is summarized below.

### **3.2.2 Environmental Principles**

According to existing Plum Creek policy, Plum Creek seeks to be the leader in environmentally responsible forest resources management through the application of their Environmental Principles. Developed in 1991, these principles are intended to promote internal and external awareness of Plum Creek's conservation goals and management philosophies, reflect Plum Creek's endorsement and consistent implementation of conservation commitments, and provide a basis of accountability for Plum Creek's management performance. Plum Creek's Environmental Principles are intended to reflect sound scientific and economic forest management practices that promote the conservation of fish and wildlife resources and comply with, or exceed, all legal and regulatory requirements. All elements of Plum Creek's forest management activities, including site preparation, road building, harvesting, and reforestation, are conducted according to these principles. The principles support the goal of maintaining or improving the Four C's of Clean, Cold, Complex, and Connected water through a number of resource areas and management practices. They include sustainable forest management, ecological and structural diversity, water quality, air quality, reforestation, soil conservation, fish and wildlife resources, visual quality, adjacent land management, research and development, and performance audits.

**TABLE 3.1-1**

Extent of Conservation Commitments Contained within Conservation Categories for Each Alternative

<b>Categories of Conservation Commitments</b>	<b>No Action</b>	<b>Plum Creek NFHCP</b>	<b>Internal Bull Trout Conservation Plan</b>	<b>Simplified Prescriptions</b>
Environmental Principles	None	Yes	Yes	None
Forest Road and Upland Management	Minimal	Extensive	Moderate	Moderate
Riparian Management	Minimal	Extensive	Moderate	Extensive
Range Management	Minimal	Extensive	Moderate	Extensive
Land Use Planning	Minimal	Extensive	Minimal	Minimal
Legacy and Restoration	None	Extensive	Moderate	Minimal
Administration and Implementation	Minimal	Extensive	Minimal	Minimal
Adaptive Management and Monitoring	None	Extensive	Minimal	Minimal

### **3.2.3 Forest Road and Upland Management**

Plum Creek requires forest roads to use and manage its lands. One major impact road construction and use can have on fish habitat is increased sediment delivery to streams (Reid and Dunne 1984; Bilby et al. 1989; Washington Forest Practices Board 1995; Ketcheson and Megahan 1996; Megahan and Ketcheson 1996). Sediment-laden runoff from roads that enters streams during precipitation events or snowmelt, or as landslides associated with road failures, can directly or indirectly affect each of the Four C's important to native salmonids. Elevated sediment levels can degrade water quality and habitat (clean), cause increased water temperature from greater heat absorption (cold), fill deep holding pools and interstitial spaces among spawning gravels (complex), and reduce corridor access and fish passage through physical and behavioral barriers (connected). Existing regulations have been designed

recognizing that forest roads are the chief sources of sediment delivery to streams in managed watersheds (Beschta 1978; Hornbeck et al. 1984; Novotny and Olem 1994). Road density within watersheds is imperfectly correlated with aquatic integrity, and has been used as a proxy for many management-related landscape effects for which there are few direct measures or projections (Interior Columbia Basin Ecosystem Management Project [ICBEMP] 1997a). For all three action alternatives, forest road and upland management prescriptions have been designed to address these potentially adverse sediment-related effects. They consist of conservation measures that would be implemented on the ground and the management system that would be used to ensure the effective implementation of those measures. The measures focus on locations and practices where there is the greatest likelihood for specifically reducing sediment loading and fish impacts, or on density control. The measures address multiple planning scales,

including programmatic activities, as well as finer-scale project actions.

### **3.2.4 Riparian Management**

Riparian (streamside) forests provide for, or contribute to, numerous salmonid needs encompassed by the Four C's. The management and harvest of riparian forests are, therefore, crucial in maintaining or improving habitat conditions related to these needs. For example, forests and other riparian vegetation along streams provide for salmonid needs by protecting and moderating water temperatures (cold), causing the creation of pools and other habitat types (complex), and trapping sediment before it reaches and enters drainages (clean). Water temperatures are affected by stream shading and the forested microclimate, which moderate warm temperatures during summer and cold temperatures during winter. Habitat becomes more complex when trees die and fall into the stream, causing the formation of pools and other habitats associated with more complex stream flow patterns. Riparian vegetation also serves to intercept and filter some sediment before it enters streams, potentially adversely affecting water quality and substrate composition. Riparian vegetation contributes to stream productivity by providing energy and habitat for aquatic and terrestrial invertebrates that fish eat. Implementation of riparian management commitments represents an opportunity to maintain and restore aquatic and riparian habitats to avoid or reduce impacts from the covered land management categories.

### **3.2.5 Range Management**

For more than a century, livestock have grazed portions of lands now owned by Plum Creek. Over 90 percent of the Project Area is "open range" under state law and 46 percent is leased or allotted for grazing. The potential for adversely affecting fish and salmonid habitat because of improper grazing practices is substantial. Grazing-related impacts on fish habitat conditions associated with the Four C's can result from the loss or reduction of streamside shade (cold) and the introduction of sediment to drainages (clean). Potential grazing-related impacts can be direct and include compaction of stream substrate and interstitial spaces that provide fish spawning and pre-emergence habitat and habitat for aquatic insects (fish foods), trampling of fish eggs and immobile fry by livestock, and trampling and collapse of undercut banks that provide overhead cover for fish. Implementation of range conservation represents an opportunity to mitigate past grazing-related impacts and minimize current and future impacts.

### **3.2.6 Land Use Planning**

Plum Creek has identified some of its lands as having Higher and Better Use (HBU) values through non-timber amenities such as recreation, ecological services, or land development. Implementation of conservation-oriented planning that would safeguard future uses of HBU lands if sold by Plum Creek would help protect salmonid habitat needs associated with the Four C's. Commitments would include implementing Plum Creek's Land Use Principles that were developed in 1995, seeking conservation buyers for land sales, and establishing land use conservation areas. For example,

establishment of streamside conservation areas by Plum Creek with standards governing land development activities in bull trout watersheds and along Key Migratory Rivers are intended to benefit salmonids present in those drainages. Binding legal requirements in dispositions of streamside lands now owned by Plum Creek would help prevent future landowners from conducting activities that would adversely impact water temperature or quality, or degrade corridor connectivity or complexity. Such requirements would provide a basis of predictability, certainty, and desired proportionality regarding the quality of future habitat conditions.

### ***3.2.7 Legacy and Restoration***

This category of commitments seeks to provide for the overall improvement of fisheries habitat (all of the Four C's) that has been adversely affected by past land management practices. The 1.6 million acres of Plum Creek lands in the Project Area have been actively managed by numerous landowners for a variety of purposes over many years. Efforts to minimize impacts on fish habitat from land management practices in the Project Area have improved considerably in recent years compared to practices earlier this century. However, the legacy of some past habitat impacts is still evident. There are opportunities to modify those degraded habitat conditions by restoring riparian and in-channel habitat (clean, cold, and complex) and by working with water rights holders to redesign diversion dams and other potential fish migration barriers to allow fish passage and prevent fish entrainment (connected). Opportunities also exist to modify conditions not directly related to past land management practices but that have impacted numbers of native

salmonids. Examples of these opportunities include enforcement agreements with state fish and game agencies to mitigate poaching, and the suppression of non-native, competing salmonids (such as brook trout) in selected, stocked stream reaches.

### ***3.2.8 Administration and Implementation***

The Services and Plum Creek recognize that the strength of a conservation plan and the public's confidence in its effectiveness can only be assured through a sound administration and implementation approach. Furthermore, maintaining or improving habitat conditions (the Four C's) for bull trout and other native salmonids can only be achieved through successful on-the-ground application and evaluation of all conservation commitments. Under this category of commitments and depending on the specific action alternative, Plum Creek would produce a field implementation manual for the conservation plan, provide forester and contractor implementation training, and conduct internal audits to evaluate and report on the implementation success and effectiveness of conservation commitments. Federal or state resource management agencies would assess conservation plan effectiveness through independent, third-party audits.

### ***3.2.9 Adaptive Management and Monitoring***

Adaptive management is a conservation strategy that blends rigorous science with practical management designed to provide the basis for "learning by doing." It is a continuing process of planning,

implementation, monitoring, and evaluation to adjust management strategies to meet plan goals and objectives. Adaptive management is used to address significant technical uncertainty so that a course of management action may be pursued—without sufficient scientific data—to avoid postponing action because of incomplete knowledge. It provides assurances of conservation effectiveness when competing hypotheses for effective conservation outcomes exist.

The NFHCP would be improved over time by revising management practices according to an adaptive management implementation framework that considers biological goals, specific habitat objectives, management action commitments, performance metrics and threshold triggers, and required management responses. NFHCP improvements would be those management changes that maintain or improve the ability to meet biological goals while considering business objectives. NFHCP changes would derive from the following monitoring and research:

- Implementation monitoring—data indicate a need to return to course.
- Continuous improvement monitoring—data indicate opportunities for improvement.

- Effectiveness monitoring—data indicate conservation measures are not meeting biological goals or the opportunity to reallocate resources because of over-performance.
- Basic research—data can increase scientific understanding and identify improvement opportunities.
- Four core adaptive management projects would be conducted in representative Project Area watersheds to identify and support possible improvements to the NFHCP. These projects would evaluate the following:
  - Road BMP effectiveness
  - Effect of riparian management on woody debris loads and fish habitat diversity
  - NFHCP effectiveness at minimizing stream temperature increases
  - Long-term effectiveness of Plum Creek’s grazing BMPs.

The adaptive management and monitoring program would also include developing site-specific management plans if changed circumstances (large fires, floods, or landslides) occur, and developing additional prescriptions for watersheds with native fish assemblages.

### **How are the Alternatives Presented?**

In Section 3.3, the No Action Alternative (3.3.1), proposed NFHCP (3.3.2), and other action alternatives (3.3.3 and 3.3.4) are presented for each of the conservation categories:

- Environmental Principles
- Forest Road and Upland Management
- Riparian Management
- Range Management
- Land Use Planning
- Legacy and Restoration
- Administration and Implementation
- Adaptive Management and Monitoring

## **3.3 Descriptions of the Proposed NFHCP and Alternatives**

Conservation measures and commitments that would be implemented are described below for the proposed NFHCP, each of the other action alternatives, and the No Action Alternative. The rationale supporting the implementation of commitments also is described. Table 3.3-1 lists the conservation commitments for the proposed NFHCP and alternatives. The number of conservation categories with commitments and the precision of conservation commitments often is greatest under the proposed NFHCP, less under the other two action alternatives, and least under the No Action Alternative.

### **3.3.1 Existing Regulations—No Action Alternative**

The theme of the Existing Regulations—No Action Alternative is compliance with federal and state land management laws, rules, and BMPs, including forest practices regulations and guidelines, pertaining to the land management activities of the proposed NFHCP. Adherence to existing regulations provides some resource protection during land management activities throughout the Project Area, and seeks to ensure regulatory compliance.

Existing regulations direct a wide array of land management activities intended to protect fish habitat, water quality, and water resources. Existing regulations are carried forth through agency reviews and permits, and are audited through processes administered by each state. Failure to comply with current or future regulations could result in the imposition of fines, suspension of production, or cessation of operations. Such regulations could restrict Plum Creek's ability to expand its operations, or could require Plum Creek to acquire costly equipment or incur significant expenses to comply with governmental regulations or to clean up discharges. Under current market conditions, failure to adopt voluntary state BMPs could result in negative criticism from shareholders, consumers, and the general public. Under different conditions, it may not be in Plum Creek's interest to follow voluntary BMPs, so conservation could be reduced. Existing regulations continually improve as new knowledge is gained during practice, or through research and monitoring.

