

1.0 Introduction and Background

1.1 Introduction

Plum Creek Timber Company, Inc., which includes several partnering companies collectively referred to as Plum Creek, initiated an effort in 1997 to develop a conservation strategy for native salmonid fishes (trout, steelhead, salmon, and whitefish) occurring on approximately 1.6 million acres of Plum Creek's timberlands in Montana, Idaho, and Washington. Plum Creek's purpose is to help conserve bull trout (*Salvelinus confluentus*), steelhead (*Oncorhynchus mykiss*), other native salmonids, and the ecosystems on which they depend. At the same time, Plum Creek wishes to conduct commercial timber harvest and associated activities on their lands within a framework of long-term regulatory certainty and flexibility. Plum Creek developed a draft Native Fish Habitat Conservation Plan (NFHCP) and submitted an application for an Incidental Take Permit (Permit) as authorized under Section 10(a)(1)(B) of the Endangered Species Act (ESA) of 1973, as amended. The Permit would authorize the take of federally listed species covered in the NFHCP. The Permit process is intended to provide incentives to non-federal land managers, like Plum Creek, to help conserve listed and unlisted species.

Plum Creek worked with the U.S. Department of the Interior, Fish and Wildlife Service (FWS), and the U.S. Department of Commerce, National Marine Fisheries Service (NMFS) (used together, the Services), in developing the NFHCP as well as a draft Implementing Agreement (IA). The IA is a document that would legally bind the Services and Plum

What is the Purpose of this Document?

The purpose of this document is to evaluate alternatives for managing certain Plum Creek lands. One of these alternatives is Plum Creek's proposed 30-year Native Fish Habitat Conservation Plan (NFHCP) designed to help conserve bull trout, steelhead, salmon, and whitefish within the Environmental Impact Statement (EIS) Project Area. This document combines the NFHCP and the Final EIS (FEIS) under one cover, as explained in Chapter 1, Section 1.2, *Document Overview*. To assist the reader, a glossary is provided in Chapter 8 to identify unfamiliar terms.

Creek to the requirements and responsibilities of the NFHCP and the Permit. This document binds the following Plum Creek companies: Plum Creek Timberlands, L.P.; Plum Creek Timber Company, Inc.; Plum Creek Timber I, L.L.C.; Plum Creek Marketing, Inc; Plum Creek Land Company; Plum Creek Northwest Lumber, Inc.; Plum Creek Northwest Plywood, Inc.; and Plum Creek MDF, Inc.

The Services led the development of this Final Environmental Impact Statement (FEIS), incorporating information from Plum Creek. Plum Creek has proposed an NFHCP duration (Permit period) of 30 years. Issuance of a Permit and approval of the NFHCP by the Services would enable Plum Creek to conduct timber harvest in a manner consistent with the purposes of the ESA and sound ecological principles.

Plum Creek has proposed that the NFHCP adopt a multi-species, aquatic ecosystem approach spanning all watersheds within the 1.6-million-acre Project Area. The NFHCP is designed to maintain, improve, or provide habitat that serves the biological needs of 17 species of native salmonids (the Permit species). The ESA defines a species to include any species or subspecies of fish, wildlife, or plant, and any distinct population segment of any vertebrate species that interbreeds when mature. The common name for each Permit species, presented below in plain text, will be used throughout this document (scientific names are in italics):

- Resident Freshwater Species
 - Columbia River Basin bull trout Distinct Population Segment (CRB bull trout DPS) (*Salvelinus confluentus*)
 - Redband trout (*Oncorhynchus mykiss*)
 - Coastal rainbow trout (*Oncorhynchus mykiss*)
 - Southwestern Washington/ Columbia River coastal cutthroat trout DPS (*Oncorhynchus clarki clarki*)—includes anadromous form
 - Westslope cutthroat trout (*Oncorhynchus clarki lewisi*)
 - Mountain whitefish (*Prosopium williamsoni*)
 - Pygmy whitefish (*Prosopium coulteri*)
- Anadromous Species
 - Snake River steelhead ESU (*Oncorhynchus mykiss*)
 - Mid-Columbia River steelhead ESU (*Oncorhynchus mykiss*)
 - Lower Columbia River steelhead ESU (*Oncorhynchus mykiss*)

- Snake River spring/summer chinook salmon ESU (*Oncorhynchus tshawytscha*)
- Snake River fall chinook salmon ESU (*Oncorhynchus tshawytscha*)
- Upper Columbia River summer/fall chinook salmon ESU (*Oncorhynchus tshawytscha*)
- Mid-Columbia River chinook salmon ESU (*Oncorhynchus tshawytscha*)
- Lower Columbia River chinook salmon ESU (*Oncorhynchus tshawytscha*)
- Lower Columbia River/Southwest Washington coho salmon ESU (*Oncorhynchus kisutch*)
- Columbia River chum salmon ESU (*Oncorhynchus keta*)

Throughout this document, the CRB bull trout DPS is referred to as **bull trout**.

The regulatory status of each of the Permit species is provided later in this chapter, in Section 1.3.2, *Proposed NFHCP*.

The Proposed Action being addressed is the issuance of a Permit under the ESA that would authorize the incidental take of federally listed species covered in the NFHCP. The proposed project, which is analyzed as one of three action alternatives, is Plum Creek’s NFHCP. Issuance of a Permit by the Services is a federal action that may affect the Permit species, and other aspects of the human environment as well. Therefore, since this action is subject to National Environmental Policy Act (NEPA) compliance, the Services have prepared this EIS.

1.2 Document Overview

This single document combines the contents of an HCP and an EIS. These contents are presented here under a single cover to provide the public with an easier opportunity to review, understand, and comment on the NFHCP and EIS.

Document organization is described below to help the reader understand the contents and how each chapter applies to the regulatory reporting requirements of an HCP and EIS. Table 1.2-1 lists the required regulatory contents of an HCP and an EIS, and where to find those contents.

Chapter 1—Introduction and Background

Chapter 1 introduces the document and the HCP and EIS process followed in Plum Creek’s application for a Permit. This chapter describes the Proposed Action, proposed NFHCP, and decisions needed. The chapter also provides the context of project purpose and need, the regulatory and planning framework that the process must follow, criteria the Services use in determining whether to issue a Permit, and issues identified during public scoping that are addressed in this document.

Table 1.2-1 lists the locations in this document of each of the specific regulatory reporting requirements of an HCP and an EIS.

Chapter 2—Environmental Setting

Chapter 2 presents an overview of the environmental setting within the Project and Planning Areas. It describes the collection and synthesis of data used during preparation of this document, land ownership and Planning Area basins, land management within the Planning Area,

and Plum Creek activities to be covered in the NFHCP. Physical, biological, and social resources occurring in the Project and Planning Areas are described in Chapter 4 under Affected Environment discussions.

Chapter 3—Alternatives Including the Proposed NFHCP

Chapter 3 describes the NFHCP, two other action alternatives, and the No Action Alternative being considered by Plum Creek and the Services. Conservation measures associated with each are described in detail. This chapter also describes alternatives that were considered for the NFHCP and the EIS but not selected for further analysis by Plum Creek and the Services. The description of management under the proposed NFHCP is provided, in its entirety, at the end of Chapter 3.

Chapter 4—Affected Environment and Environmental Consequences

Chapter 4 describes those aspects of the ecosystem that could potentially be affected by conservation commitments prescribed in the NFHCP and alternatives, and that could subsequently affect the Permit species. This chapter also describes the potential environmental consequences of implementing those actions. Chapter 4 presents technical background information used to assess the potential effects of actions on salmonid habitat, including descriptions of life history and ecological requirements of the native salmonids covered under the NFHCP (the Permit species), historical and current management of aquatic habitat, and the ecological implications (cause and effect relationships) of past land uses and management

TABLE 1.2-1

Required Contents of an HCP and an EIS and Their Locations in this Combined EIS/NFHCP

Contents of this HCP/EIS	Required Contents of an EIS ¹	Required Contents of an HCP ²
Title Page	§1502.11	1) Description of the Proposed NFHCP [EIS 3.3.2; (NFHCP)]
Executive Summary	§1502.12	Description of the Plan Area (EIS 1.3.2, 2.2)
Table of Contents	§1502.10(c)	
1. Introduction and Background <ul style="list-style-type: none"> • Proposed Action and Decisions Needed • Purpose and Need • Regulatory and Planning Framework • Public Information and Involvement 	§1502.13 (purpose of and need for action; decisions to be made) and §1502.25(b) (list of federal permits)	Baseline information on the Permit species (EIS 4.6.5) Description of the activities proposed for Permit coverage [EIS 1.3.2, 2.3.1, 3.3.2; (NFHCP)] Term of the Permit (EIS 1.3.2)
2. Environmental Setting <ul style="list-style-type: none"> • Collection and Synthesis of Data • Land Ownership and Management within the Planning Area <ul style="list-style-type: none"> – Activities to be Covered under the Permit • Climate 	§1502.15 (affected environment, in part)	2) Impacts on Permit species from the activities covered in the Permit [EIS 3.3.2; (NFHCP 1.0, 4.6.6, 5.2.5)] 3) Measures to minimize, mitigate, and monitor impacts on Permit species [(EIS 3.3.2; (NFHCP)] Measures that will be undertaken to minimize and mitigate for impacts on Permit species [EIS 3.3.2; (NFHCP)]
3. Alternatives Including the Proposed NFHCP <ul style="list-style-type: none"> • Introduction • Conservation Categories • No Action Alternative • Proposed NFHCP • Action Alternatives • Alternatives Considered but not Selected for Further Analysis 	§1502.4 (alternatives, including the proposed action)	Effects of measures that will be undertaken to minimize and mitigate impacts on Permit species [EIS 3.3.2; (NFHCP 1.0, 4.6.6, 5.2.5)] Measures to monitor effects on Permit species [EIS 3.3.2; (NFHCP 7.0, 8.0)]
4. Affected Environment and Environmental Consequences of the Proposed NFHCP and Alternatives <ul style="list-style-type: none"> • Broad Resource Headings <ul style="list-style-type: none"> – Physical – Biological – Human • Broad Subject Headings <ul style="list-style-type: none"> – Affected Environment – Environmental Consequences • Other NEPA Considerations Regarding the Proposed NFHCP and Alternatives <ul style="list-style-type: none"> – Mitigation – Unavoidable Adverse Impacts – Cumulative Impacts – Short-Term Uses Versus Long-Term Productivity – Irreversible and Irretrievable Commitment of Resources • Other Headings <ul style="list-style-type: none"> – Species in the HCP – Ecological Implications – Aquatic Habitat Management 	§1502.15 (affected environment), §1502.16(a), (d), and (h) (environmental consequences, including mitigation measures), §1502.16(c) (possible conflicts between proposed action and local land use plans), §1502.23 (cost/benefit analysis relevant to choices among alternatives), §1502.16 (irreversible commitments of resources and relationship between short-term uses of the environment and enhancement of long-term productivity), and §1502.16(b) (indirect effects and significance)	NFHCP implementation reporting requirements [EIS 3.3.2; (NFHCP 7.0, 8.0)] 4) Measures to ensure adequate funding for the NFHCP (EIS Appendix A) 5) Procedures to deal with unforeseen and changed circumstances [EIS 3.3.2; (NFHCP 8.0)] 6) Alternatives to the NFHCP that were considered and the reasons why they were not selected (EIS 3.1.2, 5.3) 7) Other measures the Services may require as being necessary or appropriate for purposes of the NFHCP (EIS Appendix A)

TABLE 1.2-1

Required Contents of an HCP and an EIS and Their Locations in this Combined EIS/NFHCP

Contents of this HCP/EIS	Required Contents of an EIS ¹	Required Contents of an HCP ²
5. Comparison of Alternatives and Their Impacts	§1502.16(d) (comparison of environmental consequences)	
6. Coordination With Others	§1502.10(i) (list of agencies, organizations, and individuals consulted)	
7. References	§1502.21 (References and relied upon by the decisionmaker is incorporated by reference)	
8. Glossary		
9. Abbreviations and Acronyms		
10. List of Preparers	§1502.17	
11. Appendices	§1502.18	

¹Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act.

