

ENVIRONMENTAL ASSESSMENT
FOR THE
PICKETT SNAKE LANDSCAPE MANAGEMENT PROJECT

EA# OR110-99-18

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MEDFORD DISTRICT
GRANTS PASS RESOURCE AREA

June 1999

Dear Reader:

We appreciate your interest in the BLM's public land management activities. We also appreciate your taking the time to review this environmental assessment (EA). If you would like to provide us with written comments regarding this landscape management project proposal or the EA, please send them to Bob Korfhage, BLM, 3040 Biddle Road, Medford, OR 97504.

If confidentiality is of concern to you, please be aware that comments, including names and addresses of respondents, will be available for public review or may be held in a file available for public inspection and review. Individual respondents may request confidentiality. If you wish to withhold your name or street address from public review or from disclosure under the Freedom of Information Act, you must state this clearly at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or officials of organizations or businesses will be made available for public inspection in their entirety.

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Field Office Manager
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PICKETT SNAKE LANDSCAPE MANAGEMENT PROJECT
ENVIRONMENTAL ASSESSMENT

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Chapter 1 Purpose of and Need for Action

A. Introduction

The purpose of this environmental assessment (EA) is to assist in the decision making process by assessing the environmental and human affects resulting from implementing the proposed project and/or alternatives. This EA will also assist in determining if an environmental impact statement (EIS) needs to be prepared and if a finding of no significant impacts (FONSI) beyond those considered in the related EISs is appropriate.

This EA tiers to the following documents:

- (1) the Final EIS and Record of Decision dated June 1995 for the Medford District Resource Management Plan dated October 1994 (RMP-ROD);
- (2) the Final Supplemental EIS on Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl dated February 1994;
- (3) the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl and its attachment A entitled the Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl dated April 13, 1994 (NFP-ROD);
- (4) the 1998 Medford District Noxious Weed Environmental Assessment dated April 1998.

In addition to the documents cited and tiered to the above, the planning of this project drew from the ideas, information and recommendations of the following documents:

- (1) Southwest Oregon Late-Successional Reserve Assessment (October 1995);
- (2) USFWS Biological Opinion # 1-7-98-F-321 (Sept 1998);
- (3) Watershed Analysis for the Rogue - Recreation Section (Big Hog) 5th field watershed

Confusion can arise from terminology and disparate assumptions that are made about the definitions of terms, even those in relatively common use. In the hopes of minimizing this and to assist the reader, a glossary of selected terms is included in Appendix F of this EA. These definitions are from the RMP.

B. Purpose and Need for the Proposal

The broad purpose of the proposed action is to implement the Medford District's Resource Management Plan (RMP). The proposed action is designed to meet a variety of the resource and human (social/economic) needs and objectives outlined in the RMP. These include:

- C management of the watershed in a manner that will provide for and promote a wide a variety of non-commodity outputs and conditions including wildlife habitats, sustainable forest conditions, recreation opportunities, maintenance or improvement of water quality, and fisheries;
- C contribution to the Medford District's timber harvest / forest products commitment, thus helping meet the demand for wood products both regionally and nationally and supporting local and regional economies.

C. Project Location

The general location of the proposed project is shown on Map 1: Project Area Map. (All maps are located in Appendix A.)

D. Issues and Concerns Relevant to the Project

A variety of issues and concerns were raised during the initial scoping of this project. These were raised by interested individuals or groups outside of the BLM, by the project planning team and BLM's interdisciplinary (ID) team or have been drawn from some of the documents noted above. Making a distinction between an "issue" and a "concern" is useful in segregating topics by their relative impact on the planning process and as a means of focusing on those things that are specific and unique to the project area. A particular topic may also cross back and forth between categories during the course of planning. For the purposes of this document, an "Issue" is defined as something that is *unique* to the project area that may need to be given particular consideration.

The issues identified as pertinent to the project are listed below. Many of these issues were used in the design of the proposed project and alternatives. In some cases, an issue was considered at the onset by the planning team and then eliminated from further consideration because it was not judged something that was within the scope of this project or proposed action(s). These are summarized in Appendix D. The pertinent issues identified for this project are:

1. High stand densities throughout the project area are resulting in a decline of pine and oak. The exclusion of natural fire has contributed to growth stagnation in some stands as well as to slow seral stage progression/succession.
2. There is a high hazard for a stand replacing fire. Vegetation conditions in the project area are continuing to increase the fire hazard and risk. This creates an increasing probability for a large scale stand replacement wildfire.
3. The Pickett Creek drainage has a relatively high density of roads on public land: 4 miles / mi².
4. There are some 303(d) listed streams in the project area. Listing is due to high water temperature.
5. The demand for recreation opportunities is increasing on public land.
6. Late-successional habitat is spatially fragmented throughout the project area due to edaphic conditions and past management. The resultant habitat loss and fragmentation of late successional habitat have made dispersal difficult for those species associated with it.
7. Noxious weeds are present in the project area and are spreading.
8. There is a diversity of plant communities including those unique to serpentine soils. There are numerous Special Status and Survey/Manage plant populations in the project area.
9. The current large woody debris levels in some streams are less than ODFW benchmark standards. This suggests that fish habitat is less than optimum in these streams.

10. The Umpqua Joe trail, a popular Josephine County recreation trail, is located in the project area in T35S R7W Section 9.
11. Oak woodlands, meadows, and other natural habitats have declined in production of suitable browse for various wildlife species. The exclusion of the natural fire cycle has increased the encroachment and density of fire intolerant plant species.
12. 906 acres of young stands have been identified as overstocked with the potential for rapid growth after release and/or fertilization.
13. Poor stocking of healthy vigorous regeneration in the understory and a declining overstory are resulting in a decline in conifer annual growth. This condition has been identified on 987 acres.

E. Land Use Allocation Objectives

Land Use Allocations (LUA's) are set forth in the NFP and RMP. The reader is referred to these documents for their discussions of the relevant objectives. The Pickett Snake project area is located within the Matrix (southern Forest General Management Area), the Riparian Reserve land allocations and also within the Rogue Wild and Scenic River Congressionally Reserved area.

Chapter 2 Proposed Action and Alternatives

A. Introduction

This chapter describes the proposed action and alternatives that are addressed and analyzed in this EA.

B. Alternative 1: The No Action Alternative

In this EA document the "no-action" alternative is defined as not implementing any aspect of the proposed action alternative(s). Defined this way, the no action alternative also serves as a baseline or reference point for evaluating the environmental effects of the action alternatives. Inclusion of this alternative is done without regard to whether or not it is consistent with the Medford District RMP.

It should be pointed out that the no action alternative is not a "static" alternative. Implicit in it is a continuation of the environmental conditions and trends that currently exist or are occurring within the project area. This would include trends such as vegetation succession and consequent wildlife habitat changes, road condition / deterioration, normal BLM road maintenance schedules, rates of erosion, continuation of current road densities, trends in fire hazard changes, OHV use, *etc.*

C. Alternatives 2 and 3: Action Alternatives

1. Introduction

Two action alternatives are proposed and analyzed. There are many elements that are common to both alternatives. They differ with regard to their harvest treatment proposals which are described in section 7 of the proposed action below (p. 8).

Within each action alternative, aspects of the proposed action are organized and presented based on broad "types of action" (*e.g.*, road actions, riparian restoration / treatments, fisheries enhancement, vegetation treatments, recreation related proposals, *etc.*). While presented in these discrete groupings, the interrelationships between them must be kept well in mind particularly in considering the effects of the alternatives.

In designing the two action alternatives a host of other options or alternatives were considered during the planning phase of this project. Generally these other option or alternatives were resolved during the planning and as the final proposals emerged. Some of the more significant of these alternatives that were considered but eliminated from the final proposals are summarized in Appendix B. Those carried forward in the two proposed action alternatives are described in this section. The project design features noted in the next section are an integral part of both of the action alternatives.

2. Proposed Action: Recreation Trail Management - Alternative 2 and 3

1) Objectives of the Recreation Proposal

Provide additional recreational opportunities to meet the growing demand for recreation.

2) Description of the Recreation Proposal

a) Buckhorn Ridge Trail

The Buckhorn Ridge Trail would be constructed on the ridge separating Taylor and Pickett Creeks. The trail would offer spectacular views of the Taylor Creek drainage, the Pickett Creek drainage, Mt. Shasta and Mt. McLoughlin. It would provide recreational opportunities for non-motorized uses such as horseback riding, mountain biking and hiking. The trail would end at the Trowbridge Ponds. Vehicle access to the trail would be via BLM roads 35-7-27 and 35-7-33.1.

If the trail head is located on road 35-7-2, then the trail will be approximately 5 miles long. If the trail head is located on road 35-7-33, then the trail will be 6.5 miles long. Permission for trail improvements will be needed from the State of Oregon if the trail crosses section 36, T35S, R8W. The trail will be cleared of brush to a width of 3 to 4 feet horizontally each side of center line and to a height of 10 feet. The trail tread would be 18-24" wide. Most of the trail follows existing roads, especially in sections 20, 29 and 30.

b) Trowbridge Ponds

The Trowbridge Ponds area in T35S, R7W, Sec. 15, provides a popular recreational setting for fishing, camping and day use. The present proposed action does not include specific proposals for this site. Any development of this site as a recreation area will be addressed in a separate project proposal in the future.

3. Proposed Action: Riparian Reserve Treatments - Alternative 2 and 3

Riparian reserves provide habitat and connectivity corridors for wildlife and fish. They contribute to proper stream functioning. In many cases, these functions could be enhanced through treatments that accelerate the restoration of ecological functioning. In some cases where conditions are improving naturally a specific no-treatment option may be most appropriate. In each of these situations, there is a trade off between no-treatment options which do not disturb the riparian areas at all, and treatments that create short-term disturbance with the goal of creating or maintaining healthier ecological functioning in the future.

Riparian reserve widths will be the interim widths of the NFP-ROD (p. C-30): 150' or one site-potential tree height on each side of non-fish-bearing streams; and 300' or twice the height of a site-potential tree along fish-bearing streams. Within some areas of the riparian reserves active management actions are proposed. These proposals are based on the existing stand / vegetation conditions at the local site and their potential for treatment that will benefit the reserve and the aquatic systems in the short and / or long term thereby meeting and promoting the ACS objectives. At other sites non-action will be the deliberate prescription.

1) Objectives of Riparian Reserve Management

Based on the site specific conditions, the objectives of the treatments within the riparian reserves are to:

- C Accelerate the progression of early seral riparian vegetation to conditions where fish and wildlife habitats would be enhanced.
- C Increase the potential for long term recruitment of large snags and coarse wood.

- C Create greater structural complexity, provide resting pools, rearing habitat, improve spawning gravels, reduce stream temperature, and decrease width/depth ratio.

- 2) Proposed Riparian Reserve Treatments

There would be no cutting or removal of trees greater than 8" DBH in the Riparian Reserves. Vegetation treatments would be limited to the thinning, brushing and slash burning of early and mid seral stands. Thinning, burning and brushing would not occur within a designated "no treatment" area immediately adjacent to each side of the stream bank. Table 2-2 lists the minimum size widths for these "no treatment" areas. The size of the "no treatment" area is based on stream class and slope steepness.

The log weirs on Pickett Creek would be notched to concentrate the water flow to improve habitat complexity and stop the sheet flow at low and mid flow periods. It will be accomplished by use of a chain saw. Notches will be cut in each existing weir such that the bottom of each notch will be no closer than 6" above the gravel bed on the upstream side of each log.

Large wood and boulders would be placed into Pickett Creek to provide a more complex structure in the stream and diversify stream flow patterns. They would be lowered into place with a helicopter or would be off loaded at points along West Pickett Creek Road. Each piece would be skidded into place with a winch equipped with a block and tackle. Any resulting exposure of mineral soil would be covered with duff and litter. Boulders would be a minimum of 30 inches in diameter. Logs would be at least 24 inches in diameter and one and one half times the bank width of Pickett Creek. The source of the boulders would include an area about 100 feet down slope of West Pickett road in section 31. Sources of large wood would be trees cut from upland stands.

The culvert located near the South line of section 27 on Road # 35-7-27 would be reinstalled or replaced to match the natural stream gradient. It is presently a barrier to fish movement.

4. Proposed Action: Noxious Weeds Control - Alternative 2 and 3

- a) Objectives of the Noxious Weed Control

The objective is to control two populations of Canada thistle (*Cirsium arvenses*) and to control populations of Scotch Broom (*Cytisus scoparius*) located in the project area.

- b) Description of the Proposed Weed Management

The proposed action for the control of noxious plants would be as described in the 1998 Medford District Noxious Weed Environmental Assessment. The following populations have been noted in the project area:

Two populations of Canada thistle are located in T35S, R7W, Section 9. In total, these two patches are less than a quarter acre in size. Generally, it takes two growing seasons to remove the plant from the site. Areas would have the thistle removed by spot burning in the spring with a follow up burning or pulling of emerging plants.

Populations of Scotch broom are scattered throughout the project area in T35S, R7W, Sections 35 and 36, with concentrations along some roadsides. Control of this species is difficult due to the woody nature and persistence of the species. Control would be through manual pulling and burning.

5. Proposed Action: Special Forest Products (SFP) - Alternative 2 and 3

a) Objectives of the SFP Program

The objective is to provide a range of special forest products for sale / collection including but not limited to poles and firewood.

b) Description of the Proposed Action

All timber harvest units (see Table B-2) within the project area would be available for product harvesting / collection of all potential products under the SFP program.

6. Proposed Action: Young Stand Treatments / Forest Development - Alternative 2 and 3

a) Objectives of the Young Stand Treatments

The objective of young stand treatment is to accelerate the growth of young stands.

b) Description of the Treatments for Young Stands

The locations of the proposed young stand treatments are outlined in Tables B-1, B-2 and B-3.

1) *Brushing (BR)* - This treatment consists of providing more growing space to enhance conifer and/or hardwood survival and growth. Severance of surplus trees would be with a chain saw. Surplus hardwood vegetation is defined as all brush and hardwoods less than 8" DBH that are *not* selected as a leave tree. Conifer surplus trees are 6" DBH or less and *not* selected as leave trees. All tanoak less than 12" DBH would be treated as surplus vegetation. Conifer leave trees would be spaced approximately 8' on most units and hardwoods would be spaced at 25".

2) *Precommercial Thinning (PCT)* - This work consists of cutting or girdling surplus trees and brush to increase moisture, growing space and nutrient availability for selected conifer and hardwood leave trees. All tanoak less than 8" DBH and brush would be cut. All sprouting hardwood stems not selected as leave trees and all surplus trees up to 7" DBH would be cut. Vigorous and well-formed conifer leave trees would be maintained at an average of 14' spacing (220 TPA) and well-formed leave hardwoods would be maintained at either 20' foot spacing (110 TPA) or 25' foot spacing (70 TPA) spacing depending on the particular treatment unit.

3) *Slash treatment* - After the above treatments are completed, the slash would be evaluated for hazard reduction treatments. Evaluation will be based on the level of the fuel hazard, the wildfire risk, and the value of resources within stand and the adjacent area. The most common slash treatment would be hand pile and burning (HP). Other treatment options include lop and scatter (LS) or removal of slash as poles or firewood. Table B-1 summarizes the proposed young stand treatments.

4) *Fertilization (FERT)* - A single application of prilled urea (46% available nitrogen) would be applied to the treated young stands by a helicopter. Two hundred pounds per acre would be the maximum application. There would be no fertilization in the riparian reserves.

5) *Tree Planting (TP)* - This includes the initial planting of nursery seedling

stock after site preparation has been completed on a harvest unit. In some cases, the entire unit would be planted. In other cases, the inter-planting of nursery stock would occur in stands that need more seedlings between existing trees to raise stocking levels to meet BLM's fully stocked standards. Often included with tree planting, are maintenance treatments to enhance growth or increase the chance of seedling survival in the first years after planting. This would include hand tool scalping a small circle of the competing grasses and forbs around the planting spot, and/or paper mulch or vispore installation to prevent soil moisture loss around the planting spot, and /or installation of tree netting to prevent browsing by wildlife, and/or an application of a delay release fertilizer packet with the seedling at the time of the planting.

7. Proposed Action: Stand Harvest Treatments in the Older Seral Stages

Two alternatives are proposed for harvesting in older seral stage stands.

a) Timing of the Harvest Treatments

It is anticipated that at least two advertised timber sales within a 5 year period would occur in the project area. The exact composition of each of these sales (*i.e.*, the combinations of units selected from Table B-2) would be determined by funding and completion of the various requisite plant and wildlife surveys. The two sales anticipated are "Pickett Snake" and "Pickett's Charge." "Pickett Snake" is anticipated to be offered for sale in FY1999 or later. "Pickett's Charge" in a subsequent fiscal year.

b) Objectives of the Harvest Treatments

The objective of the harvest treatment proposal in both Alternative 2 and 3 is to capture suppression and mortality in older stands while promoting tree growth and species diversity on a landscape wide scale and to reduce potential for stand replacement wildfire occurrence. The objective is also to harvest timber to meet BLM's commitment to provide forest resources to the local economy. A unit may be divided into separate treatment types if more than one prescription is appropriate for the mosaic of vegetation conditions in the mapped unit.

c) Alternative 2

1) Alternative 2 objective

Alternative 2 would emphasize increasing stand growth and reducing stem densities on *all* harvest acres in the project area. This objective would be met by reducing the canopy closure to a range between 25% to 40% on *all* harvest units in the project.

2) Alternative 2 Harvest Treatment Descriptions

See Table B-2 (Appendix B) and Maps in Appendix A for specific unit treatment proposals. The following describes the various types of treatment proposals:

Commercial Thinning/ Modified Group Selection (CT/MGS) - On a Douglas-fir series stand, this treatment would strive to retain a healthy, growing conifer overstory. It would remove merchantable size trees (4" DBH or greater) that have slowed in growth or are subject to mortality. Also, this treatment would insure that hardwood and pine components would be developed for species diversity

and soil productivity. On those sites identified as a pine series or pine associations, fewer trees per acre would be retained than on the Douglas-fir sites. The following is a more specific objective discussion and a description of this treatment:

- C "Commercial thinning" of Douglas-fir, pine species, and other conifers would be done with the intention of decreasing stand density. This treatment would remove suppressed trees and clumped intermediate and co-dominate trees to increase individual tree growth and accelerate seral stage progression of the stand. It would use the crown radius of the most healthy dominant and co-dominant trees to measure spacing between the retention trees.
- C "Modified group selection for pine survival" is the removal of other trees around a selected pine tree. It would be done when pine are present. This treatment removes those trees (usually Douglas-fir) that are competing with vigorous pines. It favors and retains the larger vigorous pine (Ponderosa or Sugar) that have a 30%+ live crown ratio. It is intended to increase the chance that the pine will survive and regenerate pine seedlings.
- C "Modified Group Selection for Hardwood Survival" is the removal of other trees around a selected hardwood tree. It would be done when large healthy hardwoods are present. This treatment manages for long term survival of the large hardwoods that includes Black Oak, Madrone, White Oak, Live Oak, Maple, or tree form Tanoak. It is intended to keep stands diverse with other tree species besides conifers. Between one and five vigorous hardwood trees per acre would be selected for retention. Vigorous hardwoods are those trees with a 25%+ live crown ratio, which show a low amount of disease (rot), and that could be expected to remain alive for the next 15 years. The long term survival of these trees would be encouraged by removing those conifers that are competing with the hardwood. On some sites especially suited to hardwood dominance, more than five hardwoods would be left per acre. In these situations, selected hardwoods would be included in the conifer spacing pattern and favored for retention over conifers. In areas where the White Oak series is present, the treatment will manage for the survival of the White Oak.

Structural Retention (SR) for Regeneration of a Young Stand - This stand treatment would increase the productivity of the existing understory trees or regenerate a new understory with the help of tree planting. Stands with a overstory stand age greater than 120 years and which have a poor annual stand growth rate would be selected for this treatment. Commercial thinning of these stands would not provide the desired increase in productivity, thus the SR. A target of sixteen to twenty-five large conifer trees per acre (Southern General Forest Management guideline) would be retained. Trees greater than 6"DBH would be removed between the trees selected for retention. Portions of some of these stands may be treated with the CT/MGS, if appropriate. The following is a discussion of the other features of this treatment:

- C Hardwood would be managed for long term survival of the large hardwoods (Black Oak, Madrone, White Oak, Live Oak, or Maple). Between one and five hardwood trees per acre will be selected for retention. The long term survival of these trees would be encouraged by removing those conifers that are competing with the vigorous large hardwood. On some sites especially suited to hardwood dominance, more than five hardwoods would be managed per acre. In these situations, selected hardwoods would

be included in the conifer spacing pattern and favored for retention over conifers. In areas where the White Oak series is present, the treatment will manage for the survival of the White Oak. Vigorous hardwoods are those with a 25%+ live crown ratios that show a low amount of disease (rot) and will remain alive for the next 15 years.

- C On those sites identified as a Douglas-fir Series with Tanoak competition, the retention trees would be spaced in aggregations (Group Selection of trees for harvest) to increase canopy openings. The intention would be to increase the ability of the shade intolerant conifers to become established in the Tanoak associations.
- C After logging, a SR treatment would include the post harvest treatments that are described below. In addition to those treatments, tree planting would be done on under stocked stands.

Post Harvest Treatments for All Harvest Units - After logging is completed, the proposed action would continue to treat the site with some or all of the following treatments:

- C Sever (slash) the main stems of the smaller trees that are within the drip line of the larger trees chosen for retention. Lower the plant competition for water and soil nutrients by severing the stems of the competing conifers and hardwoods less than 6" DBH that are underneath the crowns of the trees chosen for retention, *e.g.*, the suppressed trees that will not recover after harvest to become healthy growing trees.
- C Slash the damaged residual saplings and damaged pole size trees. Lower the plant competition for water and soil nutrients by cutting and lowering to the ground for under burning those hardwoods and conifers trees that have been damaged during tree falling and yarding operations. In general, a damaged tree would have a DBH less than six inches that will die or will have a slow recovery from injury, *e.g.*, a sprung tree or a broken top tree that was bent over by the skyline cables during logging.
- C Selectively thin the understory vegetation. Reduce the density of competing vegetation by thinning the *conifer* understory trees to a sixteen-foot spacing. Slash (sever) *conifer* trees less than 6"DBH between the trees chosen for retention. Thin the *hardwood* understory trees to a twenty-foot spacing. Slash (sever) *hardwood* trees less than 6"DBH between the trees chosen for retention. The healthiest and most vigorous trees would be selected for retention.
- C Burn the logging and thinning slash. This treatment would under burn (UB) or hand pile and burn (HP) the tree limbs and other debris on the ground after logging and thinning work is completed. The intention is to reduce fuel loading and/or create planting spaces. Live Tanoak and other brush species would also be targeted for burning to reduce conifer seedling competition.

Special Harvest Treatment Objectives for Visual Resource Management (VRM) - Units visible from the Wild and Scenic Rogue River, Merlin Galice road, Indian Mary Park, and the Umpqua Joe trail near Indian Mary Park are VRM class II. The general management objective for VRM Class II lands is to retain the existing character of landscape.

The stands that are VRM Class II are identified in Table B-2. In the table, VRM II foreground /middle

ground refers to treatment units that are within one mile or to the first ridge, whichever is closer, from viewpoints on the river. No Structural Retention treatments would be prescribed for the VRM II foreground / middle ground management zone. SR units will be divided along the first screening ridge as necessary and the seen areas would have the prescription CT/MGS.

The CT/MGS treatment would predominately remove the smaller crowned trees and it is anticipated that the larger crowned trees would provide a continuous visual canopy. In the case of the Umqua Joe trail near Indian Mary Park, canopy closure would remain 45+% with emphasis on maintaining the park trail as a scenic recreation trail. Trees would not be removed within twenty feet of the trail but, removal of some trees for scenic vista development may occur on the trail where appropriate.

The new Buckhorn Ridge trail will also have a twenty foot no harvest buffer along the edges.

Wildlife and Botany Sensitive Species Management - Modifications to the treatments will be done in order to meet the management guidelines/recommendations of various rare species of wildlife and plants as described in the RMP and Forest Plan. Any protocols that are presently established or that will be established prior to a decision record for the project would be followed. (See project design features)

d) Alternative 3

1) Alternative 3 objective

The overall objective of alternative 3 is to maintain a greater level of late-successional forest in the project area. Stands were selected for late-successional characteristics such as canopy layering, canopy closure, snag and down wood. Size and position of the stand were also taken in consideration. Stands that formed a logical “stepping stone” pattern across the landscape and that were 100 acres or greater were identified for the “softer” silvicultural prescription.

In alternative 3, the objective would be to manage *more* acres for habitat and connectivity of late-successional forest dependent species. It would achieve this objective by retaining *more* acreage (580 acres) with a canopy closure of 50% or more than would Alternative 2.

2) Alternative 3 Harvest treatment Description

See Table B-2 (Appendix B) and Maps in Appendix A for specific unit treatment proposals.

Alternative 3 would have the same harvest and vegetation treatments as proposed for Alternative 2, ***except*** with regard to the treatments on approximately 580 acres of stands suitable for late-successional habitat management. These have been "shaded" in Table B-2 (Appendix B). These acres identified would be commercial thinned predominately *from below* with a *Limited* Group Selection (CTB/LGS). Commercial thinning would target trees in the intermediate and suppressed layers in order to maintain a relatively high canopy closure in the large tree population. Co-dominate removal would be limited to areas where a high canopy closure will still result after harvest (50% or more). Group Selections would be limited to 1 group per 10 acres. In all other respects, the harvest treatments and post harvest treatments would be the same as described for Alternative 2.

8. Proposed Action: Fuel Hazard Reduction Treatments -Alternatives 2 and 3

a) Objectives of Fuel Reduction Projects

These are treatments where the prime objective is reduction of a hazardous fuel conditions on both matrix and riparian reserve lands. Additionally, other objectives such as wildlife, vegetation, and/or silvicultural objectives can be incorporated and met within the treatment. Treatments result in fuel conditions which will have lower heat intensity and flame lengths when fire does occur. This creates burning conditions that are less damaging to resources and are less resistant to fire suppression. The objective is to make the existing vegetation less of a hazard while not changing the existing vegetation to another vegetation type. Table 2-2 indicates the “no understory thinning and burning treatment widths” within the riparian reserve for young stand and fuel reduction management. Table 2-3 indicates the riparian reserve widths for this project proposal.

b) Description of Fuel Reduction Projects

Fuel hazard reduction consists of understory thinning and fuel removal/reduction treatments. Understory thinning (UT) reduces the density of vegetation by cutting and spacing vegetation that is less than 7" DBH. Species diversity is maintained. Slashing of understory vegetation and prescribed fire use would shift competitive advantage for nutrients and water to desired species by reducing surplus vegetation which competes with understory conifers, and reduce competition induced mortality among overstory pine and hardwood species. Size limits on slashing are designed to limit the impacts of these target species but not eliminate their presence as a stand component.

Fuel reduction/removal is accomplished through prescribed burning which includes hand piling and burning and broadcast or underburning.

c) Objective of Fuel Reduction Projects Within the Congressionally Reserved Areas.

These projects are located within the 1/4 mile wide corridor along the Recreation Section of the Rogue Wild and Scenic. All of these areas are adjacent to private lands. The treatment objectives are the same as in the matrix lands described above.

d) Description of Fuel Reduction Projects Within the Congressionally Reserved Areas.

Fuel hazard reduction consists of understory thinning and fuel removal and/or reduction treatments similar to those described for matrix lands above. An additional project design feature for these areas would be consideration of the VRM management objectives. This would result in less removal of the understory in areas visible from the river. Another feature would be a restriction on utilization of the cut material. Due to lack of public access into most of these areas, utilization may be limited.

9. Proposed Action: Wildlife Habitat Restoration and Enhancement - Alternatives 2 and 3

A number of prescribed burns to restore and enhance wildlife habitat are proposed. The overall goal of these projects is to:

- C bring back a wide variety of plant communities to their natural range of conditions;
- C restore winter range to benefit big game animals such as deer and elk;
- C maintain chaparral and the species that depend on this community.

The following descriptions are proposals in three typical plant communities in the project area: oak woodlands, meadows and Jeffrey Pine savannahs. All the projects are listed in Table B-3: Summary of Silviculture Prescription Fuels.

a) Oak Woodlands

1) Treatment Objectives

Restore Oak woodlands by removing encroaching conifers through mechanical methods as well as prescribed burns.

