INTRODUCTION

The Environmental Assessment (EA) is a site specific analysis of potential environmental impacts that could result with the implementation of a proposed action. The EA assists the Agency in planning and in making a determination as to whether any "significant" impacts could result from proposed actions. This EA has been prepared for the Swiftwater Field Office's proposed **JOHNSON CREEK COMMERCIAL THINNING**. This proposal is in conformance with the *Final - Roseburg District Proposed Resources Management Plan / Environmental Impact Statement* (PRMP/EIS) dated October 1994 and its associated *Record of Decision and Resources Management Plan* (RMP) dated June 2, 1995. The RMP is supported by and consistent with the *Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old Growth Forest Related Species Within the Range of the Northern Spotted Owl* (FSEIS); dated Feb. 1994 and its associated *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* (ROD) and *Standards and Guidelines for Management of Habitat for Late-Successional and Old Growth Related Species Within the Range of the Northern Spotted Owl* (S&G) dated April 13, 1994 otherwise known as the "Northwest Forest Plan" (NFP). The ROD establishes management direction consisting of ". . . extensive standards and guidelines including land allocations, that comprise a comprehensive ecosystem management strategy" (ROD pg. 1).

The project described in this EA must support a "Finding of No Significant Impact" (FONSI) before this proposal can be referred for public review. A signed FONSI would find that no "significant" environmental impact (effect) would occur with the implementation of the proposed actions beyond those already addressed in the FSEIS when the project design features specified in this EA are followed. "Significance" has a strict National Environmental Protection Act (NEPA) definition and is found in regulation 40 CFR 1508.27. The FONSI documents the application of this definition of significance to the proposed action.

A Decision Document would be completed after public review to document the decision and reflect any changes as the result of public review, however, Forest Management Regulation 43 CFR 5003.2 states that “[w]hen a decision is made to conduct an advertised timber sale, the notice of such sale shall constitute the decision document.” This notice would be placed in *The News Review* and constitute a decision document with authority to proceed with the proposed action.

I. PURPOSE OF AND NEED FOR ACTION

This section provides a general overview of the proposed action. Included are: the need for the action, a general description and background of the proposal, the issues to be analyzed, and issues eliminated from detailed analysis in this EA.

A. Need for Action

The RMP and the ROD respond to dual needs: ". . . the need for a healthy forest ecosystem with habitat that will support populations of native species and includes protection for riparian areas and waters. . . and the need for a sustainable supply of timber and other forest products that will help maintain the stability of local and regional economies. . ." (RMP pg. 15, ROD, pg. 26). The Swiftwater Field Office proposes to offer the **Johnson Creek Commercial Thinning** for auction in fiscal year 1998 or later. This proposal would help meet the Swiftwater Field Office's annual harvest commitment or allowable sale quantity (ASQ).

The RMP also states that "Commercial thinnings are scheduled after developing stands reach a combination of stem diameter and surplus volume to permit an entry that is economical" (RMP, pg. 149). Silvicultural stand exams indicate that the stand identified in this project would benefit from a thinning at this time. The S&G's (pg. C-32) and the RMP (pg. 25) also permits silvicultural practices to ". . . acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy [ACS] objectives."

B. Description of the Proposal

The proposal is to harvest timber in the Smith River Watershed located in Sections 2, 9, 11 and 15; T21S R7W, W.M. (see maps, Appendix A through C). The proposed project area is approximately 30 road miles northwest of Drain and 37 air miles north northwest of Roseburg, Oregon. Approximately 380 acres were analyzed for potential harvest activities. New temporary road construction and renovation or improvement of existing roads would also occur. Section II (pg. 5) of this EA provides a more detailed description of the Proposed Action Alternative. This project is within the Matrix and Riparian Reserves Land Use Allocations (LUA). This project is also in a Key (Tier 1) Watershed.

The Matrix LUA is one of the seven allocations specified in the ROD. "Stands in the matrix can be managed for timber and other commodity production, and to perform an important role in maintaining biodiversity" (S&G, pg. B-6) by providing for biological legacies (snags, large woody debris and retention trees) that bridge past and future forests. The RMP further classifies the Matrix into two categories: the "General Forest Management Area" (GFMA); i.e. lands available for timber harvest and “Connectivity / Diversity" blocks i.e. lands that are available for timber harvest and provide connectivity between Late-Successional Reserves and Riparian Reserve.

The "Riparian Reserves [LUA] are portions of watersheds where riparian-dependent resources receive primary emphasis ..." (S&G, pg. B-12).

Three units (2A, 9A and 15B) contain study blocks that are a part of a laminated root rot study being conducted by the Pacific Northwest (PNW) Research Station. This study is described in “Study Plan - TDP Thinning / Phellinus”.

C. Background (Watershed Analysis)

The Johnson Creek Commercial Thinning project occurs across three drainages: Cleghorn Creek, Johnson Creek and Halfway Creek. These drainages are within the Middle and Upper Smith River Watershed Analysis Unit (WAU) which covers approximately 49,346 acres (77 square miles). Watershed analysis (WSA) for the Smith River Watershed was completed on October 31, 1995 and was used in this analysis and is available for public review at the Roseburg District office.

