

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 **E-Mile Regeneration and Commercial Thinning Harvest**. 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 *Roseburg District 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); otherwise known as the "Northwest Forest Plan" (NFP) 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's) dated April 13, 1994. 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 will undergo formal public review. After the completion of public review a "Finding of No Significant Impact" (FONSI) would be signed as appropriate. 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 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 FSEIS and the RMP 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). The Swiftwater Field Office proposes to offer the **E-Mile Regeneration and Commercial Thinning Harvest** for auction in fiscal year 1999 or later. This proposal would help meet the Roseburg District's annual harvest commitment or probable sale quantity (PSQ). 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.

B. Description of the Proposal

The proposal is to harvest timber in the Little River Watershed located in Section 35, T. 26 S., R. 2 W., and Section 1, T. 27 S., R. 2 W., W.M. (see maps, Appendix A through C). The proposed project area is approximately 17 road miles southeast of Glide and 23 air miles east of Roseburg, Oregon. Approximately 150 acres were analyzed for potential harvest activities. This project is within the Little River Adaptive Management Area (AMA). The AMA Land Use Allocation (LUA) is one of the seven allocations specified in the ROD. The AMA is designed to "Develop and test new management approaches to integrate and achieve ecological and economic health and other social objectives." (RMP, pg. 32). Section II (pg. 4) of this EA provides a more detailed description of the Proposed Action Alternative. This project is not in a Key Watershed.

C. Background (Watershed Analysis)

The E-Mile Regeneration Harvest project occurs across two subwatersheds: Lower Emile and Middle Little River. These subwatersheds are within the Little River Watershed which covers approximately 131,850 acres (206 square miles). The Little River watershed analysis (WA) recommends that the Lower Emile Creek tributary be considered as a "Reference" area (habitat that is believed to be in its near natural or "reference" condition - see Appendix D, Concern #4) where the objective would be to "protect and maintain riparian areas where these functions are currently intact". This was taken into consideration during the Environmental Assessment process. The WA 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.

The ROD 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 (ROD, pg. C-44). Any timber stands greater than approximately 80 years of age are considered late-successional habitat (ROD, pg. B-2). For the Little River

Watershed, analysis of current forest inventories shows that of the 82,979 acres of Federally administered lands, approximately 48,855 acres (58.9%) are late-successional forests (80 years or older).

The E-Mile Regeneration Harvest project as proposed would remove approximately 68 acres of late-successional stands from within the Little River Watershed. The WA Report shown in Appendix F shows all of the other Federal activities that are in the process or have taken place in the Little River watershed since 1995.

D. Objectives

1. Practice ecosystem management as outlined in the ROD and RMP.
 - avoid damage to riparian ecosystems and meet the objectives of the "Aquatic Conservation Strategy" (ROD, pg. B-11; RMP pg. 19)
 - "Manage coarse woody debris, green trees and snags in a manner that meets the intent of the . . . Matrix." (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)
2. "Development and testing of approaches to integration of intensive timber production with restoration and maintenance of high quality riparian habitat." (ROD, pg. D-14).
3. In the commercial thinning area: Improve stand health by reducing the excess stocking in the forest stand to increase the growth and vigor of the remaining individual trees and 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.

E. Decisions to be Made to Meet Proposal Objectives

1. The Decision Maker (the Swiftwater Area Manager) will need to decide:
 - if this analysis supports the signing of a FONSI.
 - whether to implement 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 done for the Cutthroat trout and Coho salmon. This project may have to be altered as the result of consultation (See section V, para. A).

F. Issues Considered but Eliminated from Detailed Analysis

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 concern was not considered as a key issue warranting detailed analysis, or (3) 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

Buxbaumia viridis in Unit 35D

2. Fisheries

- a. Temporary roads contributing sedimentation
- b. Roads not up to RMP standards

3. Hydrology

Management in a "reference basin" identified in the Little River Watershed analysis

4. Soils

Slope instability in two areas (Unit 35A, 1A)

5. Wildlife

Two Northern spotted owl sites within 1.2 miles of the project area.

"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. Floodplain
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).

G. Issues to be Analyzed

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. 10-12) as a key issue.

1. Cumulative Impacts to Fisheries
2. Water Quality and Soil Erosion

II. ALTERNATIVES INCLUDING THE PREFERRED ALTERNATIVE

This section describes the No Action and Proposed Action alternatives, and any alternatives considered but eliminated from detailed study. 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 (alternative #1)

There would be no entry for the harvesting of timber within the bounds of the project area under this alternative. Watershed restoration features attached to this action would not occur at this time. There would be no harvesting in a "reference basin".