2) Description of the Treatment Proposal

In units identified in Table B-3 (Units 10-11, 3-2, 3-4, 3-5, 3-7, and 3-6) remove all conifers except vigorous pine and large limby open grown Douglas-fir within Oak woodlands. Trees and brush not meeting the above description would be harvested (where economically viable) or girdled. This treatment includes under-burning to remove conifer saplings, seedlings and brush. Portions of the OI units that are not part of the Oak woodlands (except OI 006) would be excluded from harvest to maintain stand diversity as well as hiding and thermal cover for big game animals. OI unit 006 which is dominated by conifers would remain available for timber harvest and treatment areas would consist of small sporadically distributed pockets of Oak woodlands. In total approximately 148 acres of Oak woodlands would be treated.

b) Meadows

1) Treatment Objectives

Restore a meadow with fire that is currently being dominated by thatched grass and is being encroached by conifers. Unit 15-5 has been identified for this treatment.

2) Description of the Proposed Treatment

Burn approximately 8 acres of natural meadow to remove excess grass thatch, woody plant material and encroaching conifers. The burn would most likely be done during the winter or early spring when conditions allow for a cool, controlled burn. The meadow will be burned by the use of drip torches or other similar lighting devices. A small temporary fire trail may be needed to be constructed on the edge of the meadow to form a control point. All work will be done by use of hand tools such as chainsaws, shovels, axes and pulaskis.

c) Jefferey Pine Savannah

1) Objectives of the Treatment

Restore a Jeffrey Pine savannah with fire to reduce the encroachment of Douglas-fir and to maintain the chaparral community that has become senescent.

2) Description of the Treatment

Unit 33-4 has been identified for this treatment. Fire would be used to under burn 94 acres of Jeffrey

Pine savannah. The burn will be concentrated in areas with young sapling Douglas-fir and pockets of senescent ceanothus. The burn would most likely be done during the winter or early spring when conditions allow for a cool, controlled burn. Ignition will be done hand lighting devices such as drip torches or other similar lighting devices. A small temporary fire trail may need to be constructed on the edge of the savannah to form a control point. All work will be done by use of hand tools such as shovels, chainsaws, axes and pulaskis.

d) Bald Eagle Nest

1) Objectives of the Treatment

Benefit nesting site conditions for located Bald Eagle nests.

2) Description of the Treatment

The proposed action would include thinning a pole stand within a half mile of a bald eagle nest. To minimize human disturbance, activities would be restricted between February 1 and August 15. Forest habitat characteristics including large trees, snags, and at least 50% canopy closure will be retained. The intention is to improve the nesting habitat. There is one known site in the project area and one suspected site. If new sites are discovered or inactive sites become active, the Project Design Criteria described in the Biological Opinion #1-7-98-F-321 will be implemented.

10. Proposed Action: Roads and Transportation Management - Alternatives 2 and 3

The road treatment proposals primarily address those roads that would be used to support the Pickett Snake proposed land treatments. An action may also be proposed on other existing roads in the project area.

a) Road and Transportation Objectives

Minimize permanent road construction, utilize temporary spurs and decommission temporary spurs, and employ the best management practices of the RMP in the design, construction, renovation, maintenance and decommissioning of roads.

b) Description of the Proposed Action for Roads

The proposed road work (construction, maintenance, decommissioning, etc.) is outlined in the Table C-1 in Appendix C. The table lists the roads that would be used, constructed, improved, renovated, and/or decommissioned as a part of this proposed project. Construction, improvement, and renovation work would be primarily a part of the commercial harvest and vegetation treatment proposed actions.

11. Proposed Action: Road Management around Trowbridge Ponds - Alternatives 2 and 3

a) Objectives of the Trowbridge Ponds area

To manage the current and future recreation opportunities in the Trowbridge Ponds area, restore meadow habitat, reduce wildfire potential, improve wildlife habitat, reduce soil erosion, provide access for timber harvest and improve drainage and the road system.

b) Description of the Trowbridge Ponds area

Road 27.3 will be improved from a junction with 22.1 road to lower pond. Timber hauling will occur along road 27.3 through the Panther Creek road system. Post action road 27.3 will be blocked or gated at three locations: at the junctions of the 22.1 road, at the junction with the loop road around the pond, and at the south section line (section 22). Motorized access will be provided to the lower pond by road 27.3. A gate at the junction of the 27.3 road and the 22.1 road will provide seasonal access.

The loop road will provide access for the timber harvest portion of the project. This road will be fully decommissioned from the junction of 22.1 to the lower pond post action.

Prescribed burning will take place in the Trowbridge Ponds area to reduce fuel loadings from the timber harvest portion of the project, to improve meadow habitat and to reduce the overall wildfire hazard.

D. Project Design Features

Project design features (PDFs) are included in the proposed action for the purpose of reducing anticipated adverse environmental impacts which might stem from the implementation of the proposal. The PDFs noted below would be a part of all of the previously outlined alternatives, unless otherwise noted.

a. Logging Systems

1) Tractor Logging

To reduce the extent of ground disturbance and soil compaction, yarding tractors would be limited to the smallest size necessary to do the overall job. Tractors would be equipped with integral arches 150 foot bull lines to obtain one end log suspension during skidding of the logs. Tractors would be restricted to approved skid trails. Pre-existing skid trails will be selected whenever possible. Tractor logging would be restricted to slopes less than 35% although short pitches that exceed 35% would be permissible. Tractor-type logging equipment would not be authorized when soil moisture content, at a six-inch depth, exceeds 25% by weight as determined by a Speedy Moisture Meter.

Skid roads would be water barred in a manner appropriate to the slope and soil type. Main tractor skid trails would be blocked where they intersect haul roads. Tractor skid roads would be decompacted and waterbarred shortly after yarding is completed to reduce the erosion potential. The ripped skid roads would be planted with trees in areas which are proposed for planting. Other areas would be allowed to seed in naturally. Erosion control grass with legumes or a native grass seed will be used on erosion sensitive areas. Erosion sensitive areas may be also covered with slash where needed. Completion of erosion work would be before the onset of the rainy season.

2) Cable and Helicopter Yarding

In the Ferry Road area, helicopter yarding, loading and hauling would be limited to Monday through Friday, 7 AM through 5 PM. Operations will have flaggers where necessary to ensure the safety of vehicle traffic on Ferry Road.

The landings along the Merlin-Galice Road in the Hellgate Canyon area near the Hellgate bridge kiosk, and other existing turnouts, would be permitted for limited yarding, loading and hauling. Operations

would be permitted only on non-holidays Monday through Friday from 7AM through 5 PM. All equipment and the debris created from operations will be completely removed and hauled to disposal points selected by the BLM within 1 day of operation shutdown or yarding completion. The landings will be left in the same condition or better condition than originally found. The landings will be available to the public during the after hour periods and weekend periods. The purchaser would be encouraged to compress the period of time when using the landings through the preparation of a logging plan that accounts for recreation use of the landings. The plan will be subject to the approval of the BLM. Yarding directly over the heads of boaters would not be permitted.

In cable yarding units, step landings would not be permitted. Cable yarding corridors would be located away from draws. Cable yarding corridors would be waterbarred when needed and at spacing appropriate for the slope and soil type.

Large limbed trees would be limbed in the units prior to cable yarding. This is to reduce the extent of damage to the residual stand and to reduce soil disturbance.

All landings, including fill slopes would be located away from headwalls and draw bottoms and adjacent draw side slopes. All natural surface landings constructed during the logging operation would be decompacted except on rocky ground and those planned for future use, seeded with an erosion control grass and legume mixture or native grass seed when available and straw mulched or covered with slash upon completion of the harvest activity and before the onset of the rainy season. Regarding landings planned for future use: the changes from above would be post operation grading for drainage and the surface would be roughened, prepped for seeding rather than ripped or subsoiled.

Soil Restrictions

There will be no harvest on slopes with unstable soils (showing active movement). On serpentine influenced soils and other soils that may exhibit possible instability, root stability will be maintained and used as a guideline to determine harvest treatment.

b. Seasonal Operation Restrictions

Table 2-1 outlines the seasonal operating restrictions that would apply:

Table 2-1: Seasonal Operating Restrictions			
Location	Restricted Activities	Restricted Dates	Reasons / Comments
Entire project area	All logging and log hauling operations	Oct. 15 to May 15 of following year	Erosion Control. Some variations of the dates would depend on weather and soil moisture conditions.
All Bald Eagle Sites	All activities including timber harvesting, burning and young stand development	Feb. 1 to Aug. 15 unless birds do not nest, or nest fails	See RMP p. 55. One known bald eagle site is located in the project area. Note: Unit 25-003 and 004 are within 1/4 mile of a known nest.

Location	Restricted Activities	Restricted Dates	Reasons / Comments
1/4 mile radius around known spotted owl nest sites. Any other discovered spotted owl nest sites	All timber harvest activities (felling and yarding), chainsaw operation and prescribed burning	March 1 to June 15 (or later if deemed necessary)	Dates and restriction dependent on nesting status. (Rogue River/South Coast Biological Assessment, 1998)
Red-tailed hawk nest site	All timber harvest activities (felling and yarding), chainsaw operation and prescribed burning	March 1 to July 15	1/4 mile seasonal restriction around established nest site located in T35S-R7W-Sec 32-002 (BLM Instruction Memo OR-99-036)
Barred owl nest sites	All timber harvest activities (felling and yarding), chainsaw operation and prescribed burning	March 1 to July 15	1/4 mile seasonal restriction around established nest sites located in T35S-R7W-9 and T36S-R7W-Sec 3 (BLM Instruction Memo OR-99-036)
Entire sale area - 1/4 to 1/2 mile radius around any raptor nest	All timber harvest activities (felling and yarding) and chainsaw operation.	Variable depending on the species	(BLM Instruction Memo OR-99-036).
All harvest units and road construction ROWs.	Various activities depending on the species	Variable depending on the species	Restrictions only if special status species are located. (BLM Instruction Memo OR-99-036)

c. Fire and Fuels Management & Fuel Hazard Reduction Treatments

Prescribed burning would be managed in a manner consistent with the requirements of the Oregon Department of Forestry's Smoke Management Plan and the Department of Environmental Quality's Air Quality and Visibility Protection Program. Additional measures to reduce the potential level of smoke emissions would include mop-up to be completed as soon as practical after the fire, burning with lower fuel moisture in the smaller fuels to facilitate their quick and complete combustion, burning with higher fuel moisture in the larger fuels to minimize consumption and burn out time of those fuels, and covering handpiles to permit burning during the rainy season where there is a stronger possibility of atmospheric mixing and smoke dispersal.

Prescribed fire plans include design features to diminish any potential of fire escape from control lines. These features must be in place before burning is permitted to occur. Features include: prescribed weather and fuel moisture conditions which produce fire behavior which can be readily controlled by direct attack; specified numbers of people and equipment required for holding forces; and escape contingency requirements such as the availability of backup forces, both locally and regionally.

All areas planned for prescribed fire treatments that contain sensitive plant species would be burned under the weather and fuel conditions and/or season that minimizes impacts on plant reproduction and active growth.

All proposed treatment units would be re-evaluated following logging or other vegetation treatment to insure that the slash/fuel treatments are appropriate for the post harvest/treatment condition. The fuel treatments noted in Tables B-1, B-2, B-3 reflect the current best estimate of fuel treatment needs. Treatments would be changed if it appears that something different would better accomplish fuel treatment and/or site preparation needs while reducing the potential adverse impacts on air quality and site productivity would be recommended.

Prescribed Fire Escape - To prevent fire from escaping control and to minimize potential damage to overstory trees, burning would occur during the late fall to early spring season when weather and fuel conditions allow the least active fire behavior.

Fireline Construction is used in broadcast and understory burning and would be accomplished by hand construction methods. Waterbarring would be used on all firetrails where slope exceeded 10% to control water runoff and limit potential erosion.

Patrol and Mop-up of burned areas would occur to prevent areas from reburning and becoming escape fires. A helicopter with water bucket may be used during mop-up to aid in extinguishing larger burning fuels and internal reburning in islands of unburned fuels.

Understory Thinning would treat conifer and hardwood trees, and shrubs. Treatment is to reduce understory vegetation stocking to allow for less competition for nutrients, water, and light, and to reduce fuel hazard. Leave vegetation would be spaced out to widths ranging from 15' to 20' between understory leave trees. Trees and shrubs between 1 - 6"DBH would be treated. Trees greater than 6"DBH and less than 12"DBH would be girdled where they exist in excessive amounts. All trees greater than 12"DBH are considered reserved trees.

Hand Piling and Burning is designed to remove approximately 50 to 75% of the fuel between 1 and 6 inches in diameter and greater than 2 feet in length. Fuel outside this size range is left untreated, however some smaller fuels are included in the piles to create optimal ignition conditions. Piles are covered to create a dry ignition point and piles are burned in the Fall to Winter season after 1 or more inches of precipitation has occurred. Piles are burned during this season to reduce the potential for fire to spread outside each pile, and to reduce the potential for scorch and mortality to the residual trees and shrubs.

Understory Burning or Underburn (UB) is the application of prescribed fire within areas where residual trees and shrubs are present. The prescribed fire objective is to reduce the fuel hazard for both dead and down woody material and to reduce the amount of "ladder" fuels present. Ladder fuels consist of both live or standing dead vegetation such as shrubs and small trees in the understory and live and dead branches close to ground level on overstory trees. Understory burning is conducted at anytime throughout the year when fuel and weather conditions will permit the successful achievement of resource objectives. Typically burning is conducted from Fall through late Spring. Summer or early Fall burning is less common, but can be feasible when needed to meet resource objectives and when escape fire risk can be mitigated. A Prescribed Fire Plan is prepared that includes both resource and fire objectives. Fuel moisture and weather parameters are developed based on these objectives. The timing of the burn is based on achieving these objectives, occurrence of the parameters, predicted weather, and the availability of adequate fire suppression resources as a contingency plan in the event of fire escape. Prescribed fire effects can include mortality in both the overstory and understory vegetation. The Prescribed Fire Plan includes acceptable mortality levels. These levels typically limit overstory mortality to 10-15% or less, and understory mortality to 20-50% or less depending on resource objectives. When prescribed fire is used to "thin-out" understory vegetation (as opposed to thinning with chainsaws) the higher acceptable percentages of mortality would apply. An underburn treatment prescription can range from burning 30% of the area (a "mosaic" burn) up to 90% of the area.

Lop and Scatter is a slash treatment that does not remove fuel. The fuel is cut into smaller pieces and scattered so that it is in contact with the ground surface. This is done to create a fuel bed that would have a slower rate of spread and flame height in a during a wildfire. The treatment also decreases the

time period for decomposition of the woody debris.

Wildlife Habitat Enhancement/ Oak Meadow Restorations are treatments that are designed to reduce both live and dead fuel, lowering the fuel hazard and increasing the value of vegetation conditions for a wildlife habitat. The treatments would include thinning vegetation less than 6"DBH to spacing between 15 and 30 feet; hand piling and burning of fuels or, where appropriate, underburning.

Mollusc/Salamanders and Broadcast Burns Areas with rock outcrops or talus will be buffered from any broadcast burn to avoid potential impacts to Survey and Manage molluscs and salamanders.

Time Line and Accomplishment The fuel treatments proposed in Tables B-1, B-2, B-3 represent the maximum amount of treatment that would occur. All are included based on a recommendation for treatment. Funding is a major factor that would limit the total accomplishment. More projects are included in the proposal than would actually occur.

All fuel treatments associated with timber harvest are expected to occur. The actual treatment method that is used would be selected based on post-harvest conditions and appropriate physical, biological, and social features of each specific site. If prescribed burning is not used on a harvest area then lop and scattering of slash would occur.

Treatments associated with precommercial thinning, wildlife habitat, and fuel hazard reduction would occur based on funding and priority. Factors that influence priority include distribution and need for habitat development, biological and social constraints, and strategic hazard reduction needs for wildfire protection. It is anticipated that 80% or less of the acreage proposed for treatment in these actions would actually receive treatment. Precommercial and understory thinnings that do not have prescribed burning treatments would have lop and scattering of slash. Time line for the accomplishment of treatments would be expected to take place within the years of 2000 to 2005.

Fuel Hazard Reduction treatments would not be applied within the "no treatment" zones within Riparian Reserves.

d. Roads - Construction, Improvement, Decommissioning, Closures

All new road construction and improvement would be done at the minimum standard appropriate to the intended long term use of the road. Proposed road closures and decommissioning are intended to reduce the potential for erosion and to reduce the impacts on wildlife. Roads proposed for decommissioning that are needed to support the prescribed burning / fuel reductions would have the decommissioning scheduled for after burning is complete.

e. Proposed Dust Abatement

Dust created from log hauling traffic on roads would be abated when conditions are warranted in order to reduce driving hazards and protect the fine surfacing materials which bind the road surface rock thus increasing its longevity. Dust abatement would be in the form of water, lignin, or reduced vehicle speed.

f. Stream and Riparian Habitat Protection

Riparian reserve widths would conform with the Standards and Guidelines in the NFP (p. C-30) and the

RMP. Table 2-2 indicates the no treatment widths within the riparian reserve for young stand and fuel reduction management. Table 2-3 indicates the riparian reserve widths for this project proposal.

Table 2-2: No Treatment Widths Within the Riparian Reserve for Young Stand and Fuel Reduction Management Proposals		
Stream Class	No treatment widths in feet	
	<50% slope	>50% slope
1 & 2	25 feet or slope break (whichever is greater)	50 feet or slope break
3 & 4	25 feet or slope break (whichever is greater)	50 feet or slope break

Table 2-3: Riparian Reserve Widths		
Stream Class	Site potential Class	Riparian Reserve Width** (ft)
Class 1	IV	the greater of 300 ft. or 2 site potential tree heights
Class 2	IV	the greater of 300 ft. or 2 site potential tree heights
Class 3	IV	the greater of 150 ft. or 1 site potential tree height
Class 4	IV	the greater of 150 ft. or 1 site potential tree height

** Widths are and are determined in accordance with BLM Instruction Memo OR-95-075 (3/30/95).

g. **Wildlife Trees and Dead and Down Material**

All snags greater than 14" DBH would be reserved from cutting and removal in all units, unless they pose a safety hazard. If a snag is dropped in the course of operation it will remain in on site. In order to determine the current snag level, snags greater then 14" DBH would be tallied during the timber marking phase of the project implementation according to species and stage of deterioration. An additional 3 large poorly formed and/or defective trees per acre would be marked as green wildlife tree to contribute to the future snag component. If designated snag wildlife trees need to be cut due to worker safety concerns the tree would be left in the unit and a replacement snag would be identified.

All pre-existing down woody material would be retained on the sale area. The coarse down woody debris (CWD) objective for commercial thin units would be to meet an average of approximately one half of the linear feet of the standards and guidelines described in the Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl. It is anticipated that these goals would be met post-harvest due to typical slash loadings, breakage etc. If post harvest monitoring indicates that the site is deficit of CWD, additional trees would be felled to provide the ecological function of CWD.

In stands identified for a structural retention or regeneration harvest, the standard of 120 linear feet as outlined in the S&G and Resource Management Plan (RMP) would be adhered to. In order to meet the

Standard and Guidelines it may be necessary to mark potential trees to contribute to the coarse woody objectives. These trees will be identified during the marking of the stand. These trees would be above the minimal number required for Structural Retention harvest and would remain standing unless post harvest monitoring (3 years) indicates the site is deficit of CWD in which time trees would be felled to provide the ecological function of CWD.

Targets for CWD are expected to be met within 3 years following harvest or treatment. This time lapse would allow some of the post treatment natural processes to occur that will contribute to CWD levels, such as snow break, windfall, top breakage etc.

h. Botanical Resource Protection

If any Survey and Manage Component 1 or 2 species are found in any units, a no-harvest, no-ground disturbance protection buffer will be implemented around each population. Actual buffer size will be dependent on microsite conditions required to maintain habitat as required by Northwest Forest Plan Management Recommendations. No slashing and burning would take place within these buffers. For all protection buffers, trees will be directionally felled away from buffer edges.

If federal or state listed, candidate or Bureau Sensitive species are found, a minimum 100-foot radius no-harvest, no-ground disturbance protection buffer will be required. For other Special Status species, a protection buffer will be decided upon on a case-by-case basis, depending on the species' habitat requirements.

Burns in areas containing special status plant species would follow prescriptions that result in "cool" burns which minimize potential damage to plant populations. Prescribed fire operations would be done in manner which strives to reduce or eliminate burning through identified Special Status plant population areas depending on the adaptability of each species to fire. Prescribed fire contracts would articulate the necessary steps to reduce or eliminate fires in these sensitive areas.

i. Wildlife Resource Protection

Surveys will be completed prior to the implementation of the proposed actions for all suspected Threatened and Endangered species and Survey and Manage species as called for in the NFP, RMP and Endangered Species Act (1973) to established protocol standards. If species are located within or adjacent to the sale area, established protection measures would be implemented.

Formal consultation with the U.S. Fish and Wildlife Service has been completed. Additional consultation would result if:

- (1) New information reveals that the effects of the proposed action may affect listed species or critical habitat in a manner or to an extent which was not considered in the biological opinion.
- (2) The proposed action is subsequently modified which causes an effect to a listed species or critical habitat in a manner or to an extent not considered in the biological opinion:
- (3) A new species is listed or critical habitat is designated that may be affected by this action.

Del Norte salamander sites which are located would receive a one tree width no harvesting or vegetation treatment buffer. Activities that would directly disrupt the talus layer would be avoided, such

as skid roads or yarding corridors. Precommercial thinning, slashing and prescribed burning would not be implemented within the buffers in order to maintain suitable microclimate for this species. Trees would be directionally felled away from these buffers.

Survey and Manage mollusc sites will be buffered according to accepted standards. Buffer size and strategy will be species and site specific. Activities that would directly disrupt the talus layer would be avoided, such as skid roads or yarding corridors. Precommercial thinning, slashing and prescribed burning would not be implemented within the buffers in order to maintain suitable microclimate for these species. Trees would be directionally felled away from these buffers.

Natural meadows and grasslands greater than 1 acre in size will receive a potential site class tree length no harvest buffer around the perimeter to maintain thermal and hiding cover for big game species unless other identified in the document.

All activities including timber harvesting, burning and young stand development within a tree length buffer of snags occupied by bats will be restricted year-round.

All activities including timber harvesting, burning and young stand development within 250 ft around entire adit occupied by bats will be restricted year-round.

j. Recreation Resources Protection

Along the Umpqua Joe trail and the proposed Buckhorn Ridge trail a no harvest buffer of 20 feet on either side of the trail would be established to maintain a visual screen of adjacent harvest units. Along the Umpqua Joe trail, directionally fall trees away from the trail and do not skid logs across the trail. Retain the existing trail tread. When creating openings, consider the potential for views of the river.

Chapter 3 Environmental Consequences

A. Introduction

Only substantive site specific environmental changes that would result from implementing the proposed action or alternatives are discussed in this chapter. If an ecological component is not discussed, it should be assumed that the resource specialists have considered affects to that component and found the proposed action or alternatives would have minimal or no affects. Similarly, unless addressed specifically, the following were found not to be affected by the proposed action or alternatives: air quality; areas of critical environmental concern (ACEC); cultural or historical resources; Native American religious concerns; prime or unique farmlands; floodplains; endangered, threatened or sensitive plant, animal or fish species; water quality (drinking/ground); wetlands/riparian zones; wild and scenic rivers; and wilderness. In addition, hazardous waste or materials are not directly involved in the proposed action or alternatives.

This project is not located within the Oregon State Coastal Management Zone (CMZ). Unless otherwise noted it has been judged not to have any direct affects on the resources within the management zone nor has it been identified by the State of Oregon's LCDC as a project (by type and geographic location) outside of the CMZ but still needing a consistency review. Thus a consistency determination and review by the State of Oregon LCDC is not needed.

General or "typical" affects from projects similar in nature to the proposed action or alternatives are also described in the EISs and plans this EA is tiered to.

Tables 3-1 summarizes the acreage of different conditions and treatments pertinent to the proposed vegetation treatment alternatives. It is a summarization of some of the comprehensive treatment proposal information. It provides some of the context for assessing environmental effects of the proposed actions.

Table 3-1: Treatment Summary Summary of acres of treatment proposed in each alternative			
Proposed Treatment	Alt. 1 (acres)	Alt. 2 (acres)	Alt.3 (acres)
Estimated deferred harvest unit acres for sensitive species protection located on the matrix harvest units.	na	600+	600+
Additional harvest treatment constraints to provide more Wildlife habitat on matrix lands for late-successional species.	0	No additional harvest constraints	580 acres w/additional harvest constraints to maintain higher canopy closure
Summary of Harvest Treatments *: Commercial Thin/Group Selection (CT/MGS), Commercial Thin from Below/Limited Group Selection (CTB/LGS), Structural Retention(SR)	0	2258 CT/MGS* 987 SR*	580 CTB/LGS* 1683 CT/MGS* 882 SR*
Brushing	0	180	180
Pre-Commercial Thin	0	508	508
Fertilization of young stands	0	218	218

Table 3-1: Treatment Summary
Summary of acres of treatment proposed in each alternative

Proposed Treatment	Alt. 1 (acres)	Alt. 2 (acres)	Alt.3 (acres)
Special Forest Products	0	200+	200+
Riparian Reserve Harvest	0	0	0
Wildlife Burn and/or Hazard Reduction Burn	0	2837	2837

* This does not include any subtractions for deferrals based upon sensitive species protection.

Some of the differences between the alternatives can be found by a comparison of the tables and maps. Table 3-2 considers each of the issues outlined in Chapter 1 and compares the proposed alternatives relative to each issues. This is presented to set a portion of the stage for evaluating effects of the alternatives.

Table 3-2: Comparison of Alternatives Relative to Applicable Issues

Issue	Alternative 1: (No Action)	Alternative 2	Alternative 3
1. High stand densities throughout the project area are resulting in a population decline of pine and oak. The exclusion of natural fire has contributed to growth stagnation in some stands as well as to slow seral stage progression/succession.	No change	2258 acres CT/MGS*	580 acres CTB/LGS* 2363 acres CT/MGS*
2. There is high hazard for a stand replacing fire. Vegetation conditions in the project area are continuing to increase the fire hazard and risk. This creates an increasing probability for a large scale stand replacement wildfire.	none	2837 acres identified for fuel hazard reduction treatments and/or wildlife burn.	same as alt. 2
3. The Pickett Creek drainage has a relatively high density of roads on public land: 4 miles / mi ² .			
New permanent road construction	none	none	none
Operator spur construction on ridges	none	10,000 feet	10,000 feet
Operator spur decommissioning	none	all those constructed	same as Alt 2
4. There are some 303(d) listed streams in the project area. Listing is due to water temperature.	Most public land riparian areas will increase in density and provide cooler conditions	same	same
5. The demand for recreation opportunities is increasing on public land.	High demand would continue with no new recreation opportunities.	Some recreation demands would be met with the Buckhorn trail and improvement of Trowbridge area road.	Same as Alt 2
6. Late-successional habitat is spatially fragmented throughout the project area due to edaphic conditions and past management. The resultant habitat loss and fragmentation of late successional habitat has made dispersal difficult for those species associated with it.	No change	In the 580 acres identified for Alt. 3, the canopy closure would be between 25% and 50% after harvest.	The 580 acres identified for Alt. 3, a there would be a canopy closure of 50% after thinning harvest.
7. Noxious weeds are present in the project area and are spreading.	Noxious weeds would continue to spread.	Some control of noxious weeds	Same as Alt 2
8. There is a diversity of plant communities including those unique to serpentine soils. There are numerous Special Status and Survey/Manage plant populations in the project area.	No change	Sites would be buffered from harvest according to established protocol.	Same as Alt 2

Table 3-2: Comparison of Alternatives Relative to Applicable Issues

Issue	Alternative 1: (No Action)	Alternative 2	Alternative 3
9. The current large woody debris levels in some streams are less than ODFW benchmark standards. This suggests that fish habitat is less than optimum in these streams.	Instream large woody debris would continue to be less than ODFW standards.	Log wiers in Pickett Creek will be improved. Instream woody and rock structures would be placed into streams.	Same as Alt 2
10. The Umpqua Joe trail, a popular Josephine County recreation trail, is located in the project area.	Trail would be managed as is currently being managed, with no changes in views from the trail.	Openings may be created and some harvesting would be done in the northwest corner of section 9, where the trail passes through.	Same as Alt 2
11. Oak woodlands, meadows and other natural open spaces have declined in production of suitable browse for various wildlife species. The exclusion of the natural fire cycle has increased the encroachment and density of woody forbs.	No change	2,837 acres identified for fuel hazard reduction treatments and/or wildlife burn.	same as Alt. 2
12. 906 acres of young stands have been identified as over stocked with the potential for rapid growth after release and/or fertilization	no change	688 acres for brushing or thinning 218 acres for fertilization	same as Alt. 2
13. Poor stocking of healthy vigorous regeneration in the understory and a declining overstory are resulting in a decline in conifer annual growth. This condition has been identified on 987 acres.	no change	987 acres treated with a regeneration harvest.*	Thinnings would be substituted for regeneration treatments to maintain 50% canopy closure on 105 acres. 882 acres would be treated with a regeneration harvest.*
Estimated timber harvest level for the landscape project	none	11 MMBF* (additional reductions in volume are expected from sensitive species protection)	10 MMBF* (additional reductions in volume are expected from sensitive species protection)

* This does not include any subtractions for deferrals based upon sensitive species protection.