²Mandatory elements of an HCP under the Endangered Species Act [Section 10(a)(2)(A)] and Federal Regulation [50 CFR 17.22(b)(1), 17.32(b)(1), and 222.22] in Habitat Conservation Planning Handbook (FWS and NMFS, 1996).

practices for aquatic resources. The information in Chapter 4 applies to HCP and EIS regulatory reporting requirements, as indicated in Table 1.2-1, since *all* alternatives are evaluated.

Chapter 5—Comparison of Alternatives and Their Impacts

Chapter 5 compares the potential environmental consequences of implementing the NFHCP, other action alternatives, and No Action Alternative. This chapter satisfies the comparative analytical requirements of the EIS process.

Chapter 6—Coordination with Others

Chapter 6 documents consultation and coordination with various agencies and the public that has been completed by the

Services and Plum Creek. Documentation and disclosure of this information is an EIS requirement.

Remaining Chapters and Appendices

The remaining chapters and appendices provide background information and supporting documentation for this EIS/NFHCP. They include References, Glossary, Abbreviations and Acronyms, List of Preparers, and Appendices. The Appendices include Executive Summaries of the Technical Reports prepared by Plum Creek during the NFHCP process, the Draft Implementing Agreement, comments and responses on the DEIS/NFHCP, and other supporting materials.

1.3 Proposed Action, Proposed NFHCP, and Decisions Needed

1.3.1 Proposed Action

The federal Proposed Action being addressed in this EIS is the issuance of a Permit by the Services to Plum Creek for the incidental take of eight federally listed fish species and nine currently unlisted species. The proposed NFHCP, described below, is part of Plum Creek's application to the Services in support of a Permit. This EIS analyzes the potential effects of implementing the Proposed Action and issuing a Permit by evaluating Plum Creek's proposed NFHCP and two other action alternatives, or of not issuing a Permit.

How did the Services Decide to Use Plum Creek's NFHCP?

Plum Creek has applied for a Permit from the Services. The Services gave Plum Creek technical assistance in preparing their Permit application and NFHCP. As the Services evaluate the merits of the applicant's proposed NFHCP, they will use NEPA to guide decision making. The proposed NFHCP, which may affect the environment and human populations, will be evaluated and described in detail with two other action alternatives and the No Action Alternative. This section provides an overview of the Proposed Action, proposed NFHCP, and the decisions triggered by this process.

1.3.2 Proposed NFHCP

Scope of the NFHCP

Plum Creek's proposed NFHCP consists of eight categories of conservation commitments that would be implemented

under the umbrella of the company's Environmental Principles to help conserve native salmonids (the Permit species) and the ecosystems on which they depend. The conservation commitments would be provided in addition to continued implementation of existing federal and state regulations, which in themselves provide conservation. Categories of conservation commitments include the following:

1. Environmental Principles
2. Forest Road and Upland Management
3. Riparian Management
4. Range Management
5. Land Use Planning
6. Legacy and Restoration
7. Administration and Implementation
8. Adaptive Management and Monitoring

These commitments are described in the proposed NFHCP, which is contained in Chapter 3.

Geographic Area of Influence

The geographic area of influence consists of the NFHCP Project Area and the EIS Planning Area, both of which are shown in Map 1.3-1. The NFHCP Project Area encompasses approximately 1.6 million acres of timberlands owned and managed by Plum Creek within the Columbia River Basin (Map 1.3-1). Of this total, about 1,460,000 acres (93 percent) are in western Montana, 40,000 acres (3 percent) are in northern Idaho, and 70,000 acres (4 percent) are in Washington. The Project Area also includes access roads leading to Project Area lands upon which Plum Creek shares management responsibility. The Project Area was changed between the DEIS and the FEIS as a result of Plum Creek's land ownership changes. In Idaho,

Map 1.3-1 (page 1 of 2)
11x17 color map

Map 1.3-1 (page 2 of 2)
11x17 color map

the Little North Fork Clearwater and the Upper St. Joe River Planning Area basins were dropped. In Washington, lands were added within the existing Lewis River Planning Area basin, and to outlier lands shown on Map 1.3-1. The only change that occurred in Montana is that some lands are excluded (along with road use as a covered activity associated with actions on those lands) from this Permit application but may be included by amendment pending consideration of additional environmental issues by Plum Creek. These amendment lands comprise about 15,000 acres of the Project Area, are evaluated in this FEIS, and are shown on Map 1.3-1 in a different color.

The EIS Planning Area covers approximately 16.5 million acres, including NFHCP Project Area lands and immediately adjacent lands (Map 1.3-1). Of the Planning Area total, about 15 million acres (91 percent) are in western Montana, 0.8 million acres (5 percent) are in northern Idaho, and 0.7 million acres (4 percent) are in Washington. The EIS is broader in scope than the NFHCP and examines potential effects not considered in the NFHCP. The EIS examines the effects of implementing the NFHCP, as well as the other alternatives, on listed and unlisted salmonids and their habitats. The EIS also addresses numerous resource areas such as geology and soils, water and air quality, and aspects of the human environment not addressed in the NFHCP.

Activities Covered

Plum Creek manages its timberlands in Montana, Idaho, and Washington for the primary purpose of growing, harvesting, and selling commercial timber, while seeking to use forest management practices that are environmentally and

economically sound. Plum Creek management activities covered in the NFHCP and associated Permit application include the following:

- Commercial forestry and associated activities
 - Silvicultural activities such as tree planting, site preparation, timber harvest in riparian and upland areas, stand maintenance, prescribed burning, and forest nurseries and seed orchards
 - Logging road construction
 - Logging road maintenance
 - Gravel quarrying primarily for logging road construction
- Forest fire suppression
- Open range cattle grazing
- Miscellaneous forest and land product sales
 - Gravel
 - Landscaping stones
- Conservation activities
 - Habitat enhancement and restoration
 - Scientific surveys and studies
- Special forest use permits
 - Commercial outfitting
 - Special recreation permits, such as club activities on Plum Creek land
 - Electronic facility sites
- Manufacturing of forest products (such as milling activities, lumber mills, plywood mills, remanufacturing plants)

Covered activities are described further in Chapter 2, Section 2.3.1, *Plum Creek's Land Management*.

Species Covered and Habitats Addressed

The NFHCP is part of Plum Creek's application to the Services for a Permit for the incidental take of eight fish species federally listed as "threatened," as well as potential future incidental take authorization for nine more unlisted species of native salmonids that also occur in the Project and Planning Areas. The NFHCP provides conservation commitments for overall aquatic habitat that are intended to benefit these Permit species.

Listed Species. The eight native salmonid Permit species listed as threatened under the ESA include the following (see Section 1.1, *Introduction*, for these species' scientific names):

- Bull trout
- Snake River steelhead ESU
- Mid-Columbia River steelhead ESU
- Lower Columbia River steelhead ESU
- Snake River spring/summer chinook salmon ESU
- Snake River fall chinook salmon ESU
- Lower Columbia River chinook salmon ESU
- Columbia River chum salmon ESU

Bull Trout. FWS listed the bull trout as threatened on June 10, 1998 (Federal Register [FR] 1998a). Critical habitat has not been designated for the bull trout because it could not be determined (FR 1997b).

Snake River Steelhead ESU. NMFS listed the Snake River steelhead ESU as threatened on August 18, 1997 (FR 1997a). The listing pertains only to naturally spawning steelhead (and their progeny). The listing does not pertain to hatchery reared and released steelhead or

their brood stocks, to resident redband trout, or to hatchery reared and released resident rainbow trout. The portions of the Snake River steelhead ESU of concern for this EIS/NFHCP are those individuals occurring in the Lochsa River in the Clearwater/Snake River drainage in Idaho.

Mid-Columbia River Steelhead ESU. NMFS listed the Mid-Columbia River steelhead ESU as threatened on March 25, 1999 (FR 1999b). The listing pertains only to naturally spawned populations in streams downstream of impassable barriers. The portions of the Mid-Columbia River steelhead ESU of concern for this EIS/NFHCP are those individuals occurring or potentially occurring in Ahtanum Creek, the Tieton River, and other Yakima River drainages in the Washington portion of the Planning Area.

Lower Columbia River Steelhead ESU. NMFS listed the Lower Columbia River steelhead ESU as threatened on March 19, 1998 (FR 1998d). The listing pertains to naturally spawning steelhead and their progeny. It does not pertain to hatchery reared and released steelhead or their brood stocks, resident redband trout, or hatchery reared and released resident rainbow trout. The portions of the Lower Columbia River steelhead ESU of concern for this EIS/NFHCP are those individuals in the Lewis and Cowlitz Rivers in the Washington portion of the Planning Area.

Snake River Spring/Summer Chinook Salmon ESU. NMFS listed the Snake River spring/summer chinook salmon ESU as threatened on April 22, 1992 (FR 1992). This species occurs in the lower portions of the Clearwater River drainage within the Planning Area. Designated critical habitat for this ESU includes the

Clearwater River basin downstream from Dworshak Reservoir (FR 1993), which is well downstream from the Project Area.

Snake River Fall Chinook Salmon ESU.

NMFS listed the Snake River fall chinook salmon ESU as threatened on April 22, 1992 (FR 1992). This species also occurs in the lower portion of the Clearwater River drainage in Idaho, but well downstream of the Project Area and Planning Area. Designated critical habitat for this ESU includes all reaches in the Clearwater River basin presently or historically accessible to Snake River fall chinook salmon, except for reaches above Dworshak Dam and natural, impassable falls (FR 1993).

Lower Columbia River Chinook Salmon ESU.

NMFS listed the Lower Columbia River chinook salmon ESU as threatened on March 24, 1999 (FR 1999d), effective on May 24, 1999. In Washington, the listing pertains to all naturally spawned populations in the Columbia River and tributaries from its mouth upstream to a point east of the White Salmon River. Critical habitat is proposed to include all river reaches accessible to chinook salmon in Columbia River tributaries.

Columbia River Chum Salmon ESU. NMFS listed the Columbia River chum salmon ESU as threatened on March 25, 1999 (FR 1999b), effective on May 24, 1999. The listing pertains only to naturally spawned chum salmon residing downstream of impassable barriers. Critical habitat is proposed to include all river reaches accessible to chum salmon in Columbia River tributaries.

Unlisted Species. Nine species of native salmonids are included in the NFHCP that are not listed under the ESA. Like the

eight listed native salmonid Permit species, Plum Creek intends that these unlisted Permit species may benefit from the proposed conservation commitments. One of the nine species is proposed for listing: Southwestern Washington/Columbia River coastal cutthroat trout DPS. The Services have determined that listing is not warranted for three other species: westslope cutthroat trout, Mid-Columbia River chinook salmon ESU, and Lower Columbia River/Southwest Washington coho salmon ESU. They include the following (see Section 1.1, *Introduction*, for these species' scientific names):

- Redband trout
- Coastal rainbow trout
- Westslope cutthroat trout
- Southwestern Washington/Columbia River coastal cutthroat trout DPS
- Mountain whitefish
- Pygmy whitefish
- Upper Columbia River summer/fall chinook salmon ESU
- Mid-Columbia River chinook salmon ESU
- Lower Columbia River/Southwest Washington coho salmon ESU

Habitats. Plum Creek proposes that the NFHCP provide an ecosystem approach to the conservation of a variety of native salmonid habitats. The NFHCP has been designed to address the ecological needs of native salmonids currently found within the Project and Planning Areas to the extent that conservation commitments

listed in the NFHCP would be sufficient to issue a Permit. Should any of the nine Permit species of unlisted native salmonids receive protected status under the ESA in the future, the Permit would authorize incidental take.

