

**ENVIRONMENTAL ASSESSMENT FOR
BROKEN BUCK TIMBER HARVEST
EA NO. OR104-98-26**

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 project planning and insuring compliance with the National Environmental Protection Act (NEPA) and 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 **Broken Buck Regeneration 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).

This project was formerly analyzed in EA No. OR-106-96-01. This EA covered five units. Unit 17A was offered separately and awarded on November 26, 1996 as the "Black Hole" Timber Sale. This sale has been logged and only awaits the completion of slash burning. The remaining four units were sold at auction and awarded on September 15, 1997. This sale has never been operated on due to legal challenges. On April 28, 1998, Judge Rothstein of the U.S. District Court, Western District of Washington, issued an order in the case of Pacific Coast Federation of Fisherman's Association et al, vs. the National Marine Fisheries Service (NMFS), et al, which found the BLM to be procedurally out compliance with Section 7(a)(2) of the Endangered Species Act (ESA) due to a determination that the site-specific Biological Opinions (BO) of June 18, 1997 and July 22, 1997 are invalid. This analysis is needed to more clearly establish project consistency with Watershed Analysis (WA), the Aquatic Conservation Strategy objectives, and National Marine Fisheries Service (NMFS) March 18, 1997 plan-level Biological Opinion.

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 Revised Decision Document would be completed after public review to document the decision and reflect any changes as the result of public review. The Revised Decision Document would document the decision to award this sold sale and complete the slash burning on "Black Hole". This notice will 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, and the issues to be analyzed, as well as 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).

B. Description of the Proposal

The proposal is to harvest timber in the Brush Creek and Hayhurst Valley watersheds, located in Section 9 and 17, T23S, R6W, W.M. (See maps, Appendix B). Approximately 500 acres were analyzed for potential harvest activities. This project is within the "Matrix" Land Use Allocation and not in a key watershed. The Matrix land allocation is one of 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 and retention trees) that bridge past and future forests. New temporary road construction and renovation or improvement of existing roads would also occur. Section II (pg. 4) of this EA provides a more detailed description of the action alternative and the no action alternative.

C. Background (Watershed Analysis)

The Broken Buck Regeneration Harvest project occurs within the Brush Creek and Hayhurst Valley subwatersheds. These subwatersheds are within the Elk Creek watershed which covers approximately 187,234 acres (293 square miles). The Brush Creek-Hayhurst Valley-Yoncalla watershed analysis (WA) and the Elk Creek 5th Field WA (2nd iteration) were used in this analysis and are available for public review at the Roseburg District office.

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 (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 Elk Creek 5th field watershed, current forest inventories show that of the 44,935 acres of Federal ownership, approximately 18,811 acres (41.9%) are late-successional forests (Elk Creek 5th Field Watershed 2nd Iteration, pg. 2, Table 2).

On page 69 of the Brush Creek, Hayhurst Valley, Yoncalla WA the following recommendation was made, "Regeneration harvest and forest management aimed at developing commercially harvestable stands will occur on Matrix lands. . . Commercially oriented, forest management may include the following components: commercial harvest using aerial, cable, and/or ground based systems; slash treatments, such as burning or piling . . ." The Broken Buck Regeneration Harvest project follows this recommendation. Restoration activities associated with the project as well as throughout the Elk Creek 5th Field Watershed are summarized in a write-up in Appendix B.

D. Objectives

1. Practice ecosystem management as outlined in the ROD and RMP.
 - avoid damage to riparian ecosystems and comply with the objectives of the "Aquatic Conservation Strategy" (ROD, 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)
2. "Produce a sustainable supply of timber and other forest commodities" (RMP pg. 33) and meet District ASQ goals.

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 proceed with the Proposed Action Alternative, modify the Proposed Action Alternative, or accept the no action alternative.
2. Consultation with NMFS will need to be done for the Cutthroat trout and Coho salmon. This project may have to be altered as the result of this consultation (See section IV para. A).