**TABLE 3.3-1**  
Habitat Conservation Prescriptions Contained in the Alternatives<sup>1</sup>

<b>Commitments and Prescriptions</b>	<b>No Action</b>	<b>Plum Creek NFHCP</b>	<b>Internal Bull Trout Conservation Plan</b>	<b>Simplified Prescriptions</b>
Environmental Principles	None.	Practice forestry according to Plum Creek Environmental Principles in the Project Area for the Permit term <b>(EP1)</b> .	Practice forestry according to Plum Creek Environmental Principles, subject to change at any time.	None.
<b>Forest Road and Upland Management</b>				
State Regulations and BMPs	Practice state regulations/BMPs for forest roads and other upland activities.	Practice state regulations/BMPs for forest roads and other upland activities.  Comply with Montana's non-regulatory (voluntary) BMPs covering roads and upland forest management for the Permit term <b>(R1)</b> .	Practice state regulations/BMPs for forest roads and other upland activities.	Practice state regulations/BMPs for forest roads and other upland activities.
New Road Construction	Design and construct remaining transportation system to state standards for forest roads. Estimated new road construction is 1,300 miles in first 10 years.	Design and construct remaining transportation system to state standards for forest roads. Estimated new road construction is 1,300 miles in first 10 years.  Apply enhanced BMP standards to new roads in NFHCP Project Area. For each new mile of road built, at least 2 miles of existing road will be upgraded or abandoned <b>(R2)</b> .	Design and construct remaining transportation system to state standards for forest roads. Estimated new road construction is 1,300 miles in first 10 years.  Apply enhanced BMP standards to new roads in Tier 1 watersheds only.	Design and construct remaining transportation system to state standards for forest roads. Limit new road construction up to 650 miles in first 10 years.  Apply limited BMP enhancements. Three-to-one abandonment commitment (see road abandonment section).
Road Condition Tracking	None.	Implement Geographic Information System (GIS) databases that record the condition (BMP status) of all existing and abandoned road segments in NFHCP Project Area <b>(R3)</b> .	Implement GIS databases that record the condition (BMP status) of all existing road segments in Tier 1 watersheds.	None.
Road Condition Inspections (RCIs)	None.	Inspect condition and BMP status of forest roads to update road database. Inspect 100% of road segments in Project Area by the end of Year 5 <b>(R4)</b> .	Inventory condition and BMP status of forest roads to update road database concurrent with and incidental to ongoing routine forestry activities. Inspect 100% of Tier 1 roads by the end of Year 5.	Inventory condition of forest roads to identify hot spots. Inspect 95% of known roads by the end of Year 10.

**TABLE 3.3-1**  
Habitat Conservation Prescriptions Contained in the Alternatives<sup>1</sup>

<b>Commitments and Prescriptions</b>	<b>No Action</b>	<b>Plum Creek NFHCP</b>	<b>Internal Bull Trout Conservation Plan</b>	<b>Simplified Prescriptions</b>
Upgrade of Old Roads	Upgrade road segments in Project Area to state BMP standards. Upgrade segments as they are used. Upgrades projected to be incorporated on 90% of Project Area roads by Year 25.	Upgrade inventoried road segments in Project Area to enhanced BMP standards. In high priority watersheds, projected to be complete by Year 10. In the rest of the Project Area, projected to be complete by Year 15 <b>(R5)</b> .	Upgrade inventoried road segments in Tier 1 to enhanced BMP standards and in Tier 2 to state BMP standards. Upgrade segments as they are used. In Tier 1, projected to be substantially complete by Year 10.	Upgrade road segments in Project Area to state BMP standards, with limited enhanced BMPs. Upgrades projected to be incorporated on 90% of Project Roads by Year 25.
Hot Spot Treatments	Treatments will occur concurrently with road upgrades.	Throughout the Project Area, legacy road system hot spots identified in Road Condition Inventories (RCIs) and other defined hot spot locations will be treated. Develop and implement site-specific action plans to mitigate negative effects <b>(R6)</b> .	In Tier 1 watersheds only, legacy road system hot spots identified in RCIs and other defined hot spot locations will be treated. Develop and implement site-specific action plans to mitigate negative effects.	Throughout the Project Area, legacy road system hot spots identified in RCIs and other defined hot spot locations will be treated. Develop and implement site-specific action plans to mitigate negative effects.
Abandonment of Surplus Roads	None.	Identify and abandon all surplus roads in Tier 1 and Tier 2 watersheds. Abandonment will occur in conjunction with the upgrade of adjacent roads. Abandon roads if used to access poaching areas <b>(R7)</b> .	Identify and abandon surplus roads in Tier 1 watersheds only. Abandonment will occur in conjunction with the upgrade of adjacent roads.	Abandon 3 miles of surplus roads for each mile of new road construction. Abandon roads prioritized by proximity to streams. Project 1,950 miles to be abandoned.
Periodic Re-inspection and Maintenance	Maintain roads to comply with state BMPs.	After upgrade of old roads is completed, maintain road segments every 5 years in high priority watersheds and every 7 years in all other watersheds. Put inactive roads to sleep <b>(R8)</b> .	After upgrade of old roads in Tier 1 is completed, maintain road segments every 5 years in Tier 1 and near Key Migratory Rivers. Maintain remaining Tier 2 roads as needed to comply with state BMPs.	Maintain active road segments in all watersheds every 5 years, or as they are used.

**TABLE 3.3-1**  
Habitat Conservation Prescriptions Contained in the Alternatives<sup>1</sup>

<b>Commitments and Prescriptions</b>	<b>No Action</b>	<b>Plum Creek NFHCP</b>	<b>Internal Bull Trout Conservation Plan</b>	<b>Simplified Prescriptions</b>
Road Sediment Delivery Analyses	None.	Perform Road Sediment Delivery Analyses for all roads in three prioritized fourth-order watersheds annually for the first decade. Implement remedial actions suggested by the analysis by end of following year. Use results to improve RCIs and road upgrade standards and to evaluate Core Adaptive Management Project #1 <b>(R9)</b> .	Perform Road Sediment Delivery Analyses in three fourth-order watersheds annually, up to 25% of Tier 1 acreage for only Plum Creek lands. Implement remedial actions suggested by the analysis by end of following year. Use results to improve RCIs and road upgrade standards.	Develop and implement a sediment management and control plan for road management on Plum Creek Project Area roads.
Poaching Mitigation	None.	Implement a strategy, in cooperation with state agencies, to minimize bull trout and other native salmonid mortality from poaching through access restrictions, and enforcement agreements <b>(R10)</b> .	None.	None.
Road Restrictions	None.	Implement road restrictions and closures judiciously by road type, and manage using Road Database. Restrict unauthorized public vehicle access to new roads where practicable <b>(R11)</b> .	Implement road restrictions and closures opportunistically, based on bull trout conservation needs.	Restrict public access to most of Plum Creek's road system to minimize sediment delivery from road use. Public access would be limited to primary roads (approximately 10% of Plum Creek's road system).
Papoose Creek Landslide Assessment	None.	Conduct an analysis of landslides and landslide risks on Project Area lands in the Papoose Creek watershed (tributary to the Lochsa River, Idaho) and prepare a detailed management plan to reduce landslides by the end of Year 1. Implement by end of Year 3 <b>(R12)</b> .	None.	None.

**TABLE 3.3-1**  
Habitat Conservation Prescriptions Contained in the Alternatives<sup>1</sup>

Commitments and Prescriptions	No Action	Plum Creek NFHCP	Internal Bull Trout Conservation Plan	Simplified Prescriptions
<b>Riparian Management</b>				
State Regulations and BMPs.	Implement state riparian management regulations/BMPs.	Implement state riparian management regulations/BMPs. State riparian rules as a basis for additional commitments. In Washington, use NFHCP Washington Rule Set as basis ( <b>Rp1</b> ).	Implement state riparian management regulations/BMPs. State riparian rules as a basis for additional commitments.	Implement state riparian management regulations/BMPs. State riparian rules as a basis for additional commitments.
High Sensitivity Channel Migration Zones (CMZs) on Perennial Streams that May Support Fish (MSF) (Tier 1)  Stream Type: <sup>2</sup> MT Class 1 ID Class I WA Fish Bearing	Apply state Forest Practices Act/ Streamside Management Zone (FPA/SMZ) regulations.	<p>If:</p> <ul style="list-style-type: none"> <li>• Tier 1 watershed east of Cascades crest;</li> <li>• High sensitivity CMZ</li> </ul> <p>Then (<b>Rp2</b>):</p> <ol style="list-style-type: none"> <li>1. No timber harvest will occur within the CMZ.</li> <li>2. Apply Limited Harvest Rule (88 trees per acre [tpa]) and provisions to 50 feet from CMZ.</li> </ol> <p>If western Washington (WW), implement western Washington fish-bearing stream (WW fish) prescriptions.</p> <ol style="list-style-type: none"> <li>1. No CMZ harvest</li> <li>2. No harvest for 75 feet from CMZ</li> <li>3. Limited harvest (retain 70 tpa) for 25 to 50 more feet</li> </ol>	<p>If:</p> <ul style="list-style-type: none"> <li>• Tier 1 watershed;</li> <li>• High sensitivity CMZ</li> </ul> <p>Then:</p> <ol style="list-style-type: none"> <li>1. No timber harvest will occur within the CMZ.</li> <li>2. Apply Limited Harvest Rule (88 tpa) and provisions to 50 feet from CMZ.</li> </ol>	<p>Apply Fish-Bearing Stream Prescription:</p> <ol style="list-style-type: none"> <li>1. No timber harvest or equipment in CMZ.</li> <li>2. No harvest for 50 feet from CMZ (slope distance).</li> <li>3. From 50 to 100 feet, retain 60 tpa &gt;10-inch diameter.</li> <li>4. From 100 to 200 feet, retain 40 tpa &gt;10-inch diameter.</li> </ol>

**TABLE 3.3-1**  
Habitat Conservation Prescriptions Contained in the Alternatives<sup>1</sup>

Commitments and Prescriptions	No Action	Plum Creek NFHCP	Internal Bull Trout Conservation Plan	Simplified Prescriptions
Moderate Sensitivity CMZs on Perennial Streams that MSF (Tier 1)	Apply state FPA/SMZ regulations.	<p>If:</p> <ul style="list-style-type: none"> <li>• Tier 1 watershed east of Cascades crest;</li> <li>• Moderate sensitivity CMZ</li> </ul> <p>Then (<b>Rp3</b>):</p> <ol style="list-style-type: none"> <li>1. Apply Limited Harvest Rule (88 tpa) and provisions within CMZ and up to 50 feet from CMZ.</li> <li>2. Retain 25-foot no-cut zone.</li> <li>3. Apply CMZ equipment exclusion rule.</li> </ol> <p>If WW, apply WW fish (above).</p>	<p>If:</p> <ul style="list-style-type: none"> <li>• Tier 1 watershed;</li> <li>• Moderate sensitivity CMZ</li> </ul> <p>Then:</p> <ol style="list-style-type: none"> <li>1. Apply Limited Harvest Rule (88 tpa) and provisions within CMZ and to 50 feet from CMZ.</li> <li>2. Retain 25-foot no-cut zone.</li> <li>3. Apply CMZ equipment exclusion rule.</li> </ol>	Apply Fish-Bearing Stream Prescription (above).
High and Moderate Sensitivity CMZs on Tier 2 Lands Perennial Streams that MSF	Apply state FPA/SMZ regulations.	<p>If:</p> <ul style="list-style-type: none"> <li>• Tier 2 CMZ east of Cascades crest</li> </ul> <p>Then (<b>Rp4</b>):</p> <ol style="list-style-type: none"> <li>1. Apply Limited Harvest Rule (88 tpa) and provisions within CMZ.</li> <li>2. Apply Limit Harvest Rule (88 tpa) and provisions for 50 feet outside of CMZ.</li> </ol> <p>If WW, apply WW fish (above)</p>	Apply state FPA/SMZ regulations.	Apply Fish-Bearing Stream Prescription (above).