B. The Action Alternatives (alternatives #2 - #5)

The ID Team considered five action alternatives:

Alternative #2 - Clearcut -- The AMA allows a departure from the S&G's for the Matrix as long as the intent of the S&G's are met (RMP, pg. 154). This alternative would be the same as the standard RMP prescription for the Matrix, except that the regeneration units would retain 1.5 green trees per acre dispersed throughout the units. The remaining retention trees and snags would be concentrated along the bottom of units 35A and B (approximately 10 acres). These clumped trees would provide a degree of slope stability protection. This alternative would represent the maximum potential harvest under the RMP in the AMA. Retention of CWD and a Riparian Reserve would be maintained as in the Matrix. This prescription would look much like the clearcuts of the previous plan, yet provide greater riparian protection and provide CWD. Approximately 3600 feet of temporary road would be built. Approximately 140 acres and 4.7 MMBF would be harvested with a cable system.

Alternative #3 - Matrix Prescription -- This alternative would be the same as alternative #2

except that the retention trees and snags would be dispersed across the units instead of concentrated. The areas of clumped retention trees in alternative #2 would be dropped in this alternative and the area included in the Riparian Reserves to allow for additional slope stability and water quality protection. Approximately 130 acres and 4.3 MMBF would be harvested with a cable system.

Alternative #4 - Proposed Action -- This alternative provides even greater levels of mitigation of soils, fisheries and hydrology concerns. A 50% canopy cover would be retained on areas identified by the soil scientist as having a "moderate" rating for potential in-unit slope failure. The BLM Matrix prescription (i.e. 6-8 retention trees per acre) would be used on areas having a "low" potential of in-unit slope failure. This alternative reduces the amount of temporary road that would be built by 2000 feet. Those portions of the units that are not capable of being skyline cable logged from existing roads and temporary spurs would be logged by helicopter. Unit 35B would be enlarged to include an additional area to the west (approx. 5 acres) that would not be accessible under the two previous alternatives. Approximately 135 acres and 3.6 MMBF would be harvested.

Alternative #5 - Fifty Percent Canopy Retention Prescription -- This alternative addresses a concern noted from public scoping of regeneration harvest in an area identified in the WA as a "reference basin". This alternative would not be a regeneration harvest but instead thin the stands to 50 percent canopy closure. No new roads would be built and nearly all the logging would be done by helicopter. The enlarged Unit 35B would be included as part of this action as well. Approximately 135 acres and 2.7 MMBF would be harvested.

Features common to all action alternatives -- (1) The commercial thinning would thin the stand down from approximately 400 trees per acre to 100 trees per acre. (2) The Riparian Reserves, as delineated, would be the same. (3) Watershed restoration projects (road decommissioning) would be implemented (para. C 1 d).

Implementation of the **Proposed Action Alternative** would result in the harvest of approximately 4.3 MMBF (million board feet) or 6418 CCF (hundred cubic feet) of the Roseburg District's FY 1997 harvest commitment of 7.0 MCF (45 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, or which are a safety hazard, and trees needed to facilitate the proposed action (ex. removal of guyline and tailhold trees). In most cases these trees would be left on site as CWD and snags. Harvest activities would occur on six units for a total of 68 acres of regeneration, 38 acres of partial cut and 29 acres of commercial thinning for a total of 135 acres. Other activities would include: temporary road construction, road renovation and improvement, road decommissioning, site preparation with fire (slash burning) and replanting with young seedlings.

Temporary road construction would occur on approximately 0.3 miles of public land. Approximately 2.5 miles of 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 replacing drainage structures (culverts and ditches) and reshaping the subgrade.

Timber harvest would consist of a combination of regeneration harvest, partial cut and commercial thinning. **Regeneration harvest** is designed to open the forest canopy to allow the re-establishment of a new forest stand with early seral stage vegetation (even aged). The technique of modified even-aged management and reserve seed tree harvest (RMP, pg. 150) would be used in the regeneration harvest areas. The traditional silvicultural system is modified to include biological legacies. This legacy consists of retaining a specified amount of older aged, large (>20") green trees and snags (reserve trees), and coarse woody debris (CWD). CWD consists of trees, or portions of trees, that have fallen or have been cut and left in the unit for present and future wildlife habitat components (RMP, pg. 146) and to maintain site productivity. The **partial cut harvest** is designed to remove selected trees from the stand and would not be for purposes of regeneration. The **commercial thinning** (Unit 1D) would be designed to reduce the density of (thin) the forest stand to maintain stand vigor and increase wood quality and to promote increased growth on the remaining trees and recover wood fiber that would ordinarily be lost through natural mortality.