Congress intended that the Section 10 process establish a mechanism to conserve unlisted species and to protect Section 10(a) permittees from uncertainties of future listings under the ESA, as follows:

Although the conservation plan is keyed to the permit provisions of the Act, which only apply to listed species, the Committee intends that conservation plans may address both listed and unlisted species. The Committee intends that the Secretary may utilize this provision to approve conservation plans which provide long-term commitments regarding the conservation of listed as well as unlisted species. (H.R. Report No. 97-835, 97th Congress, Second Session, and Federal Register 39681-39691.)

By addressing the habitat requirements of unlisted species in the Project Area, the NFHCP and possibly other action alternatives can provide early protection for and remove threats to unlisted species.

Permit Period

Plum Creek has proposed that the Section 10(a) Permit be issued by the Services for a period of 30 years based on the biology of bull trout. This provides an initial 15-year period, which represents three generations of bull trout, to implement conservation measures and initiate monitoring, and allow for

measurable outcomes of implementing forestry actions under the Permit. Then a second 15-year period (three more generations) can be used to monitor and evaluate the effectiveness of the conservation measures implemented. This rationale was used in early discussions by the Montana Bull Trout Restoration Team and is proposed for this project.

1.3.3 Decisions Needed

The DEIS was prepared in December 1999 by the Services to satisfy the requirements of NEPA for the Proposed Action of issuing a Permit under the ESA that would allow the incidental take of federally listed species. The DEIS contained an analysis of Plum Creek's proposed NFHCP, two other action alternatives, and a No Action Alternative, as well as information to be used by decision-makers in determining whether to issue a Permit. The environmental review of this project was conducted in accordance with the requirements of NEPA, 42 U.S.C. §4321 *et seq.*, Council for Environmental Quality Regulations for Implementing NEPA, 40 CFR 1500, *et seq.*, other appropriate federal and state regulations, and the Services' policies for compliance with those regulations, including the Habitat Conservation Plan Assurances ("No Surprises") Final Rule (FR 1998b).

After completion of the Final EIS (FEIS) in September 2000, responsible officials for the Services jointly prepared a Record of Decision (ROD), to be issued in October 2000, based on the findings of the FEIS. The Services will jointly decide whether to issue the Permit based on the NFHCP submitted by Plum Creek.

1.4 Purpose and Need

1.4.1 Purpose of the Action

The federal Proposed Action being addressed herein is the issuance of an Incidental Take Permit (Permit) under the ESA. The purpose of the Proposed Action is to authorize incidental take of the covered Permit species by Plum Creek and to provide Plum Creek with reasonable assurances consistent with the “No Surprises” Final Rule, which was effective March 25, 1998 (FR 1998b), and is described in Section 1.5.1, *Federal Regulations*. This action is desired so Plum Creek can implement an HCP that provides a sufficient and significant contribution to the conservation of native salmonids that would allow for, or not preclude, the recovery of listed Permit species and would help remove threats to unlisted species. This forms a dual purpose: the assurance of conservation of native salmonids and the assurance of long-term regulatory certainty for Plum Creek.

The NFHCP articulates the dual purpose of and need for this action with a set of both biological and business goals. The biological goals set forth the framework for conservation and provide a standard from which success in meeting the purpose of the NFHCP can be measured. The biological goals are based on the Four C’s of habitat quality for all native salmonids, as follows:

1. **Cold:** Protect stream temperatures where they are suitable for fish and contribute to restoration of temperatures where they are unsuitable because of past Project Area management.

What Does the Purpose and Need Do?

The purpose and need statement contained in this section is essentially a **goals statement**, and can help evaluate the NFHCP, action alternatives, and No Action Alternative. This approach helps a decision maker to decide whether to issue a Permit and to choose an alternative, or a combination of alternatives, to be implemented.

2. **Clean:** Protect instream sediment levels where they are suitable for fish and contribute to restoration of instream sediment levels where they have been impacted by past Project Area management.
3. **Complex:** Protect instream habitat diversity where it is suitable for fish and contribute to restoration of instream habitat diversity where it has been impacted by past Project Area management.
4. **Connected:** Protect and contribute to the restoration of connectivity among sub-populations of native fish in the Project Area.

Plum Creek has stated its NFHCP business goals to the Services in the NFHCP, expressing its motivation as a landowner seeking an Incidental Take Permit. These business goals are intended by Plum Creek to help the Services determine whether the conservation measures offered meet the “maximum extent practicable” criterion for Permit issuance discussed below in Section 1.4.3, *Context of the Action* because the business goals describe “practicability” in more detail from Plum Creek’s point of view. The NFHCP business goals are as follows:

1. **Long-Term Sustainability and Business Certainty.** Create an environment of regulatory predictability to preserve the ability to confidently make long-term business decisions.
2. **Cost-Effective Conservation.** Implement cost-effective conservation so that finite resources can be allocated where they provide the most benefit.
3. **Scientific Credibility.** Apply a high level of scientific rigor to the task of generating creative solutions.
4. **Operational Practicality and Flexibility.** Ensure a high degree of implementation success by developing a plan that is practical to implement and preserves management flexibility.

1.4.2 Need for the Action

The Services are required under Section 10 of the ESA to work with non-federal entities to authorize incidental take of listed species if an HCP developed by that entity adequately conserves species included in a Permit according to the criteria specified in Section 10(a).

Adequate conservation includes meeting the purposes of the ESA to conserve species' ecosystems and allow for their recovery, in part by minimizing and mitigating incidental take resulting from the covered activities of an Incidental Take Permit and HCP.

Commercial timber harvest and associated activities can potentially negatively impact habitats essential to species listed under the ESA. Significant alteration of essential habitat might constitute take of listed species, which would be prohibited under Section 9 of the ESA unless otherwise

excepted, or permitted. Section 10(a)(1)(B) of the ESA provides non-federal entities, including private landowners, with a legal mechanism to receive authorization to take listed species by obtaining a Permit from the Services. In addition, unlisted species can be covered in the Permit if their conservation needs are adequately addressed in the HCP.

The listing of the bull trout and seven other Permit species as threatened species under the ESA, as well as the listing or potential listing of other native salmonids in the Project Area, poses regulatory uncertainty for Plum Creek as they manage forests and harvest timber. This uncertainty could result in significant curtailing of timber harvest, or could otherwise reduce management flexibility, which may reduce economic viability for Plum Creek. Instead, Plum Creek seeks to ensure greater economic viability and increase regulatory certainty and flexibility through productive long-term forest management, while conserving habitat for the bull trout and other native salmonids and allowing for recovery of listed species by seeking a Permit and agreeing to implement their NFHCP.

1.4.3 Context of the Action

The Services are proposing to jointly issue a Permit and enter into an agreement with Plum Creek that will cover listed and unlisted Permit species. The Services' purpose is to authorize incidental take of eight federally listed species of native salmonids, including habitat modification, for up to 30 years consistent with Section 10(a) of the ESA. FWS has authority over one of the listed Permit species (bull trout) while NMFS has authority over seven of the listed Permit

species (Snake River steelhead ESU, Mid-Columbia River steelhead ESU, Lower Columbia River steelhead ESU, Snake River spring/summer chinook salmon ESU, Snake River fall chinook salmon ESU, Lower Columbia River chinook salmon ESU, and Columbia River chum salmon ESU). Authorization is necessary because potential impacts associated with Plum Creek’s commercial forestry activities may result in the risk of take of listed Permit species, despite the minimization and mitigation program proposed by Plum Creek under the NFHCP.

The Services propose to provide assurances to Plum Creek that no additional land restrictions or financial compensation will be required from them for Permit species adequately covered by the NFHCP.

Plum Creek considers implementation of the NFHCP to be the most effective means to reconcile the applicant’s proposed covered activities with the prohibitions against take and other conservation mandates of the ESA. The NFHCP conservation commitments prescribed by Plum Creek are designed to complement, to the maximum extent practicable, the measures presently being implemented on federal lands.

The Services must issue a Permit pursuant to Section 10(a)(1)(B) of the ESA to Plum Creek if their NFHCP adequately provides conservation for species covered by the Permit according to issuance criteria specified in that section. In reaching their decision, the Services must consider these five criteria for Permit issuance:

1. Is the proposed take incidental to an otherwise lawful activity?

2. Are the impacts of the proposed taking minimized and mitigated to the maximum extent practicable?
3. Has the applicant ensured that adequate funding will be provided to implement the measures proposed in the HCP?
4. Is the proposed take such that it will not appreciably reduce the likelihood of survival and recovery of the species in the wild?
5. Will other required measures, if any, be met by the HCP?

In addition to the Section 10 issuance criteria, the Services also must complete consultation for all listed species as required under Section 7 of the ESA prior to making a final decision. This is required because the issuance of an Incidental Take Permit is a federal action and such an action requires Section 7 consultation. The purpose of consultation is to ensure that issuance of a Permit is not likely to jeopardize survival and recovery of listed species. The Services view survival and recovery as points on a continuum where, over extended periods of time and significant portions of a species’ range, survival and recovery are the same (NRC 1995).

Therefore, the Services must find that issuance of a Permit will allow for, or not preclude, recovery of listed species, and will adequately conserve and promote the long-term survival of unlisted species. In developing their NFHCP, Plum Creek has sought to commit to measures that would ensure a net improvement of habitat quality throughout the Project Area over time, and therefore contribute to recovery

of listed species, and conservation of the other Permit species.

Absent specific recovery goals for Permit species, the Services concluded that the effects of covered activities under the NFHCP must result in a net positive trend of change in habitat quality of sufficient magnitude to allow for recovery. First, the direction of change in habitat quality must be positive—that is, habitat quality on Plum Creek lands must improve over the Permit period. Second, the magnitude of change, or degree of improvement, must be sufficient to ensure that any taking will not appreciably reduce the likelihood of the survival and recovery of the Permit species. Where biological uncertainty exists regarding direction and magnitude of trends expected from conservation measures, there must be sufficient flexibility in adaptive management commitments to ensure trends are adequate in the Project Area to be consistent with recovery needs for species range-wide.

The bull trout is the most widely distributed Permit species in the Project Area and has the most specific habitat requirements. Also, it is believed to be relatively more imperiled than unlisted Permit species, therefore warranting listing under the ESA. In addition, Plum Creek has been intensively collecting data on bull trout in the Project Area since 1993. Because of these factors, the bull trout was initially the focal point for Plum Creek in the development of conservation measures. Other Permit species are either less widespread on Plum Creek lands, or less is known about their distribution and habitat needs in the Project Area, although habitat needs of other Permit species are generally similar.

Therefore, habitat conservation commitments in the NFHCP were initially targeted at bull trout and then applied broadly to provide the greatest likelihood of plan adequacy throughout the Project Area. While some of the conservation commitments are developed according to the specific needs of bull trout, the biological goals apply equally to all Permit species. Adaptive management is designed to provide a mechanism that assures success in meeting biological goals for all Permit species. However, adaptive management may play a more important role for conserving Permit species other than bull trout, since generally less information was available in the Project Area for those species during plan development.

The ultimate goal of adaptive management in this planning process is to ensure that the NFHCP succeeds by providing adequate conservation, not jeopardizing Permit species, and allowing for business management flexibility into the future. Should it be determined in the future that as a result of conducting covered activities the NFHCP is insufficient to avoid jeopardy to Permit species, and that the NFHCP cannot be adapted to avoid such jeopardy, the Services would be required to revoke the Permit (FR 1999e).

Within this decision-making process, the Services must determine if the certainty of “up-front” conservation commitments provided by the NFHCP, coupled with required management responsiveness to new scientific information through adaptive management, is adequate to warrant issuance of a Permit for some or all species evaluated, over part or all of the Project Area.