Current landscape patterns include natural stands that are the result of fire, managed stands established following timber harvest, and non-forested agricultural and pasture lands. Forest inventory data suggests that there are over 3000 acres within the WAU that would benefit from thinning immediately (Smith River WSA, pg. 30).

The RMP (pg. 34) requires that late-successional forests be retained in watersheds that comprise 15% or less late-successional forests on Federal lands in fifth field watersheds, i.e., watersheds between 20 and 200 square miles. Any timber stands greater than approximately 80 years of age are considered late-successional habitat (S&G, pg. B-2). For the Middle and Upper Smith River Analytical Watershed, analysis of current forest inventories shows that of the 30,594 acres of federal ownership (62% of the watershed), approximately 10,800 acres (35%) are late-successional forests (80 years or older). 3200 acres (10%) are greater than 200 years (Old Growth) (Smith River WSA, pg. 11). Two of the units are within a connectivity / diversity block (Section 2 and the adjacent section 35). The RMP (pg. 34) requires that 25 - 30% of each connectivity block be maintained in late-successional forest. Because the Proposed Action Alternative in this EA proposes to commercially thin timber stands that are 30 to 40 years of age there would be no change in the amount or percentage of late-successional type forests on federal lands within the Middle and Upper Smith River Watershed.

D. Objectives

1. For the Matrix portion:
   a. "Produce a sustainable supply of timber and other forest commodities " (RMP pg. 33) and meet District ASQ goals (GFMA). "Provide connectivity . . . between late-successional reserves" (RMP, pg. 33) (Connectivity).

   b. Improve stand health by reducing the excess stocking in the forest stand to increase the growth and vigor of the remaining individual trees.

2. For the Riparian Reserve portion:
   Accelerate the development of large conifers of various form and structure for large trees and future recruitment of coarse woody debris (CWD) within the Riparian Reserve in order to comply with the ACS objective #8 of 'restoring structural diversity of plant communities in riparian areas'.

3. For the laminated root rot study area:
PNW's long term objective is to learn how to rank the severity of the disease during stand exams and ways to treat the stand in order to manage the affect of the disease.

4. Implement ecosystem management as outlined in the ROD and RMP.
- avoid damage to riparian ecosystems and meet the objectives of the "Aquatic Conservation Strategy" (S&G, pg. B-11; RMP pg. 19)
- "Provide habitat for a variety of organisms associated with both late successional and younger forests." (RMP pg. 33)
- maintain "ecologically valuable structural components such as down logs, snags and large trees" (RMP pg. 33)
- improve and/or maintain soil productivity (RMP pg. 35)
- "Maintain or enhance the fisheries potential of the streams . . . " (RMP pg. 40)
- protect, manage and conserve all special status and Supplemental Environmental Impact Statement special attention species habitat (RMP pg. 41)

5. For the Key Watershed:
Reduce existing road mileage and pursue watershed restoration projects to conserve watershed conditions for at-risk anadromous salmonids and resident fish species.

E. <u>Decisions to be Made to Meet Proposal Objectives</u>

1. The Decision Maker (the Swiftwater Area Manager) will need to decide:
- if this analysis supports the signing of a FONSI.
- whether to select the Proposed Action Alternative, modify the Proposed Action Alternative, choose another alternative, or accept the No Action Alternative.

2. Consultation with the National Marine Fisheries Service (NMFS) will need to be completed for the Cutthroat trout (and Coho salmon if listed). This project may have to be altered as the result of consultation (See section V, para. A; pg. 13).

F. <u>Issues Considered but Eliminated from Detailed Analysis</u>

The Interdisciplinary (ID) Team identified the following concerns during project design. They were eliminated from further analysis because: (1) project design features (PDF's) were included in the Proposed Action Alternative to lessen the anticipated environmental impacts of specific activities, or (2) the impacts are within the limits addressed in the ROD/RMP. Section II, paragraph C (pg. 6) provides a list of specific PDF's incorporated into the preferred alternative to deal with these issues. These issues are summarized in Appendix D ("Scoping Summary") and addressed the Specialist's Reports in Appendix F.

1. Botany
   a. SEIS Special Status Plants
   b. Noxious weeds

2. Fisheries
   a. Road renovation impacts (Unit 2B)
   b. Some draws have slid out in Units 2A and 2B

3. Soils
   a. Soil compaction in the feller-buncher areas
   b. Areas of slope instability

4. Wildlife
   Prophysaon Coeruleum found in Unit 2B

"Critical Elements of the Human Environment" is a list of elements specified in BLM Handbook H-1790-1 that must be considered in all EA's. These are elements of the human environment subject to requirements specified in statute, regulation, or Executive Order. These elements are as follows:

1. Air Quality
2. Areas of Critical Environmental Concern (ACEC)
3. Cultural Resources
4. Environmental Justice
5. Farm Lands (prime or unique)
6. Floodplains
7. Native American Religious Concerns
8. Threatened or Endangered Species
9. Wastes, Hazardous or Solid
10. Water Quality, Drinking / Ground
11. Wetlands / Riparian Zones
12. Wild and Scenic Rivers
13. Wilderness

These resources or values (except item #8) were not identified as issues to be analyzed because: (1) the resource or value does not exist in the analysis area, (2) no site specific impacts were identified, or (3) the impacts were considered sufficiently mitigated through adherence to the S&G's therefore eliminating the element as an issue of concern. These issues are also briefly discussed in Appendix E ("Critical Elements of the Human Environment"). Item #8 is addressed in the Specialist's Reports (Appendix F) and through formal Endangered Species Act consultation with applicable Agencies.