The proposed action would require a mix of skyline cable logging, approximately 89 acres or 66%; helicopter logging, approximately 45 acres or 33%; and ground based (tractor) logging, approximately one acre (road right-of-way) or 1%. Helicopter landing locations are expected to be a minimum of one-half acre in size and no larger than one acre. Some clearing of trees, brush, and debris might be necessary for safe operations. **Firewood cutting and salvaging** of logging debris (slash) could occur in landing cull decks. The permit would address specific stipulations.

The **prescribed burning of slash** would occur in the proposed units to prepare the site for tree planting and/or to reduce the fuel hazard. Approximately 40 acres are proposed for broadcast burning (units 1B and parts of 1A and 35A) and 65 acres for hand piling and spot burning (units 35B and D and parts of 1A and 35A). **Fire trails** would be constructed by hand around the perimeters of the broadcast units before they are burned.

C. Project Design Features as part of the Proposed Action Alternative

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." (ROD, pg. A-6). The proposed action includes the following:

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 Little River watershed has been determined to be the equivalent of 180 ft. slope distance. Therefore, Riparian Reserve boundaries would be approximately 180 ft. slope distance from the edge of nonfish bearing streams and 360 ft. from fish bearing streams in the project area. There are no fish-bearing streams next to any units. No road construction would occur within the Riparian Reserves.
 - 1) Silvicultural practices (density management) would be applied within the Riparian Reserves of Unit 1D "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 five acres of Riparian Reserve's would be thinned for this purpose. Streambank stability and water temperature would be protected by a 20 ft. no-cut stream buffer.
 - 2) Trees within 100' of the Riparian Reserve boundaries would be directionally felled and yarded away from, or parallel to, the Riparian Reserves to protect the reserve from logging damage.
 - 3) All wetlands less than one acre would receive protection to the edge of the riparian vegetation. No logging would be allowed 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. Three such wet areas were found within the project area (Units 1A). These wet areas were included into the Riparian Reserve.
- b. This project is not in a **Key Watershed** (ACS Component #2).
- c. **Watershed Analysis** (ACS Component #3) as been completed for this watershed (see pg. 2).

- d. **Watershed Restoration** (ACS Component #4) in this watershed would be accomplished primarily through timber sale related projects. This would include road decommissioning, road maintenance and Riparian Reserve treatments in second growth stands. This project includes the full decommissioning of road # 27-2-1.5, 1.6, and 26-2-36.0A as well as three unnumbered spurs for a total of 0.65 mi. Full decommissioning (i.e. hydrologic obliteration) would consist of "closing and stabilizing . . . to eliminate potential storm damage and the need for maintenance" (ROD, pg. B-31). Riparian Reserves would be restored as described in para. 1a(1) 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: (1) Maintaining or improving existing roads (Road No 27-2-1.1A and 2.1A) to fix drainage and erosion problems. This would consist of maintaining existing culverts and installing additional culverts. (2) Building, using and decommissioning temporary roads (spur #1 and 2) in the same operating season (i.e. no over-wintering of bare subgrade). When logging is completed, the roadbed would be subsoiled, water barred, blocked and seeded with native species or a sterile hybrid mix depending on availability. (3) Restricting road renovation and log hauling on unsurfaced roads 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:(1) Requiring skyline yarding on units where cable logging is required. 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 requiring skyline yarding where cable logging is specified. (2) 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 (1) Limiting ground based logging on approximately two acres of road right-of-way 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). (2) Subsoiling of decommissioned roads and temporary spur roads with a winged subsoiler to mitigate compaction damage. 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. The Contract Administrator may decide that additional isolated minor ground based logging would be necessary. Such proposals would be subject to Interdisciplinary review.

- d. **Measures to protect the duff layer** would consist of burning of slash during the late fall to mid-spring season when the soil and duff layer (soil surface layer of fine organic material) moisture levels are high and the large CWD has not dried. This practice would protect the soil duff layer and the CWD from being totally consumed by fire. The CWD reserved according to ROD guidelines would also be a source of organic material that can become incorporated into the soil structure (See para. 3b, below).