**TABLE 3.3-1**  
Habitat Conservation Prescriptions Contained in the Alternatives<sup>1</sup>

Commitments and Prescriptions	No Action	Plum Creek NFHCP	Internal Bull Trout Conservation Plan	Simplified Prescriptions
High Sensitivity Perennial Streams without CMZs that MSF (Tier 1)	Apply state FPA/SMZ regulations.	<p>If:</p> <ul style="list-style-type: none"> <li>• Tier 1 watershed east of Cascades crest;</li> <li>• High sensitivity where forced pool riffle/plane bed;</li> <li>• Extends ≥100 feet above indicators</li> </ul> <p>Then (<b>Rp5</b>):</p> <ul style="list-style-type: none"> <li>• Retain 25-foot no-cut zone (within the FPA/SMZ regulations buffer)</li> <li>• Apply streamside roads mitigation provision</li> </ul> <p>If WW, apply WW fish (above)</p>	<p>If:</p> <ul style="list-style-type: none"> <li>• Tier 1 watershed;</li> <li>• High sensitivity where forced pool riffle/plane bed;</li> <li>• Extends ≥100 feet above indicators</li> </ul> <p>Then:</p> <ul style="list-style-type: none"> <li>• Retain 25-foot no-cut zone (within the FPA/SMZ regulations buffer)</li> <li>• Apply streamside roads mitigation provisions</li> </ul>	Apply Fish-Bearing Stream Prescription (above).
Remaining Perennial Streams without CMZs that MSF	Apply state FPA/SMZ regulations.	<p>If:</p> <ul style="list-style-type: none"> <li>• Tier 1 and not high sensitivity or Tier 2 east of the Cascade Crest</li> </ul> <p>Then (<b>Rp6</b>):</p> <ol style="list-style-type: none"> <li>1. Apply state FPA/SMZ regulations.</li> <li>2. Follow prescribed conservation guidance</li> <li>3. Apply limited harvest provisions.</li> </ol> <p>If WW, apply WW fish (above)</p>	<p>If:</p> <ul style="list-style-type: none"> <li>• Tier 1 and not high sensitivity</li> </ul> <p>Then:</p> <ol style="list-style-type: none"> <li>1. Apply state FPA/SMZ regulations.</li> <li>2. Follow prescribed conservation guidance.</li> <li>3. Apply limited harvest provisions.</li> </ol>	Apply Fish-Bearing Stream Prescription (above).
<p>Connected Perennial Headwater Streams and Connected Intermittent Streams Associated with Unstable Features</p> <p>Stream Type:<sup>2</sup> MT Class 1 ID Class II WA Non-fish-bearing</p>	Apply state FPA/SMZ regulations.	Apply a continuous, 50-foot riparian management zone, retain 35 tpa and apply limited harvest provisions ( <b>Rp7</b> ).	Tier I watersheds apply a continuous, 50-foot riparian management zone, retain 35 tpa and apply limited harvest provisions.	<p>Apply non-fish-bearing, perennial stream prescription:</p> <ol style="list-style-type: none"> <li>1. No harvest for 25 feet (slope distance) from channel (ohwm).</li> <li>2. Retain 60 tpa from 25 to 50 feet from channel.</li> <li>3. Retain 40 tpa from 50 to 100 feet from channel.</li> </ol>

**TABLE 3.3-1**  
Habitat Conservation Prescriptions Contained in the Alternatives<sup>1</sup>

<b>Commitments and Prescriptions</b>	<b>No Action</b>	<b>Plum Creek NFHCP</b>	<b>Internal Bull Trout Conservation Plan</b>	<b>Simplified Prescriptions</b>
<p>Intermittent Headwater Streams (including disconnected perennials)</p> <p>Stream Type:<sup>2</sup> MT Class 2,3 ID Class II WA Non-fish-bearing</p>	Apply state FPA/SMZ regulations.	<ul style="list-style-type: none"> <li>Apply state FPA/SMZ regulations in Idaho and Montana.</li> <li>Apply 30-foot equipment exclusion zone in Washington.</li> <li>Extend perennial non-fish riparian management zone where unstable features occur.</li> <li>East of the Cascades Crest, retain hardwoods, shrubs, and sub-merchantable timber</li> </ul>	<ul style="list-style-type: none"> <li>Apply state FPA/SMZ regulations.</li> </ul>	<p>Apply intermittent stream prescription:</p> <ol style="list-style-type: none"> <li>Retain 20 tpa &gt;10-inch-diameter and all trees without economic value up to 50 feet from channel.</li> <li>Prohibit equipment from 50 feet from channel.</li> <li>In Montana, apply state SMZ rule, which is more restrictive.</li> </ol>
<p>Interface Caution Areas (ICA)</p> <p>Perennial Streams: MT Class I ID Class I, II WA Fish-bearing and Non-fish-bearing</p>	None.	<p>East of Cascades Crest apply ICA provisions.</p> <p>A minimum average of 150 feet from stream <b>(Rp8)</b>.</p> <p>Follow ICA requirements and conservation guidance:</p> <ul style="list-style-type: none"> <li>Prohibit new roads, most clearcutting, broadcast burning.</li> <li>Minimize skid trails, site prep.</li> <li>Require supplemental tree retention.</li> </ul>	None.	None.
Riparian Harvest Deferrals	None.	Defer streamside harvest along fish-bearing streams until Year 10 in seven fourth-order watersheds <b>(Rp9)</b> .	None.	None.

**TABLE 3.3-1**  
Habitat Conservation Prescriptions Contained in the Alternatives<sup>1</sup>

<b>Commitments and Prescriptions</b>	<b>No Action</b>	<b>Plum Creek NFHCP</b>	<b>Internal Bull Trout Conservation Plan</b>	<b>Simplified Prescriptions</b>
<b>Range Management</b>				
State and Other Regulations and BMPs	Apply open range law without mandated management. Allotment management plans may be in use.	Apply open range law without mandated management. Allotment management plans may be in use.	Apply open range law without mandated management. Allotment management plans may be in use.	Apply open range law without mandated management. Allotment management plans may be in use.
Landowner-Specific BMPs	None.	Implement Plum Creek's Grazing BMPs on all grazing leases in the Project Area through lessees for the life of the NFHCP, including <b>(G1)</b> : <ul style="list-style-type: none"> <li>• Annual Range Management Plans.</li> <li>• Management practices to achieve riparian goals.</li> <li>• Riparian monitoring.</li> <li>• End of year reports.</li> </ul>	Implement Plum Creek's Grazing BMPs on all grazing leases in Tier 1 watersheds through lessees, including: <ul style="list-style-type: none"> <li>• Annual Range Management Plans.</li> <li>• Management practices to achieve riparian goals.</li> <li>• Riparian monitoring.</li> <li>• End of year reports.</li> </ul>	Cancel grazing leases and seek to eliminate open range grazing throughout the Project Area.
Grazing Enclosures	None.	By the end of Year 9, implement all required riparian cattle enclosures. Exclude livestock from trampling known spawning redds <b>(G2)</b> .	Implement riparian cattle enclosures when opportunities arise through cooperation with lessee.	Implement fenced enclosures to reduce riparian grazing where grazing occurs under open range law.
Monitoring of Riparian Function Associated with Grazing	None.	Establish long-term riparian monitoring to determine the rate of trend toward improvement of habitat function and as adaptive management feedback for refinement of Grazing BMPs <b>(G3)</b> .	None.	Monitor effects of grazing where grazing occurs under open range law.
Status of Vacated Leases	Vacated leases will be re-leased, generally to the successor of the previous lessee.	Vacated leases will be re-leased only after an assessment determines that <b>(G4)</b> : <ul style="list-style-type: none"> <li>• Riparian function is adequate to meet environmental trend indicators; and</li> <li>• The lease area is suitable for grazing.</li> </ul>	Vacated leases will be re-leased immediately, or after a rest period, at the discretion of the Unit Manager.	None.
Rancher Training	None.	Provide rancher and appropriate Plum Creek personnel training for Grazing BMPs implementation <b>(G5)</b> .	None.	None.

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<b>Land Use Planning</b>				
State and Local Regulations	Implement state and local land use planning regulations.	Implement state and local land use planning regulations.	Implement state and local land use planning regulations.	Implement state and local land use planning regulations.
Land Use Principles	None.	Implement Plum Creek's Land Use Principles to guide conservation-oriented land use planning ( <b>L1</b> ).	Implement Plum Creek's Land Use Principles to guide conservation-oriented land use planning.	None.
Land Use Planning Measures	None.	<p>Create incentives (<b>L9</b>) for propagating conservation or increasing conservation certainty when land transactions occur, through the use of:</p> <ul style="list-style-type: none"> <li>• Conservation land sales (<b>L2</b>).</li> <li>• Conservation easements (<b>L3</b>).</li> <li>• Deed restrictions (<b>L4</b>).</li> <li>• Sales that retain NFHCP measures (<b>L5</b>).</li> <li>• Limits to unrestricted land dispositions (<b>L6</b>).</li> <li>• Extension of NFHCP conservation commitments to acquired lands (<b>L7, L8</b>).</li> </ul>	None.	Deminimus (small, scattered parcels) land sales are restricted to 5 percent of the Project Area.
<b>Legacy and Restoration</b>				
State Regulations	None.	None.	None.	None.
Riparian Condition Survey—Assessment	None.	Conduct a riparian condition survey on all Key Migratory Rivers (see <b>Lg2</b> and <b>G2</b> ). For riparian areas not functioning properly, describe cause, condition, impact rating, and solution. Complete assessment by the end of Year 7 ( <b>Lg1</b> ).	None.	None.

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Habitat Conservation Prescriptions Contained in the Alternatives<sup>1</sup>

<b>Commitments and Prescriptions</b>	<b>No Action</b>	<b>Plum Creek NFHCP</b>	<b>Internal Bull Trout Conservation Plan</b>	<b>Simplified Prescriptions</b>
Riparian Vegetation Restoration—Implementation	None.	Prepare restoration plan for impacted areas identified in <b>Lg1</b> in first 8 years and implement within the first 15 years of the Permit ( <b>Lg2</b> ).	None.	None.
Riparian Vegetation Restoration—Monitoring	None.	Monitor and evaluate riparian/stream condition and fish habitat treated under <b>Lg2</b> to quantify benefits and costs of restoration ( <b>Lg3</b> ).	None.	None.
Engineered Fish Habitat Restoration	None.	Use guiding and ecoclassification to diagnose fish habitat needs and design restoration projects using large woody debris, boulders, or bank stabilization techniques ( <b>Lg4</b> ).	None.	None.
Irrigation Diversions	None.	Inventory irrigation diversions on Plum Creek land and develop a management plan by the end of Year 3 to mitigate the impacts. Implement plan throughout Permit period ( <b>Lg5</b> ).	None.	None.
Brook Trout Suppression Experiment	None.	Develop a proposal to conduct brook trout suppression in Gold Creek to determine ( <b>Lg6</b> ): <ul style="list-style-type: none"> <li>• Conservation effectiveness for bull trout.</li> <li>• Feasibility for wider use.</li> </ul>	None.	None.
State Fish and Game Enforcement Agreements	None.	Seek agreements with state fish and game agencies to increase and focus enforcement activities on violations that impact native fish, such as poaching and targeting listed fish by outfitters ( <b>Lg7</b> ).	None.	None.