G. <u>Issues to be Analyzed</u>

The ID Team identified the following concerns as having sufficient potential affect to warrant more detailed analysis and will be addressed in section IV, "Environmental Consequences" (pg. 7-12) as a key issue.

1. **Water Quality (road system in poor condition and contributing to sedimentation)**
2. **Reducing Road Density (Key Watershed)**

II. ALTERNATIVES INCLUDING THE PREFERRED ALTERNATIVE

This section describes the No Action and Proposed Action alternatives, and any alternatives considered but eliminated from analysis. These alternatives represent a range of reasonable potential actions. This section also discusses specific design features that would be implemented under the action alternatives. All action alternatives were designed to be in conformance with the RMP.

A. The No Action Alternative

The No Action Alternative is required by NEPA to provide a baseline for the comparison of the alternatives. This alternative represents the existing condition. If this alternative were selected there would be no harvesting of timber within the bounds of the project area. Harvest would, however, occur at another location within Matrix lands in order to meet harvest commitments. Silvicultural practices designed to meet ACS objectives would not be applied. Selection of this alternative would not constitute a decision to reallocate lands to non-commodity uses. Future harvesting in this area would not be precluded and could be analyzed under another EA.

B. The Action Alternatives

The ID Team considered two action alternatives:

Alternative A: Conventional Logging (Proposed Action) - Units would be logged with cable and ground based methods and existing roads would be fully upgraded to reduce water quality concerns and unneeded roads would be decommissioned.

Alternative B: Reduced Roading - This alternative is the same as alternative A, except Unit 2B would be dropped to eliminate the renovation of the 21-7-3.4 Road and its associated impacts to fisheries.

Implementation of the Proposed Action Alternative would result in the harvest of approximately 3.5 MMBF (million board feet) or 5150 CCF (hundred cubic feet) of the Swiftwater R.A's harvest commitment of 23.0 MMBF. A small amount of additional timber could potentially be included as a modification to this project. These additions would be limited to removal of individual trees or small groups of trees that are blown down, injured from logging, are a safety hazard, or are trees needed to facilitate the Proposed Action (ex. guyline and tailhold trees or trees too close to roads). In most cases these trees would be left on site as CWD and snags. Harvest activities would occur on seven units for 303 acres of commercial thinning harvest and five acres of road right-of-way clearcut. Other activities would include: temporary road construction, road renovation and improvement, subsoiling of previously compacted skid trails and road decommissioning.

Temporary **road construction** would occur on approximately 1.1 miles of public land. Approximately 10.9 miles of government road would have **road renovation** (restoring the road back to its original design) **and improvement** (improving the road beyond its original design). This would consist of installing or maintaining drainage structures (culverts and ditches), reshaping the road surface and surfacing selected segments with crushed rock. Road **decommissioning** - ". . . road segment . . . closed to vehicles on a long-term basis, but may be used again in the future. " (Transportation Management Plan [TMO], pg. 15) would be accomplished on 0.9 miles of Government road. Approximately 0.7 miles of Government road would have **full decommissioning** - "roads determined through an interdisciplinary process to have no future need . . ." (TMO, pg. 15)and obliterated (see pg. 6, para. 1b).

Timber harvest would consist of commercial thinning. **Commercial thinning** is designed to reduce the density of the forest stand in order to maintain stand vigor and increase wood quality, to promote increased growth on the remaining trees and recover wood fiber that would ordinarily be lost through natural mortality. **Density Management harvest** within the Riparian Reserves is designed to reduce the stocking of the forest stand in order that the growth of the remaining trees would be accelerated. This would accelerate the attainment of old growth forest characteristics by encouraging the development of larger trees more quickly.

The proposed action would require a mix of skyline cable logging (approximately 203 acres or 67%) and ground based (tractor) logging (approximately 100 acres or 33%). **Firewood cutting and salvaging** of logging debris (slash) could occur in landing cull decks. The firewood permit would address specific stipulations. **Subsoiling** would occur on old existing skid trails used under this action as well as any new trails created.

The **prescribed burning of slash** (burning under the direction of a written site specific prescription or "Burn Plan") in landing cull decks could occur as a means of reducing fire hazard.

C. Project Design Features as part of the Proposed Action

This section describes the project design features (PDF's) which would be incorporated in the implementation of the action alternatives. PDF's are site specific measures, restrictions, requirements or structures included in the design of a project to reduce adverse environmental impacts. These are listed in the RMP (Appendix D, pg. 129) as "Best Management Practices" (BMP's) and in the ROD as "Standards and Guidelines" (S&G's). BMP's are measures designed to protect water quality and soil productivity. S&G's are ". . . the rules and limits governing actions, and the principles specifying the environmental conditions or levels to be achieved and maintained." (S&G, pg. A-6). The proposed action includes the following PDF's:

1. **To meet the components of the "Aquatic Conservation Strategy (ACS)" (S&G's, pg. B-12):**

a. **Riparian Reserves** (Component #1) would be established. Riparian Reserves consist of permanently flowing (perennial) and seasonally flowing (intermittent) streams, the extent of unstable and potentially unstable areas and wetlands . The ROD (C-30) and RMP (pg. 24) specify Riparian Reserve widths equal to the height of two site potential trees on each side of fish bearing streams and one site potential tree on each side of perennial or intermittent nonfish bearing streams. Data has been analyzed from District inventory plots and the height of a site potential tree for the Smith River Watershed has been determined to be the equivalent of 200 ft. slope distance. Therefore, Riparian Reserve boundaries would be approximately 200 ft. slope distance from the edge of nonfish bearing streams and 400 ft. from fish bearing streams in the project area. There are no fish-bearing streams in the project area adjacent to any units.