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) sufficient to meet the population needs of 40% of potential population (RMP pg. 64). This has been determined to be 1.2 snags per acre. Where this quantity is lacking, additional green trees would be reserved for future snag recruitment. 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. At least 120 linear feet of CWD per acre (at least 16" in diameter and 16 ft. in length) would be preserved in the regeneration areas for the habitat of organisms that require this ecological niche (ROD C-40, para. B). Where CWD is lacking in the above quantities, extra green trees would be reserved for future CWD recruitment (RMP pg. 65).
- c. Wildlife habitat values would be maintained in the regeneration areas through the retention of six to eight large (greater than 20") green conifer trees per acre and occasional hardwoods as a biological legacy (RMP Appendix E, pg. 150).

4. **To protect air quality:**

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. All slash

burning 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. NOTE: the key points noted in the FSEIS page 3&4-100 will not be addressed in this EA but in the appropriate "Prescribed Burn Plan."

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. Large "wolf" trees (large, full crowned, limby trees) would be retained for non-vascular plant legacy attributes.
- d. Snags and CWD would be reserved as described in paragraph three above.

6. To prevent 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 prior to entry on BLM lands to remove weed seeds (BLM Manual 9015 - Integrated Weed Management).

D. Alternatives Considered but Eliminated

There were no other alternatives considered by the ID Team during the formulation of this project that were eliminated from analysis.

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 (Background Reports) contains Specialist's Reports with supporting information for this analysis.

This project lies within the Oregon Western Cascades Physiographic Province. The affected environment for this province is described in the FSEIS on page 3&4-19.

A. Stand Description

The plant association (Atzet, 1990) is most like a Western hemlock-Douglas-fir/salal. The predominant conifer species is Douglas-fir, which acts as a pioneer after a significant disturbance event such as fire. Conifer species in association include incense-cedar, western hemlock, western red cedar, white fir, sugar pine, ponderosa pine and Pacific yew. Hardwoods including madrone, chinkapin, and maple are common when there is sufficient light and act as pioneers after disturbance. Salal, Oregon grape and sword fern are common on the forest floor.

Ring counts on stumps suggest that a stand replacing fire killed most of the dominant trees about 130 to 150 years ago. Many stumps that are representative of the current cohort contain about 120 rings and average about 30 inches. Some large stumps that probably represent the oldest trees have well over 400 rings. Some of the oldest stumps show increased diameter growth about 125 years ago, suggesting a release from competition that is probably due to fire. Stumps also indicate that ages range over 200 years, with trees that are over 400 years growing along side trees that are 200 years and less.

All of the regeneration harvests within sections 35 and 1 have been successfully regenerated on BLM managed lands. All of the plantations in section 1 that are older than 15 years have been precommercially thinned, and the plantations within section 35 are scheduled for precommercial thinning in the near future. All of the plantations are fairly uniform in structure, and although Douglas-fir was the only species planted, the other conifer species are well represented. The large green tree and snag components are considerably less in these plantations than what is required for Matrix under the NFP.

The proposed commercial thinning stand is 35 years old and originated after regeneration harvest in 1962. Tractors were used to skid trees to landings and build fire trails. Slash was burned, and the area was planted with Douglas-fir seedlings. Precommercial thinning in 1977 retained over 400 trees/acre.

B. General Site Description

The **topography** of the general area is a mixture of earthflow terrain and landslide complexes, and upland volcanic surfaces. Soil movement is evident in many slumps and landslides in adjacent previously harvested areas and roads (Little River WA on page Terrestrial-24). Prominent bands of rock outcrop are present in Section 35. The proposed units are all generally south facing. Slopes range from nearly flat to over 70%. Elevations range from 1900 to 2900 feet above sea level.

The **climate** is wet, characterized by mild winters and cool, relatively dry summers. Annual precipitation amounts of 40 to over 70 inches occur primarily between October and March as rain. An ephemeral snow pack is common and can persist for months at the higher elevations in winter. At the lower elevations rain on snow events are a concern because of the potential for overloading the drainage system. Temperatures average 70 degrees F in the summer and 40 degrees F in the winter.

The **Soils** are of a basaltic parent material, overlaid by deeply weathered and altered tuffaceous volcanic rock. The soils range from shallow, loamy and rocky to very deep and clayey. Most are well drained but there is one notable area with seasonably high water table in unit 1A.