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Habitat Conservation Prescriptions Contained in the Alternatives<sup>1</sup>

<b>Commitments and Prescriptions</b>	<b>No Action</b>	<b>Plum Creek NFHCP</b>	<b>Internal Bull Trout Conservation Plan</b>	<b>Simplified Prescriptions</b>
Watershed Cooperation	None.	Participate as a cooperator and exchange information in multi-stakeholder watershed planning groups ( <b>Lg8</b> ).	Participate as a cooperator and exchange information in multi-stakeholder watershed planning groups in Tier 1 watersheds.	None.
<b>Administration and Implementation</b>				
State Regulations	Conduct state BMP audits, and Forest Practices Act inspections.	Conduct state BMP audits, and Forest Practices Act inspections.	Conduct state BMP audits, and Forest Practices Act inspections.	Conduct state BMP audits, and Forest Practices Act inspections.
Field Implementation Manual	None.	Produce a field implementation manual for Plum Creek foresters within 3 months of Permit issue. The manual will include ( <b>A1</b> ): <ul style="list-style-type: none"> <li>• Working definitions.</li> <li>• Prescription keys for consistent application.</li> </ul>	Produce a field implementation manual for Plum Creek foresters by April 2000. The manual will include: <ul style="list-style-type: none"> <li>• Working definitions.</li> <li>• Prescription keys for consistent application.</li> </ul>	None.
Forester and Contractor Training	None.	Conduct forester and contractor training within 4 months of Permit issue and every 2 years thereafter ( <b>A2</b> ).	Conduct forester and contractor training as needed.	None.
Logger Certification and Training	None.	Certified training for contract loggers will be required for tree harvesting on Plum Creek land within 2 years of Permit issue, and for harvesting on other ownerships when logs are purchased by Plum Creek ( <b>A3</b> ).	None.	None.
Conservation Plan Internal Audits	None.	Perform internal Plum Creek audits each of first 3 years of Permit with Services invited to participate ( <b>A4</b> ).	Perform internal audits every 5 years to ensure implementation.	None.
Conservation Plan External Audits	None.	Contract for third-party audits of NFHCP measures every 5 years throughout the life of the Permit ( <b>A5</b> ).	None.	Employ federal oversight to verify implementation of Simplified Prescriptions.

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Habitat Conservation Prescriptions Contained in the Alternatives<sup>1</sup>

<b>Commitments and Prescriptions</b>	<b>No Action</b>	<b>Plum Creek NFHCP</b>	<b>Internal Bull Trout Conservation Plan</b>	<b>Simplified Prescriptions</b>
HCP Metrics and Reporting	None.	<ul style="list-style-type: none"> <li>• Minor reporting annually on basic plan implementation metrics.</li> <li>• Major report every 5 years with monitoring results, documenting successes and improvement areas. Prepare summary report for public distribution (<b>A6</b>).</li> </ul>	None.	Report on HCP implementation and effectiveness to the Services annually for basic metrics and every 5 years for monitoring results.
<b>Adaptive Management and Monitoring</b>				
State Regulations	Implement new conservation measures as required by state and federal law.	Implement new conservation measures as required by state and federal law.	Implement new conservation measures as required by state and federal law.	Implement new conservation measures as required by state and federal law.
Core Adaptive Management Projects (CAMPs)	None.	Perform six studies with input from Services to evaluate: <ol style="list-style-type: none"> <li>1. Road BMPs (<b>AM1</b>).</li> <li>2. Riparian management (<b>AM1</b>).</li> <li>3. Temperature effects (<b>AM1</b>).</li> <li>4. Grazing BMPs (<b>AM1</b>).</li> <li>5. Effectiveness of riparian restoration along Key Migratory Rivers (see <b>Lg3</b>).</li> <li>6. Gold Creek Experimental Brook Trout Suppression Project (see <b>Lg6</b>).</li> </ol>	None.	None.
Adaptive Management; Commitment to Responsive Management	None.	Improve management practices using the NFHCP Implementation Framework through ( <b>AM2</b> ): <ul style="list-style-type: none"> <li>• Mandatory pre-defined management response.</li> <li>• Mandatory collaborative management response.</li> <li>• Collaborative management response.</li> </ul>	None.	Improve HCP by revising management practices according to results of compliance and effectiveness monitoring that maintain or improve the ability to meet biological goals.

**TABLE 3.3-1**  
Habitat Conservation Prescriptions Contained in the Alternatives<sup>1</sup>

<b>Commitments and Prescriptions</b>	<b>No Action</b>	<b>Plum Creek NFHCP</b>	<b>Internal Bull Trout Conservation Plan</b>	<b>Simplified Prescriptions</b>
Changed Circumstances	None.	Develop a site-specific plan for changed circumstances that can be reasonably planned for and as they occur for forest fires, floods, and landslides ( <b>AM3</b> ).	None.	Develop a site-specific plan for changed circumstances that can be reasonably planned for and as they occur for forest fires, floods, and landslides.
Native Fish Assemblages (NFA)	None.	Conduct watershed analyses and develop site-specific prescriptions with the Services in eight Planning Area watersheds designated as NFA ( <b>AM4</b> ).	None.	None.
Landslide Monitoring	None.	All new landslides will be monitored as they are discovered. Data will be collected and reported at 5-year intervals ( <b>AM5</b> ). Findings may be used to develop a Cooperative Management Response ( <b>AM2</b> ).	None.	None.
Designation of Additional Tier 1 Watersheds	None.	Up to 12 new Tier 1 watersheds may be designated for any and all Permit species during the term of the Permit. The Services and/or Plum Creek may nominate watersheds at every 5-year reporting cycle, with the necessary biological justification. Once designated, all Tier 1 prescriptions will be applied ( <b>AM6</b> ).	None.	None.

<sup>1</sup>All commitments and prescriptions apply to the entire NFHCP Project Area and for the lifetime of the Permit, unless stated otherwise.

<sup>2</sup>Stream type definitions for Montana, Idaho, and Washington are given in Appendices Rp1 and Rp2 of the NFHCP at the end of Chapter 3.

(Xn) Letter-Number combinations presented in bold refer to the numbered prescriptions in the NFHCP.

Existing regulations cover all of Plum Creek's management activities at some level. Emphasis in this discussion is on forest practices, which are Plum Creek's predominant business pursuit and include activities of greatest concern to native salmonids. State forest practices regulations and BMPs help to minimize the impacts associated with commercial forestry (Ice et al. 1997; Brown et al. 1993). Under the federal Clean Water Act (CWA), pollution is identified as inputs to water that negatively affect beneficial uses. Since fisheries are identified as a beneficial use, they became protected under forest regulations designed to remove threats to fish. Idaho and Washington passed Forest Practices Acts in 1974, and have undergone significant change in response to greater knowledge of impacts and how to minimize them. Montana adopted Forestry BMPs in 1989 and passed the Streamside Management Zone Law in 1991.

**What are the Key Features of the No Action Alternative?**

The No Action Alternative is called the Existing Regulations Alternative. This alternative assumes that Plum Creek will take no further actions beyond what is strictly required by law. Existing regulations cover all Plum Creek management activities at some level, and continually improve as new knowledge is gained and state and federal laws are modified to reflect new science. However, there is no mechanism to universally apply what is best for bull trout to all Plum Creek lands. Why? Because state and local regulations differ within the Project Area. The major natural resource regulations that apply to Plum Creek lands are described briefly in this section.

Generally, state forest practices are flexible prescriptions that establish minimum standards to address the CWA, ensure reforestation, and protect soil, water, and critical fisheries and wildlife habitat near streams and lakes. BMPs are a system and a process as much as they are individual practices. Forestry BMPs include methods, measures, and practices designed to minimize water pollution resulting from disturbance of the forest floor or silvicultural operations; BMPs include structural and nonstructural measures, operational and maintenance procedures, and distribution and scheduling of activities (Society of American Foresters [SAF] 1995). These are all intended to minimize soil erosion and stream sedimentation, and together comprise a system of interacting measures, rather than single practices, for application on a site-specific basis to reflect site-specific conditions. Prescriptions can vary from project to project. BMPs differ mainly with regional variations in forest vegetation, terrain, and climate.

Relevant federal and state laws, rules, and recommended BMPs comprising existing regulations are listed in Table 3.3-2. They are numbered consecutively for reference to Table 3.3-3.

Existing regulations contained in this management alternative cover, to varying levels of rigor and specificity, the land management activities normally conducted by Plum Creek. The activities for which Plum Creek seeks ESA coverage are listed in Table 3.3-3, along with a coded list of the relevant federal, state, and local regulations and BMPs in the Planning Area (presented in Table 3.3-2) that address them. Activities proposed for coverage were described in Section 2.3.1, *Plum Creek's Land Management*.

Tables 3.3-2 and 3.3-3 assume that prescriptions contained in the Forests and Fish Report, as authorized by ESHB 2091, would be part of the Existing Regulations comprising the No Action Alternative for the State of Washington. Table 3.3-3a compares Washington forest practices prescriptions in effect and that were analyzed at the time the DEIS and NFHCP were prepared (from the Washington Forest Practices Board Rule Book dated November 1998), and the new emergency Washington State Forest Practice Rules (from the Forests and Fish Report) that became effective following publication of the DEIS and NFHCP in December 1999.

The Washington Forest Practices Board (2000) analyzed and compared these prescriptions in a Draft Environmental Impact Statement, which provided the basis for implementing emergency rules associated with the Forests and Fish Report on March 20, 2000. The Board concluded that the new emergency rules would generally result in comparatively fewer risks and greater benefits to aquatic and riparian resources than prescriptions in the 1998 rule book. No Action prescriptions for Washington that were analyzed therefore represent a comparatively worse-case scenario.

**TABLE 3.3-2**

Relevant Federal and State Regulations and BMPs Comprising Existing Regulations

<b>Federal</b>
<ol style="list-style-type: none"> <li>1. Endangered Species Act</li> <li>2. Federal Water Pollution Control Act of 1948 (Clean Water Act)</li> <li>3. Federal Insecticide, Fungicide, and Rodenticide Act</li> <li>4. New Source Performance Standards for Air Emissions from Hog Fuel Boilers</li> <li>5. Federal Clean Air Act</li> <li>6. Federal Air Operating Program</li> <li>7. National Historic Preservation Act</li> <li>8. Coastal Zone Management Act</li> <li>9. National Forest Management Act</li> <li>10. Alaska National Interest Lands Conservation Act</li> </ol>
<b>State of Washington</b>
<ol style="list-style-type: none"> <li>11. Forest Practices Act and Regulations</li> <li>12. Forests and Fish Report as Authorized by ESHB 2091 (1999)</li> <li>13. Shoreline Management Act and Rules for Local Master Programs</li> <li>14. Hydraulic Code of Washington</li> <li>15. Ecosystem Standards for State-Owned Agricultural and Grazing Lands</li> <li>16. Coastal Nonpoint Pollution Control Strategy</li> <li>17. Water Pollution Control Act</li> <li>18. Growth Management Act</li> <li>19. State Environmental Policy Act</li> <li>20. Hazardous Waste Management Act</li> <li>21. Solid Waste Management Act</li> </ol>
<b>State of Idaho</b>
<ol style="list-style-type: none"> <li>22. Forest Practices Act and Rules</li> <li>23. Fire Hazard Reduction Program</li> <li>24. Stream Channel Protection Act</li> <li>25. Water Quality Standards</li> <li>26. Waste Water Treatment Requirements</li> <li>27. Agricultural Pollution Abatement Plan 1991</li> </ol>

**TABLE 3.3-2**

Relevant Federal and State Regulations and BMPs Comprising Existing Regulations

28. Surface Mining Act and Rules Governing Exploration and Surface Mining in Idaho
29. Idaho Municipal Corporations Plats and Vacations
30. Outfitters and Guides Act and Rules
31. Commercial Fertilizer Law
32. Soil and Plant Amendment Act
33. Pesticide Law and Rules Governing Pesticide Use and Application
<b>State of Montana</b>
34. Forestry Best Management Practices
35. Streamside Management Zone Act and Rules
36. Natural Streambed and Land Preservation Act ("310 Law")
37. Lakeshore Protection Act
38. Montana Subdivision and Platting Act
39. Hazard Reduction Law
40. Montana Prescribed Grazing Technical Guide
41. Water Quality Act
42. Voluntary Wildlife Guidelines for Streamside Management Zones
43. Major Facility Siting Act
44. Montana Metal Mine Reclamation Act
45. Montana Outfitters and Guides Regulations
<b>Local</b>
46. Various laws, rules, and policies implemented by local jurisdictions