F. Issues considered but eliminated from Detailed Analysis

The following concerns were identified by the Interdisciplinary (ID) Team 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. 5) provides a list of specific PDF's incorporated into the Proposed Action Alternative to deal with these issues.

1. Candidate, Threatened or Endangered species

- a. Marbled Murrelet. The action alternative is not a "may affect". The area was surveyed to protocol standards with no murrelets detected. There are no known occupied sites within five miles of the proposed action. The area has been determined not to be nesting habitat by the wildlife biologist. (See Wildlife Biologist report, Appendix B)
- b. Botanical species. No sensitive, candidate, or listed plant species have been found to occur on the proposed harvest areas. Surveys will continue to be performed until harvest. (See Botanical report, Appendix B)

2. Effects on soil

Soil erosion, compaction, and mass movement were identified by the area soil scientist as issues pertinent to the proposal. As indicated by the soil scientist through the ID process, soils issues would be adequately mitigated by implementation of specific project design features.

3. Downhill Yarding

Unit 17B would require less than five (5) acres of downhill yarding on the western end, below the protected escarpment. Topography at this location averages about 20-45% slope and hummocky in character. There are few stability problems and potential for substantial earth movement is low. Use of tail holds at the top of the steep escarpment to the east and dry season yarding is expected to mitigate other soil impacts. (See RMP, p.130 and Soils Report.)

4. Coarse woody debris (CWD)

Retention of adequate levels of CWD has been identified as a concern where regeneration harvests would occur. Field observations have indicated a shortage of CWD in decay classes 1 & 2 (see glossary, this document) in most of the proposed units. Existing coarse wood already on the ground would be retained. Also, additional retention trees would be reserved where there is a current shortage of CWD in the harvest areas. These trees would be allowed to convert to CWD naturally via wind throw and other natural processes.

5. Cavity nesting birds

Green trees and existing snags would be retained at levels sufficient to support species of cavity nesting birds at 40 percent of potential population levels (ROD, C-42). This equates to about 1 to 2 snags per acre (reference Management of Wildlife and Fish Habitats in Forests of Western Oregon and Washington, pp. 129-169).

6. Cultural resources

No cultural or archaeological resources were identified in the proposed project area as a result of surveys. (See Cultural Resources report, Appendix B).

7. Refer to Table I, Critical Elements.

G. Issues to be analyzed

The following concern was identified by the ID Team as having sufficient concern to warrant more detailed analysis and will be addressed in section III, "Affected Environment" and section IV, "Environmental Consequences" (pg.9-10) as a key issue.

1. **Northern Spotted Owl (NSO)** - The action alternative has been determined by the area wildlife biologist as a "may affect, likely to adversely affect" for the NSO. Incidental take would result from removal of suitable habitat for the Brush Headwaters, Snail Canyon, and Squaw Creek spotted owls. Formal consultation with the U. S. Fish and Wildlife Service (USF&WS) would obtain an incidental take permit. (See Wildlife Biologist report, Appendix B).
2. **Fragile soils** - All units have been determined to contain areas of fragile soils. Areas of fragile soil occur in these units primarily where topography is hummocky/slumpy, slopes are steep, or soil is shallow and/or rocky.

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.

B. The Proposed Action Alternative

Implementation of the Proposed Action Alternative would result in the harvest of approximately 4.3 MMBF (million board feet) or 6385 CCF (hundred cubic feet) of the Roseburg District's

FY 1996 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, are a safety hazard, or are trees needed to facilitate the Proposed Action (ex. guyline and tailhold trees or trees within the road construction prism). Generally these trees would be left on site as CWD and snags. Harvest activities would occur on four units for 89 acres of regeneration harvest and one acre of road right-of-way clearcut. Other activities would include: temporary road construction, road renovation and improvement, subsoiling of previously compacted skid trails, road decommissioning, site preparation with fire (slash burning) and replanting with young seedlings.