C. Affected Resources

Botanical - No special status plants, or survey and manage species were observed in the project area. *Buxbaumia viridis*, a protection buffer species, was found in Unit 35D.

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

Fisheries and Hydrology - The lower reach of Emile Creek is the only reach accessible to anadromous fish and it is limited by a lack of large woody debris. ODF&W stream habitat survey data is available for Emile Creek. Each of the four reaches rates as "fair". Although each of the four reaches rates as "fair", there are actually great differences in the quality of the habitat. Approximately 3/4 mile up from the mouth, the stream changes to a canyon controlled system characterized by plunge pools and cascades. The road density in lower Emile Creek is 3.6 mi/mi². "Road networks ... are the primary sources of ... sediment delivery to anadromous fish habitat [FSEIS, pg. 3&4-58]." The roads leading into the proposed action in section 35 (2.1 and 1.1 roads) currently do not meet RMP standards. There are an inadequate number of drainage features on the roads that cause the ditches to drain directly into the streams, thereby altering the drainage density and associated peak flows.

The other part of the Little River watershed that is affected by the proposed action drains directly into Little River and is located in section 1. These streams are non-fish bearing and any impacts to fish due to the proposed action would be the result of changes in water quality or quantity to Little River.

Wildlife - The Little River WA identifies 34 **special status and sensitive wildlife species** that occur or are suspected of occurring in the AMA. The Roseburg District maintains a list of 45 special status wildlife species. The ROD identifies 17 terrestrial vertebrate species that receive special management considerations. These species are addressed in the Wildlife Specialist's Report (Appendix F).

The proposed project occurs within the physiographic radius of two known spotted owl sites -- Emile Creek and Shivigny. Each owl site has a designated core area established for it as required in the ROD. Unit 1C was dropped from consideration because it was proposed within the Emile Creek core area. The project area is not designated as critical habitat for any **threatened and endangered Species**. The proposed sale area is not known to make a substantial contribution to any other threatened or endangered species or their designated critical habitats.

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 resource(s) are described. This section is organized by the alternatives and the effects on resources by the key issue identified in section I paragraph G. The environmental consequences for those resources that were not considered as key issues to be analyzed in the main body of this EA are addressed in Appendix F (Background Reports). 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: The Biological Assessment for the Endangered Species Act consultation contains a detailed analysis of how this project complies with the Aquatic Conservation Strategy Objectives and is contained in Appendix F.

Some irreversible and irretrievable commitment of resources would result from the implementation of this project. An irreversible or irretrievable commitment of resources in the loss of old growth forest, if this area is managed on an 80 to 150 year rotation. An irretrievable commitment of the use of fossil fuels in management activities would result in either of the action alternatives.

A. No Action Alternative:

Issue #1 - Cumulative Impacts to Fisheries:

No change in the environmental baseline would occur other than that from natural change in the watershed. The roads that currently extend the drainage network would continue to do so. There would be no increased cumulative effects to the stream channels due to harvest.

Issue #2 - Water Quality and Soil Erosion:

There would be no change in the current condition due to timber harvest. Existing and potential sources of sediment associated with this project are primarily due to roads (cutbanks and road surfacing) and proposed spurs. Road renovation would not occur resulting in a continuing delivery of sediment (fines), primarily from the 27-2-2.1 Rd. Although roads would receive occasional maintenance, a gradual increase in sediment delivery can be expected due to plugged and collapsed culverts, resulting in degraded conditions in Emile Creek and the intermittent stream channels that are adjacent to the roads. Reduction of the effective extension of the stream network due to road drainage would not be reduced. The benefits of road decommissioning would not be realized.

The probability of significant landslides in these forested units and the resultant water quality impacts is generally low. A geotechnical analysis of upland slope stability was performed on the two distinctive soil groups in the proposed sale. The analysis indicates that the slopes within the proposed units are stable. The probability of failure was assessed at less than 1%.

Channeling and concentration of water along the existing skid trails would increase the risk of mass wasting.

B. Action Alternatives:

Issue #1 - Cumulative Impacts to Fisheries:

“For aquatic and riparian communities, high water quality is essential for the survival, growth, reproduction, and migration of species [FSEIS, pg. 3&4-55].” The FSEIS has identified elevated water temperature, increased levels of sedimentation and accelerated rates of erosion as factors adversely effecting water quality and therefore aquatic species. Specific PDF's (pg 6-7) would minimize the adverse impacts from this action.