**TABLE 3.3-3**

Plum Creek Management Activities Covered by Existing Regulations\*

	<b>Federal</b>	<b>WA</b>	<b>ID</b>	<b>MT</b>
<b>Commercial Forestry and Associated Activities</b>				
<b>Silvicultural Activities</b>				
Tree Planting	1, 2	11, 12	22	35
Site Preparation	1, 2, 8	11, 12, 16	22, 23, 26	35, 39
Prescribed Burning	1, 2	11, 12	22, 23	35, 36, 39
Stand Maintenance	1, 2, 3	11, 12, 14, 17, 19	22, 24, 25, 33	34, 35, 36, 37, 38
Timber Harvest	1, 2, 3, 7, 9	11, 12, 14, 17, 19	22, 24, 25, 33	34, 35, 36, 37, 38
Forest Nurseries and Seed Orchards	1, 2, 8	11, 12, 13, 14, 17	22, 23, 25, 26	34, 35, 36, 39, 42
Logging Road Construction	1, 2, 7, 9	11, 12, 14, 17	22, 24	34, 35, 36, 37
Logging Road Maintenance	1, 2	11, 12, 14, 17, 19	22, 24	34, 35

**TABLE 3.3-3**  
Plum Creek Management Activities Covered by Existing Regulations\*

	<b>Federal</b>	<b>WA</b>	<b>ID</b>	<b>MT</b>
Gravel Quarrying (Roads)	1, 2, 7, 9	11, 12, 14	22, 26	34, 35, 41, 44
<b>Other Forestry Activities</b>				
Forest Fire Suppression		11, 12	22, 23	35, 39
Open Range Cattle Grazing	1, 2, 8	15, 16	25, 27	40
Miscellaneous Forest and Land Product Sales				
Gravel	1, 2	18, 19	25, 28	41, 44
Landscape Stones	1, 2	18, 19	25, 28	41, 44
Conservation Activities	1, 2	11, 12, 17, 19	22, 24, 25	34, 35, 36, 41, 42
<b>Non-Forestry Activities</b>				
Special Forest Uses				
Commercial Outfitting			30	45
Recreation		46	30	42, 45
Electronic Facility Sites	1, 2	18, 19, 46	25, 46	37, 43, 46
Manufacturing of Forest Products	1, 2, 4, 5, 6, 7, 9	18, 19, 20, 21, 46	25, 26, 46	37, 41, 46

\*Numerical codes correspond to federal, state, and local regulations and BMPs, which are identified in Table 3.3-2.

**TABLE 3.3-3a**  
Summary Description by Forestry Topic of Prescriptions Associated with the Washington Forestry Practices Board Rule Book (November 1998) and the Forests and Fish Report (March 2000)\*

<b>Forestry Topic</b>	<b>1998 Rule Book</b>	<b>Forests and Fish Report</b>
<b>Water Typing</b>	<p><b><i>Five-type System</i></b>  <u>Fish-bearing waters</u>            1 = shorelines of the state            2 = generally &gt; 20 feet            3 = generally &lt; 20 feet</p> <p><u>Non fish-bearing waters</u>            4 = generally &gt; 2 feet            5 = generally &lt; 2 feet</p>	<p><b><i>Three-type System</i></b>  <u>Fish habitat waters</u>            S = shorelines of the state            F = other fish habitat waters</p> <p><u>Non fish-habitat waters</u>            Np = perennial waters            Ns = seasonal waters</p>
<b>Riparian Habitat</b>	<p><u>Shoreline of the State (Type 1)</u>            Requirement of no more than 30 percent volume removal every 10 years within 200 feet of shoreline.</p>	<p><u>Shorelines of the State (Type S)</u>            Requirement of no more than 30 percent volume removal ever 10 years within 200 feet of shoreline</p>

**TABLE 3.3-3a**

Summary Description by Forestry Topic of Prescriptions Associated with the Washington Forestry Practices Board Rule Book (November 1998) and the Forests and Fish Report (March 2000)\*

Forestry Topic	1998 Rule Book	Forests and Fish Report
<b>Riparian Habitat (continued)</b>	<u>Westside Fish Habitat (Type 1-3)</u> 25- to 100-foot managed buffer	<u>Westside Fish Habitat (Type F)</u> No management allowed inside channel migration zone (CMZ). Three zones: core, inner, outer
		Core Zone: no management
		Inner Zone: 2/3 SPTH buffers on streams <= 10 feet wide, managed with stand requirements; 3/4 SPTH buffers on streams >10 feet wide with stand requirements
		Outer Zone: SPTH buffer with 10-20 trees per acre
	<u>Westside Non Fish Habitat (Type 4-5)</u> Type 4: riparian leave tree areas sometimes required	<u>Westside Non Fish Habitat (Type N)</u> Perennial: 50-foot no-cut buffer, sensitive sites; discontinuous with at least 50 percent buffer on length
	Type 5: no requirements	Seasonal: 30-foot equipment limitation zone
	<u>Eastside Fish Habitat</u> 30- to 300-foot managed buffer	<u>Eastside Fish Habitat</u> Three additional zones: core, inner, outer
		Core: no management
		Inner: 70 or 100 feet; management with stand requirements
		Outer: SPTH buffer with 10, 15, or 20 trees per acre
	<u>Eastside Non Fish Habitat</u> Type 4: riparian leave tree areas sometimes required	<u>Eastside Non Fish Habitat</u> Perennial: 50 -foot managed buffer with uneven-aged management; discontinuous buffer with up to 300 feet clearcut, but maximum of 30 percent length under even-aged management; plus 30-foot equipment limitation zone
	Type 5: no requirements	Seasonal: 30-foot equipment limitation zone
	<u>Small Landowners</u> None	<u>Small Landowners</u> Exemption from new rules for <20-acre parcels for landowners who own less than 80 acres of forested land; DNR can add 15 percent of stand volume to current riparian buffers

**TABLE 3.3-3a**

Summary Description by Forestry Topic of Prescriptions Associated with the Washington Forestry Practices Board Rule Book (November 1998) and the Forests and Fish Report (March 2000)\*

<b>Forestry Topic</b>	<b>1998 Rule Book</b>	<b>Forests and Fish Report</b>
<b>Unstable Slopes</b>	<p>Reviewed in forest practices application process</p> <p>SEPA trigger</p>	<p>Reviewed in forest practices application process; improved definitions, screens, training and field verification</p> <p>SEPA trigger</p> <p>Addresses public safety</p> <p>Identification of high hazard and moderate hazard landforms</p>
<b>Forest Roads</b>	<p>Maintain current construction standards</p> <p>RMAP only when requested by DNR or watershed analysis</p>	<p>Improved new construction standards; improved BMPs for maintenance</p> <p>Required RMAPs within 5 years; all roads in compliance within 15 years; inventory orphan roads</p>
<b>Wetlands</b>	<p><u>Wetland Management Zones</u> Protection of Type A and B wetlands with 25- to 100-foot wide WMZs; minimum wetland size protected is 0.25 acre</p> <p><u>Forested Wetland Harvest</u> Clearcut harvest allowed</p> <p>Equipment limitation on forested wetlands</p> <p><u>Roads and Landings</u> Generally 1:1 replacement ratio</p> <p><u>Classification System</u> Current system</p>	<p><u>Wetland Management Zones</u> Protection of Type A and B wetlands with 25- to 100-foot wide WMZs; minimum wetland size protected is 0.25 acre</p> <p><u>Forested Wetland Harvest</u> Clearcut harvest allowed</p> <p>Wetlands working group to make recommendations regarding protection via adaptive management</p> <p><u>Roads and Landings</u> Generally 2:1 replacement ratio and no net loss of function</p> <p>Minimum mapping size to 3 acres for forested wetlands</p> <p><u>Classification System</u> GIS update system</p> <p>Wetlands working group to revise system via adaptive management</p>
<b>Watershed Analysis</b>	<p>Mandatory for DNR as funding allows</p> <p>Voluntary for landowners</p> <p>Nine modules currently included</p> <p>Improved hydrology and water quality modules</p> <p>Prescriptions written for all modules</p>	<p>Mandatory for DNR as funding allows</p> <p>Voluntary for landowners</p> <p>Nine modules plus new ones</p> <p>Improved hydrology and water quality modules</p> <p>New cultural and restoration module</p> <p>No prescriptions for riparian areas</p>

**TABLE 3.3-3a**

Summary Description by Forestry Topic of Prescriptions Associated with the Washington Forestry Practices Board Rule Book (November 1998) and the Forests and Fish Report (March 2000)\*

Forestry Topic	1998 Rule Book	Forests and Fish Report
<b>Adaptive Management</b>	TFW CMER projects used to make improvements	TFW CMER formalized including peer review FPB responsible  Dispute resolution process  Process to review outside work  Conduct validation and effectiveness monitoring
<b>Forest Pesticides</b>	Current rules allow no chemicals in streams 50-foot buffer along streams 100-foot buffer adjacent to other properties 200-foot buffer adjacent to residences	No chemicals in streams or core or inner zones  Variable width buffer depends on equipment and wind conditions  New BMPs
<b>Cultural Resources</b>	Class IV special if state registered site or cairn, grave, or glyptic record  Class III if cultural resource and requires meeting with landowner and tribe  Other accepted assessment and mitigation tools to protect cultural resources in riparian areas	Cultural resources treated the same as under Alternative 1, except for below  Watershed analysis module added
<b>Hydrology</b>	Rain-on-snow rule  Eastside hydrology watershed analysis module	Rain-on-snow rule  Eastside hydrology watershed analysis module

\*Adapted from Washington Forest Practices Board (2000). Draft Environmental Impact Statement on Alternatives for Forest Practices Rules for Aquatic and Riparian Resources.

### Conservation Measures in Existing Federal and State Laws, Rules, and BMPs

To describe this management alternative in detail, existing regulations are discussed below by conservation category. The conservation categories were explained in Section 3.2, and measures within conservation categories were listed in Table 3.3-1. Although not enforced by the Services, measures associated with these conservation categories are minimum requirements or considerations for

undertaking the management activities covered by the proposed NFHCP. Activities to be covered under the Permit were described in Section 2.3.1, *Plum Creek's Land Management*.

**Environmental Principles.** This alternative would not provide Plum Creek's self-generated Environmental Principles.

**Forest Road and Upland Management.** Washington, Idaho, and Montana require some level of control of

road-related and upland harvest-related soil disturbance, erosion, and sediment delivery. Table 3.3-4 lists individual components of forest road and upland management BMPs for each state that are a part of existing regulations. Soil disturbance is addressed through rules that regulate road width, disposal of cut and fill materials, and location and design considerations that include topography and logging system requirements. Soil erosion

and drainage control is addressed by requiring revegetation of cut and fill surfaces; treatment with erosion control measures such as matting, rock surfacing, or similar measures; and by road drainage. Delivery of sediment is addressed through road location restrictions, buffer strip requirements, and design features that intercept and trap sediment, such as filter windrows and ditch-line sediment traps.