B. Site Specific Beneficial or Adverse Effects of the Alternatives

1. Resource: Soil / Water

a) Affected Environment

This project is located on several sections of land in six operational drainage areas (ODA's), small watersheds within the Big Hog fifth field watershed (WS). The ODA's are:

- 1) Taylor Creek (Taylor Creek WS) - this is Tier 1, Key Watershed predominately on USFS land.
- 2) Pickett Rogue (includes Pickett Creek WS and short frontal stream areas that feed about four miles of the Rogue River which is included),
- 3) Zig Zag Rogue (Frontal portion, 4.5 miles, of the Rogue and the opposite side of the river as Stratton and Hog Creeks),
- 4) Shan Rogue (includes all Shan Creek WS and west frontal area that drains into about 5 miles of the river from the mouth of Shan Creek to 0.3 mile north of Robertson Bridge).
- 5) Dutcher Rogue (includes Dutcher and Madams Creek WS's and frontal streams that feed into about 3.5 miles of the Rogue, south side, from downstream of the mouth of the Applegate to the mouth of Madam's Creek),
- 6) Finley Rogue (east Rogue frontal area that drains into about 8.5 miles of the Rogue from mouth of the Applegate to 0.3 mile north of Robertson Bridge).

Generally, the non-frontal ODA's are characterized by long, narrow to somewhat wide valley bottoms with moderately steep to very steep ridges on three sides. By contrast, the frontal ODA's are broad areas along the Rogue River that contain only short class 4 and 5 streams. The Rogue River floodplain within the project area varies in width from less than one times the bank full width to five times the bank full width. This is due to differences in stream type and presence/absence of geologic control. Highest elevation is slightly greater than 4,400 feet. The lowest elevation range, Rogue River surface, is roughly 750 to 850 feet. Main streams meander in the valley bottoms with class 3 and 4 tributaries that flow off the ridge slopes. Annual precipitation, in the form of rainfall with some snowfall at higher elevations, averages 34 inches along the Rogue River on the east part of the project area to 64 inches in the upper elevations at the southwest end of the Pickett Creek WS.

Soils in the project area are predominately (SCS, Soil Survey of Josephine County):

- Beekman-Colestine on steep sloping side slopes and ridge tops; Beekman-Colestine are moderately deep and deep, well drained, extremely gravelly loam and gravelly loam.
- Cornutt-Dubekella on moderate slopes; Cornutt-Dubekella are deep and moderately deep, well drained cobbly clay loam and very cobbly clay loam with underlying cobbly clay and very cobbly clay. Parent material is serpentine influenced.
- Dubakella-Pearsoll and Pearsoll Rock Outcrop on moderate to steep slopes; Dubakella-Pearsoll are moderately deep and shallow, well drained very cobbly clay loam over very cobbly clay loam and extremely clay. Underlying bedrock is serpentine.
- Josephine gravelly loam on moderate to steep slopes. Josephine is deep, well drained, gravelly loam over clay loam.

- Manita loam on moderately steep slopes. Manita is deep, well drained, loam over clay loam.
- Pollard gravelly loam on gentle to moderate slopes. Pollard is deep, well drained gravelly loam over dark red clay.
- Speaker-Josephine gravelly loams on moderately steep slopes. Speaker is moderately deep, well drained gravelly loams over gravelly clay loam.
- Vannoy-Voorhies on moderate slopes; Vannoy and Voorhies are moderately deep, well drained, silt loam and gravelly loam over clay loam and gravelly clay loam.
- Vermissa-Beekman on very steep slopes; Vermissa is shallow, somewhat excessively drained, extremely gravelly loam over very gravelly loam.

These soils have low to moderate forest productivity. Of particular concern is Dubakella with its clayey subsoil susceptible to disturbance/compaction and limited productivity (low calcium to magnesium ratio) and when combined with Cornutt can be susceptible to mass movement, sliding and slumping. Dubakella and Cornutt are located in 35-7W portions of sections 22, 27, 28, 29, 30, 32. Also of concern are the very steep Vermissa-Beekman, some of this soil mapping unit is steeper than 70%. Vermissa-Beekman soils are mapped in 35-7W portions of sections 18, 20, 21, 31 and 36-7W portions of sections 3 and 10.

The Rogue River from Grave Creek upstream to the Applegate River is currently listed as Water Quality Limited (Ref. 1998 Oregon Section 303(d) List) due to high pH values in the Fall-Winter-Spring, high summer fecal coliform counts, and warm summer temperature (moving 7 day average of daily maximums of greater than 64° F). Pickett Creek and Dutcher Creek are also on the 303(d) list for warm summer temperature. No other streams are currently on the 303(d) list.

The Taylor Creek Watershed is a Tier 1 Key Watershed under the NFP. That is, it is identified “for contributing directly to conservation of anadromous salmonids...and resident fish species conservation”(Pg. B-18,19 of ROD). It is predominately managed by the Forest Service.

b) Environmental Effects

1) Short and Long Term

The following table (Table 3-3) provides ratings for local hydrologic effects as compared to current condition for the various practices within the proposed alternatives. They are based on a consider all vegetative treatments on Appendix B-2 and B-3 tables, except fertilization.

Table 3-3: Hydrologic effects

ODA	Term	Type of Effect	Alt. 1	Alt. 2	Alt. 3
Taylor Creek <i>(assumes silv unit in section 7 has no work to be done)</i>	Short (1-5 yrs)	Disturbance / Erosion	0	Min.-	Min.-
		Added Compaction	0	Min.-	Min.-
		Productivity	0	Min.-	Min.-
		Sedimentation from main skid/ haul roads & landings	0	Min.-	Min.-
	Long (5-20 yrs)	Disturbance / Erosion	0	0	0
		Compaction	0	Min.-	Min.-
		Productivity	0	Min.-	Min.-
		Sedimentation from main skid/ haul roads & landings	0	0	0
Pickett Rogue***	Short (1-5 yrs)	Disturbance / Erosion	0	Mod.-	Mod.-
		Added Compaction	0	0 to Min.+**	0 to Min.+**
		Productivity	0	Min.-	Min.-
		Sedimentation from main skid/haul roads & landings	0	Slight-	Slight-
	Long (5-20 yrs)	Disturbance / Erosion	Slight-*	Min.-	Min.-
		Compaction	Min.-*	Min.+**	Min.+**
		Productivity	Slight-*	Min.+	Min.+
		Sedimentation from main skid/haul roads & landings	Min.-*	Min.- to 0	Min.- to 0
Zig Zag Rogue	Short (1-5 yrs)	Disturbance / Erosion	0	Min.-	Min.-
		Added Compaction	0	0 to Min.+**	0 to Min.+**
		Productivity	0	Min.-	Min.-
		Sedimentation from main skid/haul roads & landings	0	Min.-	Min.-
	Long (5-20 yrs)	Disturbance / Erosion	Min.-*	0	0
		Compaction	Min.-*	Min.+**	Min.+**
		Productivity	Min.-*	Min.+	Min.+
		Sedimentation from main skid/haul roads & landings	Min.-*	0	0

ODA	Term	Type of Effect	Alt. 1	Alt. 2	Alt. 3
Shan Rogue	Short (1-5 yrs)	Disturbance / Erosion	0	Min.-	Min.-
		Added Compaction	0	Min.+**	Min.+**
		Productivity	0	Min.- to 0	Min.- to 0
		Sedimentation from main skid/haul roads & landings	0	Min.-	Min.-
	Long (5-20 yrs)	Disturbance / Erosion	Min.-*	0	0
		Compaction	Minimal-*	0	0
		Productivity	Min.-*	Min.+	Min.+
		Sedimentation from main skid/haul roads & landings	Min.-*	Min.+	Min.+
Findley Rogue	Short (1-5 yrs)	Disturbance / Erosion	0	0	0
		Added Compaction	0	0	0
		Productivity	0	Min.+	Min.+
		Sedimentation from main skid/haul roads & landings	0	0	0
	Long (5-20 yrs)	Disturbance / Erosion	0	0	0
		Compaction	0	0	0
		Productivity	0	Min.+	Min.+
		Sedimentation from main skid/haul roads & landings	0	0	0
Dutcher Rogue	Short (1-5 yrs)	Disturbance / Erosion	0	Slight-	Slight-
		Added Compaction	0	0 to Min.+**	0 to Min.+**
		Productivity	0	Min.-	Min.-
		Sedimentation from main skid/haul roads & landings	0	Min.-	Min.-
	Long (5-20 yrs)	Disturbance / Erosion	Slight-*	Min.-	Min.-
		Compaction	Minimal-*	0 to Min.+	0 to Min.+
		Productivity	Min.-*	Min.+	Min.+
		Sedimentation from main skid/haul roads & landings	Min.-*	Min.+	Min.+

Footnote: Effects ratings - (-) = negative effect; (+) = positive effect; (0) = neutral effect

Min. = minimal; very little, limited to few sites;

Slight = little distributed over most affected area;

Moderate = mid level;

* Assumes high fire hazard and risk for no action alt.

** Assumes existing skid roads designated then decompacted.

The above effects are considered for the vegetative treatments shown on tables in the appendix and including related road work. Most other proposed actions would have a minimal short and long term effect.

Note that effects in the Pickett OCA are Moderate under Disturbance/Erosion Short Term. This is due to an addition of 8% of the OCA area that would be logged by cable and tractor. Of that 8%, 1% would be located on fragile serpentine soils. Sections 29 and 31 are located at the head of the watershed are proposed for extensive logging where several units were previously clearcut 12 to 14 years ago. See Cumulative Effects section for pertinent proposed mitigating measures.

Buckhorn Ridge Trail building would have short term site specific minimal erosion and sedimentation with “0” long term erosion and sedimentation effect. This reflects the ridge top placement and narrowness of the trail.

Instream Restoration/ Fisheries Enhancement would have minimal short term effects on Picket Creek of sediment addition due to disturbance from dragging logs, boulders, and replacement of a culvert. It will have a positive effect of increasing complexity of structure in the stream. It may also cause a slight reduction in stream temperature by establishing a deeper thalweg.

Trowbridge Ponds are proposed for change of access to the lower pond rather than the upper pond and use of a temporary loop and spur road to be decommissioned upon completion of burning. The Trowbridge Ponds area is a wet basin area in the midst of serpentine Pearsoll soil. It has been heavily disturbed by 4WD vehicles and surface erosion is common from wheel ruts caused by driving during wet conditions. The proposal will improve the situation by limiting access to the lower edge of the serpentine opening. If successful some of the eroded area, that part that will be used for temporary timber access will be removed from motorized access and fully decommissioned. This will reduce erosion however it won't cover the eroded side roads that not used for timber access.

Proposed Mitigation Measure #1: Prior to road decommissioning in the Trowbridge Ponds area erosion control practices will be applied to all exposed mineral soil that is subject to erosion. This may include waterbarring to disperse concentrated runoff, seeding with appropriate native species, or sterile wheatgrass if native seed is not available, and providing a protective cover of 2 inches of BLM approved straw.

An indirect effect, caused by leaving temporary roads open until fuel management is complete, will be the possible entry onto these road by 4WD vehicles. This will cause heavy disturbance and erosion on most temporary roads. This will be a short term effect.

Proposed Mitigation Measure #2: After log hauling, temporary roads would be blocked by use of a locked barrier such as guardrail barrier.

The proposed vegetation treatment alternatives should have no effect on summer stream temperatures because existing shade will be retained over all Class 1 through Class 4 streams.

Of the proposed early seral stand treatments, fertilization is the only one with potential for effect on water and soil organisms. Urea based fertilizer converts rapidly to the ammonia form of nitrogen then in a slower process ammonia form converts to a nitrate form of nitrogen. Both ammonia and nitrates are soluble in water which can affect aquatic organisms. Added nitrogen fertilizer may slow the rate of soil respiration which may be due to the depression of lignin activity of soil fungi. There also may be changes in soil fungal abundance. After nitrogen fertilizer is applied to the soil there is a build up of nitrifying bacteria. Research has shown that after application of urea fertilizer summer runoff caused by storm activity and during warm stream flows, stream water will have relatively high contents of ammonia form of nitrogen. Aquatic organisms are particularly sensitive to the ammonium form of

nitrogen. However, effects of fertilization on water quality and aquatic resources in the Douglas-fir region were recently summarized by Bisson et al (1992). This review concluded that "Peak concentrations of urea-N, ammonia-N and nitrate-N in streams, in nearly all routine fertilizer applications, are less than 50 % of the recommended limits for drinking water and protection of salmonid fishes". The designation of unfertilized buffer strips, riparian reserves, is effective at reducing peak nitrogen concentrations to streams and other water bodies.

Proposed Mitigation Measure #3: In order to minimize the risk of negative effects of forest fertilization, the following would be followed:

- 1) A seasonal restriction would be maintained so fertilization would occur when soil is cool (<70°F), moist but not saturated, and rain would occur afterward. Therefore, it would generally be permitted between September 15 and November 30.
- 2) Wind drift should be minimized by allowing no fertilization when wind speed equals or exceeds 10 miles per hour.
- 3) A Spill Prevention, Control, and Countermeasure Plan (SPCC) would be required prior to operation and would include all travel routes, staging areas, heli-spots, and off-loading sites to be used.

c) Cumulative Effects

Three indicators are used to reflect the existing conditions (cumulative effects of past activities on watershed conditions). The condition of each of these are:

Table 3-4: ODA Conditions					
ODA	% Early Seral	% Com-paction	% TSZ Open.	Road Density (mi/sec)	Comments
Taylor (Est.) - current % Add: Alt 1 Alt 2	14 (GIS) 1 1	Mod 0 0	Mod 0.8 0.8	Mod (<3) 0 0	84% Non-BLM land, 81% USFS
Pickett Rogue % Add: Alt 1 Alt 2	10 5 4	4 <1 <1	2.8 1.7 1.7	7.7 0 0	Road density is high, 50% Non-BLM
Zig Zag % Add: Alt 1 Alt 2	<5 2.8 2.8	9 0 0	1.5 0 0	4.2 0 0	Marginally High road density
Shan Rogue (Est.) % Add: Alt 1 Alt 2	High 0 0	Mod. 0 0	0 0 0	Marg Hi 0 0	67% USFS
Finley Rogue (Est.) % Add: Alt 1 Alt 2	Mod. 0 0	High 0 0	0 0 0	High 0 0	>70% Non-BLM land
Dutcher Rogue (Est.) % Add: Alt 1 Alt 2	High 2 2	High 0.1 0.1	Mod. 0 0	High 0 0	>80% Non-BLM land

The four indices included above are indicators of correlative hydrologic responses:

1) *Percent early seral* represents the areal extent of early seral vegetation on forest land. The percentages are low to high levels. The hydrologic response to high amounts of early seral vegetation is increased stream yield due to reduction of evapotranspiration rates.

2) *Percent compaction* represents the areal extent of compaction. The above percentages are low to high levels. The hydrologic response of high amounts of compaction are increased surface flows due to a decrease in infiltration. It also affects productivity as density of the subsoil is increased root growth rates are reduced.

3) *Percent TSZ openings* represents the percent of the ODA that is openings within the Transient Snow Zone. The TSZ is the elevational band (3,000 to 4,500 feet above sea level) that is most susceptible to rain on snow events. The hydrologic response in TSZ openings is high peak flows due to direct input of runoff from rain and melting snow.

4) *High road density* (4+ miles of road per square mile, or section, of land) correlates to an increase in mid peak stream flows and slight reduction in low stream flows due to interruption of shallow ground water and routing of flow off the roads to streams by way of the natural drainage system.

In addition, part of the project area is located within the Transient Snow Zone (TSZ), an elevation band where rain on snow events commonly occur (3,000 to 3,500 feet). Two ODA,s where TSZ is a concern are Taylor and Pickett. Research has shown that rapid snow melt in the TSZ during warm rain is particularly problematic in openings within the TSZ. Forests with high canopy closure (70%) tend to buffer this effect. With high extent of open areas within the TSZ, the rain with melting snow compounds the runoff potentially creating very high peak flows. Taylor Creek is a concern because it is a Tier 1 Key watershed and location of Units in sections 17 and 20 in relation to tributary streams would provide a direct route to lower Taylor Creek high peak runoff to follow. Pickett Creek is comprised of roughly 20% TSZ. It is a flashy stream, partially because the TSZ relationship and the existing amount of natural openings and openings due to past logging in the TSZ. Also, much of the proposed action is located at the head of the OCA with high drainage density and an annual precipitation that is the highest in the project area (46-60+”).

Proposed Mitigation Measure #4: Within the TSZ of Taylor and Pickett ODA’s maintain 70% canopy closure. If canopy closure is currently less than 70% in a given unit there would be no entry.

Another concern is the additions to the extent of early seral vegetation within the Pickett Rogue ODA. This is the compounded relationship between high peak flows and increased stream yield created by an increased TSZ openings coupled with increased area of early seral vegetation; that is, higher peak flows than currently occur within a regime of overall greater flows than currently occur. The existing road system also has a role in directing runoff to the stream system. The above mitigating measure would lower the added early seral vegetation for each of the alternatives by approximately one percent. This will also reduce short term effects of moderate erosion and disturbance in the Pickett Rogue ODA.

At the 5th Field Watershed level this proposal would add effects of increased peak flows of Pickett Creek into the Rogue River, however, this would have little measurable effect on the flow rate of the Rogue. This 5th Field Watershed (Rec Section of the Rogue) has some ODA’s that have high levels of compaction and road density. Of those, this proposal would add only 0.1% compacted area in the Dutcher Rogue ODA due to cable logging. This would have a non-measurable effect at the 5th Field level where overall compaction is estimated at moderate levels.

Concerning 303(d), Water Quality Limited, listing of streams in the 5th Field Watershed, this proposal would have no effect on summer temperatures for the Rogue River, Pickett Creek and Dutcher Creek. This proposal would also have no effect on pH values and summer fecal coliform counts for the Rogue River. In other words, this project would not add negative effects that would contribute to the water quality limits for 303(d) listed stream in this 5th Field Watershed.

2. Resource: Vegetation

a. Affected Environment

1) Landscape Trends

The natural disturbance pattern created by reoccurring wildfires has been affected by successful fire suppression efforts in the last century. The vegetation pattern has also been affected by other cultural influences such as forestry, farming, mining and rural development. This has resulted in two areas of concern in the existing landscape pattern:

- C Fire suppression has shifted species composition from Ponderosa pine and oak woodlands to stands that are dominated by Douglas-fir. Stand densities of trees and shrubs have also been increased to levels that slow seral stage progression and are subject to a stand replacing wildfire.
- C Past forestry practices of harvesting and stand development have also shifted tree species composition from Ponderosa and Sugar pine to Douglas-fir. Past practices have also resulted in more forest stands with only one or two age classes.

The vegetative conditions of the watershed are not constant and have changed frequently with the historic disturbance patterns. Disturbance has played a vital role in creating diverse vegetation types, structures and densities. Fire, insects, disease, periods of drought and the resultant tree mortality have always been components of ecosystem processes. When forest density, species composition, stand structure (variety of tree sizes, presence of snags and large down logs, etc.), populations of insects, presence of disease, incidence of stand replacement fire events, and tree mortality occur outside the range of natural conditions, the balance within the ecosystem is subject to stress. Historically, in southwestern Oregon when stand densities approached high levels, there would be an increase of low intensity fires that would burn over long periods. Very large areas were burned in a mosaic pattern with the fire progressing at different intensities across the landscape.

Fire suppression has contributed to dense pole stands developing over much of the watershed. These have crowded out less shade tolerant mid-seral species such as Ponderosa pine, Sugar pine and oaks. Stands consisting of dense poles or small diameter trees are more vulnerable to stand replacement wildfire. Past fire suppression has also permitted tanoak to become a much more significant stand component than in the past in the watershed.

Past forestry practice in the watershed have also tended to simplify forest structures and alter the mix of seral and age class distributions. Species such as Ponderosa and Sugar pine, California Black Oak and Pacific madrone have historically been important components of the forests. These are mid-seral species and flourish in the less dense and more open canopy conditions that existed in the forests of the watershed prior to fire suppression.

b. Environmental Consequences

1) Alternative 1: No Action

a) Short and Long Term Effects

Stand seral progression would be stagnate and current trends would continue. The area would remain a high hazard for a stand replacement fire. If the stand replacing fire occurs, mid and mature seral stages could be reverted back to early seral stages if the intensity is high.

b) Cumulative Effects

The area would be vulnerable to repeated stand replacement forest fires whenever fire hazard rebuilds.

2) Alternative 2: Proposed Action

a) Short and long term

Vegetation effects resulting from the proposed action are within the range of effects described in the EISs of the RMP and the NFP.

The structural retention treatment will regenerate new stands beneath the older, slower growing, large trees that will result in more stands with productive understories. These understories would progress from early to mid seral stages in a shorter period of time.

The proposed thinning treatments would develop more multi-canopy structure and increase the progress of stands to subsequent seral stages. The proposed action will cause the necessary disturbance to provide growing space for additional canopy layers to form. As a result, growth rates which are currently slowing will increase. Tree vigor and resiliency to insect and disease attack will be enhanced as competition is decreased. There will be an increased commodity potential on treated lands.

Brushing and precommercial thinning will concentrate the moisture, light and growing space on fewer trees. Both the release and thinning treatments will bring conifers more quickly to the pole stage than in an untreated stand.

The constraint and deferral of an additional 700 acres of matrix land (estimated) for the protection of sensitive species would result during the implementation of Alternate 2. The actual amount of acreage with high canopy closure in Alternative 2 would be comparable to those proposed in Alternative 3 (580 acres).

b) Cumulative Effects

The reduction of stand densities across the landscape will lower the probability of a stand replacement fire. Future commodity potential will be enhanced.

3) Alternative 3: Proposed Action

a) Short and long term

The effects would be similar to those described for alternative 2 with the exception that it will not fully treat 580 of matrix land. An additional 700 acres of matrix land (estimated) will also not be treated in order to protect sensitive species.

Alternative 3 does not fully address the density management issues on those acres. The described benefits of density reduction would be deferred for those acres that would be left unthinned. The amount of acreage deferred from full density treatment in Alternate 3 would actually approach 1400 acres of matrix land, in total.

b) Cumulative Effects

These stands would be candidates for future commercial harvest sooner than stands in alternative 2.

4. Resource: Botany

a. Affected Environment

The Big Hog watershed, where this project is located has the highest number of Survey and Manage or Special Status plants in the Grants Pass Resource Area, outside of the Illinois Valley. A high diversity of plant communities is the reason for this high number of populations. The Matrix lands in this watershed appear to harbor better habitat for Survey and Manage species than is found in the LSR.

1) Survey and Manage Vascular Plants

Six populations of *Cypripedium fasciculatum* were found in T35S-R7W-Section 15, T36S-R7W-Section 27 and T35S-R7W-Section 28. One population of *C. montanum* was found in T35S-R7W-Section 28. *Cypripedium fasciculatum* (CYFA) and *C. montanum* (CYMO) habitat occur primarily on moist, northerly aspects (anywhere from west to north to east slopes) in older forests with 60% to 100% canopy closure. These orchid species are very long-lived, perhaps as long as 95 years (Mgmt. Recommendations 1998), can take up to 15 years to emerge above ground and require specific mycorrhiza* for germination and establishment. *C. fasciculatum* occupies a range from central Washington to northern California with some scattered populations in the Rocky Mountains. The species sparsely covers this range and is currently considered threatened or sensitive in most states. It is a Bureau Sensitive species under BLM policy, a Species of Concern under the Federal ESA, and is a Survey and Manage (Strategy 1 and 2) species. *C. montanum* can be found in this same range and also extends into Alaska. It is rare in southwestern Oregon with fewer known populations than *C. fasciculatum*. It is also a Survey and Manage (Strategy 1 and 2) species. These species have been found growing together in the same location.

The Management Recommendations for Vascular Plants (1998) state for both these *Cypripedium* species that: 1) habitat conditions be maintained or restored in population areas, 2) canopy closure be maintained at 60% or greater, 3) down logs, snags and duff layer be maintained for soil moisture and mycorrhizal associates, 4) activities that alter soil, duff, downed wood and mycorrhiza be avoided, 5) known sites be secured from prescribed fire, except in research areas, 6) population areas be large enough to maintain microclimate, 7) biological/ecological requirements at each life stage be managed, and 8) environmental change be managed in such a way as to ensure evolutionary potential.

Six populations of *Allotropia virgata* were found in T35S-R7W-Section 15, T35S-R7W-Section 26, T35S-RW-Section 28 and T36S-R7W-Section 27. *Allotropia virgata* occurs in upland closed canopy

pole, mature and old growth seral stages in various plant series. The largest populations occur in old growth and most are highly isolated from each other. The species ranges from British Columbia to California. The species requires coarse woody debris and it may not emerge above ground every year. This species is a Survey and Manage (Strategy 1 and 2) species. The Management Recommendations for Vascular Plants (1998) state similar recommendations as the *Cypripedium* species, except that canopy closure should remain at 70% or greater.

2) Survey and Manage Non-vascular Plants

Twenty-one populations of *Dendroscopula intricatulum* (a Component 1 lichen) were found in T35S-R7W-Section 21, T35S-R7W-Section 29 and T36S-R7W-Section 27. This species is extremely rare. Only 20 other populations are known within its range that extends from Alaska to northern California. It is found on black oaks on ridges where high moisture is being provided by the surrounding Douglas-fir forests. It is highly dependent on intact forest to protect its moisture requirements. It is also a cyanolichen which means it is highly susceptible to air pollution such as smoke from fires. Management recommendations (currently waiting final approval) require that its habitat/microclimate not be disturbed.

Eight populations of *Buxbaumia viridis* (a Protection Buffer species) were found in T35S-R7W-Section 10, T35S-R7W-Section 15, T35S-R7W-Section 29, T36S-R7W-Section 3, T36S-R7W-Section 27. This species grows on very old, decaying logs which should not be disturbed in order to protect populations. Effects can be mitigated by the project's PDFs.

One population of *Lobaria hallii* (a Component 1 lichen) was found on one tree in T36S-R7W-27. This species also can be found on black oak or madrone. Due to the small population size, effects can be mitigated by the project's PDFs.

3) Special Status Plants

Other Special Status species that may require buffering throughout the project area are *Camassia howellii*, *Arabis modesta*, *Lewisia cotyledon* var. *howellii*, *Microseris howellii*, *Sedum moranii*, *Fritillaria glauca* and *Delphinium nudicaule*. *Camassia howellii* and *Microseris howellii* both grow in serpentine grasslands, scattering over large areas. *Fritillaria glauca* also grows in serpentine grasslands, but is found in much smaller numbers. It is unknown if fire would disturb the *Camassia* or *Fritillaria* species, but the *Microseris* species is known to thrive after low intensity prescribed fire. The *Arabis*, *Lewisia* and *Sedum* species are all quite rare (9, 6 and 15 populations in the resource area, respectively) and are found on rock outcroppings. All of these populations occur in the Big Hog Watershed. Effects of the Pickett Snake proposed actions should be minimal on these populations except from possibly recreation. The *Delphinium nudicaule* population is found in a grassland in T36S-R7W-Section 3. It is also very rare in this region with only two other known populations in the resource area. It is more common in California.

b. Environmental Consequences

1. Alternative 1: No Action

The effects of the No Action alternative on Survey and Manage or Special Status species would be both beneficial and adverse. Canopy closures and the limited moist microsites would continue. Ecosystem function and habitat conditions required for the survival of the Survey and Manage species would

continue.

The adverse effects of the No Action alternative on special status or Survey and Manage species would be the increased risk of wildfire. Areas with high fuel hazards and dense stands would continue to cause an increasing risk of fire ignition in these areas. The risk of high intensity fire increases could threaten *Cypripedium* populations which have been shown not to survive such fires (Management Recommendations, 1998).