Approximately 0.9 miles of **temporary road construction** (nine spurs) and 0.07 miles of **permanent road construction** (existing road realignment) would occur on government. Approximately 11.3 miles of government and 0.2 miles of private road for a total of 11.5 miles would have **road 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 with crushed rock. **Full decommissioning** - "roads determined through an interdisciplinary process to have no future need ..." (TMO, pg. 15) would be accomplished on 0.6 miles of Government road (see pg. 6, para. 1d). Four major **stream crossing culvert replacements** would be done.

Timber harvest would consist of regeneration harvest. **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 seed tree system is modified to include biological legacies. This legacy consists of retaining a remnant of older aged, large (>20") green trees and snags (reserve trees), and CWD.

The proposed action would require a mix of skyline cable logging (approximately 86 acres or 96%) and ground based (tractor) logging (approximately four acres or 4%). **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") would occur in all the proposed units to prepare the site for tree planting by providing plantable spots for seedlings (i.e. clearing away the slash) as well as removing or temporarily retarding competing vegetation. A maximum of 89 acres would be hand piled and burned. **Fire trails** would be constructed by hand around the perimeters of the units to be burned prior to ignition.

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 the lands incorporating 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 Elk Creek 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 is one fish-bearing stream in the project area adjacent to unit 17A. No wetlands were found within the project area.
 - 1) Streambank stability and water temperature would be protected by maintaining a full riparian buffer along all streams.
 - 2) 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). No logging or road building would take place within the Riparian Reserves.
 - b. This project is not in a **Key (Tier 1) 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 particular project includes the full decommissioning of road # 23-6-6.0 and 8.0A for a total of 0.6 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). Four major stream crossings would have the culverts replaced to accommodate a 100 year flood and provide enhanced fish passage.

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 and improving existing roads (Road No. 23-6-2.0, 10.5, 15.1, 17.1, 17.3 and 18.1) to fix drainage and erosion problems. This would consist of maintaining existing culverts, installing additional culverts, and surfacing the road with crushed rock. (2) Building, using and decommissioning temporary roads in the same operating season (i.e. no over-wintering of bare erodible 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). (4) Restricting in-stream work (i.e. culvert replacement and fill removal) during periods of low flow (between July 15 and September 1). These are the BMP's (RMP, pg. 136-7) designed to minimize sedimentation and protect water quality.
 - b. **Measures to limit soil erosion and sedimentation from logging** would consist of: (1) 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. (2) Dry season logging would be required in all units as described above.
 - c. **Measures to limit soil compaction** (RMP, pg. 37) would consist of: (1) limiting ground based logging, (Unit 17B) and road right-of-way clearing to the dry season as described above. (2) Confining ground based activities to designated skid trails as identified in an approved 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. (3) Subsoiling of decommissioned roads, temporary spur roads and skidtrails 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. 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 ID review.

- d. **Measures to protect the duff layer** (RMP, pg. 37) 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).
- e. **Measures to protect slope stability** would consist of: (1) grouping retention trees in certain areas identified by the soil scientist (see soil scientist report, Appendix B). This would occur in all units. These areas have some stability concerns but not enough to warrant Riparian Reserve status. The added root strength of the extra trees would help maintain stability. (2) Areas that could potentially impact the meeting of ACS objectives were dropped from the project. (3) Burning would be limited on steep slopes, i.e. hand pile and burn; and or would only occur on those areas with deep stable soils. (4) New roads would be located in the most stable locations and with proper drainage structures.

3. **To provide for wildlife:**

- 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. Wildlife habitat values would be maintained 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). At least 120 linear feet of CWD per acre (at least 16" in diameter and 16 ft. in length) would be preserved for the habitat of organisms that require this ecological niche (S&G, 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).