**TABLE 3.3-4**  
Forest Road and Upland Management BMPs

	WA	ID	MT
<b>Reduce Soil Disturbance—Minimize the Areal Extent and Degree of the Disturbance</b>			
Select logging systems that are appropriate for the terrain, soils, and timber type	X	X	X
Avoid soil disturbance resulting from excavation and skidding with the blade lowered	X	X	X
Suspend leading ends of logs during skidding	X	X	X
Minimize skid trail width and density	X	X	X
Locate skid trails to avoid concentrating runoff	X	X	X
Limit the grade of constructed skid trails on geologically unstable, saturated, highly erosive, or easily compacted soils	X	X	X
Avoid site preparation techniques such as intense broadcast burning or ground scarification	X	X	X
Avoid tractor or wheel skidding on unstable, wet, or easily compacted soils and on steep slopes (40-45%)	X	X	X
Restrict operations to appropriate times of the year	X	X	X
Reduce forest fire hazards following logging, thinning, post cutting, or right-of-way clearing	X	X	X
Lay out roads to minimize road densities	X	X	X
Design and construct all forest roads, borrow pits, and gravel sources to maintain water quality	X	X	X
Maintain roads to protect water quality	X	X	X
Close or restrict roads to maintain water quality and natural drainage	X	X	X
<b>Control Soil Erosion and Road Drainage—Provide Adequate Drainage and Stabilization of Roads and Skid Trails</b>			
Construct water bars, cross drains, and outslopes	X	X	X
Scarify and seed disturbed areas	X	X	X
Cover disturbed areas with logging slash	X	X	X
Require that erosion controls be applied concurrent with ongoing harvesting	X	X	X
Locate skid trails to avoid concentrating runoff and providing breaks in grade	X	X	X
Locate skid trails and landings away from natural drainage systems and divert runoff to stable areas	X	X	X

**TABLE 3.3-4**  
Forest Road and Upland Management BMPs

	WA	ID	MT
Design and construct all forest roads to maintain natural drainage	X	X	X
Design and construct stream crossings to maintain fish passage, water quality, and natural drainage	X	X	X
Plan drainage structures to minimize direct discharge of sediment into streams	X	X	X
Provide minimum relief drain spacing that is road-gradient dependent	X		
Route road drainage through adequate filtration zones or sedimentation structures to ensure sediment does not reach surface water; install road drainage features above stream crossings to route discharge into filtration zones	X	X	X
Divert ditchwater onto the forest floor by relief culvert or other means at the first practical point, but within 300 feet of a stream	X	X	X
Control erosion during gravel quarrying and mining operations	X	X	X
<b>Stabilize Soil Slopes—Reduce the Potential for Mass Wasting</b>			
Identify erodible soils and unstable areas; locate appropriate road surface materials	X	X	X
Locate roads on stable geology, including well-drained soils and rock formations; avoid slumps and slide-prone areas; avoid wet areas and natural drainage channels	X	X	X
Design roads to balance cuts and fills; use full bench construction where stable fill is absent; keep slope stabilization, erosion, and sediment control work current with road construction	X	X	X
Stabilize erodible, exposed soils by seeding, compacting, riprapping, benching, mulching, or other suitable means; minimize earth-moving activities when soils appear excessively wet; minimize disturbance of roadside vegetation	X	X	X
Construct cut and fill slopes at stable angles to prevent sloughing and erosion	X	X	X
Avoid the incorporation of woody debris in the road prism; leave rooted trees or shrubs at the toe of the fill slope to stabilize the fill	X	X	X
Avoid the toe of cut slopes when grading roads or pulling ditches	X	X	X
Haul excess material removed by maintenance operations to safe disposal sites and stabilize; avoid side-casting material into streams or near streams	X	X	X
Limit skid trail grades to 30% or less on sensitive or unstable soils	X	X	X
Screen forest practices for high-hazard, mass-wasting areas. If any are found, form an agency and landowner interdisciplinary team, and develop site-specific management practices to address identified hazards	X		
Reclaim gravel pits and mining sites by stabilizing soils and revegetating surfaces	X	X	X

**Riparian Management.** Washington, Idaho, and Montana require specific actions when conducting land management activities in riparian areas. State laws, rules, and BMPs for riparian area management are intended to reduce or eliminate silt and soil that run into streams and lakes. Their goals are to improve water quality or to prevent pollution. They take the form of physical structures (dams

or ditches), vegetation, proper planning or scheduling of nonpoint activities, maintenance of pollution controlling structures, and spacing out nonpoint activities. Table 3.3-5 lists individual components of riparian management BMPs for each state that are a part of existing regulations. Specific state standards and guidelines for riparian areas are summarized in Technical Report #6 (Plum Creek 1997a).

**TABLE 3.3-5**  
Riparian Management BMPs

	WA	ID	MT
<b>Maintain and Improve Water Quality—Maintain Beneficial Uses and Reduce Nonpoint Source Pollution</b>			
Clarify the federal Clean Water Act for local conditions	X	X	X
Identify existing sediment sources or fish habitat problems in targeted watersheds	X	X	X
Increase public involvement in the design of BMPs for “selected segments of concern” (that is, committees develop watershed-specific goals and BMPs)	X	X	X
Conserve water by protecting, maintaining, and improving the quality and potability of water for public water supplies, wildlife, fish, and aquatic life, agriculture, industry, recreation, and other beneficial uses	X	X	X
Provide a comprehensive program for the prevention, abatement, and control of water pollution; apply reasonable land, soil, and water conservation practices	X	X	X
Protect existing uses of state waters and maintain the quality of “high-quality waters”	X	X	X
Formulate total maximum daily loads (TMDLs) to establish allowable pollution loadings for a body of water based on its loading capacity	X	X	X
<b>Prevent Pollution—Follow Water Quality Regulations Tiered to the Federal Clean Water Act, and Tribal Regulations</b>			
Control the discharge of groundwater and surface water at mill sites (for example, Montana Water Quality Act)		X	X
Abide by state Groundwater Discharge Permits and General Discharge Permits for Stormwater during manufacturing of forest products and other activities common to commercial forestry and the wood products business; meet specified water quality criteria		X	X
Monitor groundwater and surface water periodically during discharge events to ensure compliance with permits		X	X
Measure water quality parameters as specified in the permits, typically biological oxygen demand, chemical oxygen demand, pH, total suspended solids, total Kjeldahl Nitrogen, Total Phosphorus, oil, and grease		X	X
Reduce discharges with stormwater holding ponds and zero-discharge mill conversions		X	X

**TABLE 3.3-5**  
Riparian Management BMPs

	WA	ID	MT
Reduce air emissions from mill sites to comply with the federal Clean Air Act and tiered state laws (for example, Montana Air Quality Act); at Plum Creek's Pablo, Montana, mill on the Flathead Reservation, conform to federal New Source Performance Standards for Air Emissions from Hog Fuel Boilers; test and periodically report to Environmental Protection Agency (EPA) to demonstrate compliance. (In 2 years, the Pablo mill will be covered under the federal EPA Air Operating Program.)		X	X
Conform to state solid waste regulations when handling log yard waste—bark, soil, and rock		X	X
Conform to state solid waste regulations when transporting solidified waste resins and non-log-yard waste to municipal landfills for proper disposal		X	X
<b>Prohibit Undesirable Practices—Avoid the Following Activities in Streamside Areas</b>			
Avoid broadcast burning	X	X	X
Avoid operating off-road wheeled or tracked vehicles	X	X	X
Avoid clearcutting	X	X	X
Avoid constructing roads except when necessary to cross a stream or wetland	X	X	X
Avoid handling, storing, applying, or disposing of hazardous or toxic materials (for example, fertilizer, pesticides, herbicides) in a manner that pollutes streams, lakes, or wetlands or that may cause damage or injury to humans, land, animals, or plants	X	X	X
Avoid side-casting road material into a stream, wetland, or watercourse	X	X	X
Avoid depositing slash in streams or other water bodies	X	X	X
<b>Maintain Riparian Functions—Provide and Promote</b>			
Adequate shade	X	X	X
Aquatic and terrestrial aquatic habitats	X	X	X
Stream channel and bank protection	X	X	X
Floodplain stability	X	X	X
Nutrient/detritus input to aquatic areas	X	X	X
Recreation	X	X	X
Timber production	X	X	X
Protection of fish-bearing, flowing, and connected streams	X	X	X
Slope stability	X	X	X
Wildlife habitat	X	X	X
Setbacks for application of hazardous substances	X	X	X

**TABLE 3.3-5**  
Riparian Management BMPs

	WA	ID	MT
<b>Retain Streamside Vegetation—Buffer Streams*</b>			
In Washington, provide 75- to 100-foot buffers around Type 1 and 2 streams, 50-foot buffers for Type 3 streams wider than 5 feet, and 25-foot buffers for Type 3 streams less than 5 feet wide; logging is allowed in Type 1, 2, and 3 buffers, but equipment operation is allowed only as prescribed by the Washington Department of Natural Resources (WDNR); skidding across Type 4 streams requires temporary crossings and must be minimized, and integrity of streambanks and riparian undergrowth must be maintained; operations near Type 5 waters are subject to the soil protection rules applicable to upland slopes	X		
In Idaho, provide 75-foot buffers on fish-bearing and 30-foot buffers on non-fish-bearing streams; equipment may be used within the buffer, but soil disturbance is prohibited		X	
In Montana, provide 100-foot buffers for Class 1 and 2 streams where adjacent slopes exceed 35%, and 50-foot buffers for Class 1 and 2 streams where slopes are less steep, and for Class 3 streams; equipment is prohibited within 50 feet of streams			X

\*Stream type and stream class definitions for Montana, Idaho, and Washington are given in Appendices Rp1 and Rp2 of the NFHCP at the end of Chapter 3.

**Range Management.** All states in the Project Area possess some form of regulatory framework for range management, but do not regulate specific grazing activities. Grazing BMPs attempt to prevent or reduce nonpoint source pollution to a level compatible with water quality goals and the CWA. Grazing BMPs for riparian areas focus on nutrient management, fecal bacteria, sediments, streambanks, fish, wildlife, and vegetation in the riparian ecosystem. BMPs control the timing, frequency, and intensity of livestock use. Buffer strips are also BMPs for livestock grazing in riparian areas. Washington promotes voluntary use of the *Ecosystem Standards for State-Owned Agricultural and Grazing Lands* and the *Coastal Nonpoint Pollution Control Strategy* on private lands. Idaho implements the *Idaho Water Quality Standards* and the *Agricultural Pollution*

*Abatement Plan.* Montana applies the U.S. Department of Agriculture Natural Resource Conservation Service’s *Prescribed Grazing* code, with state supplements. These regulations were listed by state in Table 3.3-2.

**Land Use Planning.** States and local governments, recognizing that nonpoint source control is closely related to land use planning, regulate land use (O’Laughlin 1996). Although few land use regulations are formulated specifically for fish conservation, many effectively reduce impacts of land management activities on the habitat of bull trout and other aquatic species. Individual components of representative land use planning requirements that can directly or indirectly affect aquatic habitat quantity or quality are summarized in Table 3.3-6.