2. Environmental Consequences Common to All Action Alternatives

a) Recreation trail management

Effects on Survey and Manage or Special Status species are currently unknown as the trail was not laid out on the ground or mapped. Surveys will be completed and mitigation developed once the trail is planned. Any special status plants found in rock outcroppings along the route will be protected by re-routing the trail.

b) Riparian Reserve Treatments

Riparian reserves are primary habitat for Survey and Manage non-vascular species. As with the vascular Survey and Manage species, these species require moister microsites. The substrate for lichens and bryophytes can be the trees (especially hardwoods) and shrubs within riparian areas. At this time, effects on specific populations cannot be determined since surveys are not complete. It can be postulated, though, that habitat could be affected in the form of reduction of substrate for existing populations and for the establishment of new populations. Connectivity of habitat is very important for such species. Cutting of understory vegetation could alter the microclimate outside of the ranges for Survey and Manage non-vascular species. These trees and shrubs also act as refugia and provide the complex canopy structure required to protect species diversity and to act as dispersal centers for riparian-dependent species. Therefore, the effect of removal of pre-commercial sized trees and shrubs in these riparian reserve areas could reduce the ecological function of these reserves in relation to non-vascular species diversity and species dispersal.

c) Noxious Weeds Eradication

Noxious weed eradication would be beneficial to any native plant species, not just Survey and Manage or Special Status. By eliminating or controlling these populations, native species will be able to compete for space and biodiversity will increase.

d) Fuel Hazard Reduction Treatments

Fire and fuel treatments reduce hazardous fuels levels which could otherwise lead to catastrophic fire and destruction of plant populations and their habitats. This would be especially devastating for those areas with late-successional habitat. Enhancement of pine, oak woodland and meadows will contribute to increased biodiversity for plant species in areas where tree encroachment or build up of thatch from grasses has occurred. Such projects reduce competition and encourage less common species to thrive. It is unknown what the effects of fire are on the special status plants found in grasslands in the project area.

Potential Monitoring: Fires in areas with special status plants need to be monitored more intensively to relate fire behavior and population health after burning. Establish a monitoring program to track

effects of fire on such species.

Although fire can be beneficial for some plants and their habitats, care must be taken with such projects since Survey and Manage non-vascular species could be found on tree boles or shrubs, especially on black oaks. Prescribed burning could kill the species, *Dendroica intricatulum*, which grows on boles of these trees, either directly by flames or indirectly from smoke. Mechanical thinning could also remove species and reduce substrate for dispersal of such species.

Proposed Mitigation Measure #5: Establish protection buffers around populations at risk from fire projects of at least 200' radius. Ensure that prescriptions provide for low flame lengths in areas adjacent to Survey and Manage non-vascular species on tree boles.

e) Special Forest Products

Special Forest Product projects provide a practical means of eliminating hazard fuel build up in some high density stands. This could be beneficial for plant habitat by reducing the threat of catastrophic fire. The cutting of black oak for firewood would have an effect in areas where *Dendroica intricatulum* may be located.

Proposed Mitigation Measure #6: Potential firewood cutting units would be reviewed case-by-case to determine presence of *Dendroica intricatulum*. Limit firewood cutting to designated areas where the species has not been found.

f) Roads/Transportation

As long as decommissioning takes place with native grass seed as much as possible, no environmental consequences should be significant. The loop road in Section 15 near Trowbridge Ponds does have an *Allotropa virgata* population adjacent to it.

Proposed Mitigation Measure #7: Locate the road so that it avoids the *Allotropa* population.

3. Environmental Consequences of Vegetation Treatments

The differences in level of effect on botanical resources is in direct proportion to the amount of habitat affected by treatment. It is not just a result of the number of acres treated but also the size of intact habitat treated and the size of remaining habitat left available for re-establishment. The Management Recommendations state that size and quality of habitat are important factors for the survival of *Cypripedium* species. Therefore, when assessing treatment alternatives for effects on botanical resources, the most important aspects to review are the number of acres within the oldest stands that will have ground disturbance taking place and the type of disturbance (*i.e.*, dispersed treatments versus concentrated treatments). The variable of importance for the Picket Snake project is the type of disturbance taking place for each alternative, because structural retention will reduce canopy closure more than commercial thinning.

For all alternatives, while short term direct effects may be mitigated by the procedures outlined in the PDFs, long term indirect effects could include a reduction in population size and productivity of individual *Cypripedium fasciculatum*, *C. montanum* and *Allotropa virgata* populations within protection buffers. There is no definitive information available on whether buffers will protect these species' populations in the long run. Disruption in mycorrhizal connections could be detrimental over

an extended period of time to the productivity of the population.

Indirect effects will occur from harvesting in potential habitat (*i.e.*, late-successional forest habitat). These effects are compounded because of the naturally fragmented, sparse nature of potential habitat in the project area. Whether the treatment is commercial thinning or structural retention, the ground disturbance from such activities could be detrimental to any Survey and Manage populations that may be dormant presently or to any establishment of new populations from intact habitat. This is because the treatments would disrupt the mycorrhizal connections necessary for survival of these species.

Depending on the treatments, the canopy will be opened to varying degrees that could alter microsite from one of moisture and shade to more open, dry conditions. In Alternative 2, as mentioned in the Wildlife section, late-successional forest conditions will be reduced by 80% in the project area due to the amount of structural retention proposed. Structural retention will reduce canopy closure to an estimated 25% level which will eliminate any potential habitat in these units. The effects will be most detrimental in T35S-R7W-Section 15(005) and T36S-R7W-Section 27(020 and 021) where multiple *Cypripedium fasciculatum* and *Allotropa virgata* populations are located. The current Management Recommendations (1998) state that canopy closure should be maintained at greater than 60% for protection of microsite for these vascular Survey and Manage species.

Proposed Mitigation Measure #8: Defer units 15.005, 27.02 and 27.021 from structural retention harvest prescription.

In the commercial thinning units of Alternatives 2 and 3, *Dendriscoaulon intricatum* becomes a concern. Under commercial thinning, canopy closure is reduced to approximately 40%, which greatly reduces the capacity of forests surrounding these populations to maintain the requisite microclimate for this species. According to the Regional lichen specialist, all populations of this species should be protected, not just the trees they reside on, but also the surrounding forest which provides the moisture. A rough estimate of an appropriate buffer size would be at the least 200' radius from the population. Due to the scattering of the species, buffers may have to be quite extensive to be effective.

Proposed Mitigation Measure #9: Defer units T35S-R7W-Section 21.004 and T35S-R7W-Section 29.013 from harvest to protect populations of *Dendriscoaulon intricatum*. The species is spread throughout the unit making buffering of individual populations difficult. Total acres deferred in these two units would be approximately 190.

c. Cumulative Effects

Most of the BLM administered Matrix land with merchantable timber in the Rogue - Rec 5th field watershed is or will be included in landscape projects with timber harvesting activities. This can also be said for BLM matrix land in adjacent watersheds. In southwestern Oregon, no official habitat assessment has been done, but of the known *Cypripedium* population sites on BLM land, the majority are being affected by timber projects through canopy thinning, ground disturbance and habitat fragmentation. Of the known populations, the majority are being protected through buffers that have not been proven to ensure viability for a specific population. The LSR adjacent to the Pickett Snake project area does contain *Cypripedium fasciculatum* populations, but may not be providing mitigation for these species, since the majority of populations and potential habitat exists in the lower elevation, mixed evergreen vegetation of the Matrix land allocation.

The reasonable foreseeable future actions that will take place in the matrix and on county and private

land will include continued timber harvest, understory treatments and clearing of forest land for development. More special status plant populations will continue to need buffering as more actions are planned on federal lands. Also, any populations on non-federal lands will most likely remain unprotected. The long term effect is a decrease in the ability of populations to maintain or to expand from these small islands of undisturbed ground into surrounding altered habitat and a decrease in the chances for persistence of these Survey and Manage species in southwestern Oregon.

Definitions/Management recommendation Citations

* Mycorrhiza are underground fungi that provide a close physical association between the fungus and the roots of a plant, from which both the fungus and plant appear to benefit. A mycorrhizal root takes up nutrients more efficiently than one not associated with mycorrhiza. Mycorrhizal fungi (also known as ectomycorrhizal) are essential for host plant nutrient uptake and play important roles in nutrient cycling in many forests. Studies from the Pacific Northwest indicate that forest management activities can reduce populations of mycorrhizal fungi and forest regeneration success (Luoma, Eberhart, Amaranthus 1997).

Management recommendations have been based on the Record of Decision (ROD) Northwest Forest Plan, the Medford District Resource Management Plan, the BLM Manual 6840, Medford District botanist advisement and professional knowledge.

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5. Resource: Wildlife - special status / S&M species and their habitats

a. Introduction

The Pickett Snake project area is located in the Rogue - Recreation 5th field watershed. The proposed action lies primarily in the Pickett, Zigzag, Shane and Dutcher Creek drainages tributaries to the Rogue River. Federal lands in this watershed are managed by the BLM and the USFS. The BLM manages 39,085 acres (41% of the watershed) of public land in the watershed. The majority of the BLM lands are dominated by forest, with small inclusions of non-forested areas. Past land management action within this watershed include recreation, mining, road construction, and timber harvest.

The Big Hog watershed has a mix of NFP land use allocations. A portion of the Fish Hook/Galice Late-Successional Reserve (LSR) is located in the northwest corner of the watershed. There are 13,765 acres of late-successional reserve managed by the BLM in the watershed. The primary purpose of this allocation is to provide habitat for late-successional forest species. In addition the USFS manages the Taylor Creek LSR. This small reserve was primarily set up for its critical anadromous fish habitat and the low elevation to high elevation old-growth forest pattern. Currently the Taylor creek LSR supports two northern spotted owl locations. The remainder of the land located in the watershed is designated as matrix, Congressionally Withdrawn Areas (Rogue Wild and Scenic River), riparian reserves and Managed Late-successional Areas (Northern Spotted owl cores).

As of this date, surveys have not been completed for all special status species including species identified as Survey and Manage species (Appendix J-2 of the Record of Decision) but potential habitat

does exist throughout the proposal area. In light of this, the discussions of impacts for these species will be based on the assumption that there will be an alteration of all potential habitat. For the purposes of this discussion it will be assumed that habitat is occupied. The actual real effects will be equal to or less than what is being analyzed.

The land within the project area provides habitat for a number of sensitive species including 2 pairs of Northern Spotted owl* (*Strix occidentalis caurina*), Red tree vole* (*Phenacomys longicaudus*), Great Gray owl (*Strix nebulosa*) Tail dropper slugs* (*Prophysaon* spp.) Red-Tailed hawk* (*Buteo jamaicensis*), Marbled murrelet (*Brachyrampus marmoratus*), Bald Eagles (*Haliaeetus leucocephalus*) Del Norte Salamanders* (*Plethodon elongatus*) Goshawks (*Accipiter gentilis*), and other raptors as well as all five species of Buffer species bats identified in Record of Decision (ROD)(* these species have been detected). Habitats within the planning area include woodlands, riparian, meadows, late-successional forest, snags, down wood, Jeffrey Pine savannahs, serpentine meadows and brushfields.

BLM managed lands in the Rogue - Recreation 5th watershed cover an estimated 37,678 acres of which approximately 5,910 acres are late-successional forest habitat suitable for species such as the Northern spotted owl. Approximately 4,667 acres or 61% of this habitat is located in the LSR. Topography, soils, past fire history and logging have combined to create a diverse and highly fragmented level of late-successional forest habitat in the remainder of the watershed.

b. Habitat

1) Affected environment - project level scale

The project area lies near the southeast part of the Rogue - Recreation 5th watershed and adjacent to the Taylor creek LSR. Elevation ranges from 3,700 feet on the top of Buckhorn peak to 700 feet along the banks of the Rogue River. The proposed project area incorporates approximately 10,500 acres in which a series of actions are proposed including recreation, fuel reduction, wildlife habitat improvement project as well as timber harvest. Timber harvest is proposed for approximately 3,320 acres under both action alternatives. Most of the stands are dominated by Douglas-fir and ponderosa pine plant associations. The majority of them will be entered for the first time under the action alternatives. Most stands identified for commercial harvest represent late-successional forest habitat with canopy closure greater than 60%. These stands provide habitat for a variety of old growth/mature forest associated wildlife species such as the northern spotted owl, northern goshawk, red tree vole, brown creeper and hermit warbler. The project area has approximately 2,196 acres of late-successional forest habitat on lands managed by the BLM. This habitat is located sporadically across the project area due to inclusion of serpentine soils which results in a naturally fragmented forest landscape. As a result the habitat and connectivity corridor/refugia they provide are extremely important for late-successional forest dependent species.

Nonforested habitats such as serpentine meadows, oak woodlands and Jeffrey Pine savannahs are prevalent in the project area. These habitats are partially dependent on fire for maintenance and restoration. The majority of these lands have not burned for more than 50 years and are currently at the edge of the natural range of condition. Under natural conditions the fire return interval into these habitat types ranges from 15-30 years.

The condition of vegetation in riparian areas varies greatly in the watershed due to the level of past management. Areas where adjacent upland units have been logged using clearcut methods are common in the upper portion of the Pickett creek drainage. Here riparian vegetation is either early seral or early

seral with a narrow band of late-seral (approximately 20 ft wide). In general these areas do not provide dispersal quality habitat for late-successional dependent species. Other portions of the drainage that have never been entered for timber harvest, such as the upper reaches of Panther creek, have ecological functioning riparian vegetation which provide dispersal habitat for late-successional species.

2) Environmental consequences to habitats

a) Alternative 1: No Action

The no action alternative would be both beneficial and potentially detrimental to wildlife species. Late-successional forest habitat levels would continue at their current rate providing habitat and dispersal opportunities for a host of late-successional forest dependent species. Snag and down wood cycling would continue unabated. Species utilizing this habitat such as the Pileated woodpecker would benefit from the increased level. The forest maturation process would continue at the current rate. Development of larger trees and canopy layers would continue at their current rate. Stand development patterns would continue to differ from the pre-fire suppression period (natural disturbance regimes). Fire would continue to be excluded from the ecosystem to the greatest extent possible. Forest fuels would continue to accumulate. Existing fire conditions in understory and surrounding vegetation will continue to put the existing old growth and mature forest habitat at risk for a stand replacing fire. The actual affects of a potential fire are impossible to gauge. Late-successional habitat can benefit as well as be devastated by a fire depending on the severity. A moderate ground fire may benefit late-successional forest by creating gaps in the canopy, encouraging shade intolerant tree species and increasing the forest complexity. Tree species that are high fire tolerant and shade intolerant such as California black oak, Oregon white oak and pine would continue to be lost from the stand. Stand structure complexity would continue to be simplified by the loss of tree species providing horizontal structure such as Pacific madrone and California black oak. Species utilizing these tree species for mast and berry crops as well as cavities and nesting structure would loss habitat.

Early seral forested stands would continue to develop on their current successional trajectory. Species utilizing early forest conditions such as elk would slowly lose their current level of browse through succession.

Trends in pine, oak, Jeffrey pine savannahs and serpentine meadows would continue with a decline of their extent and vitality due to the invasion and encroachment by fire intolerant species. Current trends in habitat change of these plant associations adversely affect wildlife species like the flamulated owl, western blue bird and violet green swallow. These bird species prefer the white oak and ponderosa pine plant associations for nesting and foraging and have been experiencing population declines in the past 10 years (Andelmand and Stock, 1994).

Riparian areas and associated upland vegetation would continue to develop at their current rate. Areas dominated by early seral vegetation would continue to hinder the dispersal of species associated with older forest but provide habitat for species associated with early seral vegetation. Areas with mature/old growth forest would provide for quality dispersal habitat for species associated with older forest.

b) Alternative 2 and 3: Action Alternatives

(1) Similar affects in both Alternatives 2 and 3

Alternatives 2 and 3 will have similar effects amongst mature/old growth stands that provide late-successional forest habitat. Both action alternatives will reduce the amount of late-successional habitat from 2,196 acres in the project area to 482 acres (80% reduction). On the BLM portion of the 5th field watershed, late-successional habitat would be reduced from 8,106 acres to 5,910 acres of which 4,667 acres or 78% will remain in the Fish/Hook Galice LSR. The remaining 1,243 acres will be scattered outside the LSR on both sides of the Rogue river. The loss of significant acreage of late-successional forest habitat (80%) in the project area would negatively affect late-successional species through habitat loss and fragmentation. Species with large home range requirements such as the spotted owl would most likely be lost in the project area. Species with smaller home range requirements such as the Red tree vole maybe able to persist in the project area, but may be isolated from other such populations until such time when habitat conditions recover.

Two prescriptions types are being utilized under the action alternatives. Stands which receive a commercial thin with a modified group select retain some of the structural components of older forest including a recruitment source for snags/down wood, large trees and multi-story canopies but lack the high canopy closure associated with late-successional forest habitat. The more open conditions may lead to increase in predation as more generalist species such as the Great horned owl (*Bufo virginianus*) move in and compete with interior forest species.

By reviewing similar prescriptions and harvests that have occurred in the Pickett creek drainage (Cheney Buck L timber sale harvested in 1997) one can postulate on the affects to canopy closure. Post harvest stands will be more open with an anticipated canopy closure of less than 40% in commercial thin units and 25% in structural retention units. Areas with open canopies allow for greater competition between generalist species and old forest obligate species. Micro-climatic conditions and micro-sites that some species need may not be met in stands with canopy closure less than 40%. For example *Prophysoan* slugs (survey and manage species) appear to require cool moist forest floors and maybe absent from warmer drier conditions that are anticipated post harvest. In general, these areas will no longer provide late-successional habitat. Units with intact mature/old growth riparian areas or Managed Late-successional Areas (MLSAs) due to the presence of Del Norte salamanders may still continue to provide for late-successional habitat conditions depending on their shape and size. Small size areas (<25 acres) or narrow areas will no longer provide interior forest condition, but may provide refugia for species with small home ranges such as the Red tree vole. Larger MLSAs will provide late-successional habitat. At this time (5/99) surveys for Del Norte salamanders are incomplete and it is impossible to determine the affects that MLSAs will have on the extent of late-successional forest habitat in the project area.

Tree species that are high fire tolerant and low shade tolerant will be retained in the stand. This includes species such as California black oaks and Pacific madrone that provide the majority of the horizontal structure in the late-successional forest in the project area. These trees improve the overall quality of the forest by producing mast and berries, as well as provide nesting and resting structure for wildlife. They are also host plants for a number of mycorrhizal species that produce fruiting bodies that species such as the Northern flying squirrel (*Glaucomys sabrinus*) uses as a primary food source. In addition, a number of mollusc are known to utilize hardwoods litter as food. Retaining these components in the forest maintains a structure more similar to natural conditions.

Current snag levels vary within the project area due the level of past management. Stands that have never been managed for timber are generally rich in snags and exceed the minimum level considered to be optimal for 100% retention (3.1 per acre) but have the potential to have levels impacted by timber harvest. Other units that have been entered in the past for timber harvest are currently snag deficit. In

these units, species associated with snags and down logs have been negatively impacted. Project design features will retain snags where feasible but loss of snags to facilitate harvest and provide for safe logging conditions will contribute to the loss of additional snags.

Proposed Mitigation Measure #10: In areas of snag clusters (> 8 snags) buffer out the cluster by 1 tree length to ensure the drainage retains a high level of snags.

(2) Differences in alternatives 2 and 3

The greatest difference between the action alternatives will be in the level of post harvest structural complexity and recovery time in the identified 580 acres. Alternative 3 will retain a greater level of canopy closure, potential snag/down woody recruitment, and a higher level of horizontal and vertical structure. Stand recovery rate into late-successional forest habitat will occur approximately 10 years sooner. These stands will maintain a greater level of connectivity and allow for a higher level of dispersal than alternative 2. Species that utilize late-successional forest habitat will have a higher potential to persist in the drainage than under alternative 2.

c. Environmental Consequence of Road Work

Under alternative 2 and 3, approximately 2 miles of new temporary road would be constructed in the project area. The proposed road would require a road prism large enough to support a yarder. Post project the new roads would be decommissioned and blocked. The opportunity for off road vehicles to utilize the new road bed will still exist post blocking of the road. Off road vehicle use could increase causing increased disturbance to wildlife, which leads to stress thereby causing reduced reproduction, higher mortality and increased poaching. To discourage the use of the blocked road beds, mitigation #11 is proposed.

Road rerouting/gating/decommissioning/road improvement in the Trowbridge pond area would improve drainage and water quality to the ponds, benefitting aquatic life. Meadows and wetlands that are currently being driven through would begin to heal and provide habitat for a variety of wildlife species. Improved access would lead to a greater human presence in the area and potential for a greater disturbance, with similar effects as described above.

Proposed Mitigation Measure #11: After all treatments are completed, logging slash and debris will be deposited within the first 100 feet of all the decommissioned road beds. Any culverts installed would be removed and drainages returned to natural slope. The road bed would be planted with trees to encourage revegetation as soon as possible.

d. Environmental Consequences of fuels treatments

1) Alternative 1

Under Alternative 1, the current vegetation trajectory would continue. Stand densities would continue to increase to a point where stagnation and mortality would select out individual trees. Species associated with snags and down wood, such as the woodpeckers would benefit from the increase in habitat. The risk of stand replacing fire would continue to be high. The probability of a stand replacing fire would continue to increase. The potential loss of late-successional habitat through a stand replacing fire could lead to the localized extirpation of species associated with this habitat in the action area.

2) Alternative 2 and 3

The reduction in fuel loading, tree density and ladder fuels will reduce the opportunity for a stand replacing fire in the project area. Under the two action alternatives fuel loads will be reduced in the proposed action area. Snags and down wood habitat would be diminished. Species associated with down wood such as the Ensatina salamander (*Ensatina eschscholtzii*) would lose habitat. The reduction of hazard would lessen the possibility of a stand replacing fire in the proposed action area. The potential loss of some late-successional forest habitat would be lessened.

Habitats such as oak woodlands, serpentine meadows and Jeffrey pine savannahs would be restored towards pre-fire suppression state and would be more within their natural range of conditions. There would be a loss of habitat for some species such as Spotted towhee (*Pipilo erythrophthalmus*), but this would be naturally mitigated by the mosaic fashion of the burn. It is anticipated that portions of the units would receive little or no fire, while other areas are burned more intensely. Quality winter range for species such as elk (*Cervus elaphus*) would begin to be restored improving browse conditions for this species. In general the mosaic vegetative nature of the project area and the unique habitat they represent will be restored and preserved, benefitting species associated with these habitats.

e. Environmental Consequences of recreation projects

1) Alternative 1: No Action

Under Alternative 1 the ridge separating the Taylor and Pickett creek drainages would remain trail less. The ridge system used by a variety of wildlife species would remain secluded and undisturbed.

2) Alternative 2 and 3: Action Alternatives

The construction of the 6.5 miles of trail system in the Pickett creek drainage will increase visitation and human disturbance to a secluded ridge system. The increase disturbance would be limited to the general vicinity of the trail. The proposed project area is frequently used by species such as elk, black tail deer and black bear. This disturbance may lead to a slight increase in wildlife harassment which may lead to stress thereby causing reduced reproduction, higher mortality and potential increase poaching. This disturbance is anticipated to be of short duration and will not affect overall wildlife populations in the project area.

Proposed Mitigation Measure #12: Reroute the proposed trail around occupied Del Norte salamander habitat and key calving and feeding areas for big game.

f. Environmental Consequences to Helicopter Landings

All helicopter landings will be surveyed prior to any ground disturbing activities to insure no T&E and/or Survey and Manage species will be impacted. The use of helicopter within ½ mile of the Rogue river will be further restricted to a seasonal operating time period of March 1 to August 31 to ensure that nesting ospreys and Great blue herons are not disturbed. The potential use of a helicopter within the Hellgate canyon area has the potential to impact nesting ospreys and Great blue herons even further down stream due to the nature of the topography. The canyon walls will amplify and carry the sounds of the helicopter even further down stream than the immediate action area. It is anticipated that the seasonal operating period will mitigate potential impacts to nesting birds in the vicinity of the Rogue river.

g. Environmental Consequences to Selected Species

1. Northern Spotted Owls

a) Existing environment

There is approximately 8,106 acres of suitable spotted owl habitat managed by the BLM in the Rogue - Recreation 5th field watershed. The majority of this spotted owl habitat is located within the portion of the watershed that falls within the Fishhook/Galice LSR (4,667 or 58%). Approximately 3,439 acres of late-successional forest habitat is also located outside the LSR in riparian reserves, Spotted owl cores and matrix designated land. The USFWS has designated 24,953 acres of Spotted Owl Critical Habitat within the watershed. It is estimated that approximately 6,416 acres of the BLM portion of the Critical Habitat is suitable habitat for spotted owls. There is no Critical Habitat identified by the USFWS within the proposed action area. Currently there are eight 100 acre core areas designated in the watershed for spotted owls on BLM managed land, two of which are in the project area. In addition there is a USFS spotted owl core whose provincial home range falls within the project area

b) Consequences

(1) Alternative 1: No Action

The two spotted owl sites within 1.3 miles of the proposed project would remain at their current habitat level (see table 3-5), which is below the viability threshold of 1,388 acres (USFWS standard). It is unknown if these sites will continue to nest and produce young in the long run due to the insufficient level of habitat. The forest maturation process would continue which would be beneficial to the Spotted owl. The potential for a fire in the project area would remain high.

(2) Alternative 2 & 3: Action Alternatives

Both action alternatives would alter 2,196 acres of suitable spotted owl habitat from nesting, roosting and foraging to dispersal habitat. Alternative 2 would alter 580 acres to a greater extent than what would occur under Alternative 3 by reducing to canopy closure, snag levels and canopy layering more than alternative 3. Post harvest it is estimated that the 482 acres of spotted owl habitat would remain in the project area. It is likely that the two known owl sites will be displaced as a result of insufficient suitable habitat and all three sites eliminated from further production. Within the BLM portion of the 5th field watershed, spotted owl nesting, roosting and foraging habitat would be reduced from 8,106 acres to 5,910 acres. The majority of the remaining suitable habitat would remain within the portions of the Taylor creek and Fishhook/Galice LSR.

Both actions would lead to the reduction of forest canopies below 60% threshold which is considered to be a minimal for quality spotted owl habitat. Species dependent on late-successional forest would lose breeding (nesting), roosting and foraging habitat. Interior forest conditions would be lost exposing interior species such as the spotted owl to higher amounts of predation. In addition since 1997 two pairs of barred owl (*Strix varia*) have been detected within the Pickett creek drainage. Barred owls can persist in more open conditions than spotted owls and are known to interbreed with Spotted owls leading to a loss of genetic information on a local level. The ability of late-successional species such as the Spotted owls to persist in the Pickett drainage and re-populate habitat within the next 20 years or (until the canopy closes) would be hindered. Connectivity between the Taylor creek LSR and the Pickett creek drainage would be further fragmented. This would most likely result in the local reduction in the

spotted owl population, could result in depressed genetic information in the local gene pool. Refugia of late-successional habitat in the drainage would be highly negatively impacted. The action would affect three center of activities of spotted owls which have established core areas.

Precommercial thinning and commercial thinning stands that currently are not late-successional forest habitat may accelerate the development of this habitat or place these stands on a trajectory that will lead to a more structurally complex forest. Approximately 906 acres of precommercial thinning/fertilizing is proposed under the action alternatives.

The USFWS uses thresholds for the amount of suitable habitat around spotted owl sites as an indication of a sites' viability. Thresholds to determine incidental take have been defined as 40% of the area within 1.3 miles of the center of activity or about 1,388 acres. Incidental take, in this case habitat modification, will occur at two Northern spotted owl sites. Table 3-5 displays the effect the proposed actions would have on spotted owl sites. This project has undergone formal consultation with the USFWS and the Service has issued a Biological Opinion (#1-7-98F-392) which grants take permits for these northern spotted owls sites.

2) Red Tree Vole

(a) Alternative 1: No Action

The forest would continue to go through developmental stages towards older forest conditions which would be beneficial to the RTV and other species associated with late successional forest habitats. The potential for a fire in the project area would remain high.

(b) Alternative 2 and 3: Action Alternatives

The Red tree vole is an arboreal species of rodent with very low dispersal capabilities. The broad management objective for this species is to retain sufficient habitat to maintain its potential for reproduction, dispersal and genetic exchange. Current survey and manage protocol for this species requires surveys and specific population protection measures when less than 40% of the federal forest land in a fifth field watershed has certain canopy closure and size characteristics. It is anticipated that the Big Hog watershed will have approximately 58% of the federal forests in red tree vole habitat through the year 2000. Thus, surveys for this species are not required. In the event that nests are encountered during the planning of the alternatives, they are flagged, and generally avoided during the marking of the timber sale portion of the project. If a population (2 or more active nests within 100 m) is encountered the site will be evaluated for potential protection in accordance with the management guidelines set forth in BLM Instruction Memo OR-97-009.