1) Silvicultural practices (thinning) would be applied within the riparian area's "to control stocking . . . and acquire vegetation characteristics needed to attain Aquatic Conservation Strategy objectives" (RMP pg. 25). The objective is to accelerate tree growth to promote larger trees and canopies, and provide a future source of large woody debris for stream structure. Approximately 55 acres of Riparian Reserve's would be thinned for this purpose.

2) **Streambank stability and water temperature** would be protected by maintaining a 20 - 100 ft. no cut buffer along all streams.

3) Riparian habitat would be protected from logging damage by directionally felling trees within 100' of streams and yarding logs away from or parallel to the streams (i.e. logs would not be yarded across streams).

4) The riparian vegetation of **wetlands** less than one acre would be protected by not permitting logging through the wetland. Trees designated for harvest, within 100' of the wetland, would be felled and yarded away from the wetland to protect this habitat. A wet area was found in Unit 15B.

b. This project is in a **Key (Tier 1) Watershed** (ACS Component #2). An objective is to “Reduce existing system and nonsystem road mileage . . .” (S&G’s, pg. B-19). Road # 21-7-3.4 segment A would be **decommissioned** (i.e. repair drainage problems, seed and mulch and blocked to prevent access). Road # 21-7-1.3 and a portion of Road # 21-7-3.4 would receive **full decommissioning** (i.e. hydrologic obliteration) consists of "closing and stabilizing . . . to eliminate potential storm damage and the need for maintenance" (S&G, pg. B-31) as well as pulling culverts and subsoiling the roadbed (see Appendix C).

c. **Watershed Analysis** (ACS Component #3) as been completed for this watershed (see pg. 2).

d. **Watershed Restoration** (ACS Component #4) would be accomplished as described in para. C1b above.

2. **To minimize the loss of soil productivity (i.e. limiting erosion, reducing soil compaction, protecting slope stability and protecting the duff layer):**
a. **Measures to limit erosion and sedimentation from roads** would consist of maintaining existing culverts, installing additional culverts, fixing drainage and erosion problems and surfacing the road with crushed rock on permanent roads (Road No. 21-7-1.0, 1.2, 1.7, 2.1, 3.4, 3.8, 5.0, 8.0, 9.0, 9.1, 9.3, 15.0 and 15.2). Temporary roads would be built, used and decommissioned the same operating season (i.e. no over-wintering of bare subgrade). Decommissioning (S&G, pg. B-31) would consist of subsoiling the roadbed with a self drafting winged subsoiler, water barring, blocking and seeding with native or sterile hybrid seed mix (if available). Road renovation and log hauling on unsurfaced roads would be limited to the dry season (normally May 15 to Oct. 15), however, operations would be suspended during periods of heavy precipitation. This season could be adjusted if conditions are such that no environmental damage would occur (ex. the dry season extending beyond Oct. 15). These are the BMP's (RMP, pg. 136-7) designed to minimize sedimentation and protect water quality.

b. **Measures to limit erosion and sedimentation from logging** would consist of requiring Skyline yarding where cable logging is specified. This method limits ground disturbance by requiring partial suspension during yarding (i.e., the use of a logging system that "suspends" the front end of the log during in-haul to the landing, thereby lessening the "plowing" action that disturbs the soil). In some limited, isolated areas partial suspension may not be physically possible due to terrain or lateral yarding. Excessive soil furrowing would be hand waterbarred. Dry season logging would be required on portions of Units 2A, 2B, 9A and 9B with specific soils concerns (see Appendix D). Ground based logging, including road right-of-way clearing, would be limited to the dry season (May 15 to Oct. 15), however, operations would be suspended during periods of heavy precipitation if resource damage would occur. This season could be adjusted if conditions are such that no resource damage would occur (i.e., the dry season extending beyond Oct. 15). All fire trails that might route or channel water would be water barred to limit erosion.

c. **Measures to limit soil compaction** would consist of confining ground based activities to designated skid trails as identified in the logging plan. New trails would be limited to slopes less than 35% and with skidtrail spacings averaging at least 150 feet apart. Machines would be limited in size and track width to reduce compaction and trail width. Existing skid trails would be used wherever possible. All skid trails that are used and left in a compacted state after harvesting would be tilled with a winged subsoiler. Subsoiling is a practice that ameliorates soil compaction and improves water infiltration by pulling a device known as a "winged subsoiler" with a crawler tractor. Existing skidtrails, from previous

entries, would also be tilled where practical (e.g., tilling saturated or very rocky soils or skid trails with advanced reproduction would not benefit soil productivity and therefore would not be practical). The Authorized Officer (Contract Administrator) may decide that additional isolated minor ground based logging would be necessary. Such proposals may be subject to Interdisciplinary review.

d. **Measures to protect slope stability** would consist of reserving areas that could potentially impact the meeting of ACS objectives from the project (see Appendix D).