**TABLE 3.3-6**  
Land Use Planning BMPs

	WA	ID	MT
<b>Respect Floodplain Regulations—All HBU land in the Project Area lies in counties with floodplain regulations</b>			
Obey local government regulations that manage land uses within floodplains	X	X	X
Avoid any activity to place or construct an artificial obstruction within a floodway or floodplain without a permit	X	X	X
Avoid construction of buildings within the floodway	X	X	X
Avoid construction of buildings within the floodplain, unless the lowest floor is above the specified minimum elevation above the 100-year floodplain	X	X	X
<b>Respect Subdivision Regulations—All HBU land in the Project Area lies in counties with subdivision regulations</b>			
Obey county subdivision regulations	X	X	X
Promote public health, safety, and general welfare through thoughtful subdivision of land	X	X	X
Apply subdivision regulations to any land parcel that contains less than the specified minimum area	X	X	X
Avoid subdivisions within the 100-year floodplain for building purposes	X	X	X
Consider the effects of subdivisions on agriculture, agricultural water user facilities, local services, the natural environment, wildlife and wildlife habitat, and public health and safety	X	X	X
<b>Respect Stream Regulations—All of the Conservation Districts that contain identified HBU land have adopted rules under this law</b>			
Consult with Conservation Districts or local experts in each county regarding stream modifications	X	X	X
Do not physically alter or modify a stream such that a change in the state of the stream occurs without a permit	X	X	X
Protect the banks adjacent to streams	X	X	X
Minimize adverse impacts on streams	X	X	X
Address erosion, channel alteration, protection of streambank vegetation, and criteria for riprap during development	X	X	X
Avoid placement of road fill or debris in a stream, projects that permanently prevent fish migration, operation of construction equipment in a stream, and excavation of streambed gravels	X	X	X
<b>Respect Lakeshore Regulations—HBU lakes with lakeshore regulations include Salmon and Lindbergh Lakes; Lake Mary Ronan and Swan Lake; and McGregor, Little Bitterroot, Ashley, and Rogers Lakes. Of these, only Swan, Lindbergh, and Salmon Lakes are known to support bull trout</b>			
Obey local government regulations to control activities at lakes, lakeshores, and shoreline buffers	X	X	X
Do not construct channels and ditches, dredge, create lagoons, fill, construct docks and wharves, or perform other work that will alter or diminish the course, current, or cross-sectional area of a lake or its lakeshore area without a permit	X	X	X

**TABLE 3.3-6**  
Land Use Planning BMPs

	WA	ID	MT
Avoid diminishing water quality	X	X	X
Avoid diminishing habitat for fish or wildlife	X	X	X
Avoid interfering with navigation or recreation	X	X	X
Avoid creating a public nuisance	X	X	X
Avoid creating a visual impact discordant with natural scenic values	X	X	X
<b>Comprehensive Plans and Zoning Regulations—Develop Land Appropriately</b>			
Follow the local government's comprehensive plans and zoning designations for development	X	X	X
Prescribe recommended uses and use restrictions consistent with each designation	X	X	X
Promote environmental protection during rural area development	X	X	X
Apply buffers and other management restrictions around water resources; some buffers are more stringent than state forest practices act buffers	X	X	X
Mitigate unavoidable environmental impacts, as conditioned in development permits	X	X	X
Apply density guidelines for rural dwellings	X	X	X
Restrict commercial uses, establish minimum lot sizes, and delineate setbacks for buildings from lakes and streams	X	X	X
Avoid siting subdivisions wholly within riparian areas or that will impact riparian areas, wildlife habitat, water quality and quantity, fish, or other aquatic resources	X	X	X
Prepare approved management plans for subdivisions with riparian resources to address access, low-impact uses, restoration with native species, mitigation of impacts from all uses, and buffers to mitigate adjacent development	X	X	X
<b>Facility Siting Regulations—Various Regulations Cover the Siting of Facilities, Such as Power Plants, Pipelines, Transmission Lines, Electronic Facilities, and Other Utilities</b>			
Obtain required permits for siting, construction, and operation of facilities	X	X	X
Review project with appropriate federal decision-making agency—Federal Aviation Administration (FAA), Federal Communications Commission (FCC), Federal Energy Regulatory Commission (FERC), U.S. Army Corps of Engineers (COE), or others	X	X	X
Assess existing conditions and potential environmental effects	X	X	X
Avoid, minimize, and mitigate potential adverse effects	X	X	X

**Legacy and Restoration.** No legacy and restoration measures would be implemented under Existing Regulations—No Action Alternative.

**Administration and Implementation.** Plum Creek would conduct state

regulations or BMP audits and Forest Practices Act inspections.

**Adaptive Management and Monitoring.** Plum Creek would implement new conservation measures as required by federal and state law.

### 3.3.2 Plum Creek's NFHCP

See attached document at the end of this chapter entitled, *Final Plum Creek Timber Company Native Fish Habitat Conservation Plan*.

### 3.3.3 Internal Bull Trout Conservation Plan Alternative

The theme of the Internal Bull Trout Conservation Plan Alternative is Plum Creek's self-determined compliance with federal and state land management laws, rules, and recommended management practices, including forest practice regulations and guidelines. The plan emphasizes bull trout conservation policies and practices believed to comply with existing regulations, supplemented with additional and enhanced land management practices along bull trout spawning and rearing streams (Tier 1 watersheds) and Key Migratory Rivers for an unspecified time period. The intent of the plan is to prevent take of listed bull trout while conducting otherwise legal land management activities. This alternative could potentially be used by the Services to authorize incidental take of some ESA-listed fish species and Permit issuance for some aspects of Plum Creek's operations.

Existing regulations for this alternative are the same as those listed in the detailed description of the No Action Alternative (Section 3.3.1). The supplemental land management practices constitute proactive and defensive, science-based land management actions. These supplemental practices are an extension of Plum Creek's Environmental and Land Use Principles and Environmental Forestry philosophy, which would guide overall plan implementation. Sound professional judgment

by land managers would be essential to successful plan implementation.

#### **What are the Key Features of the Internal Bull Trout Conservation Plan Alternative?**

This alternative adds conservation measures to the requirements in the Existing Regulations—No Action Alternative. Plum Creek would implement their Environmental and Land Use Principles, along with their Environmental Forestry philosophy, for an unspecified period of time. While this alternative is framed as an internal company plan that is not binding, many features of this alternative illustrate how a single-species or listed-only species HCP might differ from the proposed NFHCP. This alternative could potentially be used by the Services to authorize incidental take of some ESA-listed fish species and Permit issuance for some aspects of Plum Creek's operations.

Plum Creek's intent with this alternative is to reduce regulatory liability and provide legal protection through a science-based defense against a citation of take or litigation. The Services could potentially authorize take through Permit issuance for a proposed 30-year period for some aspects of Plum Creek's operations on some portions of their land under this alternative. The plan, which constitutes an array of riparian and aquatic conservation measures, is in part a take avoidance strategy with lower risk than that afforded by the No Action Alternative. This alternative would not address all of the Services' conservation objectives, and those addressed may receive different emphasis or priority than desired by the Services.

## **Conservation Measures of the Internal Bull Trout Conservation Plan Alternative**

The Internal Bull Trout Conservation Plan supplements existing regulations as needed by implementing the eight categories of supplemental conservation measures for land management (see Section 3.2, *Conservation Categories*), supported by technology transfer and continuous quality improvement. The BMPs that would be adopted are listed in Table 3.3.1 and described in the remainder of this section.

***Environmental Principles.*** Plum Creek would provide conservation assurances through interpretation and implementation of self-generated Environmental Principles. These scientific and economic principles are applied to all new and ongoing projects. The Environmental Principles guide performance-based plans and actions, rather than force strict adherence to management standards and uniform prescriptions. They rely on employee initiatives to continuously improve the quality and performance of land management, rather than on quantitative thresholds and metrics of environmental conditions. The substance of these initiatives is contained in each of Plum Creek's management unit annual metrics reports, which identify opportunities for environmental improvement and contain environmental action plans. The units are evaluated based on the quality and success of the action plans. Thus, the Environmental Principles would be refined to address bull trout. All principles are subject to change at any time and without notice to address business needs and shareholder responsibilities.

## ***Forest Road and Upland***

***Management.*** State forest practices regulations and BMPs for roads would apply to the access and transportation system throughout the Project Area, including outlier parcels not specifically addressed in this commitment. In addition, enhanced road BMPs that are voluntary and non-regulatory would be applied along bull trout spawning and rearing streams (Tier 1 watersheds) and along Key Migratory Rivers. These conservation measures address new road design and construction, maintenance and repair, and abandonment, as summarized below.

Plum Creek would build new forest roads to access and manage its lands. The design standards and length of new roads would be guided by state forest practices regulations and BMPs, which require that new road construction be minimized. The rate of new road construction is projected to be about 1,300 miles over 10 years, but subject to market forces and ownership constraints. Enhanced BMP standards for new forest roads would be applied to Tier 1 watersheds only.

Plum Creek would develop and maintain a Geographic Information System (GIS) database of conditions (BMP status) of existing road segments in Tier 1 watersheds. The database would be updated annually based on Road Condition Inspections.

Plum Creek would inventory road conditions concurrent with, and incidental to, ongoing routine forestry activities. All roads in Tier 1 watersheds would be inspected by the year 2005. Inventoried roads would be upgraded to enhanced BMP standards or state road design standards on an ongoing basis, concurrent with routine active forestry projects. Plum

Creek estimates that priority road upgrades in Tier 1 watersheds would be substantially complete by the year 2010.

Legacy road system hot spots identified during Road Condition Inspections in Tier 1 watersheds and other defined hot spot categories identical to those of the NFHCP would be treated. Site-specific action plans to mitigate negative effects would be developed and implemented. Repairs of active sediment production sites would be limited to roads in Tier 1 watersheds, unless they are repaired during routine upgrades of old roads.

Plum Creek would identify and abandon surplus roads that do not meet state road design standards in Tier 1 watersheds only. Abandonment would occur concurrent with the upgrade of adjacent roads.

Periodic maintenance of forest roads would be conducted every 5 years after upgrades of old roads in Tier 1 watersheds and near Key Migratory Rivers have been completed. Tier 2 roads would be maintained only as necessary to comply with state BMPs under this alternative.

Plum Creek would prepare Road Sediment Delivery Analyses in three fourth-order (small, high-elevation) watersheds annually, up to 25 percent of the Tier 1 watershed area on Plum Creek lands. Plum Creek would implement remedial actions suggested by the Road Sediment Delivery Analyses by the end of the following year, and use these results to improve the Road Condition Inspections program and road upgrade standards.

Road restrictions and closures for aquatic and riparian area conservation would be implemented opportunistically, based on bull trout conservation.

**Riparian Management.** Riparian conservation measures to supplement existing regulations would be performed in watersheds containing bull trout spawning and rearing streams; that is, fish habitats where the measures have the greatest probability of benefiting bull trout (Tier 1 watersheds). Existing regulations would be followed on Tier 2 lands and scattered outlier parcels. This alternative would comply with non-regulatory (voluntary) riparian area BMPs where the supplemental riparian conservation measures apply.

The voluntary riparian conservation measures of this alternative recognize that different stream types respond differently to forestry and grazing practices. Sensitive stream types provide the greatest opportunities to influence the Four C's, the habitat conditions needed by bull trout. They address the following stream conditions where bull trout spawning and rearing occur:

- High sensitivity channel migration zones (CMZs)
- Moderate sensitivity CMZs
- High sensitivity streams without CMZs
- Connected perennial headwater streams

The measures supplement existing regulations by extending riparian management zones (see Table 3.3-5 for existing buffer widths by state and Appendices Rp1 and Rp2 of the NFHCP for definitions of associated stream types), limiting tree harvest, managing for more predictable large woody debris (LWD) recruitment, improving shade, and

protecting terrace slopes. In aggregate, they reduce the risk that important fish habitat elements would be depleted by focusing management where the riparian influence is greatest.

In the watersheds where they would be applied, the supplemental riparian BMPs would be identical or nearly identical to those of the proposed NFHCP and are summarized in Table 3.3-1. The reader is advised to consult the riparian management commitments of the proposed NFHCP at the end of this chapter for a complete description of the riparian management actions under this alternative.

**Range Management.** The foundation of range management activities under this alternative is the open range law without mandated grazing management, although allotment management plans may be in use. The Internal Bull Trout Conservation Plan Alternative would supplement existing regulations by implementing Plum Creek's Grazing BMPs. The grazing BMPs would be implemented through rangeland lessees and include the following:

- Preparation of annual Range Management Plans with goals for riparian management
- Application of grazing practices from a toolbox of management techniques to achieve riparian goals
- Semi-annual riparian condition monitoring
- Annual end-of-year reports that evaluate success in achieving riparian goals and recommend improvements to Range Management Plans.