It is anticipated that the proposed commercial thinning under both action alternatives will have a negative effect on the local population of red tree voles due to increase in potential predation, decrease in available habitat and possible isolation of populations. On a regional scale it is not anticipated that the proposed action will decrease the viability of the population as a whole due to the amount of habitat remaining in the watershed.

The proposed precommercial thinning and brushing throughout the project area, may hasten the development of potential red tree vole habitat in the future which could contribute to the maintenance of the species in the project area and watershed.

3) Northern Goshawks

(a) Alternative 1: No Action

The forest would continue to go through developmental stages towards older forest conditions which would be beneficial to the Northern Goshawk and other species associated with late successional forest habitats. Potential local populations would likely be maintained in the project area. The potential for a fire in the project area would remain high.

(b) Alternative 2 and 3: Action Alternatives

Potential habitat for Northern Goshawks (*Accipiter gentilis*) is located throughout the proposed treatment area. Surveys are not currently required or planned for the species. The proposed commercial thinning and regeneration harvest would modify the affected habitat from a nesting to non-nesting condition/quality. It is estimated that 2,196 acres of nesting habitat would be modified to non-nesting habitat. The affect of the timber harvest may lead to a reduction in the local population of goshawks. The proposed action's precommercial thinning and brushing would hasten the development of potential Goshawk habitat in the future which could contribute to the maintenance of the species in the project area and watershed. (If the species is encountered, appropriate measures would be taken to protect the site per the BLM Instruction Memorandum OR-99-036.)

3) Del Norte Salamanders

(a) Alternative 1: No Action

The forest would continue to go through developmental stages towards older forest conditions which would be beneficial to the Del Norte salamanders. The potential for a fire in the project area would remain high.

(b) Alternative 2 and 3: Action Alternatives

Habitat for Del Norte salamanders (*Plethodon elongatus*) would not be affected by the proposed project. Habitat is located throughout the proposed project area. Within the project area the salamanders are intricately tied to areas with rock and talus. This type of microhabitat is sporadically distributed across the landscape, occurring primarily near rock outcrops, ridge tops, and along riparian areas. Surveys for the species have located populations throughout the proposed project area. Current management directions require a 100' or 1 site potential tree buffer around known sites, which ever is greater. The action alternatives do not propose to harvest within the buffers, and there is no anticipated effects to the species.

4) Great Gray Owl

(a) Alternative 1: No Action

The forest would continue to go through developmental stages towards older forest conditions which would benefit Great Gray Owls by increasing the amount of nesting habitat. Foraging areas would continue to be encroached upon by fire intolerant plant species reducing potential foraging opportunities. The potential for a fire in the project area would remain high.

(b) Alternative 2 and 3: Action Alternatives

Great gray owl (*Strix nebulosa*) habitat is located in throughout the project area. Locally, Great grey owls have been located nesting in a variety of stand types, but a closed canopy (>60%) and room for flight is a common factor. Foraging occurs in open stands, old clearcuts, natural meadows, and agricultural land.

Current protocol for this species does not require surveys below 3,000 feet in elevation. Occasional surveys for this species have been made in the best locations in the project area but not to protocol standards. It is anticipated that this sale will modify 2,196 acres of existing habitat in the project area from nesting to non-nesting condition which could result in a local reduction in the great gray owl population.

5) Song Birds

(a) Alternative 1: No Action

The forest would continue to go through developmental stages towards older forest conditions which would maintain the current bird community composition. Over time, there would be an increase in numbers of species associated with snags and down logs as well as deep bark and forest gleaners and a decrease in birds associated with early seral vegetation and more open stand conditions. The potential for a fire in the project area would remain high.

(b) Alternative 2 and 3: Action Alternatives

In 1994 a study was undertaken in the Panther Gap Timber sale (near Williams, Oregon) to measure the effects that commercial thinning has on the composition of the song bird community. The stands examined in the study are similar to the stands identified for commercial thinning. Stands were measured for abundance and species richness (number of species), pre and post harvest. Due to the similarity of the stands it can be assumed that the effects of the two proposed action alternatives will be similar to those observed at Panther Gap Timber sale. Janes (1997) found that winter bird abundance on both south and north facing slopes were near 50% lower post harvest. Forest gleaners, the dominant group of winter birds, showed the largest declines. Species such as Chestnut-backed chickadees (*Parus rufescens*) and Red-breasted Nuthatches (*Sitta canadensis*) were among this group. It is hypothesized that these species declined due to decrease volume of foliage and bark areas and a decrease in the number of available cavities for roosting and nesting. There was a modest increase in terrestrial insectivorous in particular Winter Wrens (*Troglodytes troglodytes*) which apparently benefitted from the increase level of down wood.

Spring breeding bird populations showed similar results to those of the wintering birds. Species utilizing bark and foliage for foraging showed the greatest decline, while species utilizing down wood and open stand conditions increased. Species showing declines include Hermit Warblers (*Dendroica occidentalis*) and Nashville Warblers (*Vermivora ruficapilla*) as well as several other species. Species showing an increase include Mountain Quail (*Oreortyx pictus*), Hairy woodpeckers (*Picoides pubescens*) and House wrens (*Troglodytes aedon*). Overall it appeared that timber harvest changed structural characteristics in the stands that resulted in decreased habitat for some species and increased habitat for others.

It is anticipated that structural retention harvest will led to a greater degree of shift of song bird

population away from species requiring high canopy closure and greater structural conditions such as Brown Creepers (*Certhia americana*) to species requiring more open conditions such as Dusky Flycatchers (*Empidonax oberholseri*)

6) Bald Eagles

(a) Alternative 1: No Action

The forest would continue to go through developmental stages towards older forest conditions which would be beneficial to bald eagles. There would be an increase in nesting and roosting habitat within the proposed project area. Current habitat use would remain the same. The potential for a fire in the project area would remain high.

(b) Alternative 2 and 3: Action Alternatives

Bald eagles are known to use the project area for nesting, roosting and foraging. One active bald eagle site and two inactive nest sites have been located in the project area. Eagles nesting habitat consist of older forest, generally near water, with minimal of human disturbance. This type of habitat is located throughout the project area. Management direction for Bald eagle sites are described in the RMP (p. 55). In general the treatment prescription call for a maintenance of a minimum of 50% canopy closure as well structural components such as large trees and snags. The project has been consulted with the USFWS and all mandatory Project Design Criteria (PDCs) will be adhered to. Due to the PDC there is no anticipated affect to bald eagles in the project area.

It is anticipated that, post harvest, the units proposed for commercial thinning as a whole will not provide nesting structure for a period of 10 years or until such time that the canopy in those stands recover to a canopy closure of 50%. Units proposed for shelterwood retention and regeneration harvest will no longer provide nesting habitat in the foreseeable future.

Potential Monitoring: Continue to monitoring the existing eagle location as well as the two inactive sites until the proposed treatment is complete.

7) Molluscs

(a) Alternative 1: No Action

The forest would continue to go through developmental stages towards older forest conditions which would be beneficial molluscs requiring late-seral conditions. Foraging opportunities for species associated with shade intolerant hardwoods would diminish. The potential for a fire in the project area would remain high.

(b) Alternative 2 and 3: Action Alternatives

All lands identified for commercial timber harvest will be surveyed for Survey and Manage molluscs. If S&M molluscs are located during the survey the approved management recommendations will be implemented. This group generally require cool moist environments with the exception of *Helminthoglypta hertleini* which may utilizes rocky talus in open exposed slopes. It is anticipated that Survey and Manage species of mollusc will be detected during surveys and buffers and/or other means of protection will be implemented.

8) Marbled Murrelets.

(a) Alternative 1: No Action

The forest would continue to go through developmental stages towards older forest conditions which may be beneficial by increasing the amount of nesting habitat. The potential for a fire in the project area would remain high.

(b) Alternative 2 & 3: Action Alternatives

The entire project area is in the secondary zone (35-50 miles from the coast) and has been surveyed for Marbled murrelet. Nesting habitat for marbled murrelet consists of older forest stands with trees that have large moss-covered limbs or platforms and a high (70%) canopy closure. It is unknown at this time if the stand that contain components for marbled murrelet would be used by them. The stands in the project represent habitat that is generally hotter and drier than known occupied Marbled murrelet habitat. Surveys for this species were conducted in the project area in 1997 and 1998. No marbled murrelets were detected in the project area. There are no anticipated affects to the species.

h. Cumulative Effects.

The Rogue - Recreation 5th field watershed has been greatly altered by past management activities on State, county, private and federally managed land. Currently, the Bureau is in the process of planning approximately 5,289 acres of timber harvest and associated activities within the Rogue - Recreation 5th field watershed before the year 2000. Josephine county is completing two timber harvest projects within the watershed, one of which is within the project area. In addition, a private timber company will be harvesting a mature stand within the Pickett creek drainage this year (1999). The reasonable foreseeable future actions that will take place in the Matrix and on county and private land will include continued timber harvest. Species of late-successional forest dependent wildlife occurring on private and or county land will most likely remain unprotected. Currently the BLM, the State of Oregon, and the USFS manage the majority of the remaining late-successional habitat in the watershed. It is anticipated that, post actions on all the BLM projects in the watershed, approximately 5,910 acres of late-successional habitat will remain on BLM lands in the watershed. The majority of this habitat will be located within the Fish Hook/Galice LSR (78%). The remaining late-successional habitat will be widely scattered throughout the remaining portions of watershed. The late-successional habitat supports a number of sensitive species and allows for dispersal between the Fish Hook/Galice LSR and the South Umpqua River/Galesville LSR to the Northeast in addition to providing habitat between the Cascade and Coast mountain ranges. Within the project area the remaining late-successional forest are for the most part islands of older forest surrounded by opening of serpentine soils and/or managed plantations. These stands of late-successional habitat are extremely important for supporting biodiversity and providing refugia for late-successional species such as the red tree voles.

The result of these actions will be a reduction in the refugia capabilities of these stands, as well as a reduction in the ability of these stands to temporally and spatially function. This means that some late-successional species may be lost from the drainage as well as the eastern portion of the watershed due to habitat loss.

The proposed harvests being conducted by the BLM (Cenoak, Maple Syrup, Pickett Snake, Pickett Charge and Stratton Hog) and Josephine County will take (see definition of incidental take in wildlife Environmental Consequence spotted owl section above) all 9 known spotted owl site located in the

Rogue - Recreation 5th field Watershed outside the LSRs (see Table 3-5). There is a considerable overlap of suitable habitat on Graves Bridge, Centennial, Almeda and Stratton on Ash spotted owl sites. This overlap ranges from 50 to 90%. As a result the impacts will be greater than if there was no overlap of remaining suitable habitat. Within the project area North Buckhorn and Pickett creek overlap approximately 50% of their acreage. It is unknown if these spotted owl sites will continue to be occupied or be productive. Worst case analysis in this situation would be the loss of all eight sites until habitat grows back and becomes suitable.

Potential Monitoring: All spotted owl sites should be monitored for occupancy and reproductive status for a period of at least five years after harvesting.

site	preharvest habitat acres	postharvest habitat acres	% suitable within 1.3 miles
Stratton Creek	293	137	4
Hog Creek	266	130	3.8
Graves Bridge	644	258	7.7
Centennial	738	513	15
Almeda	718	430	13
Stratton on Ash	282	235	7
Log Cabin	1374	319	9.5
*North Buckhorn	844	353	10.2
*Pickett Creek	641	125	3.7

*Located in project area

6. Resource: Fisheries

a. Affected Environment

The following table identifies fish distribution for streams in the Pickett-Snake project area:

Stream Name	Chinook	Coho	Steelhead	Resident Trout
Pickett Creek		1.5	3.5	6.5
Panther Gulch			1.25	1.25
Dutcher Creek		2.0	2.0	3.0
Taylor Creek	1.6	6.6	14.5	17.5
Shan Creek		0.25	1.5	1.75
Limpy Creek		3.0	4.0	4.0

Chinook salmon, coho salmon, steelhead, resident trout, pacific lamprey, and other native and exotic fish use the mainstem Rogue River for spawning, rearing, or migration.

Largemouth bass, and other exotic warm water fish are found in the Trowbridge ponds in section 15. The ponds currently provides a small sport fishery.

Coho salmon are currently a listed threatened species under the ESA. Chinook salmon are currently a proposed federally threatened species. Steelhead are a federal candidate species.

The Oregon Department of Fish and Wildlife (ODFW) has identified fish habitat benchmarks. The benchmarks are used to determine if a component of fish habitat is a limiting factor in trout or salmon production or survival. The ODFW conducted physical habitat surveys in 1995 to assess aquatic habitat condition in Pickett Creek and Panther Gulch. In Pickett Creek, there are inadequate amounts of instream large woody debris. Pool depth, frequency and sediment levels within the spawning gravels are adequate for salmon and trout production and survival. In Panther Gulch, large woody debris levels, pool depth and frequency are below the benchmark levels for salmon and trout production and survival. Sediment levels within the spawning gravels do not limit the survival of trout and salmon eggs.

Summer water temperatures in Pickett Creek limit salmon and trout survival. In 1995, 1996, and 1997, the BLM completed stream temperature monitoring in Pickett Creek. The seven day average maximum temperature of Pickett Creek in 1995 was 67.0EF. In 1996 the seven day average maximum temperature was 68.5EF. In 1997, the seven day average maximum temperature was 68.4EF. The seven day average maximum temperature of Pickett Creek exceeded the Oregon Department of Environmental Quality (ODEQ) standard of 64EF every year of the temperature monitoring study.

Inventories were conducted in 1991 and 1995 to assess macroinvertebrate conditions in Pickett Creek. Almost no organisms indicative of high quality habitat were found.

b. Environmental Consequences

1) No Action Alternative

a) Short Term (< 5 years)

Road slumps, failures and fords would continue. Sediment in the spawning gravels would continue to limit salmon and trout production. Coho salmon, steelhead and resident trout populations would decrease. Instream large woody debris levels would continue to limit trout and salmon populations throughout the project area. Summer water temperatures would remain a limiting factor as well.

b) Long Term (> 5 years)

As the seral stages continue to advance in the riparian reserve, the canopy closure would increase and summer stream temperatures would slowly decrease. The size and amount of wood added to the streams would increase. This would increase pool frequency and depth, and provide rearing habitat for juvenile salmonids and adult holding areas. Additionally, the large wood would hold back additional spawning gravels and diffuse energy during high flood events, thereby reducing stream scour. As roads begin to grow over and become stable, stream sediment would decrease. Some roads may not revegetate due to the continuous OHV use. Trout and salmon production rates would remain constant. Correspondingly, trout and salmon populations would remain fairly constant.

2) Proposed Action Alternative - Riparian Reserve Treatments

a) Short Term

The proposed notching of the existing structures will improve fish passage, thereby increasing salmon and trout production. The placement of the boulders and large wood will increase habitat complexity and will improve available rearing habitat for juvenile salmon and steelhead. In addition the structures will provide resting pools for returning adult fish. This in turn will increase trout and salmon production in Pickett Creek.

The replacement or reinstallation of the culvert on the tributary to Pickett Creek will improve fish passage. Resident trout production will increase because of the alteration to the passage structure.

b) Long Term

Thinning, brushing, and burning will accelerate the progression of early and mid seral stage riparian vegetation. Canopy closure will increase at a more rapid rate and will help reduce excessive summer water temperatures. In addition, the larger trees will provide beneficial complex structure to the stream. The complex structure will improve fish habitat and will increase salmon and trout production and survival.

3) Vegetation Treatments - Fertilization

a) Short Term

There is a risk of introduction of fertilizer into the aquatic environment by spills, by misapplication that results in chemical doses which may be toxic to fish, or by Nitrogen entering streams either from runoff or leaching. The designation of full width unfertilized buffers adjacent to streams would minimize potential adverse effects.

7. Resource: Fire and Fuels

a. Affected Environment

Hazard is defined as the existence of a fuel complex that constitutes a threat of wildfire ignition, unacceptable fire behavior and severity, or suppression difficulty. *Risk* is the source of ignition be it human or lightning.

A fuel hazard and wildfire occurrence risk rating analysis was completed for the Big Hog Watershed (1998) and the Murphy Watershed (1999), which included the lands in the Pickett Snake proposed project area. The data includes 13,457 acres of BLM administered lands, and 18,261 acres of private lands, for a total of 31,718 acres.

Wildfire occurrence *risk* for all lands in the project area is rated as high overall. Acreage ratings are shown in Table 3-7.

Table 3-7: Fire Occurrence Risk Rating by Acres and Percent for 31,718 Acres Of Lands Within the Landscape of the Pickett Snake Project Area EA			
CONDITION	HIGH RISK	MODERATE RISK	LOW RISK
ALL OWNERSHIP	80 % 25,277 acres	17 % 5,308 acres	3% 1,133 acres
BLM OWNERSHIP	57 % 7,661 acres	35% 4,754 acres	8 % 1,042 acres
PRIVATE OWNERSHIP	96 % 17,616 acres	3 % 554 acres	<1 % 91 acres

The fire risk rating assigned for watershed analysis was determined during field data collection in 1997 and 1998. The current high level of risk is primarily due to human use and historical lightning activity within the project area. Risk is difficult to change or influence through land management activity as it is a function of weather events (lightning) and human behavior. Reducing public access can reduce human caused fire and affect risk, but reducing access for fire suppression forces can increase fire size and effects. Human use in the future would be expected to increase but the influence in terms of affecting risk is difficult to determine. Therefore, for the purpose of this analysis, risk is considered unchanged for the 20 year analysis period.

Fuel includes dead and down woody debris and live vegetation. The fuel *hazard* it creates is dynamic and changes over time and can be altered through land management activities. The natural process of wildfire occurrence prior to settlement in the 1800's prevented large scale fuels build-up. This fire regime was one of frequent, low-intensity surface fires which prevented excessive understory vegetation development and the build-up of large amounts of dead and down woody debris. With human settlement and the suppression of wildfire, fuels have been allowed to accumulate and dense vegetation has grown unchecked. Fuel hazard will increase over time in the absence of disturbance or land management activities which remove or reduce fuels. Without disturbance, fuel hazard conditions become more uniform and continuous. This increases the potential for large, high severity fire occurrence. Dense, overstocked stands are a contributing factor to large stand replacement fire occurrence due to the closed canopy and ladder fuel presence.

Fire exclusion has produced a decrease in the acreage of meadow and oak woodland. These areas historically were fire dependent and maintained. Encroachment by conifers and shrub species have replaced and altered these habitat areas.

Table 3-8 lists the current fuel hazard ratings. These are based on the existing situation at the time of field data collection during the summer of 1997 and 1998.

Table 3-8: Hazard Rating by Acres and Percent for 31,718 Acres Within the Landscape of the Pickett Snake Project Area EA Current Condition			
	HIGH HAZARD	MODERATE HAZARD	LOW HAZARD
ALL OWNERSHIP	65 % 20,585 acres	32 % 10,092 acres	3 % 1,041 acres

Table 3-8: Hazard Rating by Acres and Percent for 31,718 Acres Within the Landscape of the Pickett Snake Project Area EA Current Condition			
	HIGH HAZARD	MODERATE HAZARD	LOW HAZARD
BLM OWNERSHIP	58 % 7,760 acres	37% 4,998 acres	5 % 699 acres
PRIVATE OWNERSHIP	70 % 12,825 acres	28 % 5,094 acres	2 % 342 acres

b. Environmental Effects

Projections on future hazard are based on current vegetation conditions and known trends of vegetation development in the plant associations. The trend for the next 20 year period is for increasing vegetation density and/or increasing dead and down fuel accumulation. Management activities included in Alternatives 2 and 3 are analyzed along with the no action of Alternative 1. Future management activity beyond this assessment is unknown, but it would affect the hazard so this assessment assumes no future activity.

Table 3-9 shows the current fuel hazard condition rating by acres and percent for all acres of BLM land within assessment area. It projects the change in hazard over time, short term (5-10 years), and long term (10-20 years) for the No Action Alternative 1, and Alternatives 2 and 3.

Table 3-9: Hazard Rating by Acres and Percent for All Lands: Comparison of Alternatives Effect on Hazard Rating on the 31,718 Acres Of Lands Within the Landscape of the Pickett Snake Project Area EA			
CONDITION	HIGH HAZARD	MODERATE HAZARD	LOW HAZARD
CURRENT CONDITION	65 % 20,585 acres	32 % 10,092 acres	3 % 1,041 acres
ALTERNATIVE I NO ACTION 5-10 YEARS	73 % 23,225 acres	24% 7,693 acres	3 % 800 acres
	80 % 25,416 acres	19 % 5,898 acres	1 % 404 acres
ALTERNATIVE II 5-10 YEARS	60 % 18,958 acres	23 % 7,357 acres	17 % 5,403 acres
	66 % 21,063 acres	29 % 9,257 acres	5 % 1,398 acres
ALTERNATIVE III 5-10 YEARS	61 % 19,128 acres	23 % 7,422 acres	16 % 5,168 acres
	67 % 21,298 acres	29 % 9,222 acres	4 % 1,198 acres

The following assumptions were used in the assessment of effects of treatments on hazard. The time period maximum of 20 years is considered the longest time interval before further management activity

would be prescribed. Treatments which harvest timber and/or cut vegetation without treating the slash increase the hazard rating to HIGH. Hand piling and burning reduced the hazard rating to low in the short term. Density reduction treatments in both the overstory and understory with underburning or hand piling and burning reduce the hazard rating to LOW. Broadcast burning and underburning reduce the hazard rating to a LOW category. Understory treatments in conjunction with prescribed burning are considered beneficial in both the short and long term as the effect of ladder fuel reduction and stocking reduction creates a fuel profile that is less susceptible to fire reaching the tree crowns.

Stands that are not or will not be at or near mature conditions within the 20 year time frame are still susceptible to stand replacement from wildfire events due to conditions such as thin bark, high crown ratios, presence or ability to reestablish ladder fuels, and continued stand mortality. The trend in these stands is for treated and untreated areas to increase in hazard as vegetation in the understory increases, crown closure occurs, and dead and down fuels accumulate. For those stands that were underburned and are at or will reach mature conditions within the 20 year time frame, it was assumed that these stands would remain in the LOW hazard rating. Stands that are currently younger and in mid serial stage conditions, and would not have as much down fuel removed (hand pile burn units) increase in hazard by the long term period and return to the HIGH and MODERATE rating categories.

1) Alternative 1: No Action

The No Action Alternative would continue the current trend of increasing the fuel hazard over time. This alternative does nothing to reverse the trend of increasing fuel hazard. With the absence of natural, low-intensity, frequent fire occurrence, dead and down fuels and live fuels will increase over time. The fuels buildup creates conditions that lead to high-intensity, stand replacement fire.

The current condition has 65% of the area in a high hazard condition. This increases to 73% within the short time period. The shift to greater hazard condition is a result of the increasing dense stocking, multi-canopy nature of the much of the vegetation in the project area. The trend of increasing high hazard fuel conditions will continue if no hazard reduction treatment occur. High hazard reaches 80% of the acreage in the 10 to 20 year long-term time frame.

2) Comparison of Alternative 2 and 3

Table E-5 shows the change in hazard ratings for BLM administered lands by Alternative.

Table E-5 - Hazard Rating by Acres and Percent for BLM Lands Comparison of Alternatives Effect on Hazard Rating 13,457 Acres Of Land Within the Landscape of the Pickett Snake Project Area EA			
CONDITION	HIGH HAZARD	MODERATE HAZARD	LOW HAZARD
CURRENT CONDITION	58 % 7,760 acres	37 % 4,998 acres	5 % 699 acres
ALT 1: NO ACTION 5-10 YEARS	72 % 9,636 acres	25% 3,333 acres	3 % 488 acres
10-20 YEARS	85 % 11,391 acres	15 % 1,954 acres	<1 % 112 acres

Table E-5 - Hazard Rating by Acres and Percent for BLM Lands Comparison of Alternatives Effect on Hazard Rating 13,457 Acres Of Land Within the Landscape of the Pickett Snake Project Area EA			
CONDITION	HIGH HAZARD	MODERATE HAZARD	LOW HAZARD
ALTERNATIVE II 5-10 YEARS	40 % 5,369 acres	22 % 2,997 acres	38 % 5,091 acres
10-20 YEARS	52 % 7,038 acres	40 % 5,313 acres	8 % 1,106 acres
ALTERNATIVE III 5-10 YEARS	41 % 5,539 acres	23 % 3,062 acres	36 % 4,856 acres
10-20 YEARS	54 % 7,273 acres	39 % 5,278 acres	7 % 906 acres

These changes in hazard ratings would occur if all the treatments are accomplished. These should be considered the maximum hazard reduction benefit. If less treatments occur then the reduction in high fuel hazard would be less.

Approximately 40% of the BLM lands are in a HIGH hazard condition in the short term as a result of the harvest and hazard reduction treatments in the Action Alternatives 2 and 3. The No Action results in a HIGH hazard on over 70% of the lands in the same period. In the long term 85% of the acres are in a HIGH hazard condition with the No Action Alternative.

Alternatives 2 and 3 have beneficial effects on the fuel hazard condition. Fuel hazard is reduced in both the long and short term under each alternative compared to the No Action Alternative. At the landscape level, harvest and fuel treatment effects on hazard set back the trend of increasing hazard development over time. Percentage of acres in HIGH hazard under the Action Alternatives drop below the current HIGH hazard condition in the short term. The Action Alternatives keep the HIGH hazard condition below the current level for up to 20 years.

Alternative 2 and 3 have only minor differences in terms of effect on hazard conditions at the landscape level. The areas deferred from treatment in Alternative 3 would have a no fuel hazard reduction treatments and would therefore develop increasing hazard over time. This will place these stands at a higher risk for loss if a wildfire occurs. However, the fuel reduction treatments that do occur on the surrounding lands will decrease the risk of a large scale wildfire occurrence. This will reduce the potential of fire occurrence within the defer stands. This effect can not be quantified.

The effects of hazard reduction treatment in the Alternatives 2 and 3 are beneficial in reducing hazard conditions in both the long and short term. A wildfire occurrence within the treated areas would result in less severe effects due to the reduction in fuel amounts. The removal of dead and down fuel and ladder fuel from the forest areas reduces the amount of fuel available to burn when wildfire occurs in those areas. Wildfire will burn with less intensity, duration, and flame length. The proposed treatments would create areas of lower intensity burning which enable suppression forces opportunities to contain the fire spread. They also provide less fuel to "feed" a large fire and add to its energy. This increases the ability of fire suppression forces to protect forest resources, homes and structures and to limit the size of wildfire. Reducing the size and amount of high intensity burn area from a wildfire would have a short term beneficial effect in maintaining the forest and visual resources within the watershed, as well

as reducing effects on stream and water quality.

c. Cumulative Effects

1) Alternative 1

The no action alternative allows the continuation of hazardous fuels to build up and increases the potential for large scale, catastrophic fire occurrence. This has the potential to impact both the project area and the adjacent drainage. Large scale catastrophic fire events are natural but have been a rare event within the project area since the turn of the century. Impacts of such an event on visual, wildlife, and forest conditions would be extreme. The percentage of acres that burn in high intensity could range from 30-60%, with as little as 20% or less burned with low intensity.

2) Alternatives 2 and 3

The proposed harvest and non harvest stocking density reduction and fuel hazard reduction treatments in these Alternatives would substantially reduce the fuel hazard within the project area. This project complements other hazard reduction work accomplished in adjacent drainage to the east. Together these can have the effect of substantially reducing the potential for adverse wildfire effects on the larger watershed basis.

When wildfire occurs the potential effects would include a mosaic of fire intensities. A wildfire of 100 acres or larger would exhibit areas of high intensity burning producing total stand replacement, areas of low intensity underburn with little overstory mortality, and areas with a mixture of both extremes side by side. Location of the extreme fire effect areas would be a function of the presence of steep slopes, hot aspects, amount of fuel present, fuel continuity, presence of ladder fuels, and weather conditions at the time of fire occurrence. Vegetation density reduction and fuel reduction treatments will reduce the proportion of burned area in the higher intensity burn conditions. A wildfire occurrence following these treatments could have less than 20% of the area in high intensity and 50% or more experiencing low intensity burning.

Hazard reduction treatments require future maintenance treatments to retain desired fuel hazard conditions. These future treatments are not included within this assessment. It is anticipated that conditions created under Alternatives 2 and 3 would require similar future treatments for maintenance.