Lastly, the Secretaries of the Departments of the Interior (FWS) and Commerce

(NMFS) must have received such other assurances as may be required to ensure the NFHCP will be implemented. On the basis of their full analysis of the NFHCP and their preparation of this FEIS, the Services will determine whether to issue or deny the requested Permit and agree to an IA or not, or to recommend amendments to Plum Creek's proposed NFHCP prior to issuance of a Permit.

1.5 Regulatory and Planning Framework

Timber harvest-related activities on public and private lands are subject to numerous federal and state regulations and other applicable guidelines. This reflects the relatively large amount of land, and thus large portions of a region's ecosystem, that can potentially be affected by timber harvest and related activities (such as road building or working near water). Regulations and guidelines applicable to Plum Creek's lands within the Project and Planning Areas, and those associated with the issuance of a Permit and approval of an IA, are described below.

1.5.1 Federal Regulations

The federal government has enacted numerous laws to protect the environment. The most relevant federal regulation applicable to the EIS/NFHCP process is the Endangered Species Act (ESA), which affords certain species protection to prevent their extinction. Several additional federal regulations must be followed while developing appropriate conservation measures necessary to obtain a Permit. These include the National Environmental Policy Act, Clean Water Act, Clean Air Act, National Historic Preservation Act, and trust responsibilities of the federal

government towards Native American tribes. Each of these regulations and responsibilities is discussed below.

Endangered Species Act

The purpose of the ESA is to conserve threatened and endangered plant and animal species and their ecosystems. The ESA defines an **endangered species** as one that is "*...in danger of extinction throughout all or a significant portion of its range*" and a **threatened species** as one that "*is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.*"

The ESA defines a **species** to include any species or subspecies of fish, wildlife, or plant, and any distinct population segment (DPS) of any vertebrate species that interbreeds when mature. The ESA allows listing of DPSs of named species. A population or group of populations is considered "distinct" and hence a "species" under the ESA if it represents an evolutionarily significant unit (ESU) of the biological species. To qualify as an ESU, a population or group of populations must satisfy the following two criteria:

1. Must be substantially reproductively isolated from other conspecific population units
2. Must contribute substantially to ecological/genetic diversity of the biological species as a whole

The reproductive isolation need not be absolute. However, it must be strong enough to permit evolutionarily important differences to accrue in different population units (NMFS 1996b).

In addition to designating and listing a species as endangered or threatened, the Services are required to identify critical habitat areas if they are considered essential for the conservation of that species. Critical habitat includes areas that contain essential habitat features, whether or not those areas are currently occupied by the listed species. The Services also designate areas that may require special management or protection as critical habitat.

Section 9 of the ESA prohibits the take of any threatened or endangered species without a special Permit. The Services define **take** as follows: “*to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.*” However, the ESA also contains provisions allowing take of listed species resulting from otherwise lawful public and private activities on lands that harbor federally listed species, if certain conservation measures are followed. Take of threatened species may be allowed under five sections of the ESA, including Sections 4(d), 6, 7, 10 (a)(1)(A), and 10 (a)(1)(B).

Section 10(a)(1)(B) allows a private or public (non-federal) entity to apply for a Permit that authorizes incidental take of listed species. This EIS/NFHCP has been prepared for the potential issuance of such a Permit by the Services to Plum Creek.

In 1982, Congress amended Section 10(a) to authorize the issuance of a Permit allowing incidental taking of listed species on non-federal lands if the Permit applicant submitted an HCP satisfying ESA requirements. Under this provision, the Services are authorized to Permit the taking of federally listed fish and wildlife if such taking is “*incidental to, and not the*

purpose of, the carrying out of an otherwise lawful activity.” Prior to the 1982 amendments, individuals and non-federal agencies undertaking otherwise lawful actions that were likely to result in take of listed species risked violating the Section 9 take prohibition and had no recourse under the ESA for exemption to the prohibition, even if such actions resulted in greater conservation of the species. Congress established the *Incidental Take Permit* allowance under Section 10(a)(1)(B) of the ESA to resolve this statutory conflict. Section 10(a)(2)(A) of the ESA requires any applicant for a Permit to submit a “*conservation plan*” that specifies, among other things, the impacts likely to result from the taking and measures that will be implemented to minimize and mitigate such impacts.

Specifically, the ESA states that an approved HCP must demonstrate the Permitted activities “*will not appreciably reduce the likelihood of the survival and recovery of the species in the wild.*” Criteria for approval of an HCP, as stated in the ESA and in guidelines prepared by the Services for HCPs, have been established to ensure that all approved HCPs are consistent with species’ conservation and recovery needs.

Under Section 7 of the ESA, federal agencies must ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species. Section 7 also prohibits the destruction or adverse modification of designated critical habitat of listed species by federal agency actions. Because issuance of a Permit is a federal action, the Services are required to consult among themselves and with other federal agencies to ensure Permit issuance will not violate Section 7 of the ESA. Since this

EIS/NFHCP process could result in issuance of a Permit, Section 7 consultation is required.

No Surprises. The following summarizes the “No Surprises” assurances adopted in the Final Rule, effective March 25, 1998 (FR1998b). These assurances provide economic and regulatory certainty for non-federal property owners that participate in the ESA’s section 10(a)(1)(B) Permitting process through the following:

1. **General assurances.** The No Surprises assurances apply only to Permits issued in accordance with the Services’ regulations where the HCP is being properly implemented, and apply only to species adequately covered by the HCP.
2. **Changed circumstances provided for in the HCP.** If additional conservation and mitigation measures are deemed necessary to respond to changes in circumstances that were provided for in the HCP’s operating conservation program, the permittee will be expected to implement the measures specified in the HCP.
3. **Changed circumstances not provided for in the HCP.** If additional conservation and mitigation measures are deemed necessary to respond to changed circumstances that were not provided for in the HCP’s operating conservation program, the Services will not require any conservation and mitigation measures beyond those in the HCP without the consent of the permittee, provided the HCP is being properly implemented.

4. **Unforeseen circumstances.** In negotiating unforeseen circumstances, the Services will not require additional commitments without the consent of the permittee. These additional commitments include land, water, or financial compensation beyond the HCP, or additional restrictions on the use of land, water, including quantity and timing of delivery, or other natural resources beyond the level otherwise agreed upon for the species covered by the HCP. In determining unforeseen circumstances, the Services must demonstrate that unforeseen circumstances exist, using the best scientific and commercial data available. These findings must be documented and based on reliable technical information on the status and habitat requirements of the affected species.
5. **Additional conservation actions.** Nothing in the Final Rule will be construed to limit or constrain the Services, any federal, state, local, or tribal government agency, or a private entity, from taking additional actions at its own expense to protect or conserve a species included in an HCP.

Implementing Agreement. Appendix A contains the draft Implementing Agreement (IA). The purpose of the IA is to contractually bind Plum Creek and the Services to the terms and conditions and the requirements and responsibilities of the NFHCP. The IA describes the remedies and recourse if NFHCP terms are not followed. It also provides assurances that as long as the terms of the NFHCP and the Permit issued are followed, no additional mitigation will be required except as provided for in the IA or by law.

Habitat Conservation Planning

Handbook. The Services developed the Habitat Conservation Planning Handbook (FWS and NMFS 1996) to guide the Incidental Take Permit application process and to participate in associated habitat conservation planning efforts. The purpose of the habitat conservation planning process, and the subsequent issuance of Incidental Take Permits, is to authorize the incidental take of threatened or endangered species. It does not authorize the underlying activities that result in take of a protected species. This planning process ensures that effects of authorized incidental take will be adequately minimized and mitigated to the maximum extent practicable.

The Handbook has three major objectives:

1. Ensure that the goals and intent of the conservation planning process under the ESA are realized.
2. Establish clear standards that ensure consistent implementation of the Section 10 program nationwide.
3. Ensure that the Services' offices retain the flexibility needed to respond to specific local and regional conditions and a range of circumstances.

The Handbook was intended primarily as internal agency guidance, but is fully available for public use, as appropriate. The Handbook establishes detailed but flexible guidelines for developing HCPs, processing Section 10(a)(1)(B) Permit applications, and managing ongoing HCP programs. Handbook chapters explain the roles of the applicant and the Services in the habitat conservation planning process, the process of developing an HCP and how unlisted species may be addressed in

an HCP, Section 10 Permit issuance criteria and NEPA requirements, and how to process and review an Incidental Take Permit application.

The Handbook was recently proposed to be amended to include the Five Points Policy, which encourages applicants to develop specific goals and monitoring programs (FR 1999c). The policy is based on the following points:

1. Establish measurable biological goals and objectives.
2. Incorporate adaptive management when there are significant data gaps or uncertainty.
3. Develop better monitoring strategies.
4. Increase public participation in the HCP process.
5. Provide guidance on Permit duration.

The purpose of the Five Points Policy is to establish biological standards for HCPs while assuring applicants that the Services cannot require more commitments except under specific situations. This approach provides a way to add new science to the Permit without violating the "No Surprises" assurances adopted in the Final Rule, effective March 25, 1998 (FR 1998b).

Bull Trout Interim Conservation

Guidance. This document (FWS 1998c) provides FWS biologists guidance in conducting bull trout ESA activities during the period of Recovery Plan development. ESA activities include Section 7 consultations, negotiating HCPs that culminate in the issuance of Section 10(a)(1)(B) Incidental Take Permits,

issuing Recovery Permits, providing technical assistance in forest practice rule development, and other interagency bull trout conservation and recovery efforts. The Guidance document focuses on the effects of land management activities on important habitat characteristics for bull trout based on the current status, threats, and biological needs of bull trout. Habitat issues addressed include water temperature, habitat complexity, connectivity, and substrate composition and stability. Addressed land management issues include riparian and floodplain protection and roads. Other activities affecting bull trout habitat will be addressed later through additions to the Guidance document or in the Recovery Plan.

Overall objectives that guided FWS (1998c) development of the bull trout habitat and management issues are as follows:

1. Preserve or restore connectivity among bull trout subpopulations and their habitats through habitat restoration or protection.
2. Restore and conserve natural ecosystem process to improve or protect habitat, thereby expanding abundance, distribution, and diversity of life history forms (for example, fluvial or river dwelling, adfluvial or lake dwelling, resident, and anadromous).

The following subjects are discussed under each of the four habitat issues in the Guidance document:

1. Problem Assessment—Current habitat and management conditions relative to bull trout

2. Biological Needs—Bull trout biological requirements relative to the habitat issue
3. Objectives—Desirable outcomes specific to the habitat issue, but not necessarily expected in all situations
4. Caution Zone—Areas where land management activities have the greatest potential to adversely affect bull trout
5. Recommended Actions—Broad landscape recommendations (not site-specific prescriptions, requirements, or standards) intended to provide FWS biologists direction in tailoring specific recommendations to the applicant or management agency
6. Performance Indicators—Indices and variables to measure progress in implementing recommended actions

FWS (1998c) used broadly defined recommended actions and performance indicators to provide some flexibility in applying the Guidance document. This approach was chosen because responsibilities for bull trout conservation and recovery are different based on land ownership (public or private). Also, the effects of management activities can be different based on location.

The Guidance document also summarizes some of the differences in habitat requirements and life history characteristics between bull trout and Pacific salmon. FWS (1998c) notes that both require “cold, clean, complex, and connected” aquatic habitat.