3. **To provide wildlife legacies:**
   a. Future nesting and roosting habitat for **cavity dwellers** would be provided by reserving most existing hard or soft snags (at least 20" in diameter and 20 ft. in height). Note: Any snag deemed as hazardous to worker safety could be felled at the discretion of the operator and the Sales Administrator. Such trees would be reserved and left in place as CWD.

   b. Most existing CWD (at least 16" in diameter and 16 ft. in length) would be reserved for the habitat of organisms that require this ecological niche (S&G, C-40, para. B). This is in the form of blowdown trees and logs remaining from previous logging.

4. **To protect air quality:**
   Any burning of landing piles would be conducted under the requirements of the Oregon Smoke Management Plan and done in a manner consistent with the requirements of the Federal Clean Air Act. The Federal Clean Air Act is designed to reduce air pollution, protect human health and preserve the Nation's air resources. The Oregon Department of Environmental Quality is responsible for implementing the Federal Clean Air Act, and the resulting Oregon Smoke Management Plan that requires the Oregon State Department of Forestry to manage the amount of smoke released into the airshed as the result of slash and field burning.

5. **To protect and enhance stand diversity:**
   a. All Pacific yew trees would be reserved.

   b. Small hardwood pockets and wet areas (< one ac.) would be retained.

   c. All tree species currently represented in the stand would continue to be represented in the stand after the harvest. Mature and old growth remnant trees would be retained to the greatest extent possible as well as some defective and deformed trees that could provide future snags and nesting habitat.

   d. Snags and CWD would be reserved as described in paragraph three above.

6. **To prevent and report accidental spills of petroleum products or other hazardous materials:**
   Hazardous materials (particularly petroleum products) would be stored in durable containers and located so that any accidental spill would be contained and not drain into riparian areas. All landing trash and logging materials would be removed. Accidental spills or discovery of the dumping of any hazardous materials would be reported to the Sale Administrator and the procedures outlined in the "Roseburg District Hazardous Materials (HAZMAT) Emergency Response Contingency Plan" would be followed.

7. **To prevent the spread of noxious weeds:**
   Logging equipment would be cleaned of all material (plant parts, grease and dirt) that may carry noxious weed seeds prior to entry on BLM lands (BLM Manual 9015 - Integrated Weed Management; Botanical Report, Appendix F).

8. **To protect the residual stand and promote stand health:**
   a. As much as possible, trees that would most likely survive logging and overall improve the stand condition and health would be selected for retention.

   b. No falling and yarding would be permitted from April 15 through July 15 when the sap is up in the trees and damage due to bark slippage could occur. If the Sales Administrator determines that, based on local conditions, excessive damage would not occur this date could be adjusted.

   c. Yarder size would be limited to match the size of the yarder to the size of the timber in order to minimize damage from an overly large yarder.

D. Alternatives Considered but Eliminated

Another alternative considered by the ID Team was to drop the improvement and use of the 21-7-3.4 Road and helicopter log Unit 2B thus reducing the amount of road necessary to log the unit. This alternative was considered in order to lessen potential impacts to the fisheries resource from sedimentation from road renovation. This alternative was dropped because there are no suitable helicopter landings available in the vicinity of this unit.

III. AFFECTED ENVIRONMENT

This section describes the existing environment and forms a baseline for comparison of the effects created by the alternatives under consideration. Appendix F (Analysis File) contains Specialist's Reports with supporting information for this analysis.

This project lies within the Oregon Coast Range Physiographic Province. The FSEIS describes the affected environment for this province on page 3&4-21.

A. Stand Description

The proposed project would occur in young Douglas-fir plantations that were established after regeneration timber harvests. Nearly all of these stands have been precommercially thinned and fertilized. Logging in this area began in the 1940's using tractors and downhill logging systems. Logging slash was occasionally burned prior to planting or seeding with Douglas-fir. All of the stands where the proposed action would occur contain areas that are currently in or are approaching the stem exclusion stage of forest development (Oliver, et al 1991). These are fairly uniform stands of Douglas-fir, with a minor component of western hemlock and western red cedar. Crown closure approaches 100 percent within the proposed units. The understory condition is affected by the length of time since crown closure. In areas of dense shade the forest floor is covered with forest litter and scattered sword fern and Oregon grape. Where some light is still reaching the forest floor hardwoods and shrubs are prevalent.

B. General Site Description

The general **topography** consists of very steep-sloped, highly dissected terrain complexed with gentle to moderately sloping, less dissected terrain. The units are all generally southwest to northwest facing. Slopes within the proposed units range from less than 30% to over 70%. Elevations range from 500 to 1700 feet above sea level.

The **climate** is rainfall dominated, characterized by cool and mild winters and relatively dry summers. Annual precipitation amounts of 40 to over 70 inches occur primarily between October and March as rain. Temperatures average 70 degrees F in the summer and 40 degrees F in the winter.

Soils in the area are of the Tyee formation, well drained, and highly productive. The very steep, dissected terrain tends to have loamy, relatively shallow soils. The gentle to moderately sloping terrain may be broken by short very steep scarps. Its soils tend to be deep and more clayey and silty old skid tails are present to varying degrees in all units on gentle to steep slopes. The trail density is commonly high on the more gentle slopes. The residual compaction is variable. (see Soil's Report, Appendix F).