8. Resource: Recreation and VRM

a. Affected Environment

Recreational use of the area is dispersed and includes: equestrian, hunting, driving for pleasure, hiking, and bicycling. Recreational use generally follows existing roads and non-maintained trails in the area. The Umpqua Joe Trail is a Josephine County trail that begins in section 9 on county land and continues onto BLM land. This trail is non-motorized and maintained by the county. The trail receives the majority of its use from those camping at Indian Mary County Park, which is located across the road from the trailhead. There are numerous historic, non-maintained trails to the south of the river in the northern part of the project area. The Rogue River borders the project area, with the majority of the project to the west and south of the river. Recreational use of this section of river includes fishing, rafting, wildlife observation. Directly to the west of the project area, the Forest Service manages a trail systems, day use areas and campgrounds along the Taylor Creek Drainage.

The proposed project area encompasses VRM classified areas ranging from VRM Class I along the Rogue River to class IV. (Medford District RMP)

b. Environmental consequences

1) Alternative 1: No Action

In the no action alternative, access into Trowbridge Ponds would continue along decommissioned roads. Current trends of dispersed recreation on public as well as private lands would continue.

2) Alternatives 2 and 3

In alternatives 2 and 3, additional recreational opportunities would be provided through the establishment of a trail system along Buckhorn Ridge. Improved access into the Trowbridge Ponds area will also be provided. In section 9, where the Umpqua Joe Trail passes through a potential sale unit, negative visual impacts would primarily be limited to views of some stumps from the trail. On a beneficial effect, small openings may be created, offering better views of the river.

9. Resource: Special Forest Products

a. Affected Environment

Historically and currently, there is a high demand for fuelwood and small timber sales in the project area due to the close proximity of Grants Pass. In the last five years there has also been an increase in the demand for poles and manzanita. Other Special Forest Products, such as burls, mushrooms, and medicinal plants are harvested in small quantities.

In the last five years, quantities of fuelwood available to the public from BLM lands has decreased dramatically. Fuelwood opportunities are traditionally connected to timber sales and are limited to slash left over from logging activities. With the decrease in the number of timber sales and the change from clearcutting to commercial thinning, very little slash from timber sales becomes available for public fuelwood areas. In the project area, there are no areas currently available for fuelwood or pole cutting. Small amounts of timber have been sold from hazard trees and blowdown. Fuelwood theft is fairly common.

b. Environmental Consequences

1. Alternative 1: No Action

Opportunities for fuelwood, poles, and small timber sales in the project area would continue to be extremely limited or non-existent. Demand for products would greatly exceed supply. Fuelwood theft would continue to be a common occurrence. There would be no affect for other Special Forest Products.

2. Alternatives 2 and 3

The affects of Alternatives 2 and 3 would be the same for the following Special Forest Products units: 35-7-33-012; 36-7-3-parts of units 001 and 006; 36-7-11-001; and 36-7-25-003. These units have the greatest potential for Special Forest Products based on their accessibility, economic viability, and high product quality:

Based on the assumption that treatments in these units will be accomplished through the Special Forest Products Program, approximately 100 acres would be available for small timber sales geared toward independent, local loggers and small milling operations. About 200 mbf would result from the thinnings. These sales would occur over a 5 year period.

Approximately 60 acres would be available for public and commercial fuelwood and pole sales over a 5 year period. The sales would be standing trees, thinned according to the silvicultural prescription objectives.

This would create a beneficial effect to the local public by creating opportunities for fuelwood and pole harvest.

In addition, slash from the large timber sale proposed in alternatives 2 and 3 would be available for fuelwood areas when the timber sale contract terminated.

Chapter 4

Agencies and Persons Consulted

A. Public Involvement

All public input was considered by the planning and ID teams in developing the timber sale proposal and in preparing this EA. Changes in the preliminary plan, as well as the proposed project design features, may be based, in part, on information received from the public.

Public scoping letters were sent out on December 16, 1998 to adjacent land owners in the project area and other interested parties. Three letters were received back from public. One party requested to be kept informed of the project. Another letter came from a longtime resident of the Pickett Creek drainage. The following were concerns expressed by this individual.

1. Proper management and preservation of the Pickett Creek watershed.
2. Protection of residents' water supplies that originate at numerous springs at the headwaters of Little Pickett Creek.
3. Trowbridge pond area (T35S-R7W-15) and the cold springs area and saddle at the headwaters of Panther Creek should be preserved for watershed, recreation and wildlife (T35S-R7W-21).

Another letter was received from a conservation organization concerned about proper analysis for wildlife, recreation, riparian, soils/geology, mitigation, environmental impacts as well as the NEPA process. The overall sentiment of the letter was that the Bureau needs to be respectful of other values than timber harvest.

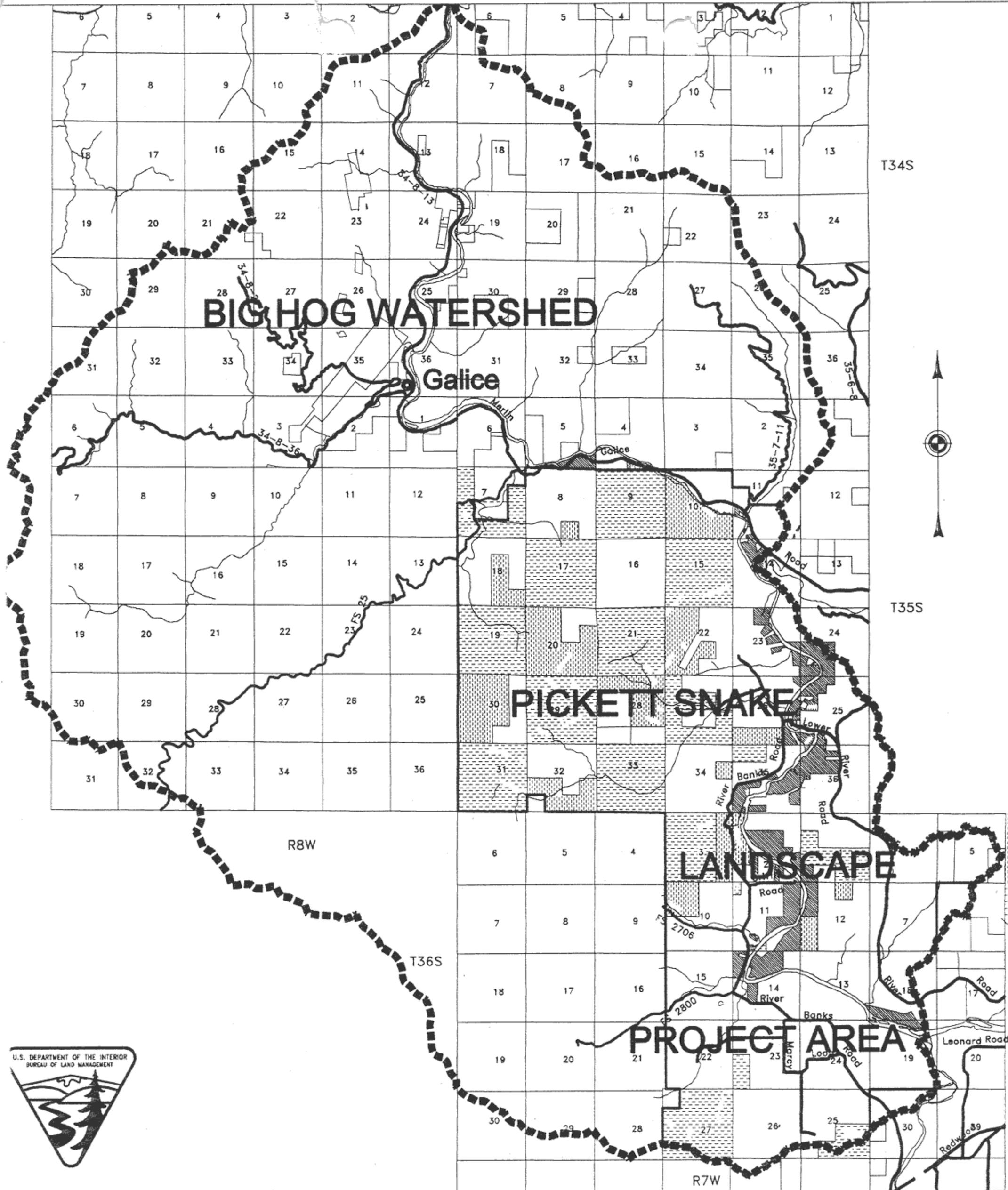
B. Availability of Document and Comment Procedures

Copies of the EA document will be available for formal public review in the BLM Medford District Office. Written comments concerning the EA will be accepted for 30 calendar days after the announcement of the EA availability appears in the Grants Pass Daily Courier newspaper.

C. Agencies Consulted During Planning Process

Josephine County
US Fish and Wildlife Service
National Marine Fisheries Service
US Forest Service

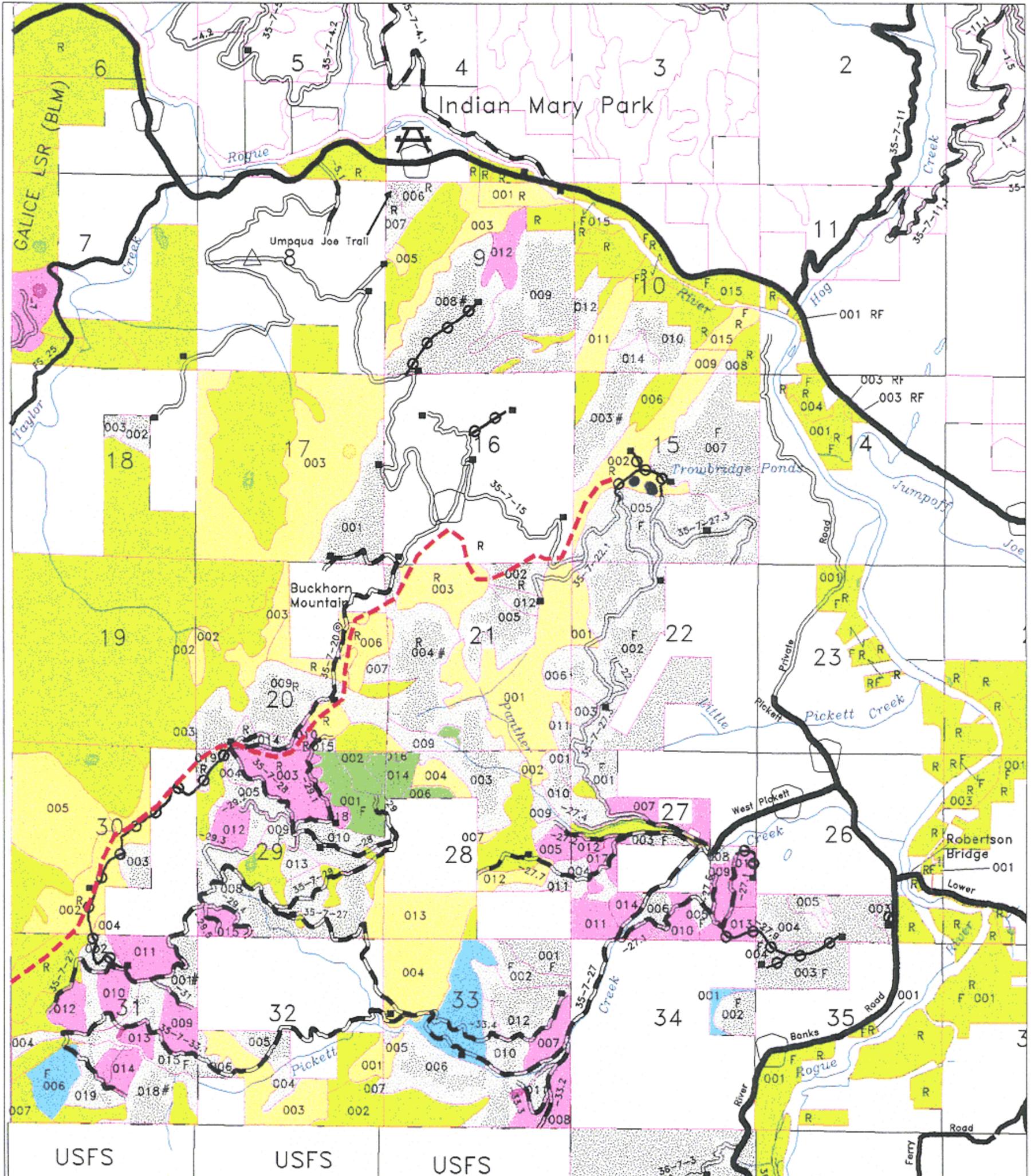
Appendix A
Project Proposal Maps



PICKETT SNAKE LANDSCAPE MANAGEMENT PROJECT
Project Area Map

PICKETT SNAKE LANDSCAPE MANAGEMENT PROJECT TREATMENT MAP

R7W



- Helicopter landing to be constructed
 - Buckhorn Ridge Trail
 - Operator spur to be constructed or opened & then decommissioned after use
- Primary treatments or objectives**
- Fuels hazard treatment
 - Wildlife burn (Improve habitat)
 - Harvest treatment
 - Early seral management
 - Late-successional reserve (managed)
 - Conifer/hardwood mix * with no harvest
- Other objectives**
- Fuels hazard treatment
 - Wildlife burn
 - Recreation
- Codes:** F, WB, R

* Treatment- none or limited for the following reasons:
 1. Withdrawn from harvest base "W".
 2. "River Corridor"- Congressionally withdrawn
 3. Recently treated- less than 5 years ago
 4. No treatment identified

T35S
T36S

Appendix B
Proposed Unit Treatments

The following tables contain treatment proposals for the project area.

Table B-1: Treatment Summary of Early to Mid Seral Units (Precommercial)

key #	T-R-Sec-OI#	Proposed Treatment			Land Alloc. (NFP)	TPCC	Birth year	Proposed Slash Treatment	Estimated year of treatment
		BRUSH Acres	FERT Acre	PCT Acres					
113079	35S 07W 20 010		18		Matrix	RMR	1985		2000
113889	35S 07W 27 007			45	Matrix	RTR	1986	HP	2003
113778	35S 07W 27 009			23	Matrix	RMR	1987	HP	2003
115296	35S 07W 27 010			37	Matrix	RMR	1987	HP	2003
113779	35S 07W 27 011			29	Matrix	RTR	1987	HP	2003
113780	35S 07W 27 012			14	Matrix	RMR	1987	HP	2003
116038	35S 07W 27 013			22	Matrix	RMR	1987	HP	2003
116039	35S 07W 27 014			15	Matrix	RTR	1987	HP	2003
116238	35S 07W 27 015			26	Matrix	RMR	1987	HP	2003
113781	35S 07W 28 005			26	Matrix	RMR	1987	HP	2003
111262	35S 07W 29 003		72		Matrix	RTR	85		2003
113782	35S 07W 29 012			25	Matrix	RTR	85	HP	2003
113783	35S 07W 29 015			29	Matrix	RMR	86	HP	2003
116456	35S 07W 29 018			14	Matrix	RTR	78	HP	2003
113784	35S 07W 31 009			36	Matrix	RTR	87	HP	2003
113785	35S 07W 31 010			28	Matrix	RTR	86	HP	2003
113786	35S 07W 31 011			36	Matrix	RTR	87	HP	2003
113787	35S 07W 31 012			24	Matrix	RTR	87	HP	2003
113788	35S 07W 31 013	15			Matrix	RTR	86	HP	2001
113789	35S 07W 31 014	25			Matrix	RMR	86	HP	2001

Table B-1: Treatment Summary of Early to Mid Seral Units (Precommercial)

key #	T-R-Sec-OI#	Proposed Treatment			Land Alloc. (NFP)	TPCC	Birth year	Proposed Slash Treatment	Estimated year of treatment
		BRUSH Acres	FERT Acre	PCT Acres					
113086	35S 07W 33 007			26	Matrix	RTR	87	HP	2003
113790	35S 07W 33 008		46		Matrix	RTR	87		2003
115962	36S 07W 23 004	9			Matrix	RMR	90	HP	1999
115959	36S 07W 25 004			24	Matrix	RMR	89	HP	2003
113161	36S 07W 27 001		22		Matrix	RMR	83		2000
113162	36S 07W 27 007	59			Matrix	RMR	84	HP	1999
113163	36S 07W 27 008		26		Matrix	RMR	83		2003
113164	36S 07W 27 009	9			Matrix	RMR	83	HP	1999
113165	36S 07W 27 010	8			Matrix	RMR	83	HP	2001
113167	36S 07W 27 012	10			Matrix	RMR	83	HP	1999
113168	36S 07W 27 013			8	Matrix	RMR	83	HP	2003
113169	36S 07W 27 014			9	Matrix	RMR	89	HP	2003
113170	36S 07W 27 015	22			Matrix	RTR	83	HP	2000
113171	36S 07W 27 016	7		7	Matrix	RTR	89	HP	1999
113172	36S 07W 27 017	16			Matrix	RMR	84	HP	1999
116459	36S 07W 27 024			5	Matrix	RMR	75		
113173	36S 07W 25 004		34		Matrix	RMR	83		2001
Total Acres		180	218	508					

Table B-2: Summary of Harvest Treatments in Older Seral Stages; Ages 36 to 195+
 (Shaded rows / units are those where Alternatives 2 and 3 are different. Higher canopy closure to be retained under Alternative 3)

Key #	T-R-SEC OI	Acres	Land Alloc. (NFP)	TPCC	Seral Stage		Silv. / Harvest Prescription VRM Class	Logging Systems (estimated %)			Slash Treatment -- Understory Treatment	Vol. (Est) (MBF / ac)	Harv./ Treat (Acres)		Harvest Volume		Tree Plant- ing Acres	Plant Association
					Current	Post Harvest		tractor	cable	heli- copter			SR	CT/ MGS	Vol/ Ac (est)	Total MBF (est)		
115374	35S 07W 09 006	14	Matrix vrm	RMR	mature	mature	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	15		10	3	30		Douglas-fir/ Black Oak
115375	35S 07W 09 007	14	Matrix	RMR	mature	mature	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	25		10	3	30		Douglas-fir/ Black Oak
115376	35S 07W 09 008	218	Matrix	RMR	mature	mature	CT/MGS VRM II and IV	10	15	75	UT and, (UB or HP)	20		200	5	1000		Douglas-fir/ Black Oak
115377	35S 07W 09 009	127	Matrix	RMR	mature	mature	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	15		120	4	480		Douglas-fir/ Black Oak
115393	35S 07W 10 008	7	Matrix	RMR	mature	mature	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	15		10	3	30		Douglas-fir/ Black Oak
115395	35S 07W 10 010	62	Matrix	RMR	mature	mature	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	15		40	2	80		Douglas-fir/ Black Oak
115397	35S 07W 10 012	29	Matrix	RMR	mature	mature	CT/MGS VRM II	0	0	100	UT and (UB or HP)	15		15	3	45		Douglas-fir/ Black Oak
115399	35S 07W 10 014	25	Matrix	RMR	mature	mature	CT/MGS VRM II	0	0	100	UT and (UB or HP)	15		20	3	60		Douglas-fir/ Black Oak
111220	35S 07W 15 003	77	Matrix	RMR	mature	mid/ early	SR VRM II	25	0	75	UT and, (UB or HP)	25	65		5	325	65	Douglas-fir/ Black Oak
111222	35S 07W 15 005	193	Matrix	RTR	mature/ mid	mid/ early	SR VRM II	25	50	25	UT and, (UB or HP)	8	100		2	200	100	Douglas-fir/ Black Oak and Pine
111218	35S 07W 15 007	180	Matrix	RMR	mid/ mature	mid/ mature	CT/MGS VRM II	0	30	70	UT and, (UB or HP)	10	90		3	270		Douglas-fir/ Black Oak
111227	35S 07W 17 001	116	Matrix	RMR	mature/ late	mature/ early	SR VRM II/IV	0	50	50	UT and, (UB or HP)	25	90		5	450	80	Douglas-fir/ Black Oak
112448	35S 07W 18 002	18	Matrix	RMR	mature	mature	SR VRM II	0	0	100	UT and, (UB or HP)	20		18	4	72		Douglas-fir/ Black Oak
112449	35S 07W 18 003	8	Matrix	RMR	mature/ late	mature	SR VRM II	0	0	100	UT and, (UB or HP)	25		8	6	48	25	Douglas-fir/ Black Oak

Table B-2: Summary of Harvest Treatments in Older Seral Stages; Ages 36 to 195+
 (Shaded rows / units are those where Alternatives 2 and 3 are different. Higher canopy closure to be retained under Alternative 3)

Key #	T-R-SEC OI	Acres	Land Alloc. (NFP)	TPCC	Seral Stage		Silv. / Harvest Prescription VRM Class	Logging Systems (estimated %)			Slash Treatment -- Understory Treatment	Vol. (Est) (MBF / ac)	Harv./ Treat (Acres)		Harvest Volume		Tree Plant- ing Acres	Plant Association
					Current	Post Harvest		tractor	cable	heli- copter			SR	CT/ MGS	Vol/ Ac (est)	Total MBF (est)		
112456	35S 07W 20 007	12	Matrix	RTR	mature	mature	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	15		12	3	36		Douglas-fir/ Black Oak
113078	35S 07W 20 009	113	Matrix	RMR	mature	mature	SR VRM II/IV	10	10	80	UT and, (UB or HP)	15	100		5	500		Douglas-fir/ Black Oak
116457	35S 07W 20 014	20	Matrix	RMR	mature, previous entry	mature	SR VRM II	10	90	0	UT and, (UB or HP)	9		20	3	60	20	Douglas-fir/ Black Oak
116692	35S 07W 20 015	7	Matrix	RTR	mature	mature	SR VRM II	0	100	0	UT and, (UB or HP)	8	8		2	16	7	Douglas-fir/ Black Oak
111241	35S 07W 21 002	24	Matrix	RTR	mature	mature	CT/MGS VRM II	10	10	80	UT and, (UB or HP)	15		15	3	45		Douglas-fir/ Black Oak
111243	35S 07W 21 004	182	Matrix	RTR	mature	mature	CT/MGS VRM II	10	10	80	UT and, (UB or HP)	15		140	4	560		Douglas-fir/ Black Oak/ Tanoak
111244	35S 07W 21 005	75	Matrix	RTR	mid/ mature	mid/ mature	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	9		50	2	100		Douglas-fir/ Black Oak
111245	35S 07W 21 006	16	Matrix	RTR	mid	mid	CT/MGS VRM II	100	0	0	UT and, (UB or HP)	5		16	2	32		Douglas-fir/ Black Oak
113966	35S 07W 21 009	25	Matrix	RTR	mid	mid	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	8		25	3	75		Douglas-fir/ Black Oak
113968	35S 07W 21 011	10	Matrix	RTR	mid	mid	CT/MGS VRM II	100	0	0	UT and, (UB or HP)	5		10	2	20		Douglas-fir/ Black Oak
113969	35S 07W 21 012	17	Matrix	RTR	mid	mid	CT/MGS VRM II	20	20	60	UT and, (UB or HP)	5		15	2	30		Douglas-fir/ Black Oak
112461	35S 07W 22 002	262	Matrix	RTR	mid,	mid,	SR, CT/MGS VRM II	15	35	50	UT and, (UB or HP)	5		150	2	300		Douglas-fir/ Black Oak, Pine
112463	35S 07W 26 003	11	Matrix	RTR	mid,	mid,	CT/MGS VRM II	100	0	0	UT and, (UB or HP)	7		2	3	6		Douglas-fir/ Black Oak
115104	35S 07W 26 004	91	Matrix	RTR	mature	mature	CT/MGS VRM II	50	0	50	UT and, (UB or HP)	9		80	4	320		Douglas-fir/ Black Oak

Table B-2: Summary of Harvest Treatments in Older Seral Stages; Ages 36 to 195+
 (Shaded rows / units are those where Alternatives 2 and 3 are different. Higher canopy closure to be retained under Alternative 3)

Key #	T-R-SEC OI	Acres	Land Alloc. (NFP)	TPCC	Seral Stage		Silv. / Harvest Prescription VRM Class	Logging Systems (estimated %)			Slash Treatment -- Understory Treatment	Vol. (Est) (MBF / ac)	Harv./ Treat (Acres)		Harvest Volume		Tree Plant- ing Acres	Plant Association
					Current	Post Harvest		tractor	cable	heli- copter			SR	CT/ MGS	Vol/ Ac (est)	Total MBF (est)		
155105	35S 07W 26 005	18	Matrix	RTR	mid,	mid,	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	7		10	3	30		Douglas-fir/ Black Oak
111247	35S 07W 27 001	58	Matrix	RTR	mid	mid	CT/MGS VRM II	0	100	0	UT and, (UB or HP)	6		25	2	50		Douglas-fir/ Black Oak
111249	35S 07W 27 003	14	Matrix	RMR	mature	early	SR VRM II	0	100	0	UT and, (UB or HP)	8	7		3	21	7	Douglas-fir/ Black Oak
111250	35S 07W 27 004	15	Matrix	RTR	mature	mature	CT/MGS VRM II	0	100	0	UT and, (UB or HP)	7		10	2	20		Douglas-fir/ Black Oak
111251	35S 07W 27 005	12	Matrix	RMR	mid	mid	CT/MGS VRM II	50	50	0	UT and, (UB or HP)	7		10	2	20		Douglas-fir/ Black Oak
111252	35S 07W 27 006	14	Matrix	RTR	mature	mature	SR VRM II	0	100	0	UT and, (UB or HP)	7	7		3	21		Douglas-fir/ Black Oak
115295	35S 07W 27 008	5	Matrix	RMR	mature	mature	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	7		5	3	15		Douglas-fir/ Black Oak
111256	35S 07W 28 001	13	Matrix	RMR	mature	mature	CT/MGS VRM II	0	50	50	UT and, (UB or HP)	9		12	2	24		Douglas-fir/ Black Oak
111258	35S 07W 28 003	69	Matrix	RTR	mid/ mature	mid/ mature	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	9		55	3	165		Douglas-fir/ Black Oak
113984	35S 07W 28 006	10	Matrix	RMR	mature	mature	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	10		5	4	20		Douglas-fir/ Black Oak
113987	35S 07W 28 009	19	Matrix	RMR	mature	mature	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	10		12	3	36		Douglas-fir/ Black Oak
113988	35S 07W 28 010	32	Matrix	RMR	mature	mature	CT/MGS VRM II	50	0	50	UT and, (UB or HP)	5		25	2	50		Douglas-fir/ Black Oak
113989	35S 07W 28 011	16	Matrix	RMR	mature	mature	CT/MGS VRM II	50	0	50	UT and, (UB or HP)	8		10	2	20		Douglas-fir/ Black Oak
111263	35S 07W 29 004	10	Matrix	RTR	mature	early	SR VRM II	0	100	0	UT and, (UB or HP)	7	7		2	14	7	Douglas-fir/ Black Oak

Table B-2: Summary of Harvest Treatments in Older Seral Stages; Ages 36 to 195+
 (Shaded rows / units are those where Alternatives 2 and 3 are different. Higher canopy closure to be retained under Alternative 3)