Steelhead and Chinook Salmon Recovery Plans. Section 4(f) of the ESA requires development of recovery plans

for threatened and endangered species. These plans must describe the following:

1. Site-specific management actions for achieving species' conservation and survival goals
2. Objective with measurable criteria for determining whether to remove a species from listing
3. Time and cost estimates for actions needed to reach the plan's goal

NMFS (1995) prepared the *Proposed Recovery Plan for Snake River Salmon* for the Snake River sockeye salmon, Snake River spring/summer chinook salmon ESU, and Snake River fall chinook salmon ESU. Of these three species, the Snake River spring/summer chinook salmon ESU and the Snake River fall chinook salmon ESU have designated critical habitat in the Planning Area and have been identified as NFHCP Permit species. NMFS has prepared draft documents and summarized conservation efforts for other listed anadromous salmonids (NMFS 1996b), but has not yet prepared formal recovery plans for steelhead ESUs, other chinook salmon ESUs, or the chum salmon ESU that occur in or near the Project or Planning Areas and are NFHCP Permit species. NMFS expects that measures developed for these species in future recovery plans would be similar to measures summarized below from the *Proposed Recovery Plan for Snake River Salmon*.

The Proposed Recovery Plan includes broad measures to accomplish the following:

1. Identify those watersheds and areas most critically in need of protection or restoration

2. Immediately halt any further tributary habitat degradation on federal lands
3. Secure the ability to carry out that protection and verify it through monitoring
4. Develop and implement long-term, subbasin-scale, habitat management plans that encompass all watersheds supporting Snake River salmon

NMFS's Ecological Goals for the listed Snake River salmon are summarized as follows:

- Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features.
- Maintain and restore spatial and temporal connectivity within and among watersheds.
- Maintain and restore the physical integrity of the aquatic system.
- Maintain and restore the timing, volume, and distribution of large woody debris (LWD) recruitment.
- Maintain and restore the water quality necessary to support healthy ecosystems.
- Maintain and restore the sediment regime under which aquatic ecosystems evolved.
- Maintain and restore instream flows sufficient to create and sustain riparian, aquatic, and wetland habitats.

- Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.
- Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands.
- Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.

These Ecological Goals provide a management framework that will benefit a wide variety of aquatic species (for example, steelhead and bull trout), not just listed salmon. Although there are no specific prescriptions for meeting the Ecological Goals on non-federal lands, non-federal stakeholders are encouraged to develop watershed management strategies in accordance with their watershed's particular needs and condition.

National Environmental Policy Act

NEPA (42 U.S.C. §4321 *et seq.*) requires full public disclosure and analysis of the potential environmental impacts of proposed federal actions significantly affecting the quality of the human environment. Compliance with the NEPA process is not a requirement of Plum Creek in the HCP process, but it is a requirement of the Services since the proposed issuance of a Permit is a major federal action.

It is important to distinguish between the requirements for issuing a Permit as stated in the ESA and the detailed analysis required under NEPA. To comply with ESA requirements, an HCP must document the potential impacts on Permit

species and their habitat, the planned measures to minimize and mitigate those impacts to the maximum extent practicable, and other measures as necessary. The HCP must also describe alternatives to the proposed "taking" and explain why they are not considered feasible. By comparison, NEPA requires a broader analysis that examines additional environmental impacts of the proposed NFHCP and considers all reasonable alternatives, including analysis of the No Action Alternative. The NEPA process must also analyze the effects, beneficial as well as adverse, of issuing the Permit compared to what would occur if the Permit were not issued.

In the context of this combined EIS/NFHCP, the NEPA process has three goals:

- Foster a complete disclosure of the environmental issues surrounding the proposed federal action (that is, issuance of the Permit).
- Encourage public involvement in planning, identifying, and assessing a range of reasonable alternatives.
- Generally explore all practical means for enhancing the quality of the human environment while avoiding or minimizing adverse environmental impacts that may result from Permit issuance.

The Services used the public scoping process to guide the appropriate course of action relating to a Proposed Action and NEPA. Depending on the scope and potential impact of the Proposed Action, NEPA requirements for analytical rigor

and document preparation can be satisfied by one of three actions:

1. Categorical Exclusion (CE)
2. Environmental Assessment (EA)
3. Environmental Impact Statement (EIS)

The Services have determined that their appropriate course of action for the potential issuance of a Permit and the evaluation of Plum Creek's proposed NFHCP is preparation of an EIS, the most rigorous level of NEPA analysis and documentation.

Clean Water Act

The Clean Water Act (CWA) is the principal federal legislation designed to protect the quality of the nation's waters. The purposes of the CWA include "the protection and propagation of fish, shellfish, and wildlife." Implementation authority is assigned to two agencies:

- The Environmental Protection Agency (EPA) is charged with implementing most of the CWA, including Section 303, which contains provisions for water quality standards and Total Maximum Daily Loads, and Section 402, which authorizes National Pollutant Discharge Elimination System permitting. The CWA includes provisions for states to assume much of the implementation responsibility, which is largely the case in Montana and Washington.
- The Army Corps of Engineers (COE) is responsible for Section 404 of the CWA, Dredge and Fill Permitting. This permitting authority covers instream construction and excavating activities such as mining, dredging, spoils dumping, revetments, or any stream channel alterations.

The quality of water in forest streams, lakes, and wetlands is fundamental to their use as habitat within healthy aquatic ecosystems. Land use activities, including forest management, can potentially affect important water quality conditions, such as temperature, clarity, and concentrations of organic and inorganic substances.

Forest practices can potentially affect water quality in a variety of ways, as described in the Washington Forest Practices Board's *Water Quality Module* (1997). Sediment concentrations can increase because of accelerated erosion (Swanson et al. 1987); water temperatures can increase because of removal of overstory riparian shade (Brown 1969; Sullivan and Adams 1990). Logging slash and other organic debris can accumulate in waterbodies, reducing dissolved oxygen levels and altering water pH (Plamondon et al. 1982). Increases in sediment and water temperature are likely to have the greatest adverse effect on fish and the quality of water in which they live. The degree of change in water quality that may result from forest practices depends on numerous factors, including water quality parameter, type of waterbody, physical and vegetative condition of the watershed, type and location of land use, design and application of forest practices, intensity of site disturbance, and climatic conditions (Rice and Datzmann 1987; Riekerk et al. 1989). Although not typically associated with forest practices, water withdrawals may adversely affect water quality in forested areas through reduced streamflow dilution and heightened water quality sensitivity.

Clean Air Act

The Federal Clean Air Act (CAA), as amended in 1990, was designed to reduce air pollution, protect human health, and preserve the Nation's air resources. To protect air quality, the CAA requires federal agencies to comply with all federal, state, and local pollution control requirements. Several air quality programs under the CAA regulate prescribed burning and other practices. The National Ambient Air Quality Standards (NAAQS) are set to protect human health and welfare. Air pollutants for which federal NAAQS have been established are called **criteria air pollutants**. The criteria pollutants include particulate matter, sulfur dioxide, nitrogen dioxide, carbon monoxide, and lead.

The CAA requires each state to develop a State Implementation Plan to ensure that NAAQS are attained and maintained for the criteria pollutants. State Implementation Plans contain additional regulations for areas that have violated one or more of the NAAQS. These areas are called **non-attainment areas**.

The conformity provisions of the CAA prohibit federal agencies from taking any action that causes or contributes to a new violation of the NAAQS, increases the frequency or severity of an existing violation, or delays the timely attainment of a standard. Section 176(c) specifically states that federal agencies must ensure that their actions conform to the applicable State Implementation Plan. Because prescribed fire emissions affect air quality, conformity determinations must be made at subsequent planning levels, such as landscape or watershed analysis, using site-specific analyses.

State forest practice rules, regulations, and Best Management Practices (BMPs) ensure that dust from roads and smoke from prescribed burning do not violate air quality standards. Up until the mid-1980s, prescribed burning was a widely used tool in forestry for such purposes as slash disposal, site preparation, and wildlife habitat enhancement. Since then, air quality concerns have reduced the routine use of prescribed fire and promoted non-fire alternatives to accomplish various objectives.

National Historic Preservation Act

Most cultural resources work being conducted in the United States today is the result of Section 106 of the National Historic Preservation Act. The purpose of Section 106 is to ensure that federal agencies consult with state and local groups before non-renewable cultural resources, such as archaeological sites and historic structures, are affected. Section 106 requires that federal agencies take account of the effects on historic properties for projects that they finance, permit, or own.

Section 106 covers significant cultural properties. Significant properties are sites that are listed on the National Register of Historic Places, have been determined to be eligible for such listing, or are eligible for listing but have not yet been evaluated or perhaps even identified.

Under the EIS/NFHCP process, the Services are the lead agencies with respect to cultural resources evaluations and satisfying Section 106 requirements. The Services are responsible for making sure that this NFHCP does not adversely affect cultural resources until the State Historic Preservation Officers, Advisory Council

on Historic Preservation, and other interested parties have had an opportunity to comment.

Tribal Trust

A unique relationship exists between the United States and Native American tribes, as defined by treaties, executive orders, statutes, court decisions, and the United States Constitution. This relationship differentiates tribes from other entities that deal with, or are affected by, the federal government.

Native American tribes are recognized under federal law as separate sovereigns with governmental rights over their lands and people. These governmental rights and authorities extend to natural resources that are reserved by or protected in treaties, executive orders, and federal statutes. These reserved rights may include off-reservation rights to hunt, fish, or gather trust resources. The federal government has a trust obligation and a legally enforceable obligation to preserve and protect these rights and authorities.

During HCP negotiations with non-federal landowners, the Services must consider whether proposed plans and actions might affect tribal rights to trust resources. Whenever the Services have a reasonable basis for concluding that such effects might occur, they must notify the affected tribes and consult, government to government, in a meaningful way and timely manner. The following steps are required to assure that tribal interests have an opportunity for input to the HCP process:

1. The Services will contact potentially affected tribes in the HCP Project Area upon receiving notice that the

applicant will seriously pursue a Permit.

2. Early in the process, the Services will solicit scientific data, management information, and traditional knowledge from tribal biologists and historians for HCP development.
3. If the tribes are not an active partner in HCP development, the Services must provide periodic updates to the tribes. If the draft HCP does not address the strategies suggested by the tribes relative to tribal trust resources or the exercise of tribal rights, the Services will continue to make the applicant aware of tribal concerns.
4. Throughout HCP development, the Services will recommend that the applicant incorporate measures into the HCP that will adequately protect and enhance tribal trust resources.

By following these steps, the Services will assure that the best available scientific and commercial data about tribal lands will be incorporated into the HCP planning process. In addition, close coordination with the tribes could potentially prevent conflicts between the tribes' rights and the applicant's economic goals. During HCP development, the Services have a responsibility to advocate for provisions that eliminate or minimize the diminishment of tribal trust resources. The Services will also proactively advocate the incorporation of measures that could restore or enhance tribal trust resources. Prior to releasing the EIS/NFHCP for public comment, the Services will consult with the affected tribes to evaluate the potential effects of the proposed HCP on tribal trust resources, and will provide this information to the applicant for incorporation into the HCP.

1.5.2 State Regulations

Plum Creek's timber harvest-related management activities require the notification or approval of appropriate state regulatory agencies in Montana, Idaho, and Washington. Activities covered in this EIS/NFHCP must therefore comply with applicable state regulations. State-based rules and regulations provide the foundation for protecting water resources and salmonid habitat on Plum Creek's lands within the Project and Planning Areas. Prominent among these rules and regulations are the Montana Best Management Practices for Forestry, Montana Streamside Management Zone Act, Idaho Forest Practices Act, and Washington Forest Practices Act. These state regulations are summarized below. Activities along lakes and modification of streambeds, channels, and banks are also regulated through review and permit processes administered by each state. These and other state forest management rules and regulations are listed in Chapter 3 under the No Action Alternative (Existing Regulations). Three state-based bull trout restoration and aquatic habitat management programs are also summarized below, including the Montana Bull Trout Restoration Plan, Idaho Bull Trout Plan, and Washington Forestry and Fish (formerly Timber, Fish, and Wildlife) Agreement.

Montana

Montana Best Management Practices for Forestry. In 1987, Montana adopted a set of voluntary BMPs for forestry activities (Montana Division of Health and Environmental Sciences [MDHES] 1987). EPA subsequently approved these BMPs as part of Montana's nonpoint source program for protecting water quality.