4. **To protect air quality:**

All slash burning would have an approved "Burn Plan" and 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. 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 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.
- b. 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 protect Special Status Plants (SSP) and SEIS Special Attention Plants.:

If, during subsequent surveys or the implementation of any action alternative, sensitive or candidate plant species are found, evaluation for the appropriate type of mitigation needed for each species would be done. Stipulations would be placed in the contract to halt operations if vascular or non-vascular Special Status Plants are found during harvest or road construction operations to allow time to determine adequate protective measures before operations could resume.

8. 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

1. Helicopter log the entire sale. This option was considered but eliminated from further analysis because the majority of proposed sale area is accessible by road. Furthermore, all applicable standards and guidelines and best management practices can be met utilizing conventional yarding on harvest units.
2. Postpone harvests in areas of fragile soils. The areas of fragile soil in all units are suitable for timber production. With the use of methods that mitigate adverse effects to soil, these areas will continue to be considered for timber harvests. Those areas of greatest concern in unit 17B have been protected by concentrating retention trees in those locations, or removing it from harvesting in this proposal.

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 B (Staff Reports) 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.

Physical environment

Proposed harvest areas occur on ridgetops and steep side slopes. Slopes (excluding rock ledges) typically range from gently sloping to 95% and averaging about 65%. Some slopes approach 115%. Elevation in the area ranges from 880 feet to about 2,060 feet. (See Soils report and Watershed Analysis for Brush/Hayhurst/Yoncalla watersheds.) An unnamed tributary of Brush Creek, adjacent to unit 17A is fish bearing.

Biotic environment

Harvesting would occur in natural stands that are a result of past fires. Regeneration harvests would occur in mature stands that are predominately even-aged, ranging from 60 - 120 year old stands. Douglas-fir is the predominant species present. Grand fir, incense cedar, madrone, chinquapin, big-leaf maple, and red alder are found in lesser quantities. Ocean spray, huckleberry, hazel, salal, sword fern and some poison oak are common in the understory. Most areas have little or no suitable logs on the ground while unit 17A has an adequate amount. (See Fuels report.)

Issue: NSO

The proposed area is not located within designated Late Successional Reserve or designated Critical Habitat. All proposed harvest units are located within 1.5 miles of one to three NSO sites. Approximately 100 acres of the best NSO habitat, as close to each nest site as possible, has been retained (RMP, p. 48).

Issue: Fragile soil

Some steep fragile soils are located in units 9B, 9D, 17A, and 17B. (Fragile soil in these units would require greater concentrations of retention trees (some of these trees may be smaller than 20") or have been placed within the Riparian Reserve boundaries). These soils are on slopes 60% to 95%. Scattered throughout these steep slopes are soils in small pockets with extremely gravelly surface layers and soils with very shallow depths. (See Soils report.)

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. The environmental consequences for these resources are more fully analyzed in Appendix B (Staff 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 B.

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. Crushed rock from quarries would be committed to reconstruction of the road system. An irretrievable commitment of the use of fossil fuels in management activities, would result in 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. The environment would not be altered by timber harvest activities in the proposed area. No roads would be constructed or renovated, and no culvert replacement would take place. Poorly designed culverts would continue to pose passage problems for fish. The potential for culvert failure and road washout and sedimentation would remain high. Existing stands of timber would increase in age. The areas proposed for regeneration harvests are in an old growth condition and would maintain that state. CWD would accumulate but at a slower rate than under the action alternative. As the stands age, they would move toward an old growth condition with more grand fir entering into the understory and middle crown positions. The existing stands are the result of fires in the past. These stands are subject to fire sometime in the future. Eventually all stands would be replaced with young stands as the cycle repeats.

Issue: NSO

No habitat or potential habitat would be cut or removed from this portion of the project area.

Issue: Fragile soil

No harvests would take place in the proposed area at this time. There would be no effect on fragile soils identified in units 9B, 9C, 17A, and 17 B, other than naturally occurring events (slides, erosion).