Key #	T-R-SEC OI	Acres	Land Alloc. (NFP)	TPCC	Seral Stage		Silv. / Harvest Prescription VRM Class	Logging Systems (estimated %)			Slash Treatment -- Understory Treatment	Vol. (Est) (MBF / ac)	Harv./ Treat (Acres)		Harvest Volume		Tree Plant- ing Acres	Plant Association
					Current	Post Harvest		tractor	cable	heli- copter			SR	CT/ MGS	Vol/ Ac (est)	Total MBF (est)		
111264	35S 07W 29 005	40	Matrix	RTR	mature	mature	CT/MGS VRM II	50	50	0	UT and, (UB or HP)	10		30	2	60		Douglas-fir/ Black Oak
111267	35S 07W 29 008	172	Matrix	RTR	mature	early	SR VRM II/III	30	70	0	UT and, (UB or HP)	15	100		6	600	100	Douglas-fir/ Black Oak
111268	35S 07W 29 009	22	Matrix	RTR	mature	mature	CT/MGS VRM II	10	90	0	UT and, (UB or HP)	7		20	2			Douglas-fir/ Black Oak
111269	35S 07W 29 010	55	Matrix	RTR	mature	early	SR VRM II	30	70	0	UT and, (UB or HP)	15	45		6	270	45	Douglas-fir/ Black Oak
114060	35S 07W 29 013	9	Matrix	RTR	mature	mature	CT/MGS VRM III	0	0	100	UT and, (UB or HP)	5		9	2	18		Douglas-fir/ Black Oak
116819	35S 07W 29 019	10	Matrix	RTR	mature	mature	CT/MGS VRM II	50	0	50	UT and, (UB or HP)	9		10	3	30		Douglas-fir/ Black Oak
112466	35S 07W 30 003	24	Matrix	RTR	mature	mature	CT/MGS VRM II/IV	15	75	0	UT and, (UB or HP)	15		20	3	60		Douglas-fir/ Black Oak
111272	35S 07W 31 001	17	Matrix	RMR	mature	early	SR VRM II and III	0	100	0	UT and, (UB or HP)	10	15		3	45	15	Douglas-fir/ Tanoak
111273	35S 07W 31 002	40	Matrix	RTR	mature	early	SR VRM II/IV	0	100	0	UT and, (UB or HP)	10	20		3	60	20	Douglas-fir/ Tanoak
111275	35S 07W 31 004	12	Matrix	RMR	mature	early	SR VRM II	0	00	100	UT and, (UB or HP)	10	5		2	10	5	Douglas-fir/ Tanoak
(see note 4) 111277	35S 07W 31 006	44	Matrix	RMR	early/mid	early/mid	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	6		20	3	60		Douglas-fir/ Tanoak
(see note 4) 111278	35S 07W 31 007	28	Matrix	RMR	mature	early	SR VRM II	0	0	100	UT and, (UB or HP)		28		3	84	28	Douglas-fir/ Tanoak
115400	35S 07W 31 015	49	Matrix	RMR	mature	early	SR VRM III	0	100	0	UT and, (UB or HP)	30			5	150	30	Douglas-fir/ Tanoak
116169	35S 07W 31 018	54	Matrix	FGN/ RMR	mature	early	SR VRM II/III	0	0	100	UT and, (UB or HP)	15	40		5	200	40	Douglas-fir/ Tanoak

Table B-2: Summary of Harvest Treatments in Older Seral Stages; Ages 36 to 195+
 (Shaded rows / units are those where Alternatives 2 and 3 are different. Higher canopy closure to be retained under Alternative 3)

Key #	T-R-SEC OI	Acres	Land Alloc. (NFP)	TPCC	Seral Stage		Silv. / Harvest Prescription VRM Class	Logging Systems (estimated %)			Slash Treatment -- Understory Treatment	Vol. (Est) (MBF / ac)	Harv./ Treat (Acres)		Harvest Volume		Tree Plant- ing Acres	Plant Association
					Current	Post Harvest		tractor	cable	heli- copter			SR	CT/ MGS	Vol/ Ac (est)	Total MBF (est)		
116689	35S 07W 31 019	60	Matrix	RMR	mature	early	SR VRM II	0	30	70	UT and, (UB or HP)	12	30		5	150	12	Douglas-fir/ Tanoak
115101	35S 07W 32 004	10	Matrix	RMR	mature	early	SR VRM II	0	0	100	UT and, (UB or HP)	10	10		4	40	10	Douglas-fir/ Black Oak
115102	35S 07W 32 005	21	Matrix	RTR	mature	early	SR VRM III	0	50	50	UT and, (UB or HP)	12	20		5	100	20	Douglas-fir/ Black Oak
115103	35S 07W 32 006	22	Matrix	RTR	mature	mature	CT/MGS VRM III	0	50	50	UT and, (UB or HP)	7		20	2	40		Douglas-fir/ Black Oak
114562	35S 07W 32 007	5	Matrix	RMR	mature	mature	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	6		5		5		Douglas-fir/ Black Oak
111281	35S 07W 33 001	29	Matrix	RTR	mature	mature	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	6		20	2	40		Douglas-fir/ Black Oak
111282	35S 07W 33 002	35	Matrix	RMR	mature	mature	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	8		10	3	30		Douglas-fir/ Black Oak
111286	35S 07W 33 006	149	Matrix	RMR	mid/ mature	mid/ mature	CT/MGS VRM II/III	0	0	100	UT and, (UB or HP)	8		120	2	240		Douglas-fir/tanoak
115320	35S 07W 33 010	30	Matrix	RTR	mature	mature	CT/MGS VRM III and IV	0	100	0	UT and, (UB or HP)	8		20	3	60		Douglas-fir/ Black Oak
115321	35S 07W 33 011	10	Matrix	RTR	mature	early	SR VRM IV	0	100	0	UT and, (UB or HP)	6	5		3	15	5	Douglas-fir/tanoak
116691	35S 07W 33 012	65	Matrix	RTR	mature	mature	SFP pole unit) CT/MGS	100	0	0	UT and, (UB or HP)	8		50	2	100		Douglas-fir/ Black Oak
114474	35S 07W 34 002	29	Matrix	RMR	mature	mature	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	6		15	2	30	15	Douglas-fir/ Black Oak
113714	35S 07W 35 003	73	Matrix	RTR	mid	mid	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	8		30	3	90		Douglas-fir/ Black Oak
114693	35S 07W 35 004	7	Matrix	RMR	mid	mid	CT/MGS VRM II	100	0	0	UT and, (UB or HP)	9		7	5	35		Douglas-fir/ Black Oak

Table B-2: Summary of Harvest Treatments in Older Seral Stages; Ages 36 to 195+
 (Shaded rows / units are those where Alternatives 2 and 3 are different. Higher canopy closure to be retained under Alternative 3)

Key #	T-R-SEC OI	Acres	Land Alloc. (NFP)	TPCC	Seral Stage		Silv. / Harvest Prescription VRM Class	Logging Systems (estimated %)			Slash Treatment -- Understory Treatment	Vol. (Est) (MBF / ac)	Harv./ Treat (Acres)		Harvest Volume		Tree Plant- ing Acres	Plant Association
					Current	Post Harvest		tractor	cable	heli- copter			SR	CT/ MGS	Vol/ Ac (est)	Total MBF (est)		
115249	36S 07W 01 002	135	Matrix	RTR	mature	mature	CT/MGS, VRM II	0	0	100	UT and, (UB or HP)	8		110	3	330		Douglas-fir/ Black Oak
112475	36S 07W 03 001	274	Matrix	RMR	mature	mature	SFP CT/MGS VRM II	30	30	40	UT and, (UB or HP)	9		200	3	600		Douglas-fir/ Black Oak
115263	36S 07W 03 003	149	Matrix	RMR	mature	mature	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	9		100	3	300		Douglas-fir/ Black Oak
112476	36S 07W 03 006	134	Matrix	RTR	mature	mature	SFP CT/MGS VRM II	40	30	30	UT and, (UB or HP)	9		100	3	300		Douglas-fir/ Black Oak
112477	36S 07W 10 001	86	Matrix	RTR	mid/ mature	mid/ mature	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	4		50	2	100		Douglas-fir/ Black Oak
115245	36S 07W 10 003	16	Matrix	RTR	mid/ mature	mid/ mature	CT/MGS VRM II	0	0	100	UT and, (UB or HP)	4		8	2	16		Douglas-fir/ Black Oak
115115	36S 07W 11 003	15	Matrix	RTR	mature	mature	SFP, CT/MGS VRM II, poles, hardwood, timber	100	0	0	UT and, (UB or HP)	15		10	5	50		Douglas-fir/ Black Oak
113722	36S 07W 23 001	42	Matrix	RMR	mature	mature	CT/MGS VRM II	50	50	0	UT and, (UB or HP)	15		35	5	175		Douglas-fir/ Black Oak
115006	36S 07W 25 003	40	Matrix	RTR	mid	mid	SFP, CT/MGS VRM II, pole and firewood, timber	100	0	0	UT and, (UB or HP) Bald Eagle site	10		30	2	60		Douglas-fir/ Black Oak
114804	36S 07W 27 002	7	Matrix	RTR	mature	mature	CT/MGS VRM II	0	100	0	UT and, (UB or HP)	9		4	2	8		Douglas-fir/ Black Oak
114806	36S 07W 27 004	50	Matrix	RMR	mature	mature	CT/MGS VRM II	0	100	0	UT and, (UB or HP)	15		40	5	200		Douglas-fir/ Black Oak
114807	36S 07W 27 005	18	Matrix	RTR	mature	early	SR VRM II	0	100	0	UT and, (UB or HP)	12	9		4	36		Douglas-fir/ Black Oak
114808	36S 07W 27 006	137	Matrix	RTR	mature	early	SR VRM II	0	100	0	UT and, (UB or HP)	5	75		3	225	75	Douglas-fir/ Black Oak

Table B-2: Summary of Harvest Treatments in Older Seral Stages; Ages 36 to 195+
 (Shaded rows / units are those where Alternatives 2 and 3 are different. Higher canopy closure to be retained under Alternative 3)

Key #	T-R-SEC OI	Acres	Land Alloc. (NFP)	TPCC	Seral Stage		Silv. / Harvest Prescription VRM Class	Logging Systems (estimated %)			Slash Treatment -- Understory Treatment	Vol. (Est) (MBF / ac)	Harv./ Treat (Acres)		Harvest Volume		Tree Plant- ing Acres	Plant Association
					Current	Post Harvest		tractor	cable	heli- copter			SR	CT/ MGS	Vol/ Ac (est)	Total MBF (est)		
114809	36S 07W 27 018	10	Matrix	RTR	mature	early	SR VRM II	0	100	0	UT and, (UB or HP)	5	10		2	20	10	Douglas-fir/ Black Oak
114810	36S 07W 27 019	14	Matrix	RMR	mature	early	SR VRM II	0	100	0	UT and, (UB or HP)	5	14		2	28	14	Douglas-fir/ Black Oak
114811	36S 07W 27 020	32	Matrix	RMR	mature	early	SR VRM II	0	100	0	UT and, (UB or HP)	10	30		5	150	30	Douglas-fir/ Black Oak
114812	36S 07W 27 021	78	Matrix	RTR	mature	mature	SR VRM II	0	100	0	UT and, (UB or HP)	12	50		4	200		Douglas-fir/ Black Oak
114813	36S 07W 27 022	7	Matrix	RMR	mature	mature	SR VRM II	0	100	0	UT and, (UB or HP)	15	7		3	21	7	Douglas-fir/ Black Oak
Total OI acres		4623					% acres by logging system	15	35	50		Total Harvest Acres	987	2258		11167	792	Douglas-fir/ Black Oak
Acres of each Logging System								487	1136	1635	3245 Total Harvest Acres							

1) TPCC (Timber Productivity Capability Classification): RTR - regeneration restricted due to hot temperatures and low soil moisture; RMR- regeneration restricted due to low soil moisture.

2) Stand Successional Stage:

Early - Vegetation is dominated by shrubs or conifers and hardwood trees in a seedling/ sapling size class (<5"DBH)

Mid - Vegetation is tree dominated. Trees at least small pole size (>4"DBH). Larger scattered trees may be present.

Mature - Forest has begun to differentiate into distinct canopy layers. Overstory dominant and codominant trees are conifers greater than 20" DBH, understory trees will be conifer-hardwood mix.

Old Growth - Stand is multilayered and has at least two distinct canopy layers. Large conifer trees greater than 35" DBH number 8+/ac.

3) Harvest acres vs. Total OI acres: The difference in these acreages is attributable to large variability within the unit, unit inclusions of riparian reserves, non-forest, etc.

4) Deferral in progress. May be dropped from harvest.

Table B-3: Summary of Silviculture Prescription for Fuel Treatment Units

key #	T.R.,sec-OI	Unit Acres	Land Alloc. (NFP)	TPCC	Silv. Prescription/ treatment Objective	Treatment Acres	Veg Treatment	Prescribed Burn Treatment	remarks/survey priority/year of treatment
111174	35S 06W 31 001	351	matrix	RTR	Hazard Reduction	60	UT	HP	RIA/High/2-3Years
114722	35S 06W 31 003	47	matrix	RMR	Hazard Reduction	15	UT	HP	RIA/High/2-3 Years
111203	35S 07W 09 003	67	matrix	LSW	Wildlife Burn	40		BCB	None/Med/3-4 Years
115373	35S 07W 09 005	9	matrix	LSW	Wildlife Burn	5		BCB	None/Med/3-4 Years
115394	35S 07W 10 009	14	matrix	LSW	Wildlife Burn	14		BCB	None/Med/3-4 Years
115396	35S 07W 10 011	62	matrix	LSW	Wildlife Burn	30		BCB	None/Med/3-4 Years
116724	35S 07W 10 015	109	matrix	LSW	Wildlife Burn	30		BCB	None/Med/3-4 Years
111219	35S 07W 15 002	119	matrix	LSW	Wildlife Maintenance Burn	70		BCB	Maintenance/High/1-2 Years Trowbridge
111222	35S 07W 15 005	193	matrix	RTR	Wildlife/Hazard Reduction	80		UB	Includes Meadow Burn/High/1-2 Years
116358	35S 07W 17 003	314	matrix	RTW	Wildlife Burn	50		BCB	None/Med/3-4 Years
111236	35S 07W 19 001	622	matrix	RTW	Wildlife Burn	60		BCB	None/Med/3-4 Years
1124451	35S 07W 20 002	13	matrix	RTW	Wildlife Burn	5		BCB	None/Med/3-4 Years
112452	35S 07W 20 003	28	matrix	LSW	Wildlife Burn	15		BCB	None/Med/3-4 Years
112453	35S 07W 20 004	38	matrix	RTW	Hazard Reduction	5	UT	HP	None/High/2-3 Years
113077	35S 07W 20 005	7	matrix	RTW	Hazard Reduction	5	UT	HP	None/High/2-3 Years
112455	35S 07W 20 006	42	matrix	LSW	Hazard Reduction	5	UT	HP	None/High/2-3 Years
113078	35S 07W 20 009	113	matrix	RMR	Hazard Reduction	15	UT	HP	None/High/2-3 Years
116364	35S 07W 20 013	17	matrix	RTR	Hazard Reduction	5	UT	HP	None/High/2-3 Years
116457	35S 07W 20 014	20	matrix	RMR	Hazard Reduction/Silviculture	20	UT	HP,UB	Reforestation Unit/High/1-2 Years
111240	35S 07W 21 001	189	matrix	LSW	Wildlife Burn	60		BCB	None/Med/3-4 Years
111242	35S 07W 21 003	76	matrix	LSW	Wildlife Burn	25		BCB	None/Med/3-4 Years
112460	35S 07W 22 001	36	matrix	LSW	Wildlife Burn	15		BCB	None/Med/3-4 Years
112461	35S 07W 22 002	262	matrix	RTR	Wildlife Burn / Hazard Reduction	80		UB	None/Med/3-4 Years

Table B-3: Summary of Silviculture Prescription for Fuel Treatment Units

key #	T.R.,sec-OI	Unit Acres	Land Alloc. (NFP)	TPCC	Silv. Prescription/ treatment Objective	Treatment Acres	Veg Treatment	Prescribed Burn Treatment	remarks/survey priority/year of treatment
112463	35S 07W 26 003	11	matrix	RTR	Hazard Reduction	11	UT	HP	None/High/2-3 Years
115104	35S 07W 26 004	91	matrix	RTR	Hazard Reduction	15	UT	HP	None/High/2-3 Years
111247	35S 07W 27 001	58	matrix	RTR	Hazard Reduction/Silviculture	58	UT	HP	None/High/2-3 Years
111249	35S 07W 27 003	14	matrix	RMR	Hazard Reduction/Silviculture	14	UT	HP	None/High/2-3 Years
111250	35S 07W 27 004	15	matrix	RTR	Hazard Reduction/Silviculture	15	UT	HP,UB	None/High/2-3 Years
111251	35S 07W 27 005	12	matrix	RMR	Hazard Reduction/Silviculture	12	UT	HP	None/High/2-3 Years
111257	35S 07W 28 002	12	matrix	LSW	Wildlife Burn	5		BCB	None/Med/3-4 Years
111259	35S 07W 28 004	28	matrix	LSW	Wildlife Burn	15		BCB	None/Med/3-4 Years
113986	35S 07W 28 007	2	matrix	LSW	Wildlife Burn	2		BCB	None/Med/3-4 Years
113990	35S 07W 28 012	15	matrix	LSW	Wildlife Burn	5		BCB	None/Med/3-4 Years
113991	35S 07W 28 013	73	matrix	LSW	Wildlife Burn	40		BCB	None/Med/3-4 Years
115999	35S 07W 28 016	3	matrix	RTW	Wildlife Burn	3		BCB	None/Med/3-4 Years
111260	35S 07W 29 001	53	matrix	RTR	Hazard Reduction/Silviculture	30	UT	UB	None/High/2-3 Years
111263	35S 07W 29 004	10	matrix	RTR	Silviculture	10	PCT	HP	Stocked-Established/High/2004
1112264	35S 07W 29 005	50	matrix	RTR	Hazard Reduction/Silviculture	50	UT	HP,UB	If No Harvest Understory Treatment/High/1-2 Years
111267	35S 07W 29 008	172	matrix	RTR	Hazard Reduction/Silviculture	150	UT	HP,UB	If No Harvest Understory Treatment/High/1-2 Years
111268	35S 07W 29 009	22	matrix	RTR	Hazard Reduction/Silviculture	22	UT	HP	None/High/2-3 Years
111269	35S 07W 29 010	55	matrix	RTR	Hazard Reduction/Silviculture	55	UT	HP	If No Harvest Understory Treatment/High/1-2 Years
114063	35S 07W 29 017	15	matrix	LSW	Wildlife Burn	10		BCB	None/Med/3-4 Years
112465	35S 07W 30 002	115	matrix	LSW	Wildlife Burn / Hazard Reduction	35		BCB	None/High/2-3 Years
116710	35S 07W 30 005	167	matrix	RTW	Wildlife Burn / Hazard Reduction	70		BCB	None/High/2-3 Years
111277	35S 07W 31 006	44	matrix	RMR	Hazard Reduction/Silviculture	44	UT	HP,UB	None/High/2-3 Years
115400	35S 07W 31 015	49	matrix	RTR	Hazard Reduction/Silviculture	49	UT		None/High/2-3 Years
112468	35S 07W 32 001	24	matrix	LSW	Wildlife Burn / Hazard Reduction	20		BCB	None/High/2-3 Years

Table B-3: Summary of Silviculture Prescription for Fuel Treatment Units

key #	T.R.,sec-OI	Unit Acres	Land Alloc. (NFP)	TPCC	Silv. Prescription/ treatment Objective	Treatment Acres	Veg Treatment	Prescribed Burn Treatment	remarks/survey priority/year of treatment
112470	35S 07W 32 003	87	matrix	RMW	Wildlife Burn / Hazard Reduction	60		BCB	None/High/2-3 Years
115103	35S 07W 32 006	22	matrix	RTR	Hazard Reduction/Silviculture	20	UT	UB	None/High/2-3 Years
111281	35S 07W 33 001	29	matrix	RTR	Hazard Reduction/Silviculture	15	UT	HP	Adjacent land owner requested treatment/High/1-2 Years
111282	35S 07W 33 002	35	matrix	RMR	Hazard Reduction/Silviculture	5	UT	HP	Adjacent land owner requested treatment/High/1-2 Years
111283	35S 07W 33 003	91	matrix	RTW	Hazard Reduction/Silviculture	40	UT	HP,UB	None/High/2-3 Years
111284	35S 07W 33 004	98	matrix	LSW	Wildlife Burn / Hazard Reduction	50		BCB	None/High/2-3 Years
111285	35S 07W 33 005	5	matrix	LSW	Wildlife Burn / Hazard Reduction	5		BCB	None/High/2-3 Years
115321	35S 07W 33 011	10	matrix	RTR	Hazard Reduction/Silviculture	10	UT	HP	None/High/2-3 Years
111288	35S 07W 34 001	11	matrix	RTW	Hazard Reduction	11	UT	HP	Adjacent land owner requested treatment/High/1-2 Years
114474	35S 07W 34 002	29	matrix	RMR/RTR	Hazard Reduction/Silviculture	29	UT	HP	Adjacent land owner requested treatment/High/1-2 Years
113714	35S 07W 35 003	73	matrix	RTR	Hazard Reduction/Silviculture	40	UT	HP	Adjacent land owner requested treatment/High/1-2 Years
114693	35S 07W 35 004	7	matrix	RMR	Hazard Reduction/Silviculture	5	UT	HP	Adjacent land owner requested treatment/High/1-2 Years
115087	36S 06W 05 001	78	matrix	FMR/RTR	Hazard Reduction	10	UT	HP	RIA/High/1-2 years
115088	36S 06W 05 002	119	matrix	FMR/RTR	Hazard Reduction	20	UT	HP	RIA/High/1-2 Years
115262	36S 07W 03 002	8	matrix	RTW	Wildlife Burn	5		BCB	None/Med/3-4 Years
115265	36S 07W 03 005	33	matrix	LSW	Wildlife Burn	20		BCB	None/Med/3-4 Years
115266	36S 07W 03 007	30	matrix	RTW	Wildlife Burn	30		UB	Oak Restoration/High/1-2 Years
112477	36S 07W 10 001	86	matrix	RTR/RMR	Wildlife Burn / Hazard Reduction	25	UT	HP,BCB	None/High/2-3 Years
115247	36S 07W 10 002	57	matrix	RTW	Wildlife Burn / Hazard Reduction	20	UT	HP,BCB	None/High/2-3 Years
113722	36S 07W 23 001	42	matrix	RMR/RTR	Hazard Reduction/Silviculture	42	UT	HP,UB	None/High/2-3 Years
111778	36S 07W 23 002	17	matrix	RTR	Hazard Reduction/Silviculture	17	UT	HP,UB	None/High/2-3 Years
115004	36S 07W 25 001	100	matrix	FGR/RMR	Hazard Reduction/Silviculture	15	UT	HP	None/High/2-3 Years
115006	36S 07W 25 003	40	matrix	RTR	Hazard Reduction/Silviculture	40	UT	HP,UB	None/High/2-3 Years
114808	36S 07W 27 006	137	matrix	RMR/RTR	Hazard Reduction/Silviculture	40	UT	HP,UB	None/High/2-3 Years

Table B-3: Summary of Silviculture Prescription for Fuel Treatment Units

key #	T.R.,sec-OI	Unit Acres	Land Alloc. (NFP)	TPCC	Silv. Prescription/ treatment Objective	Treatment Acres	Veg Treatment	Prescribed Burn Treatment	remarks/survey priority/year of treatment
114812	36S 07W 27 021	78	matrix	RTR	Hazard Reduction	20	UT	HP	None/High/2-3 Years
115961	36S 07W 27 023	15	matrix	RTR	Hazard Reduction	10	UT	HP	None/High/2-3 Years
	Total Unit Acres	5195			Total Treatment Acres	2053			
PROJECT AREAS WITHIN THE RECREATIONAL SECTION OF THE WILD & SCENIC ROGUE RIVER									
113703	35S 07W 09 001	47	CR	LSW	Hazard Reduction	15		BCB	RIA/High/2-3 Years
116724	35S 07W 10 015	109	CR	LSW	Hazard Reduction	51	UT	HP/BCB	RIA/High/2-3 Years
111205	35S 07W 11 001	14	CR	NF	Hazard Reduction	6	UT	HP	RIA/High /2-3 Years
113708	35S 07W 14 001	51	CR	RTR	Hazard Reduction	5	UT	HP	RIA/High/2-3 Years
115794	35S 07W 14 003	3	CR	NA	Wildlife Burn / Hazard Reduction	3		BCB	Meadow Encroachment & RIA/High/ 1-2 Years
116714	35S 07W 14 004	34	CR	NA	Wildlife Burn / Hazard Reduction	34		BCB	Meadow Encroachment & RIA/High/ 1-2 Years
113709	35S 07W 23 001	60	CR	RTR	Hazard Reduction	60	UT	HP/UB	RIA/High/2-3 Years
113711	35S 07W 25 001	78	CR	RTW	Hazard Reduction	78	UT	HP/UB	RIA/High/2-3 Years
116715	35S 07W 25 003	89	CR	NF	Wildlife Burn / Hazard Reduction	89	UT	HP	RIA/High/2-3 Years
112462	35S 07W 26 001	64	CR	NF	Hazard Reduction	17	UT	HP	RIA/High/2-3 Years
111289	35S 07W 35 001	74	CR	RTR	Hazard Reduction	54	UT	HP/UB	RIA/High/2-3 Years
113715	35S 07W 36 001	123	CR	NA	Wildlife Burn / Hazard Reduction	123	UT	HP/BCB	Meadow Encroachment & RIA/High/1-2 Years
113716	36S 07W 02 001	64	CR	RTR	Hazard Reduction	64	UT	HP/UB	RIA/High/2-3 Years
116830	36S 07W 02 005	97	CR	RTR/NF	Hazard Reduction	46	UT	HP/BCB/UB	RIA/High/2-3 Years
116831	36S 07W 02 006	6	CR	RTR	Hazard Reduction	6	UT	HP	RIA/High/2-3 Years
116832	36S 07W 02 007	8	CR	NF	Hazard Reduction	8	UT	HP	RIA/High/2-3 Years
112478	36S 07W 14 001	125	CR	RTR	Hazard Reduction	125	UT	HP/UB	RIA/High/2-3 Years
	Total Unit Acres	1046			Total Treatment Acres	784			

Appendix C Proposed Road Use / Work

Table C-1: Proposed Road Use, Construction, Renovation, Improvement, Maintenance, and Closures of Roads used for Haul

Road Number/ Road Segment	Road Control	Total Length (miles)	Current Condition Surface type	Miles of Proposed Treatment				Comments	Easements/ Rt of Ways Proposed Closures and Decommissioning
				Maint enance	Constr uction	Renov ation	Deco mmissioning		
35-7-15A	BLM	0.09	NAT	0.09		0.09		Brush and grade road	
35-7-15B	OT	0.07	NAT	0.07		0.07		Brush and grade, a County road	
35-7-15C	BLM	0.08	NAT	0.08		0.08		Brush and grade road	
35-7-15D	OT	1.18	NAT	1.18		1.18		Brush and grade, County road	
35-7-15E	BLM	0.38	NAT	0.38		0.38		Brush and grade road	
Sec. 15 Temp Spurs	BLM	0.30	NAT		0.30		0.30	Construct Temporary Spurs	Decommission Temporary Spurs after treatment
35-7-16	OT	0.20	NAT	0.20		0.20		Brush and grade; a County road	Need R/W w/Jo County
35-7-16	BLM	0.50	NAT	0.50		0.50		Brush and grade road	
Sec. 16 Temp Spurs	BLM	0.03	NAT		0.30		0.30	Construct Temporary Spurs	Decommission Temporary Spurs after treatment
Sec. 8 Road	County	3.50	NAT	3.50		3.50		Brush and grade road, waterbar and block after treatment	Need R/W w/Jo. County
Sec. 8 Road	Private	0.32	NAT	0.32		0.32		Brush and grade road	
Sec. 9 Temp Spurs	BLM	0.75	NAT		0.75		0.75	Construct Temporary Spurs	Decommission after treatment
35-7-20A	BLM	0.55	GRR	0.55		0.55		Brush and grade road	
35-7-20B	BLM	0.31	NAT	0.31		0.31		Brush and grade road	
35-7-20C	BLM	0.08	GRR	0.08		0.08		Brush and grade road	
35-7-20D	BLM	0.20	NAT	0.20		0.20		Brush and grade road	
35-7-20E	BLM	0.29	NAT	0.29		0.29		Brush and grade road	
35-7-20F	BLM	0.18	NAT	0.18		0.18		Brush and grade road	
35-7-22	BLM	0.37	NAT	0.37		0.37		Brush and grade road	Construct tank trap barricade
35-7-22.1	BLM	1.53	NAT	1.53		1.53		Brush and grade road	
35-7-27A	BLM	0.08	ASC	0.08		0.08		Replace culvert. Brush road	
35-7-27B	BLM	0.70	ASC	0.70		0.70		Brush road	
35-7-27C	BLM	1.06	ASC	1.06		1.06		Brush road	
35-7-27D	BLM	1.30	ASC	1.30		1.30		Brush road	
35-7-27E	BLM	0.76	ASC	0.76		0.76		Brush road	
35-7-27F	BLM	1.63	GRR	1.63		1.63		Brush road	
35-7-27.1	BLM	1.31	PRR	1.31		1.31		Brush and grade road	Existing BLM gate, lock up during wet season
35-7-27.2	BLM	0.50	NAT	0.50		0.50		Brush and grade road	

Table C-1: Proposed Road Use, Construction, Renovation, Improvement, Maintenance, and Closures of Roads used for Haul

Road Number/ Road Segment	Road Control	Total Length (miles)	Current Condition Surface type	Miles of Proposed Treatment				Comments	Easements/ Rt of Ways Proposed Closures and Decommissioning
				Maintenance	Construction	Renovation	Decommissioning		
35-7-27.3A	BLM	0.60	GRR	0.60		0.60		Brush and grade road	
35-7-27.3B	BLM	2.55	NAT	2.55		2.55		Brush and grade road & spot rock	Existing BLM gate, lock up during wet season
35-7-27.6	BLM	0.22	GRR	0.22		0.22		Brush and grade road	
35-7-27.7	BLM	0.72	GRR	0.72		0.72		Brush and grade road	
35-7-27.8	BLM	0.26	GRR	0.26		0.26		Brush and grade road	
35-7-27.9 Temp spur	BLM	0.70	NAT		0.70		0.70	Construct outslope road	Decommission after land treatment
35-7-28A	BLM	0.70	ASC	0.70		0.70		Brush and grade road	
35-7-28B	BLM	0.66	GRR	0.66		0.66		Brush and grade road	
35-7-28C	BLM	0.25	GRR	0.25		0.25		Brush and grade road	
35-7-29A	BLM	0.95	ASC	0.95		0.95		Brush and grade road	Install 18"x40' CMP
35-7-29B	BLM	0.26	PRR	0.26		0.26		Brush and grade road	
35-7-29.1	BLM	0.82	PRR	0.82		0.82		Brush and grade road	
35-7-29.6	BLM	0.14	GRR	0.14		0.14		Brush and grade road	
35-7-33.1A	BLM	0.77	PRR	0.77		0.77		Brush and grade road	
35-7-33.1B	BLM	1.74	PRR	1.74		1.74		Brush and grade road	
35-7-33.1C	BLM	0.61	GRR	0.61		0.61		Brush and grade road	
36-7-3A	BLM	0.26	NAT	0.26		0.26		Outslope, repair ditches, grade, spot rock as needed	Install standard BLM gate
36-7-3B	BLM	0.61	NAT	0.61		0.61		Outslope, repair ditches, grade, spot rock as needed	
36-7-11	BLM	0.50	PRR	0.50		0.50		Needs easement: 1 st .20 miles on private prop., grade and spot rock	
36-7-22A	BLM	0.89	NAT	0.89		0.89		Grade road, spot rock as needed in drainage dips	
36-7-22B	BLM	0.80	NAT	0.80		0.80		Grade road, spot rock as needed in drainage dips	
36-7-22C	BLM	1.10	NAT	1.10		1.10		Grade road, spot rock as needed in drainage dips	
36-7-22D	BLM	1.81	NAT	1.81		1.81		Grade roads, spot rock as needed in drainage dips	
36-7-23	BLM	0.92	NAT	0.92		0.92		Brush and grade road	
36-7-25	BLM	0.84	NAT	0.84		0.84		Brush and grade road	
36-7-27	BLM	2.59	NAT	2.59		2.59		Brush and grade road	
36-7-27.1	BLM	0.18	NAT	0.18		0.18		Brush and grade road	
36-7-27.2	BLM	0.93	NAT	0.93		0.93		Brush and grade road	

Table C-1: Proposed Road Use, Construction, Renovation, Improvement, Maintenance, and Closures of Roads used for Haul

Road Number/ Road Segment	Road Control	Total Length (miles)	Current Condition Surface type	Miles of Proposed Treatment				Comments	Easements/ Rt of Ways Proposed Closures and Decommissioning
				Maintenanc e	Constru ction	Renov ation	Deco mmissioning		
36-7-27.3	BLM	0.07	NAT	0.07		0.07		Brush and grade road	
			Totals	39.92	2.05	39.92	2.05		

BST=Bituminous Surface Treatment ASC= Aggregate Surface Coarse GRR= Grid Rolled Rock PRR= Pit Run Rock NAT= Natural Surface

Maintenance may include surface grading, roadside brushing, for safety, spot rocking and maintaining existing drainage structures. Maintenance of natural surface roads may also include correcting drainage and erosion problems (e.g., improving or installing drainage dips, installing other drainage structures where needed, eliminating outside road edge berms or other features that are obstructing drainage where they exist).