A Riparian Reserve maintained according to the S&G's and the RMP would continue to maintain shade, provide a potential source for large woody debris recruitment and buffer streams to maintain **stream temperature**.

Several unstable areas were identified, increasing the size of the Riparian Reserves. There would be no new permanent roads. All roads needed to log the units would be temporary. No road construction would occur within the Riparian Reserves. Existing federal roads leading to section 35 would be upgraded to RMP standards (RMP, Appendix D, part II, section G). Strict adherence to these standards should reduce the negative impacts that the existing road is causing, specifically the increased water and **sediment routing** to the streams.

The Matrix in the Biological Assessment used for endangered species consultation cites that the effects of this action would be a “degrade” for sediment, substrate, large woody debris and disturbance history at the sixth field (local drainage) and short-term (1-3 years, disturbance history <10 years) scale. A degrade was cited for these effects were judged as “maintain” at the fifth field (watershed) and long-term (decades) scale. The Level 1 Team concurred with this judgement.

Issue #2 - Water Quality and Soil Erosion:

The construction and subsequent decommissioning of temporary roads would have no effect on **sediment routing and delivery into streams** being located on stable, flat ground with distances to the nearest streams of 200 to more than 500 feet. The proposed renovation and improvements to existing roads would substantially improve water routing and reduce sediment delivery into streams. An engineering analysis indicates that the reduction in sediment delivery from the proposed upgrades to the 27-2-2.1 Road would be on the order of 75% to 80% from the No Action Alternative. Sediment delivery from units is not expected due to erosion-limiting logging practices (skyline cable and helicopter yarding) and the distance of the units from streams. Helicopter harvest activities would have less soil material exposed than cable yarding.

Another potential source of sediment is from **mass wasting** processes. Mass wasting (slides) may result in larger inputs of sediment if such events occur. All unstable or potentially unstable areas which met the Riparian Reserve criteria have been excluded from the units. Areas with a

moderate risk of failure occurring would have a 50% canopy closure retention (alternative #4 and 5). A geotechnical slope stability analysis indicates that Unit 1A would have the greatest probability of a post-harvest slide with a chance of occurrence of between one and 5%. The consequences of such a slide would be minimal. No sediment delivery would be expected to any stream channel, due to the distance to the nearest stream. Harvesting of the other units would not increase the risk of mass wasting in those units.

The changes in the volume, timing, and magnitude of **peak, base, and summer low flows** are expected to be minor. The proposed regeneration and partial-cut harvest should have little, if any measurable effects on flows in the pertinent streams at the 6th field level (increases were assessed at between 0.25% and 0.33% in the affected watersheds). An increase of this magnitude would not result in additional degradation of the channel network – substrate movement, bank scour and instability, and added velocity. Currently the 27-2-2.1 and 27-2-1.1 roads extend the stream channel by approximately 3,550 feet. The proposed upgrade and addition of drainage structures along the access routes are expected to reduce the drainage network channel extensions by over 50%. The proposed road decommissioning would result in a decrease of road density and subsequent decrease of peak flows.

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 June 16, 1997. The BO concluded the proposed action is "... not likely to jeopardize the continued existence of the bald eagle, peregrine falcon, spotted owl or murrelet or adversely modify designated critical habitat for spotted owl or murrelets" 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. 39). 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 June 25, 1996 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) via the Summer 1996 Roseburg District Project Planning Update. No comments were received.
2. This project was included in the Roseburg District Planning Update (Summer 1996). Comments were received from Alan Baumann, Nancy Stern of the Little River Committee and Francis Eatherington of Umpqua Watersheds. Their concerns are summarized in Appendix D (Scoping Summary).
3. A 30-day public comment period will be established for review of this EA. A Notice Of Availability will be published in the 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 News Review. Notification has been provided to certain State, County and local governments (See Appendix G - Public Contact).

C. List of Preparers

Lyle Andrews	Engineering
Isaac Barner	Cultural Resources
Dayne Barron	AMA Coordinator
Bruce Baumann	Project Lead / Layout Forester
Karl Broda	Geotechnical Engineer
Kevin Cleary	Fuels Management
Dan Couch	Watershed Analysis
Dan Cressy	Soils
Dave Erickson	Recreation / VRM
Chris Foster	Wildlife
Al James	Silviculture
Fred Larew	Lands
Jim Luse	EA Coordinator / EA Preparer
Trudy Rhoades-Flock	Hydrology
Elijah Waters	Fisheries
Steve Weber	Presale Forester
Ron Wickline	Botany