B. Alternative 2: Cable harvest

Under this alternative, areas proposed for regeneration harvests would have all merchantable trees removed except for those retained as standing green trees, snags, or down logs. About four acres would be tractor yarded and less than 5 acres downhill yarded. The remainder would be yarded uphill. Regeneration harvests would change the proposed sites to an early

successional condition where the stands would be regenerated to grow to a mature timber stand in the future. All temporary roads would be decommissioned and replanted with conifers after use.

Issue: Northern Spotted Owl Habitat

The action alternative would reduce northern spotted owl habitat by nearly 90 acres. USF&WS has been formally consulted and an Incidental Take Permit has been obtained. (See Wildlife Biologist Report and The Biological Opinion).

Issue: Fragile soil

The intent of the ROD for protecting unstable areas with Riparian Reserve status where slides could adversely impact streams has been met (Units 17A and 17B). The most fragile soil areas (where potential is high for landslides) would be protected. Rock ledges and faces with fragile soils in units 17A and 17B would be protected by clumping retention trees. All new road locations are on stable ground except for the forks of the 17.1 road in the hummocky western part of Unit 17B. Here maintenance problems and not erosion would be the main concern.

Subsoiling and waterbarring temporary roads and skid trails should greatly reduce management induced erosion and loss of soil organic matter and also reduce the likelihood of mass movement due to management.

The long-term productivity loss standard in the ROD for tractor yarding (less than one percent) should be met with the design features of designated skid trails, falling to lead, dry season yarding and subsoiling in part of Unit 17B. The avoidance of broadcast burning on category 1 soils and hand pile and burn are important design features for the protection of soil productivity (See Soil Report).

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 BO concluded the proposed action is " . . . not likely to jeopardize the continued existence of the spotted owl or the 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. 17 & 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 BA for Endangered Species consultation has been submitted to the **National Marine Fisheries Service** (NMFS). The Biological Assessment was a "may effect likely to adversely affect" for Umpqua River cutthroat trout, Oregon Coast steelhead trout, and Oregon Coast coho salmon. A BO has not been received from the 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 January 10, 1994 with a "No Effect" determination.

B. Public Notification

See Appendix C - 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.
2. **Adjacent landowners** within a ¼ mile of the proposed harvest areas were notified by mail of the proposed action. A copy of the letter and mailing list are in Appendix C. No comments were received.
3. This project was included in the Roseburg District Planning Update (Spring 1996) going to approximately 200 addressees. No comments were received. Comments were received from Francis Eatherington representing Umpqua Watersheds, Inc.
4. Notification has been provided to certain **State, County and local government** offices.
5. 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. If the decision is made to implement this project, a notice will be published in the News Review.

VII. GLOSSARY

Cable Yarding - A harvest operation involving the use of a logging (skyline) crane that through the use of long cables can pull logs to a log landing area.

Category 2 Species - A classification that the USF & WS has information to indicate listing under the Endangered Species Act may be appropriate. Additional information is being collected.

Course Woody Debris - The piece or pieces of a tree that has fallen or been cut and left in the forest greater than or equal to 16 inches in diameter.

Decay Classes 1 & 2 - Trees that are sound, bark is still tight, wood has little if any decay.

Fragile Slope Gradient - Sites subject to unacceptable soil and organic matter losses from surface erosion or mass soil movement as a result of forest management practices, unless best management practices are used. Such practices include: (I) utilization of cable yarding systems that provide partial or complete suspension; (ii) cool burning under spring conditions.

Gross Yarding - The practice of yarding logging debris below a minimum size to the landing for disposal.

Skyline Carriage - A log carrier that rides on a cable skyline.

Skyline - A cableway stretched taut and used as a track for skyline carriages.

Subsoiling - A practice that ameliorates soil compaction improving soil aeration, infiltration of water, and root penetration into the soil. This is accomplished by pulling a device known as a "winged subsoiler" with a crawler tractor.

VIII. BIBLIOGRAPHY:

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