C. Affected Resources

Botanical - The following Survey and Manage (S&M) species were found throughout all units in scattered patchy distribution: *Lobaria oregana* (Strategy 4), *Hydnum umbilicatum* (Strategy 3), *Cantharellus subalbidus* (Strategy 3 and 4), *C. cibarius* (Strategy 3 and 4), and *C. tubaeformis* (Strategy 3 and 4). A vascular plant inventory has been completed and no Special Status vascular plants have been found to date. There are some localized infestations of scotch broom, a noxious weed, in the project area.

Cultural Resources - No known cultural resources exist in the project area.

Fisheries - The affected environment is Cleghorn Creek, Johnson Creek, and Halfway Creek, all of which are tributaries to the Smith River. Smith River is a key watershed, and by definition is crucial for maintaining and recovering habitat for at-risk fish stocks (ROD, B-18). Cutthroat trout and coho salmon inhabit Smith River. Cutthroat trout are currently listed as endangered, while coho are listed as sensitive.

Hydrology - The proposed sale is located predominately within the Upper Smith River Analytical Watershed (AWS), a Tier-1, Key Watershed. The Department of Environmental Quality (DEQ) conducted an assessment of nonpoint source (NPS) pollution related water quality conditions. The results of the assessment were published in 1988 (*1988 Oregon Statewide Assessment of Nonpoint Sources of Water Pollution*). The report identified pollution type and severity. Smith River was rated as a moderate problem by observation for sedimentation and a severe problem for nutrients and structure. Halfway creek was identified as moderate by observation for nutrients and structure. The *draft 1998 303(d) list* identified Smith river, mouth to North Fork, as water quality limited (WQL) for sedimentation. Upstream of the project area, the 303(d) list identified North Fork to headwaters of Smith river as WQL for the following water quality parameters: habitat modification, sedimentation, temperature, and biological criteria.

Wildlife - The proposed sale is not within designated critical habitats for either the northern spotted owl or the marbled murrelet. Twenty-six Special Status Species (SSP) are known or suspected to occur within the Middle and Upper Smith River WAU (Wildlife Report, Appendix F). *Prophysaom coeruleum* (a Survey and Manage mollusk was found at one location in Unit 2B.

IV. ENVIRONMENTAL CONSEQUENCES

This section forms the scientific and analytical basis for the comparisons of the alternatives. The probable consequences (impacts, effects) each alternative would have on selected resources are described. This section is organized by the alternatives and the effects on resources by the key issues identified in section I paragraph G as well as the direct (effects caused by the action and occur at the same place and time), indirect (effects caused by the action and occur later in time or farther removed in distance) and cumulative(impacts of the action when added to other past, present and reasonably foreseeable future actions) impacts on the other resource values. The environmental consequences for these resources are more fully analyzed in Appendix F (Analysis File). This Appendix contains Specialist's Reports and the supporting information for this analysis. The EIS and FSEIS analyzes the environmental consequences in a broader and more detailed context. This EA does not attempt to reanalyze all possible impacts that have already been analyzed in these umbrella documents but rather to identify the particular site specific impacts that could reasonably occur. NOTE: A detailed analysis, “Compliance with Aquatic Conservation Strategy Objectives”, is contained in the Analysis File (Appendix F).

Implementation of this project would result in the irretrievable commitment of the use of fossil fuels for either of the alternatives.

A. No Action Alternative:

This alternative would not meet the RMP (pg. 15) objective of producing forest commodities that would contribute to the local economy for this particular project. Although it would meet ACS objectives by avoiding activities within the Riparian Reserves, it would not realize opportunities for restoration of past disturbance. Road densities and conditions would remain unchanged. There would be no entry for the purpose of applying silvicultural practices to meet ACS objectives.

The **forest stand** would continue to grow and develop under continual competitive stress and differentiate in time through self thinning. There would be a loss in volume production to mortality and the opportunity for future harvests of high quality wood would be diminished. Overly dense stands contain trees with weak stems and root systems. Trees tend to uproot in clumps from such things as wind, heavy snow loading and root disease. The potential for stand damage from disease and insects may be increased. Insect problems are more serious in stands that are unhealthy. Diseases such as laminated root rot are more likely to kill trees that are in close proximity to one another because the disease is transmitted via root graphs. Fires may be more intense because fuel loads build up and crowns are touching. Dead limbs and fallen material create fuel ladders that allow flames to reach the crowns. The stand would accumulate an abundance of dead wood on the forest floor along with many small standing snags resulting from suppression mortality. This may provide favorable habitat for some birds and small mammals.

There would be a lost opportunity to study the effects of thinning on stands with laminated root rot.

Botanical - The forest stand would continue to support a variety of vascular and nonvascular species associated with early-successional forest stands.

Fisheries (Key Issue - Water Quality and Reducing Road Density in Key Watershed) - No change from the existing condition would be anticipated. The existing shade would be maintained, thereby maintaining stream temperatures and existing water quality. No new roads, temporary or permanent would be built, nor would there be any road renovation. There would be no indirect effects to the fisheries resources as a result of alterations to the hydrologic cycle.