Although Montana's BMPs are "voluntary," they must be implemented to avoid project-level review under Montana's non-degradation law. Montana's BMPs for forestry include guidance for minimizing soil and water quality impacts associated with over 80 forest practices, such as providing energy dissipaters at culvert outlets and stabilizing erodible soils through seeding and mulching. To evaluate statewide compliance with BMPs, the Montana Department of Environmental Quality has funded biannual audits since 1988. The Montana Department of Natural Resources and Conservation (MDNRC) coordinates these audits. Three audit teams survey compliance with BMPs and their general effectiveness on about 40 recently harvested sites throughout the state. These include sites on federal, industrial private, non-industrial private, and state lands. In the most recent audit (Fortunate et al. 1998), statewide compliance averaged 94 percent.

Montana Streamside Management Zone Act.

In 1991, the Montana legislature passed the Montana Streamside Management Zone (MSMZ) Act (Montana Codes Annotated [MCA] 77-5-301, ARM 26.6.601), which mandates a 50- to 100-foot-wide zone around streams, lakes, and other water bodies where timber harvest practices are regulated. In 1993, rules were adopted to implement the MSMZ law. This law and its rules are administered and enforced by MDNRC. Specific restrictions within MSMZs deal with timber harvesting, broadcast burning, equipment operation, road construction, sidecasting road material, slash deposition, and handling hazardous or toxic materials.

Montana Bull Trout Restoration Plan.

Montana's Bull Trout Roundtable was convened in 1993 to review the status and discuss options to maintain and restore bull trout in Montana. A Restoration Team consisting of representatives from federal and state agencies, Native American tribes, the private timber industry, and environmental groups was appointed to develop a Restoration Plan for bull trout in Montana. A Draft Restoration Plan was distributed to the public for review and public meetings were held in January 1999. The Restoration Plan contains statewide restoration goals and objectives that were developed from technical reports on issues pertaining to bull trout restoration. The Restoration Plan is intended to serve as the basis for the Montana portion of a federal recovery plan for bull trout. A Final Restoration Plan is scheduled for release by spring 2000.

Idaho

Idaho Forest Practices Act. The Idaho Forest Practices Act (IFPA, Title 38, Chapter 13, Idaho Code, Idaho Administrative Procedures Act [IDAPA] 20.15) and the implementing forest practices rules and regulations govern forest practices on private lands in Idaho. Administered and enforced by the Idaho Department of Lands (IDL), the IFPA addresses forest practices such as road building, timber harvest, reforestation, and streamside protection. Idaho Streamside Protection Zones (ISPZ) vary from 30 feet wide (non-fish bearing) to 75 feet wide (fish-bearing) on each side of streams. Idaho rules require that trees of specific sizes be retained in the ISPZ to provide an adequate source for large woody debris. In addition, requirements are often more stringent along streams designated as Stream

Segments of Concern as part of Idaho's anti-degradation program. Many bull trout streams in Idaho are designated as Stream Segments of Concern and these more stringent requirements apply. In 1991, the Idaho legislature amended the IFPA, directing IDL to evaluate alternatives for controlling the cumulative effects of forest practices on the aquatic environment. As a result, the Forest Practices Cumulative Watershed Effects Process for Idaho (IDL 1995) was developed and is being finalized by the Idaho Forest Practices Act Advisory Committee and the Idaho Land Board for inclusion in the IFPA. Similar to Washington's watershed analysis program, the process is designed to identify areas of resource sensitivity, such as landslide-prone areas, and to develop special management prescriptions that are more restrictive than the normal forest practices rules.

Idaho Bull Trout Plan. The Idaho Bull Trout Conservation Plan, completed in 1996, is directed at maintaining or restoring complex interacting groups of bull trout populations throughout their native range in Idaho. Goals of this plan are as follows:

- Maintain the condition of existing critical bull trout habitat
- Measurably improve the status, abundance, and habitat of bull trout
- Achieve stable or increasing bull trout populations over a range of watersheds
- Achieve bull trout goals while providing economic viability for Idaho's industries

The Idaho Bull Trout Plan uses Basin and Watershed Advisory Groups to address problems in water quality limited stream segments and to provide locally developed watershed-specific plans to maintain or increase bull trout populations.

Washington

Washington Forest Practices Act. The Washington Forest Practices Act (Revised Code of Washington [RCW] 76.09, Washington Administrative Code [WAC] 222-08) and the implementing Forest Practices Rules and Regulations are the state's principal means of regulating activities on state and private forest lands in Washington. Administered and enforced by the Washington Department of Natural Resources (WDNR), the forest practices rules and regulations address most issues of concern on forested lands, including harvest practices, regeneration, road construction, and the protection of other public resources such as water quality, fisheries, and wildlife. All harvest activities on state and private forest lands require a Forest Practices Notification of Approval from WDNR. Issuance of this approval depends on compliance with the Forest Practices Act and regulations. Most or all provisions within the forest practices rules and regulations ultimately influence fish and wildlife habitat by regulating how and when certain activities may take place on private forest lands. Washington's forest practice regulations are among the most stringent in the nation.

Included in the Washington Forest Practices Act is a provision for voluntarily initiating watershed analysis. Watershed analysis is a systematic procedure to assess local processes within a watershed and provide information for developing management guidelines that protect and

restore aquatic and riparian habitat. A key component of watershed analysis is monitoring to assess the effectiveness of prescriptions developed using the procedure. A detailed description of recommended watershed analysis methods is presented in the Washington Forest Practices Board (WFPB) Manual: Standard Methodology for Conducting Watershed Analysis, Version 4.0 (WFPB 1997b).

Washington Forestry and Fish (formerly Timber, Fish, and Wildlife)

Agreement. The Timber, Fish, and Wildlife (TFW) Agreement is a distinguishing feature of the forest land management system in the State of Washington. It was developed in 1987 by four caucuses: Native American Indian tribes, state agencies, the private timber industry, and environmental groups. The TFW created a process for cooperative management of public and private natural resources at the local, regional, and statewide levels, based on adaptive management and technical information. Since its inception, TFW participants have contributed to the continuous improvement of BMPs around the state using information gathered through cooperative research and monitoring projects. More than \$15 million of state, tribal, and private funds have been spent on these projects. The products of these efforts are a variety of management tools, including a cumulative effects assessment and watershed analyses that are being used to comprehensively evaluate and revise forest practice rules and regulations.

To respond to the numerous ESA listings of salmon and CWA listings of water quality limited streams, the TFW

caucuses, along with FWS, NMFS, and EPA, joined to draft the *Forests and Fish Report* (FWS et al. 1999). This report represents recommendations for the development and implementation of rules, statutes, and programs designed to develop biologically sound and economically practical solutions that improve and protect riparian habitat on non-federal forest lands in Washington. The goals are as follows:

1. Provide compliance with the ESA for aquatic and riparian-dependent species on non-federal forest lands
2. Restore and maintain riparian habitat on non-federal forest lands to support a harvestable supply of fish
3. Meet the requirements of the CWA for water quality on non-federal forest lands
4. Keep the timber industry economically viable in the State of Washington

The Forests and Fish Report was implemented on March 20, 2000, by authorizing legislation passed in the Special Session of the 1999 Washington Legislature (ESHB 2091). ESHB 2091 directs that protection for salmonids using prescriptions outlined in the Forests and Fish Report be implemented immediately through emergency rulemaking, followed by permanent rulemaking required to be promulgated by June 2001. Prescriptions contained in the Forests and Fish Report comprise the new emergency Washington State Forest Practice Rules now in effect.

1.5.3 Aquatic Habitat Protection Programs

The U.S. Forest Service and Plum Creek have developed a variety of programs to protect aquatic habitat on lands each manages within the Planning Area. The purposes and implementation of these programs are discussed below. Additional information on land management programs within the Planning Area is provided in Chapter 2, Section 2.3, *Land Management within the Planning Area*.

Forest Service

The U.S. Forest Service (FS) is the single largest land manager in river basins within the Planning Area, managing almost 9 million of the 16.5 million acres in the Planning Area. Eight National Forests are represented in the 15 Planning Area basins where Plum Creek has operations. Given the extent of overlap between FS-managed lands and the range of bull trout, federal aquatic resource protection programs are essential for determining the future status of bull trout populations in these areas. The FS's program for protecting water quality for bull trout and the other Permit species has three major elements:

1. Implement conservative aquatic resource protection strategies to address the needs of bull trout and other at-risk stocks of native salmonids
2. Implement BMPs
3. Conduct project-level environmental reviews

FS programs to protect aquatic habitat within each of these three major elements are described briefly below.

Aquatic Conservation Strategies

Northwest Forest Plan. A recent federal interagency aquatic conservation strategy (ACS) was developed by the Forest Ecosystem Management Assessment Team (FEMAT) for the Northwest Forest Plan, which directs federal land management within the range of the northern spotted owl (FEMAT 1993). The ACS attempts to restore and maintain the ecological health of watersheds, and was designed to provide a scientific basis for protecting aquatic ecosystems and enabling sustainable resource management (USDA and USDI 1994b). However, Riparian Reserves also are designed to provide for dispersal habitat for certain terrestrial species and other terrestrial ecosystem functions. Late-successional reserves are an important component of the ACS. The standards and guidelines under which late-successional reserves are managed provide increased protection for all stream types (USDA and USDI 1994b). Streams, rivers, lakes, ponds, and wetlands within these reserves may be particularly important for endemic or locally distributed fish stocks. The following four components of the ACS are described below:

- Riparian Reserves
- Key Watersheds
- Watershed Analysis
- Watershed Restoration

Riparian Reserves. These are portions of watersheds on federal lands where riparian-dependent resources receive emphasis. Riparian Reserves include those portions of a watershed directly coupled to streams and rivers, which are required for maintaining hydrologic, geomorphic, and ecological processes that directly affect standing and flowing water bodies.

Riparian Reserves are intended to improve water quality by preventing sediment from reaching streams, maintaining stream temperatures by providing shade, and supplying large woody debris to maintain invertebrate and vertebrate habitat within streams. Interim management standards for Riparian Reserves vary in width according to type of water body (for example, fish-bearing streams, permanently flowing non-fish bearing streams, seasonally flowing or intermittent streams), and are at least some fraction of a site-potential tree height or a prescribed slope distance (USDA and USDI 1994b). The interim riparian widths are to be adjusted, if necessary, through site-specific analyses based on local data.

Key Watersheds. There are 164 Key Watersheds throughout the range of the spotted owl that provide or are expected to provide high-quality habitat. Under the Northwest Forest Plan's ACS, there are 143 Tier 1 and 21 Tier 2 Key Watersheds. Tier 1 Key Watersheds contribute directly to conservation of at-risk anadromous (ocean-going) salmonids, bull trout, and other resident fish species. They also have a high potential for restoration as part of a watershed restoration program. Tier 1 Key Watersheds were identified previously by the FEMAT Scientific Panel on Late-Successional Forest Ecosystems, and in the FEMAT Scientific Analysis Team Report (1993). The 143 Tier 1 Key Watersheds provide areas that may be crucial for maintaining and recovering habitat for at-risk stocks of anadromous salmonids and resident fish species. Although they may not contain at-risk fish stocks, the 21 widely distributed Tier 2 Key Watersheds are important sources of high-quality water. Long-term management within Key Watersheds on federal lands requires watershed analysis prior to

resource management activity. For example, timber harvest, including salvage, cannot occur in Key Watersheds on federal lands without a watershed analysis.

Approximately 33 percent (8.1 million acres) of all federal lands within the range of the spotted owl are included among the Tier 1 Key Watersheds. About 4 percent (1 million acres) of all federal lands within the range of the spotted owl are included among the Tier 2 Key Watersheds. Tier 1 watersheds inhabited by bull trout that are near Plum Creek's Washington lands are as follows: Box Canyon Creek, upper Cle Elum River, Naches River, and upper Lewis River. No Tier 2 watersheds with bull trout occur near Plum Creek lands.