This alternative would implement the grazing BMPs in Tier 1 watersheds only.

Plum Creek would cooperate with and provide assistance to grazing lessees and grazing allotment holders for cattle exclosure construction at riparian areas along selected stream reaches. This alternative would implement projects opportunistically, and would limit funding to Tier 1 watersheds and along Key Migratory Rivers only. This alternative would be expected to generate a low level of fencing.

Plum Creek would monitor implementation of its grazing BMPs by lessees as an extension of its Environmental Principles, but there would be no rancher training for grazing BMP implementation and no monitoring of BMP effectiveness. Vacated grazing leases would be re-leased immediately, or after a rest period, at the discretion of the Unit Manager.

**Land Use Planning.** The foundation of land use planning activities under this alternative is state and local land-use planning regulations. In addition, Plum Creek would implement its own Land Use Principles to guide conservation-oriented land use planning. These principles recognize, and are intended to maintain or improve, the high value of bull trout habitat. The principles address comprehensive planning, public education, protection of fisheries and other environmental values, and environmentally responsible development. The reader is advised to consult the detailed description of the proposed NFHCP at the end of this chapter for further explanation of Plum Creek's Land Use Principles.

Plum Creek would seek “conservation buyers” for HBU lands in bull trout spawning and rearing watersheds and along Key Migratory Rivers. It is believed that conservation buyers would be better able to carry forth management of riparian and aquatic areas that would be consistent with the Internal Bull Trout Conservation Plan. This alternative would seek conservation buyers for land sales at a relatively low rate.

Plum Creek would pursue land exchanges with net conservation outcomes. This practice would transfer resources that benefit fish to public ownership. The transfer of fish benefits, especially for bull trout, would be exchanged for resources more conducive to timber management. This practice is intended to promote bull trout conservation throughout the Project Area.

**Legacy and Restoration.** The Internal Bull Trout Conservation Plan Alternative would provide some restoration and repair of legacy facilities and natural resource conditions. Legacy road conditions not meeting the minimum design, construction, or quality standards contained in existing regulations would be upgraded or restored in Tier 1 watersheds during the life of the project. Restoration of legacy riparian area degradation would be performed opportunistically.

Plum Creek would participate as a cooperator and exchange information in multi-stakeholder watershed groups, and would collaborate in funding identified cooperative conservation projects in Tier 1 watersheds.

**Administration and Implementation.** Plum Creek would conduct state regulations or BMP audits and Forest

Practices Act inspections. In addition, Plum Creek would conduct internal audits of the conservation plan every 5 years. The purpose of the monitoring and audits is to compile information on the completeness of BMP implementation and to evaluate their effectiveness. Internal monitoring would generate Environmental Management Reports used to develop internal Continuous Improvement Action Plans. Ultimate compliance is directly linked to the compensation awarded to land managers by Plum Creek.

Plum Creek would produce a field implementation manual for use by foresters. The purpose of the manual would be to guide consistent plan implementation during field applications. The manual would include working definitions of resource conditions, fish conservation practices, and prescription keys to ensure optimal and correct use of BMPs.

Plum Creek would conduct forester and contractor training, as needed, in the complete and consistent application of the riparian and aquatic area management practices contained in this alternative. Training could include use of the geomorphological classification for CMZs, implementation of riparian and road prescriptions, stream morphology instruction, and training for other BMPs to be implemented and monitored under this plan. Environmental performance reviews would be intended to create an atmosphere of teamwork and a sharing of knowledge that contributes to quality and performance at all levels.

**Adaptive Management and Monitoring.** Plum Creek would pursue a science-based ecosystem approach to commercial forestland management. Plum Creek would provide staff and resources to

implement the conservation measures contained in this alternative, and implement new conservation measures as required by existing regulations.

Continuous quality improvement is an extension of the Environmental Principles that address research and development, and performance audits. It is similar to adaptive management, but is driven by internal financial rewards for quality and performance, not regulatory requirements. This alternative would focus on environmental performance reviews and ongoing routine conservation measures to continuously improve the quality and performance of land management.

Plum Creek would monitor and report on land management practices as required under existing regulations. Plum Creek could continue to perform environmental performance reviews internally or through a third party, but would provide no assurances that performance or implementation monitoring would occur during the life of the project, other than that required by existing regulations. Monitoring would be performed if Plum Creek desires to demonstrate the effectiveness of the Internal Bull Trout Conservation Plan in avoiding take.

### **3.3.4 Simplified Prescriptions Alternative**

The theme of the Simplified Prescriptions Alternative is a less complex, low-risk approach to road, riparian, and range management—management activities believed to have the greatest potential influence on aquatic health. This alternative attempts to conserve native fish primarily by reducing road density, requiring wider riparian buffers, and reducing grazing, while providing minimal

conservation commitments for other conservation categories. The package of conservation measures represents one that could be developed into an HCP for an applicant with a management situation similar to Plum Creek's, but that lacks the scientific expertise to develop a fine-tuned approach on its own.

This alternative recognizes the conservation measures of existing regulations and builds on them. Existing regulations are the same as those listed in the detailed description of the No Action Alternative (Section 3.3.1). The additional prescriptions for Plum Creek's management activities would be uniform and simplified for ease of implementation and monitoring and are summarized in Table 3.3-1. Potential net benefits for fish conservation are presumed adequate by focusing Plum Creek's available resources on only a few conservation categories.

#### **What are the Key Features of the Simplified Prescriptions Alternative?**

This alternative implements requirements beyond the Existing Regulations—No Action Alternative that could be developed to issue a Permit to Plum Creek, and meets the Services' desires for additional aquatic habitat protection. The foundation of this alternative is the Services' recommended practices in three conservation categories: roads, riparian, and range. This alternative is called "simplified prescriptions" because the Services' recommended practices apply uniform formulas to all management activities instead of applying more site-specific prescriptions based on Plum Creek's technical reports.

The intent of the plan is to minimize and mitigate potential impacts on Permit species while conducting otherwise legal

land management activities. The Services' recommended practices are believed to reduce fish impacts to acceptable levels with greater probability than afforded by existing regulations. The plan assures that the Services' conservation emphasis and priority objectives are incorporated into conservation commitments. Under this alternative, Plum Creek would receive regulatory predictability for a proposed 30-year Permit period for managing its Project Area lands without risking noncompliance with ESA.

### **Conservation Measures of the Simplified Prescriptions Alternative**

The Simplified Prescriptions to supplement existing regulations are aligned with eight categories of conservation commitments. These prescriptions are listed in Table 3.3-1 and described in the remainder of this section.

***Environmental Principles.*** Plum Creek's Environmental Principles would not be implemented under this alternative.

***Forest Road and Upland Management.*** State forest practice regulations and BMPs for roads would apply to the access and transportation system throughout the Project Area, including outlier parcels not specifically addressed in this commitment. Plum Creek would build new forest roads to access and manage its lands. The design standards and length of new roads would be guided by state forest practices regulations and BMPs, which require that new road construction be minimized. Limited BMP enhancements would be implemented as required. The rate of new road construction would be about 650 miles over 10 years, but subject to market forces and ownership constraints.

Road Condition Inspections would be conducted to identify hot spots throughout the Project Area. These hot spots and other defined hot spot categories identical to those of the NFHCP would be treated through site-specific action plans to mitigate negative effects. Inspections of known roads would be substantially completed by the year 2010.

Known roads throughout the Project Area would be upgraded to state design standards (with limited enhanced BMPs) on an ongoing basis as they are used. About 90 percent of upgrades would be completed by the year 2025. In addition to ongoing road upgrades, site-specific action plans for legacy road system hot spots would be developed and implemented.

Road abandonment would occur at a rate of 3 miles of surplus roads for each mile of new road construction. Surplus roads near streams would be considered first. Approximately 1,950 miles of surplus roads would be abandoned under this alternative.

Periodic maintenance inspections would be conducted every 5 years, or as the road segments are used, regardless of whether bull trout are known to be present in the watershed. A Sediment Management and Control Plan for road management on Plum Creek Project Area roads would be developed by Plum Creek under this alternative.

Plum Creek would restrict public access to most of its road system to minimize sediment delivery from road use. Public access would be limited to primary roads, which comprise approximately 10 percent of Plum Creek's road system.

This alternative would rely only on state BMP audits to be conducted by others,

with federal oversight for HCP and Permit compliance monitoring.

**Riparian Management.** State forest practices regulations and BMPs for riparian areas would apply throughout the Project Area. Mandatory conservation measures to supplement existing regulations would include extending riparian management zones, limiting tree harvest, managing for more predictable LWD recruitment, improving shade, and protecting terrace slopes. In aggregate, these measures are intended to reduce the risk that important fish habitat elements would be depleted by focusing conservative management practices along streams with the greatest influence on native salmonids. These mandatory riparian management measures are relatively conservative and risk averse and focus on wider riparian buffers, greater tree retention, and less ground disturbance in riparian areas.

The riparian conservation measures consider only broad differences among stream types and apply measures conservative enough to address the range of risks within the broad category. The riparian management prescriptions of this alternative cover three types of streams—fish-bearing streams, non-fish-bearing perennial streams, and intermittent streams—which are described in Table 3.3-1.

Existing regulations apply to riparian management in parts of the Project Area not specifically addressed by this commitment, such as outlier parcels. Where existing regulations exceed the protection levels of the Simplified Prescriptions, they would be applied.

**Range Management.** The foundation of range management activities under this alternative is the open range law without mandated grazing management, although allotment management plans may be in use. This alternative would supplement existing regulations by eliminating or greatly reducing grazing throughout the Project Area. This alternative would remove livestock from Plum Creek range lands where possible, or implement grazing exclosures around all riparian areas in the Project Area where grazing occurs under open range law. This alternative would apply one-size-fits-all grazing reductions to all watersheds. The effects of grazing, where grazing occurs under open range law, would be monitored. This alternative would rely on lessees and allotment holders to fence riparian areas.

**Land Use Planning.** The foundation of land use planning activities under the Simplified Prescriptions Alternative is state and local land use planning regulations. Plum Creek would not implement its supplemental Land Use Planning Principles to guide conservation-oriented land use planning. The agreement would be subject to a restriction on the sale of more than 5 percent of the land in the Project Area without approval by the Services.

**Legacy and Restoration.** The Simplified Prescriptions Alternative would not include supplemental conservation commitments to repair, restore, or enhance legacy facilities or natural resource conditions that conflict with native salmonid conservation.

**Administration and Implementation.** Plum Creek would conduct state regulations or BMP audits and Forest

Practices Act inspections. This alternative contains provisions for federal oversight monitoring and reporting to the Services on the implementation and effectiveness of an agency-approved HCP. State forest practices audits would be done by others.

***Adaptive Management and***

***Monitoring.*** Plum Creek would pursue a science-based ecosystem approach to commercial forestland management. Plum Creek would provide staff and resources to implement the conservation measures contained in this plan, and implement new conservation measures as required by existing regulations.

Adaptive management provides for changing management to respond to increased scientific understanding, if it is shown to be necessary to meet the biological goals. This alternative would use conservative measures and reduced

uncertainty at the outset of the Permit, making extensive adaptive management unnecessary. This alternative would use a reduced level of adaptive management compared to the NFHCP alternative.

Plum Creek would perform adaptive management to implement the agency-approved HCP. Adaptive management is used to resolve competing hypotheses of conservation outcomes from management actions. Adaptive management provisions under this alternative would focus on management of roads, riparian areas, and forested range. Through adaptive management, HCP prescriptions can be modified if the changes are demonstrated to provide greater protection for fish. However, uncertainty would be low so adaptive management commitments would be minimal.

Plum Creek would monitor and report on land management practices as required under existing regulations. Federal oversight implementation and results of compliance and effectiveness monitoring of conservation commitments would be performed as directed by the HCP.