Hydrology (Key Issue - Water Quality and Reducing Road Density in Key Watershed) - No temporary road construction would occur, therefore no potential sediment source from temporary roads would exist in the short term.

Soils (Key Issue - Water Quality) - Soil productivity loss and short-term erosion and sedimentation due to road construction and renovation and road use would not occur. Soil productivity losses resulting from ground-based harvesting and short-term erosion and gains from subsoiling would not occur. Residual compaction of old skid trails would be left to slowly heal naturally. The risks of landslides would generally be rather low, slightly lower than that of the action alternatives.

Wildlife - There are no anticipated direct, indirect or cumulative impacts to terrestrial wildlife species as a result of this alternative.

B. Action Alternatives:

The following paragraph discusses the direct impacts (i.e. impacts caused by the action at the same time and place) and indirect impacts (i.e. impacts caused by the action but occur later in time and farther removed in distance) of the Action Alternatives. These impacts apply to both action alternatives unless otherwise stated.

Botanical - Direct and Indirect Impacts -- Commercial thinning would reduce the number of trees in the area thus removing suitable substrate for some lichens and mosses. It would also increase the amount of direct sun light entering the understory, and increase wind speed raising the temperature and decreasing humidity levels. These effects would be temporary (years) and have no long term effects on the viability of moss and lichen species. Compaction from operating logging equipment along spur roads and within the units could reduce the abundance and diversity of hypogeous fungi in zones of compaction. Certain species of concern, such as *Aster vialis*, could temporarily benefit (until the canopy closes again) from a thinning since it is known to exist on forest edges and dryer sites.

Fisheries (Key Issue - Water Quality and Reducing Road Density in Key Watershed) - Existing water quality would be maintained through variable no-cut buffers on all streams that would protect the stream banks and maintain the stream temperatures. Road improvements would improve the road drainage to reduce the stream drainage density and rocking the road surface to reduce sedimentation. This is expected to have a positive effect on the aquatic system. It is unknown if the positive benefits from improving the existing road network would outweigh the negative impacts associated with the proposed action. Alternative A has greater potential to impact the aquatic resources than Alternative B due to the increased road renovation.

Hydrology (Key Issue - Water Quality and Reducing Road Density in Key Watershed) -
Direct Impacts -- After project completion, a net decrease in road density of 0.7 miles would occur. Temporary roads would be decommissioned subsequent to timber harvest and during the same season (summer). The net decrease in road density would thus attain the objective of

reducing existing roads as outlined in the RMP (pg. 20) and S&G's (pg. B-19). Sediment sources could be potentially available from the temporary road construction. This availability of sediment would exist from the time of construction to reclamation / revegetation. Generally, revegetation is rapid during the first year, adding protection from erosion, gradually declining after that. The temporary spur roads would be same season use roads, as described in the second paragraph of this alternative. During this time period when conditions are generally dry, road surface erosion potential for sediment delivery to streams is low.

Soils (Key Issue - Water Quality) -
Direct Impacts -- New road construction would involve approximately five acres of disturbance. Sedimentation reaching streams during construction, hauling and reclamation would likely be small and temporary given the topographic positions of the roads and the mitigating measures called for as project design. The reduced roading alternative would be the same as above except that the temporary flush of sediments associated with construction and hauling into the affected streams would not occur. Net negative soil productivity losses associated with spur construction, use and subsoiling would not occur as well.

Indirect Impacts -- The risk for road related landslides is low. The risk of road associated landslides would be slightly lower for Alternative B than Alternative A. The roads should reclaim satisfactorily.

Wildlife -
Direct Impacts -- This alternative would not remove any suitable nesting, roosting, foraging habitat from within the home range of any of the three owl sites that occur within 1.5 miles of the proposed project. 303 acres of suitable dispersal habitat would be modified but not lost for the northern spotted owl. No direct impacts are anticipated to the marbled murrelet. A short-term loss of suitable red tree vole habitat is possible. Potential impacts to five species of molluscs are difficult to quantify because of the micro-habitat qualities that each species keys in on. Each seral stage probably provides individual micro-habitats that may provide sufficient area to sustain a population of these mollusc. At this time, most of these micro-habitat qualities are unknown and therefore unquantifiable.

Indirect Impacts -- The potential exists for spotted owls to nest within 0.25 miles of the proposed sale units. Disturbances from the felling, logging, and hauling of the timber may impact nesting spotted owls if present. Impacts are possible on the 507 acres of suitable marbled murrelet habitat within 0.25 miles of the proposed units. Disturbances caused by the felling, logging, and hauling of timber from the proposed units may impact the nesting of marbled murrelets in the adjacent habitat if present. Disturbances to adjacent red tree vole habitats may cause impacts to the foraging and reproductive behaviors of the animals.

C. Cumulative Impacts Analysis

The following paragraph discusses the cumulative impacts (i.e. the incremental impacts of the action when added to other past, present and foreseeable future actions).

Botanical - The long term effects of compaction on hypogeous fungi are unknown. Ongoing research indicates that abundance and diversity are sharply reduced in the areas of compaction with no indication of when species would recolonize the effected areas.

Fisheries - Alternative A would have greater potential to impact the aquatic resources than Alternative B due to the increased road building.

Hydrology (Key Issue: Water Quality and Reducing Road Density in Key Watershed) - A net decrease in road density of 0.7 miles would contribute to long-term improvement in water quality.