Watershed Analysis. Watershed analysis is a systematic procedure for developing management prescriptions and monitoring programs, setting and refining Riparian Reserve boundaries, and developing restoration strategies. It is the primary analytical basis for changing Riparian Reserves in all affected watersheds.

Watershed Restoration. Watershed restoration activities have three primary purposes. First, they focus on removing and upgrading roads. Second, they involve silvicultural treatments that may be used to restore large conifers in Riparian Reserves. Finally, they restore channel complexity, in part through installation of instream structures.

Pacific Anadromous Fish Strategy (PACFISH). Subsequent to development of the Northwest Forest Plan's ACS, the FS and Bureau of Land Management (BLM) jointly developed a strategy for lands they manage within the range of Pacific anadromous salmonids. This strategy,

called the Interim Strategy for Managing Pacific Anadromous Fish-Producing Waters in Eastern Oregon and Washington, Idaho, and portions of California (PACFISH, USDA and USDI 1995b), established Riparian Habitat Conservation Areas, Priority Watersheds, Riparian Management Objectives, and Standards and Guidelines for activities affecting riparian areas and fish habitat. It is an interim strategy intended to halt further degradation of anadromous fish habitat on federal lands until a long-term management direction is developed through the Interior Columbia Basin Management Project (ICBEMP).

Inland Native Fish Strategy. More recently, the Inland Native Fish Strategy (INFISH) was created to cover the range of native, non-anadromous (resident) salmonids in the interior Columbia River Basin on National Forest lands (USDA 1995). INFISH was implemented as an interim strategy until long-term management direction could be developed through the Interior Columbia Basin Ecosystem Management Project (ICBEMP) EISs. Like the Northwest Forest Plan and PACFISH, INFISH approaches aquatic protection by defining Standards and Guidelines for a variety of resource activities within Riparian Habitat Conservation Areas to achieve compliance with specified Riparian Management Objectives. It also established 5.7 million acres of Priority Bull Trout Watersheds (USDA 1995a).

Interior Columbia Basin Ecosystem Management Project. Broad-scale, science-based management direction for lands administered by the FS and BLM in the interior Columbia River Basin is under development through the ICBEMP. A refined strategy is being formulated to

respond to public and agency comments on two draft EISs. It is uncertain what form final decisions would take, and how they would match site-specific plans.

Road Building Moratorium. On March 1, 1999, the FS adopted an interim rule that establishes an 18-month moratorium on new road construction in unroaded areas in most National Forests. While the suspension is in effect, the FS will develop a long-term road policy for the National Forest Transportation System. The goal of the new road policy will be to minimize environmental damage, guide decisions on identifying non-essential roads, recommend roads to be eliminated or maintained to reduce environmental damage, and assess roads that need to be reconstructed and maintained so they are safe and can sustain constant public use. The long-term plan reached by the FS could affect Plum Creek timber harvest activities on FS land.

Best Management Practices. The FS's water quality protection strategy relies on Forest Plan Standards and Guidelines that specify BMPs that meet or exceed state standards. This includes meeting or exceeding requirements of various forest practices acts and streamside protection laws. As part of Montana's audit of BMP compliance, the FS was found to achieve compliance levels higher than the state-wide average (Fortunate et al. 1998).

Project-Level Environmental Review. As required by NEPA, the FS must conduct an environmental review of FS projects that might affect water quality and fish and must evaluate impacts of various alternatives before deciding whether to proceed. The public has an opportunity to review and comment on these analyses and decisions.

Plum Creek

By implementing the Northwest Forest Plan, PACFISH, and INFISH aquatic protection strategies, the FS is following a path of relatively conservative, lower-risk management of their lands, particularly riparian areas. Land management programs on private lands, including those owned by Plum Creek, can provide additional benefits to native salmonids. This section discusses Plum Creek's current forest management practices for protecting water quality and native salmonid habitat.

According to Plum Creek, they currently implement forest management practices that meet or exceed state standard rules and regulations for protecting water quality and bull trout habitat through a number of internal Company policies and implementation programs. The following sections summarize Plum Creek's Environmental Principles, watershed analysis, Pilot Landscape Management Projects, grazing BMPs, road management, land use planning, grizzly bear BMPs, and Swan Valley Grizzly Bear Conservation Agreement. Plum Creek's internal policies are subject to change at any time. However, some of these policies are proposed as part of the NFHCP. Therefore, if a Permit is awarded, these policies would be mandated for the 30-year Permit period.

Environmental Principles. In 1991, Plum Creek adopted a set of Environmental Principles for forest management activities. These principles guide how Plum Creek responds to public concerns about water and air quality, wildlife, and ecological diversity. As part of this program, Plum Creek rewards employees who follow the Environmental

Principles in their work. Nine of the 11 Environmental Principles directly or indirectly relate to water quality and fish habitat protection, as follows:

- **Sustainable Forest Management**—Manage forests in a sustainable, socially and environmentally responsible, and economical manner.
- **Ecological and Structural Diversity**—Enhance ecological and structural diversity where feasible using silvicultural techniques to retain diverse vegetation and structures.
- **Water Quality**—Meet or exceed state and federal standards by employing BMPs, including riparian buffers, to protect water quality and aquatic resources.
- **Reforestation**—Ensure forest growth and productivity by reforesting harvested areas within 2 years in the Cascades Region and 5 years in the Rocky Mountain Region.
- **Soil Conservation**—Maintain soil and site productivity by minimizing soil disturbance and recycling harvest residues.
- **Fish and Wildlife Resources**—Conserve fish and wildlife resources by managing road access and timber harvest, and by cooperating with fish and wildlife agencies.
- **Adjacent Land Management**—Cooperate with adjacent landowners to minimize potential impacts of forest management.
- **Research and Development**—Apply new information to improve silvicultural practices and enhance

environmental and financial performance.

- **Performance Audits**—Conduct regular performance audits to ensure that environmental commitments have been met or exceeded.

In 1996, Plum Creek worked with Price Waterhouse’s World Forestry Industry Group to develop an audit program for the Environmental Principles. Full-scale audits were conducted on the Yakima and Flathead Units in 1996 and on the Puget Sound, Columbia River, and Clearwater Units in 1997. Results have been used to refine the auditing process and correct problems identified in the field.

Sustainable Forestry Initiative. Since 1997, Plum Creek has adhered to the American Forest and Paper Association’s Sustainable Forestry Initiative (SFI). SFI is based upon five principles of sustainable forestry and includes specifications for logger training both for loggers working on member companies’ own timberlands as well as those working on other lands that produce logs for member companies’ mills. Plum Creek is one of the few participants in SFI that has submitted to a voluntary verification process through the use of third-party auditing.

Watershed Analysis. As discussed in Section 1.5.2, *State Regulations*, the Washington Forest Practices Act allows landowners to initiate scientific analysis of individual watersheds. The product is a set of new forest practice rules tailored to the unique hazards and vulnerabilities of a given watershed. Plum Creek has conducted watershed analyses since 1993, having completed four in the Cascades Region with seven more in various stages

of completion. In the Rocky Mountain Region, Plum Creek has conducted Washington-style watershed analyses in the Swan River Basin (Goat/Squeezer and Piper Creeks) and the Thompson River Basin (Beatrice, Boiling Springs, and Murr Creeks). Some of these analyses are described in Plum Creek's Technical Reports (see Chapter 2, Section 2.1.1, *Data Sources*).

Pilot Landscape Management

Projects. In 1995, Plum Creek initiated Pilot Landscape Management Projects to develop and assess the potential for applying an ecosystem-based approach to forest management in the Northern Rockies. The selected study areas contain multiple ownerships, with varying amounts of Plum Creek land within each. The Pilot Landscape Management Projects will provide a basis for evaluating the contribution of commercial forestlands to the conservation of public resources, such as wildlife, water quality, and fisheries. Some of these projects have been completed and are described in Plum Creek's Technical Reports (see Chapter 2, Section 2.1.1, *Data Sources*).

Grazing Best Management Practices.

In 1995, Plum Creek developed grazing BMPs for 764,560 acres of their lands within livestock grazing leases or allotments in the Project Area (Plum Creek 1999c). These BMPs contain performance standards for grazing allotments, including criteria for minimum acceptable streambank stability, riparian disturbance, and grass and shrub use. Each lessee must submit a range management plan for Plum Creek's approval prior to livestock turnout. The plan is developed in consultation with a Plum Creek range-management specialist or forester, and provides details about how the lessee will

comply with Plum Creek performance standards. Twice each summer, the lessee monitors riparian conditions at several locations in the grazing allotment as agreed to by the lease administrator.

Road Management Policy. Plum Creek manages about 20,000 miles of roads in the Project Area. These roads are used by Plum Creek for land management activities and by the public for recreation. Roads can be a source of erosion, particularly if improperly used or maintained. Plum Creek has found that unrestricted use of its roads can create severe erosion problems detrimental to water quality and aquatic habitat for species such as bull trout. Erosion problems, and concerns over wildlife security and road maintenance costs, have prompted Plum Creek to restrict thousands of miles of roads from public motor vehicle use (by using gates, barricades, and earth berms) during the last 10 years. Road restrictions and implementation of BMPs may benefit native salmonids by reducing erosion and sediment delivery to streams, and possibly by reducing fishing pressure and illegal harvest in areas where closed roads make access more difficult.

Because roads often cross multiple ownerships, Plum Creek has participated in the Montana Road Management Cooperative (MRMC) since 1991. Members of this cooperative include the FS, BLM, Montana Department of Fish, Wildlife, and Parks (MDFWP), Montana Department of State Lands (MDSL), and Plum Creek. The MRMC developed consistent signage for displaying road use or closure status to the public for forest roads in western Montana. The MRMC also provides a forum for preparing public

education programs that promote the benefits of proper road use for the protection of water quality, fish habitat, and wildlife security. Similar road management programs are in effect for Plum Creek lands in Idaho and Washington.

Land Use Planning. In 1994, Plum Creek established a plan to identify and evaluate lands that may have other values significantly higher than timber values, with the objective to sell or exchange such lands over time. Plum Creek identified approximately 110,000 acres of such lands in Montana for evaluation. To guide this process, Plum Creek adopted several Land Use Principles in 1995 designed to complement the company's Environmental Principles. Plum Creek's key Land Use Principles related to aquatic conservation are as follows:

- Support comprehensive land use planning to establish certainty and predictability in the land use process and protect community values while accommodating sensible development.
- Work with other landowners and community members to understand and address land-use-related issues and potential impacts.
- Encourage consideration of innovative land uses that lead to environmentally responsible development.
- Meet, and when appropriate, exceed local, state, and federal standards to protect air and water quality, and fisheries and wildlife habitat.
- Encourage and support productive natural resource management and responsible development consistent

with sound land use and environmental principles.

One method to implement these Land Use Principles has been to seek conservation buyers for lands with high conservation value. Plum Creek has also used land exchange as a tool to transfer special areas to public ownership for protection. Two examples of recent land exchanges that put bull trout habitat into public ownership are the Elk Creek exchange in the Swan River Valley and the Fly/Mosquito exchange in the Upper St. Joe River drainage. In both examples, Plum Creek traded undeveloped or lightly developed lands with high quality bull trout habitat into public ownership in exchange for other lands more suitable for timber management with low risk of impacts to bull trout.

Grizzly Bear Best Management

Practices. To meet ESA requirements, Plum Creek employs BMPs within all grizzly bear habitat on their lands. These BMPs were developed by Plum Creek biologists based on the scientific literature and have been peer reviewed by experts in grizzly bear ecology. Plum Creek biologists annually audit management operations within occupied grizzly bear habitat to ensure the BMPs are consistently applied throughout their ownership. The grizzly bear BMPs include the following key points:

1. **Open Road Density**—Generally maintain an open road density of 1 mile per square mile or less, calculated on analysis areas 5,000 to 15,000 acres in size.
2. **Road Location**—Locate roads away from preferred bear habitat types.