Soils (Key Issue: Water Quality) - Incremental increases of sedimentation and impairment to hydrologic function would likely be low and temporary with good execution of the BMP's. On an analytical watershed scale the rate of attainment of the ACS should not be affected.

Cumulative impacts on an analytical watershed scale to soil productivity by extensive ground-based operations of the past is likely large. Productivity losses were in the form of compaction and topsoil displacement. Recovery is generally slow. Additional increment of soil productivity loss to cumulative impacts should not occur with good execution of BMP's including use of existing skid trails for ground-based operations and subsoiling the trails that are used.

Wildlife - Impact to the northern spotted owl is negligible, a result of the modification to dispersal habitat, and short lived. There would be no additional cumulative impacts to the marbled murrelet as a result of this proposed action. This action would reduce suitable red tree vole habitat by less than 1% within the watershed.

V. CONTACTS, CONSULTATIONS, AND PREPARERS

A. Agencies, Organizations, and Persons Consulted

The Agency is required by law to consult with the following federal and state agencies (40 CFR 1502.25):

1. **Threatened and Endangered Species Section 7 Consultation -** The Endangered Species Act of 1973 (ESA) requires consultation to ensure that any action that an Agency authorizes, funds or carries out is not likely to jeopardize the existence of any listed species or destroy or adversely modify critical habitat. The required ESA consultation was accomplished with the **US Fish and Wildlife Service** (USF&WS) and the Biological Opinion (BO) was received on March 25, 1996. The USF&WS concluded that the proposed action is " . . . not likely to jeopardize the continued existence of the spotted owl or murrelet or adversely modify

designated or proposed critical habitat for either species" and an "Incidental Take Statement" was issued. "Incidental Take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency . . . " (BO, pg. 18). The USF&WS has stipulated terms and conditions for the Incidental Take having to do with seasonal restrictions for the northern spotted owl and the marbled murrelet. The Roseburg District's Biological Assessment (BA) for Endangered Species consultation has been submitted to the **National Marine Fisheries Service** (NMFS). The BA was a "likely to adversely affect" (LAA) for Umpqua River (UR) cutthroat trout and Oregon Coast (OC) steelhead trout. The Level 1 Team concurred with this determination. A BO has not been received from NMFS.

2. **Cultural Resources Section 106 Consultation -** Consultation as required under section 106 of the National Historic Preservation Act with the **State Historical Preservation Office** (SHPO) was completed on October 20, 1997 with a "No Effect" determination.

B. Public Notification

1. Notification was provided to affected **Tribal Governments** (Confederated Tribes of the Coos, Lower Umpqua and Siuslaw; Grande Ronde; Siletz; and the Cow Creek Band of Umpqua Indians). No comments were received. Two letters were also sent to **adjacent or nearby landowners**. No comments were received.

2. This project was included in the Roseburg District Planning Update (Summer 1997) going to approximately 150 addressees. No comments were received.

3. A 30-day **public comment period** will be established for review of this EA. A Notice Of Availability will be published in the Roseburg News Review. This EA and its associated documents will be sent to all parties who request them. If the decision is made to implement this project, a notice will be published in the Roseburg News Review. Notification will also be provided to certain State, County and local governments (See Appendix G - Public Contact).

C. List of Preparers

Lyle Andrews	Engineering Lead	Jim Luse	EA Coord/Preparer
Isaac Barner	Cultural Resources	Evan Olson	Botany
Bruce Baumann	Layout Forester	Ed Rumbold	Hydrology
Bert Calderon	Project Engineer	Elijah Waters	Fisheries
Kevin Cleary	Fuels Management	Steve Weber	Presale Forester
Dan Couch	Watershed Analysis	Dan Cressy	Soils
Dave Erickson	Recreation / VRM	Chris Foster	Wildlife
Al James	Silviculture	Fred Larew	Lands

References Cited

Biological Opinion - Formal and Informal Consultation on fiscal year (FY) 96 and partial FY 97 Forest Management Activities and FY 96 through FY 98 programmatic projects. (USF&WS, March 25, 1996)

Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and OldGrowth Forest Related Species Within the Range of the Northern Spotted Owl (FSEIS) (Feb. 1994)

Integrated Weed Management, BLM Manual 9015 - Dec. 2, 1992

National Environmental Policy Handbook (BLM Handbook H-1790-1)

1988 Oregon Statewide Assessment of Nonpoint Sources of Water Pollution, 1988; Oregon State Department of Environmental Quality, Portland, Oregon.

Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (ROD) and Standards and Guidelines for Management of Habitat for Late-Successional and Old Growth Related Species Within the Range of the Northern Spotted Owl (S&G) (April 13, 1994)

Roseburg District Hazardous Materials (HAZMAT) Emergency Response Contingency Plan (FY 1998)

Roseburg District Record of Decision and Resources Management Plan (RMP), June 2, 1995

"Study Plan - TDP Thinning / Phellinus", Pacific Northwest (PNW) Research Station

Smith River Watershed Analysis, October 31, 1995; Roseburg District Bureau of Land Management, USDI

Western Oregon Transportation Management Plan, June 1996; BLM - Oregon State Office

Other references as cited in the individual Specialist's Reports (Appendix F - Analysis File)