3. **Cover**—Maintain a minimum of 40 percent of third order watersheds in vegetative cover, with minimum diameter of cover blocks adjacent to openings of three sight distances. Distribute cover throughout the watershed, optimally in and adjacent to preferred habitats and adjacent to open roads.
4. **Size of Openings**—Establish clearcut and seedtree units so that no point in the unit is more than 600 feet from effective hiding cover.
5. **Timing of Operations**—Conduct activities at times of the year when the area is least biologically important to grizzly bears.
6. **Riparian Habitats**—Maintain forage for bears while retaining cover values using uneven-aged harvest techniques.

Swan Valley Grizzly Bear

Conservation Agreement. Plum Creek’s strategy for protecting grizzly bears also involves conservation planning with the federal government and State of Montana. In 1995, Plum Creek, MDSL, FS, and FWS signed an agreement for grizzly bear conservation in the Swan Valley, Montana. The agreement encompasses 369,299 acres, of which 82,718 acres (22 percent) are managed by Plum Creek. Beyond benefits to grizzly bears, the agreement also benefits water quality and fish habitat in the Swan River Basin through the following:

1. Reducing the miles of roads that are open to public vehicle use, thus reducing potential sediment delivery to streams.
2. Maintaining cover in riparian areas, thereby providing a wider stream

buffer for sediment filtration, stream shading, LWD recruitment, and bank stability.

3. Maintaining cover around wetlands, potholes, and wet depressions, which generally benefits aquatic resources in the Swan Basin.
4. Rotating timber harvesting activities in the Swan Basin, which allows revegetation of roads and reduced sediment delivery to streams.

Cascades Habitat Conservation Plan.

In 1996, Plum Creek signed a multi-species HCP agreement with the federal government that covers 170,000 acres of Plum Creek lands, 23 watersheds, and 12,000 acres of riparian and wetland habitat in the central Cascade Mountains of Washington. This HCP was recently amended to include bull trout as a listed species covered by the Incidental Take Permit. Under the HCP, Plum Creek has committed to a strict yet flexible 50-year ecosystem management strategy that will protect five listed vertebrate species and 280 others. For aquatic organisms (fish), riparian-dependent wildlife (amphibians), and other sensitive wildlife, emphasis is placed on managing riparian buffers and special habitats such as wetlands. This results in greater protection than would be afforded by watershed analysis prescriptions where the principal focus is fish and water quality. Key points of the riparian management strategy include the following:

- 200 feet (horizontal distance) Riparian Habitat Area along each side of perennial, fish-bearing streams. Fish-bearing streams are defined according to the state’s revised water typing system (WFPB 1996.)

- No commercial harvest allowed within 30 feet (horizontal distance) of streams.
- Manage the remainder of the Riparian Habitat Area to provide LWD, maintain late successional forest structure, accommodate channel migration, and provide slope stability. Maintain forest conditions to provide, at a minimum, spotted owl feeding and dispersal habitat as defined by Hicks and Stabins (1995).
- 100 feet (horizontal distance) Riparian Habitat Area along each side of perennial, non fish-bearing streams.
- No ground-based equipment allowed within 30 feet (horizontal distance) of streams.
- Manage the remainder of the Riparian Habitat Area to protect downstream fish habitat, water quality, habitat for other aquatic and riparian-dependent wildlife species such as frogs and salamanders, and spotted owl feeding and dispersal habitat.

1.6 Public Information and Involvement

1.6.1 Summary of Actions and Events

Public scoping was conducted to help the Services determine what issues would be addressed in Plum Creek's proposed NFHCP and in the EIS, and the range of alternatives to be considered in the EIS. Scoping also helped focus the level and direction of analysis and the types of data that would be required for assessing potential impacts. Table 1.6-1 summarizes Plum Creek's and the Services' efforts to involve the public during the information-gathering and scoping phase of the HCP and EIS process. The scoping and public involvement process are documented in the *Scoping Report for the Plum Creek Timber Company Aquatic Habitat Conservation Plan*, which can be reviewed on the Internet at the FWS's site (<http://www.fws.gov/r1srbo/srbo/plumck.htm>) or at Plum Creek's site (<http://www.plumcreek.com>).

TABLE 1.6-1
Public Information and Involvement Tasks and Results

Tasks	Results
Pre-Scoping Public Involvement Meetings	39 meetings (October 1997-January 1998)
Notice of Intent Published in Federal Register	December 12, 1997 (62 FR 239:65437-65439)
Public Scoping Meetings	6 meetings, 108 people (December 12, 1997-February 27, 1998)
Oral Comments Received	134
Written Comments Received	397
Scoping Report Available to Public	July 28, 1998

1.6.2 NEPA Pre-Scoping and Scoping Meetings

The Services and Plum Creek held a total of 39 meetings with interested public and private groups between October 1997 and January 1998, prior to the Services' formal initiation of public scoping. Meeting objectives were to inform the public about Plum Creek's proposed NFHCP and to answer questions or respond to concerns raised by the public. Comments received during this period were considered by Plum Creek during their refinement of the proposed NFHCP.

During the early planning stage and development of Plum Creek's NFHCP, Plum Creek produced a total of 13 Technical Reports intended to serve as supporting documentation for the NFHCP. These Technical Reports were distributed for scientific peer review, involving a total of approximately 30 scientists and technical specialists. Subsequent to their being finalized, Plum Creek made copies of those Technical Reports available to interested parties. Appendix B contains Executive Summaries for the 13 Technical Reports and 4 white papers.

Formal public scoping was initiated on December 12, 1997, when the Services published a Notice of Intent to prepare an EIS and announcement of scoping meetings in the Federal Register (FR 1997c). The Notice of Intent provided information on the background and purpose of the proposed NFHCP, requested public comment on the proposed NFHCP, and provided information on the public scoping meetings.

What Does Public Involvement Mean?

Public information and involvement is an important part of the EIS/NFHCP process. NEPA requires a scoping process to gather public input in the early stages of project development. This process is intended to start two-way communication: the public learns Plum Creek's intentions, and the Services and Plum Creek learn what issues are important to the public. This section describes the public involvement process leading to the publication of the DEIS.

The Services issued announcements to local media services at least 3 weeks prior to meeting dates in each area describing when and where each scoping meeting would be held. Plum Creek purchased radio advertisements with appropriate radio stations serving each market in which meetings were held, starting at least 2 days previous to each meeting. In addition, Plum Creek and the Services contacted many persons and organizations directly, either by phone or by electronic mail, to announce scoping meeting dates, times, and locations.

Six scoping meetings were held throughout the Planning Area during January 1998 as follows:

- Libby, Montana, on January 14
- Kalispell, Montana, on January 15
- Coeur d'Alene, Idaho, on January 21
- Missoula, Montana, on January 22
- Kelso, Washington, on January 28
- Yakima, Washington, on January 29

Each meeting ran from 3:30 p.m. to 7:30 p.m. Scoping comments were requested from the public by February 27, 1998, which was 30 days following the

Yakima meeting. However, comments received after that date but prior to publication of the DEIS in December 1999 were considered in the EIS alternatives analysis and impact assessment.

Scoping meetings were conducted using an “open-house, drop-in” format. The public was greeted on arrival and asked to sign an attendance record form, listing their name, address, affiliation, if any, and whether they would like to receive a copy of the DEIS. Each guest was also given a comment form on arrival and asked to list any issues or concerns they would like addressed in the DEIS. The public was asked to complete and return the form upon leaving the meeting or to complete the form later and return it to the FWS by February 27, 1998.

The scoping meetings served a dual purpose of information sharing and identification of key issues of concern. Meeting hosts answered questions regarding the proposed NFHCP and the general planning process, the Services’ roles and responsibilities, organization of project teams, and progress made to date in data collection and strategy development. Two flip charts were used to record comments, issues, and concerns identified by the public while visiting with scoping meeting hosts.

Various materials were available for public review at the scoping meetings. These included the following handouts:

- *Bull Trout and Aquatic Species Conservation Plan*, a fact sheet describing Plum Creek’s proposal
- Services’ *Notice of Intent*
- Services’ news release

- *Bull Trout Life History and Status*, a summary white paper
- *Steelhead Life History and Status*, a summary white paper
- Maps depicting land ownership and steelhead status and abundance in the Upper Columbia and Snake River Basins
- Federal Register announcement (FR 1997a) *Endangered and Threatened Species: Listing of Several Evolutionary Significant Units (ESUs) of West Coast Steelhead*
- *Habitat Conservation Planning and Incidental Take Permits*, a descriptive white paper
- Fish and Wildlife Service Brochure *Habitat Conservation Plans—The Quiet Revolution*
- Flowchart and description of public involvement in the habitat conservation planning process
- Plum Creek’s History
- Plum Creek’s Environmental Principles
- Plum Creek’s Land Use Principles
- Map of Planning Area and bull trout basins

Other materials available for public review included wall displays of the public involvement/habitat conservation planning process flowchart; Planning Area and bull trout basins map; and Plum Creek’s initial six proposed conservation categories, depicted using photographs and text. A

looping videotape describing the habitat conservation planning process, proposed conservation categories, bull trout habitat requirements, and Plum Creek’s research was shown throughout the meetings.

What are the Parts of an EIS?

An EIS must answer a myriad of questions about the impacts of a Proposed Action. This is a list of the categories addressed in an EIS:

- HCP Project Area, EIS Planning Area, and Land Use Designations
- Geology and Soils
- Water Resources and Hydrology
- Water Quality and Contaminants
- Fisheries and Aquatic Resources
- Vegetation Resources
- Wildlife Resources
- Land Use
- Recreation Resources
- Visual and Aesthetic Resources
- Cultural Resources
- Social Resources
- Economic Resources
- Air Quality
- Alternatives
- Public Review

A total of 531 separate comments were received from 141 individuals and organizations. A total of 134 separate comments were received orally from 108 individuals attending the six scoping meetings, including 12 individuals in Libby (22 comments); 29 in Kalispell (21 comments), 9 in Coeur d’Alene (11 comments), 26 in Missoula (61 comments), 4 in Kelso (2 comments), and 28 in Yakima (17 comments). In addition to comments received orally, a total of 397 separate comments were received in writing from 43 written sets of

comments, including 10 sets of comments left at the scoping meetings, and 33 sets of comments mailed to the Services. Comments were submitted by public agencies, Native American tribes, private conservation groups, private industry representatives, and other private individuals. Comments included both support for, and opposition to, the Proposed Action and the idea of the proposed NFHCP.

1.6.3 Issues Identified during Public Scoping

Public scoping meetings were held and written comments were received as part of the NEPA process to identify issues and concerns to be addressed in the DEIS. Comments by the public represented a wide range of views over many subject topics and varied from support for, to opposition to, pursuit of the HCP process and preparation of an EIS. Topics commented on most frequently included the following:

- Water quantity and quality
- Habitat quantity and quality
- Bull trout status, limiting factors, and recovery
- Ecosystem management
- The human environment
- Harvest methods and riparian buffer size
- Road management
- Livestock grazing

- Range of alternatives
- Impact assessment and cumulative impacts
- HCP duration, size of area, commitments, and content
- Adaptive management, no surprises, and monitoring
- Mitigation and conservation measures and their funding
- Landscape issues and multi-owner coordination
- Public involvement and peer review

Issues addressed in this EIS that were raised by the public are covered under each of the major EIS categories.

1.6.4 Consultation Following Public Scoping Meetings

Consultation and coordination with others following public scoping meetings, during the project planning phase, and throughout the preparation of the FEIS are described in detail in Chapter 6, *Coordination with Others*.