Full Decommissioning consists of subsoil ripping of the roadbed to promote the establishment of vegetation and promote drainage consistent with the surrounding undisturbed areas. Existing culverts may be removed. Grass seeding of the road prism, fill slope and cutbank, and mulching of the Road prism may be included to minimize initial erosion potential prior to natural revegetation. An earth berm/tank trap barricade may be constructed at the beginning of each road to prevent use of the road prism following decommissioning.

Road Renovation consists of reconditioning and preparing the subgrade for heavy truck use, cleaning and shaping drainage ditches and structures, and trimming or removing vegetation from cut and fill slopes.

Table C-2: Proposed Special Project Roads Not Planned for Timber Haul Use

Road Number/ Road Segment	Road Control	Length (miles)	Current Condition/ Surface type	Miles of Proposed Rehabilitative Action	Miles of Decommissioning	Comments
35-7-4.1	BLM	1.24	ASC			Install standard BLM gate

ASC= Aggregate Surface Coarse BST= Bituminous Surface Treatment GRR= Grid Rolled Rock PRR= Pit Run Rock NAT= Natural Surface

Appendix D
Issues Considered but Eliminated From Detailed Analysis

1. A road originating in Township 35 South, Range 7 West section 4 and continues into section 9 along the Little Zigzag Creek drainage within the recreation section of the Rogue River was examined as a possible helicopter landing and haul route. The ID team eliminated this proposal due to visual concerns from the Rogue River corridor and concerns with meeting the Aquatic Conservation Strategy objectives.

Appendix E Acronyms and Glossary of Terms

I. Acronyms/Abbreviations

CT	-	Commercial thinning
CWD	-	Coarse Woody Debris
DBH	-	Diameter at breast height
GFMA	-	General Forest Management Area
GS	-	Group Selection
IDT	-	Interdisciplinary team
LSR(s)	-	Late Successional Reserve(s)
LUA	-	Land Use Allocation
MBF	-	Thousand Board Feet
NEPA	-	National Environmental Policy Act
OI	-	Operations Inventory
PCT	-	Precommercial thinning
RMP	-	Resource Management Plan
ROD	-	Record of Decision
SFP(s)	-	Special Forest Product(s)
T&E	-	Threatened and Endangered (species)
TPCC	-	Timber Production Capability Classification
VRM	-	Visual Resource Management

Glossary
(From Medford District RMP)

Adaptive Management Areas - Landscape units designated for development and testing of technical and social approaches to achieving desired ecological, economic, and other social objectives.

Age Class - One of the intervals into which the age range of trees is divided for classification or use.

Allowable Sale Quantity (ASQ) - The gross amount of timber volume, including salvage, that may be sold annually from a specified area over a stated period of time in accordance with the management plan. Formerly referred to as "allowable cut."

Anadromous Fish - Fish that are born and reared in freshwater, move to the ocean to grow and mature, and return to freshwater to reproduce. Salmon, steelhead, and shad are examples.

Aquatic Ecosystem - Any body of water, such as a stream, lake, or estuary, and all organisms and nonliving components within it, functioning as a natural system.

Aquatic Habitat - Habitat that occurs in free water.

Biological Diversity - The variety of life and its processes.

Bureau Assessment Species - Plant and animal species on List 2 of the Oregon Natural Heritage Data Base, or those species on the Oregon List of Sensitive Wildlife Species (OAR 635-100-040), which are identified in BLM Instruction Memo No. OR-91-57, and are not included as federal candidate, state listed or Bureau sensitive species.

Bureau Sensitive Species - Plant or animal species eligible for federal listed, federal candidate, state listed, or state candidate (plant) status, or on List 1 in the Oregon Natural Heritage Data Base, or approved for this category by the State Director.

Candidate Species - Those plants and animals included in Federal Register "Notices of Review" that are being considered by the Fish and Wildlife Service (FWS) for listing as threatened or endangered. There are two categories that are of primary concern to BLM. These are:

Category 1. Taxa for which the Fish and Wildlife Service has substantial information on hand to support proposing the species for listing as threatened or endangered. Listing proposals are either being prepared or have been delayed by higher priority listing work.

Category 2. Taxa for which the Fish and Wildlife Service has information to indicate that listing is possibly appropriate. Additional information is being collected.

Canopy - The more or less continuous cover of branches and foliage formed collectively by adjacent trees and other woody species in a forest stand. Where significant height differences occur between trees within a stand, formation of a multiple canopy (multi-layered) condition can result.

Climax Plant Community - The theoretical, final stable, self-sustaining, and self-reproducing state of plant community development that culminates plant succession on any given site. Given a long period of time between disturbances, plant associations on similar sites under similar climatic conditions approach the same species mixture and structure. Under natural conditions, disturbance events of various intensities and frequencies result in succession usually culminating as sub-climax with the theoretical end point occurring rarely if at all.

Coarse Woody Debris - Portion of tree that has fallen or been cut and left in the woods. Usually refers to pieces at least 20 inches in diameter. FEMAT

Commercial Thinning - The removal of merchantable trees from an even-aged stand to encourage growth of the remaining trees.

Connectivity - A measure of the extent to which conditions between late-successional/old-growth forest areas provide habitat for breeding, feeding, dispersal, and movement of late-successional/old-growth-associated wildlife and fish species.

Cover - Vegetation used by wildlife for protection from predators, or to mitigate weather conditions, or to reproduce. May also refer to the protection of the soil and the shading provided to herbs and forbs by vegetation.

Critical Habitat - Under the Endangered Species Act, (1) the specific areas within the geographic area occupied by a federally listed species on which are found physical and biological features essential to the conservation of the species, and that may require special management considerations or protection; and (2) specific areas outside the geographic area occupied by a listed species when it is determined that such areas are essential for the conservation of the species.

Cultural Resource - Any definite location of past human activity identifiable through field survey, historical documentation, or oral evidence; includes archaeological or architectural sites, structures, or places, and places of traditional cultural or religious importance to specified groups whether or not represented by physical remains.

Cultural Site - Any location that includes prehistoric and/or historic evidence of human use or that has important sociocultural value.

Cumulative Effect - The impact which results from identified actions when they are added to other past, present, and reasonably foreseeable future actions regardless of who undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

Density Management - Cutting of trees for the primary purpose of widening their spacing so that growth of remaining trees can be accelerated. Density management harvest can also be used to improve forest health, to open the forest canopy, or to accelerate

the attainment of old growth characteristics if maintenance or restoration of biological diversity is the objective.

Designated Area - An area identified in the Oregon Smoke Management Plan as a principal population center requiring protection under state air quality laws or regulations.

Developed Recreation Site - A site developed with permanent facilities designed to accommodate recreation use.

Diameter At Breast Height (DBH) - The diameter of a tree 4.5 feet above the ground on the uphill side of the tree.

Ecosystem Diversity - The variety of species and ecological processes that occur in different physical settings.

Ecosystem Management - The management of lands and their resources to meet objectives based on their whole ecosystem function rather than on their character in isolation. Management objectives blend long-term needs of people and environmental values in such a way that the lands will support diverse, healthy, productive and sustainable ecosystems.

Endangered Species - Any species defined through the Endangered Species Act as being in danger of extinction throughout all or a significant portion of its range and published in the Federal Register.

Environmental Assessment (EA) - A systematic analysis of site-specific BLM activities used to determine whether such activities have a significant effect on the quality of the human environment and whether a formal environmental impact statement is required; and to aid an agency's compliance with National Environmental Protection Agency when no Environmental Impact Statement is necessary.

Environmental Impact - The positive or negative effect of any action upon a given area or resource.

Ephemeral Stream - Streams that contain running water only sporadically, such as during and following storm events.

Forest Canopy - The cover of branches and foliage formed collectively by the crowns of adjacent trees and other woody growth.

Forest Health - The ability of forest ecosystems to remain productive, resilient, and stable over time and to withstand the effects of periodic natural or human-caused stresses such as drought, insect attack, disease, climatic changes, flood, resource management practices and resource demands.

Forest Land - Land that is now, or is capable of becoming, at least 10% stocked with forest trees and that has not been developed for nontimber use.

Forest Succession - The orderly process of change in a forest as one plant community or stand condition is replaced by another, evolving towards the climax type of vegetation.

General Forest Management Area - Forest land managed on a regeneration harvest cycle of 70-110 years. A biological legacy of six to eight green trees per acre would be retained to assure forest health. Commercial thinning would be applied where practicable and where research indicates there would be gains in timber production.

Genetic Diversity - The variety within populations of a species.

Habitat Diversity - The number of different types of habitat within a given area.

Historic Site - A cultural resource resulting from activities or events dating to the historic period (generally post AD 1830 in western Oregon).

Impact - A spatial or temporal change in the environment caused by human activity.

Intact Old Growth Habitat - Older forest types that have not been entered for logging or are lightly entered such that structural and functional characteristics of the forest are essentially unchanged, except in relation to the size of the habitat island. Typically, forests of coniferous series with crown closure above 70%. Also includes low site lands lacking the ecological potential to produce older forest habitat characteristics.

Intermittent Stream - Any nonpermanent flowing drainage feature having a definable channel and evidence of scour or deposition. This includes what are sometimes referred to as ephemeral streams if they meet these two criteria.

Land Use Allocations - Allocations which define allowable uses/activities, restricted uses/activities, and prohibited uses/activities. They may be expressed in terms of area such as acres or miles etc. Each allocation is associated with a specific management objective.

Landing - Any place on or adjacent to the logging site where logs are assembled for further transport.

Landscape Diversity - The size, shape and connectivity of different ecosystems across a large area.

Landscape Ecology - Principles and theories for understanding the structure, functioning, and change of landscapes over time. Specifically it considers (1) the development and dynamics of spatial heterogeneity, (2) interactions and exchanges across heterogeneous landscapes, (3) the influences of spatial heterogeneity on biotic and abiotic processes, and (4) the management of spatial heterogeneity. The consideration of spatial patterns distinguishes landscape ecology from traditional ecological studies, which frequently assume that systems are spatially homogeneous.

Landscape Pattern - The number, frequency, size, and juxtaposition of landscape elements (patches) which are important to the determination or interpretation of ecological processes.

Late-Successional Forests - Forest seral stages which include mature and old-growth age classes.

Late-Successional Reserve - A forest in its mature and/or old-growth stages that has been reserved.

Log Decomposition Class - Any of five stages of deterioration of logs in the forest; stages range from essentially sound (class 1) to almost total decomposition (class 5).

Long-Term - The period starting ten years following implementation of the Resource Management Plan. For most analyses, long-term impacts are defined as those existing 100 years after implementation.

Long-Term Soil Productivity - The capability of soil to sustain inherent, natural growth potential of plants and plant communities over time.

Matrix Lands - Federal land outside of reserves and special management areas that will be available for timber harvest at varying levels.

Mature Stand - A mappable stand of trees for which the annual net rate of growth has peaked. Stands are generally greater than 80-100 years old and less than 180-200 years old. Stand age, diameter of dominant trees, and stand structure at maturity vary by forest cover types and local site conditions. Mature stands generally contain trees with a small average diameter, less age class variation, and less structural complexity than old-growth stands of the same forest type. Mature stages of some forest types are suitable habitat for spotted owls. However, mature forests are not always spotted owl habitat, and spotted owl habitat is not always mature forest.

Mining Claims - Portions of public lands claimed for possession of locatable mineral deposits, by locating and recording under established rules and pursuant to the 1872 Mining Law.

Mitigating Measures - Modifications of actions which (a) avoid impacts by not taking a certain action or parts of an action; (b) minimize impacts by limiting the degree or magnitude of the action and its implementation; (c) rectify impacts by repairing, rehabilitating or restoring the affected environment; (d) reduce or eliminate impacts over time by preservation and maintenance operations during the life of the action; or (e) compensate for impacts by replacing or providing substitute resources or environments.

Monitoring - The process of collecting information to evaluate if objectives and anticipated or assumed results of a management plan are being realized or if implementation is proceeding as planned.

Multi-aged Stand - A forest stand which has more than one distinct age class arising from specific disturbance and regeneration events at various times. These stands normally will have multi-layered structure.

Multi-layered Canopy - Forest stands with two or more distinct tree layers in the canopy; also called multi-storied stands.

Multiple Use - Management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American

people. The use of some land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife, fish, and natural scenic, scientific and historical values.

Neotropical migrants - a wide variety of bird species, which breed in temperate North America but migrate to tropical habitats in Central and South America during winter.

Noncommercial Forest Land - Land incapable of yielding at least 20 cubic feet of wood per acre per year of commercial species; or land which is capable of producing only noncommercial tree species.

Noncommercial Tree Species - Minor conifer and hardwood species whose yields are not reflected in the commercial conifer forest land ASQ. Some species may be managed and sold under a suitable woodland ASQ and, therefore, may be commercial as a woodland species.

Nonforest Land - Land developed for nontimber uses or land incapable of being 10% stocked with forest trees.

Noxious Plant - A plant specified by law as being especially undesirable, troublesome, and difficult to control.

O&C Lands - Public lands granted to the Oregon and California Railroad Company and subsequently revested to the United States.

Off Highway Vehicle (OHV) - Any motorized vehicle capable of, or designed for, travel on land, water, or natural terrain. The term "Off Highway Vehicle" will be used in place of the term "Off Road Vehicle" to comply with the Purposes of Executive Orders 11644 and 11989. The definition for both terms is the same.

Old-Growth Conifer Stand - Older forests occurring on western hemlock, mixed conifer, or mixed evergreen sites which differ significantly from younger forests in structure, ecological function, and species composition. Old growth characteristics begin to appear in unmanaged forests at 175-250 years of age. These characteristics include (a) a patchy, multi-layered canopy with trees of several age classes; (b) the presence of large living trees; (c) the presence of larger standing dead trees (snags) and down woody debris, and (d) the presence of species and functional processes which are representative of the potential natural community.

For purposes of inventory, old-growth stands on BLM-administered lands are only identified if they are at least 10% stocked with trees of 200 years or older and are ten acres or more in size. For purposes of habitat or biological diversity, the BLM uses the appropriate minimum and average definitions provided by Pacific Northwest Experiment Station publications 447 and GTR-285. This definition is summarized from the 1986 interim definitions of the Old-Growth Definitions Task Group.

Old-Growth Forest - A forest stand usually at least 180-220 years old with moderate high canopy closure; a multilayered,

multispecies canopy dominated by large overstory trees; high incidence of large trees, some with broken tops and other indications of old and decaying wood (decadence); numerous large snags; and heavy accumulations of wood, including large logs on the ground.

Old-Growth-Dependent Species - An animal species so adapted that it exists primarily in old growth forests or is dependent on certain attributes provided in older forests.

Operations Inventory Unit - An aggregation of trees occupying an area that is sufficiently uniform in composition, age, arrangement and condition to be distinguishable from vegetation on adjoining areas.

Optimal Cover - For elk, cover used to hide from predators and avoid disturbances, including man. It consists of a forest stand with four layers and an overstory canopy which can intercept and hold a substantial amount of snow, yet has dispersed, small openings. It is generally achieved when the dominant trees average 21 inches DBH or greater and have 70% or greater crown closure.

Overstory - That portion of trees which form the uppermost layer in a forest stand which consists of more than one distinct layer (canopy).

Partial Cutting - Removal of selected trees from a forest stand.

Peak Flow - The highest amount of stream or river flow occurring in a year or from a single storm event.

Perennial Stream - A stream that has running water on a year-round basis under normal climatic conditions.

Planning Area - All of the lands within the BLM management boundary addressed in a BLM resource management plan; however, BLM planning decisions apply only to BLM-administered lands and mineral estate.

Plant Association - A plant community type based on land management potential, successional patterns, and species composition.

Plant Community - An association of plants of various species found growing together in different areas with similar site characteristics.

Precommercial Thinning - The practice of removing some of the trees less than merchantable size from a stand so that remaining trees will grow faster.

Prescribed Fire - A fire burning under specified conditions that will accomplish certain planned objectives.

Priority Habitats - Aquatic, wetland and riparian habitats, and habitats of priority animal taxa.

Probable Sale Quantity (PSQ) - Probable sale quantity estimates the allowable harvest levels for the various alternatives that could be maintained without decline over the long term if the

schedule of harvests and regeneration were followed. "Allowable" was changed to "probable" to reflect uncertainty in the calculations for some alternatives. Probable sale quantity is otherwise comparable to allowable sale quantity (ASQ). However, probable sale quantity does not reflect a commitment to a specific cut level. Probable sale quantity includes only scheduled or regulated yields and does not include "other wood" or volume of cull and other products that are not normally part of allowable sale quantity calculations.

Proposed Threatened or Endangered Species - Plant or animal species proposed by the U.S. Fish & Wildlife Service or National Marine Fisheries Service to be biologically appropriate for listing as threatened or endangered, and published in the Federal Register. It is not a final designation.

Public Domain Lands - Original holdings of the United States never granted or conveyed to other jurisdictions, or reacquired by exchange for other public domain lands.

Public Water System - A system providing piped water for public consumption. Such a system has at least fifteen service connections or regularly serves at least twenty-five individuals.

Reforestation - The natural or artificial restocking of an area with forest trees; most commonly used in reference to artificial stocking.

Regeneration Harvest - Timber harvest conducted with the partial objective of opening a forest stand to the point where favored tree species will be reestablished.

Resource Management Plan (RMP) - A land use plan prepared by the BLM under current regulations in accordance with the Federal Land Policy and Management Act.

Right-of-Way - A permit or an easement that authorizes the use of public lands for specified purposes, such as pipelines, roads, telephone lines, electric lines, reservoirs, and the lands covered by such an easement or permit.

Riparian Reserves - Designated riparian areas found outside Late-Successional Reserves.

Riparian Zone - Those terrestrial areas where the vegetation complex and microclimate conditions are products of the combined presence and influence of perennial and/or intermittent water, associated high water tables and soils which exhibit some wetness characteristics. Normally used to refer to the zone within which plants grow rooted in the water table of these rivers, streams, lakes, ponds, reservoirs, springs, marshes, seeps, bogs and wet meadows.

Ripping - The process of breaking up or loosening compacted soil to assure better penetration of roots, lower soil density, and increased microbial and invertebrate activity.

Road - A vehicle route which has been improved and maintained by mechanical means to ensure relatively regular and continuous use. A route maintained solely by the passage of vehicles does not constitute a road.

Rotation - The planned number of years between establishment of a forest stand and its regeneration harvest.

Rural Interface Areas - Areas where BLM-administered lands are adjacent to or intermingled with privately owned lands zoned for 1 to 20-acre lots or that already have residential development.

Sanitation-Salvage Cuttings - Combination of sanitation and salvage cuttings. In sanitation cuts trees either killed or injured by fire, insects, disease, etc., are removed for the purpose of preventing the spread of insect or disease. Salvage cut remove trees that are either killed or severely injured before merchantable material becomes unmerchantable.

Scarification - Mechanical removal of competing vegetation or interfering debris prior to planting.

Seral Stages - The series of relatively transitory plant communities that develop during ecological succession from bare ground to the climax stage. There are five stages:

Early Seral Stage - The period from disturbance to the time when crowns close and conifers or hardwoods dominate the site. Under the current forest management regime, the duration is approximately 0 to 10 years. This stage may be dominated by grasses and forbs or by sprouting brush or hardwoods. Conifers develop slowly at first and gradually replace grasses, forbs, or brush as the dominant vegetation. Forage may be present; hiding or thermal cover may not be present except in rapidly sprouting brush communities.

Mid-Seral Stage - The mid-seral stage occurs from crown closure to the time when conifers would begin to die from competition; approximately age 10 to 40. Stands are dense and dominated by conifers, hardwoods, or dense brush. Grass, forbs, and herbaceous vegetation decrease. Hiding cover for big game is usually present.

Late Seral Stage - Late seral stage occurs when conifers would begin to die from competition to the time when stand growth slows; approximately age 40 to 80. Forest stands are dominated by conifers or hardwoods; canopy closure often approaches 100%. Stand diversity is minimal; conifer mortality rates and snag formation are rapid. Big game hiding and thermal cover is present. Forage and understory vegetation is minimal except in understocked stands or in meadow inclusions.

Mature Seral Stage - This stage exists from the point where stand growth slows to the time when the forest develops structural diversity; approximately age 80 to 200. Conifer and hardwood growth gradually decline. Developmental change slows. Larger trees increase significantly in size. Stand diversity gradually increases. Big game hiding cover, thermal cover, and some forage are present. With slowing growth, insect damage increases and stand breakup may begin on drier sites. Understory development is significant in response to openings in the canopy created by disease, insects, and windthrow. Vertical diversity increases. Larger snags are formed.

Old Growth - This stage constitutes the potential plant community capable of existing on a site given the frequency of

natural disturbance events. For forest communities, this stage exists from approximately age 200 until when stand replacement occurs and secondary succession begins again. (Also see definitions of old-growth conifer stand and potential natural community.)

These definitions are used by BLM to separate age classes for analysis of impacts.

Short-Term - The period of time during which the RMP will be implemented; assumed to be ten years.

Silvicultural Prescription - A professional plan for controlling the establishment, composition, constitution and growth of forests.

Silvicultural System - A planned sequence of treatments over the entire life of a forest stand needed to meet management objectives.

Site Class - A measure of an area's relative capacity for producing timber or other vegetation.

Site Index - A measure of forest productivity expressed as the height of the tallest trees in a stand at an index age.

Site Preparation - Any action taken in conjunction with a reforestation effort (natural or artificial) to create an environment which is favorable for survival of suitable trees during the first growing season. This environment can be created by altering ground cover, soil or microsite conditions, using biological, mechanical, or manual clearing, prescribed burns, herbicides or a combination of methods.

Skid Trail - A pathway created by dragging logs to a landing (gathering point).

Slash - The branches, bark, tops, cull logs, and broken or uprooted trees left on the ground after logging.

Smoke Management - Conducting a prescribed fire under suitable fuel moisture and meteorological conditions with firing techniques that keep smoke impact on the environment within designated limits.

Smoke Management Program - A program designed to ensure that smoke impacts on air quality from agricultural or forestry burning operations are minimized; that impacts do not exceed, or significantly contribute to, violations of air quality standards or visibility protection guidelines; and that necessary open burning can be accomplished to achieve land management goals.

Smoke Sensitive Area - An area identified by the Oregon Smoke Management Plan that may be negatively affected by smoke but is not classified as a designated area.

Snag - Any standing dead, partially-dead, or defective (cull) tree at least ten inches in diameter at breast height (DBH) and at least six feet tall. A hard snag is composed primarily of sound wood, generally merchantable. A soft snag is composed primarily of wood in advanced stages of decay and deterioration, generally not merchantable.

Snag Dependent Species - Birds and animals dependent on snags for nesting, roosting, or foraging habitat.

Soil Compaction - An increase in bulk density (weight per unit volume) and a decrease in soil porosity resulting from applied loads, vibration, or pressure.

Soil Displacement - The removal and horizontal movement of soil from one place to another by mechanical forces such as a blade.

Soil Productivity - Capacity or suitability of a soil for establishment and growth of a specified crop or plant species, primarily through nutrient availability.

Special Forest Products - Firewood, shake bolts, mushrooms, ferns, floral greens, berries, mosses, bark, grasses etc., that could be harvested in accordance with the objectives and guidelines in the proposed resource management plan.

Special Status Species - Plant or animal species falling in any of the following categories (see separate glossary definitions for each):

- Threatened or Endangered Species
- Proposed Threatened or Endangered Species
- Candidate Species
- State Listed Species
- Bureau Sensitive Species
- Bureau Assessment Species

Species Diversity - The number, different kinds, and relative abundance of species.

Stand (Tree Stand) - An aggregation of trees occupying a specific area and sufficiently uniform in composition, age, arrangement, and condition so that it is distinguishable from the forest in adjoining areas.

Stand Density - An expression of the number and size of trees on a forest site. May be expressed in terms of numbers of trees per acre, basal area, stand density index, or relative density index.

Stand-replacement Wildfire - A wildfire that kills nearly 100% of the stand.

State Listed Species - Plant or animal species listed by the State of Oregon as threatened or endangered pursuant to ORS 496.004, ORS 498.026, or ORS 564.040.

Stream Class - A system of stream classification established in the Oregon Forest Practices Act. Class I streams are those which are significant for: 1) domestic use, 2) angling, 3) water dependent recreation, and 4) spawning, rearing or migration of anadromous or game fish. All other streams are Class II. Class II special protection streams (Class II SP) are Class II streams which have a significant summertime cooling influence on downstream Class I waters which are at or near a temperature at which production of anadromous or game fish is limited. Revised Forest Practices Act may have a new system within a year.

Stream Order - A hydrologic system of stream classification based on stream branching. Each small unbranched tributary is a

first order stream. Two first order streams join to make a second order stream. Two second order streams join to form a third order stream and so forth.

Stream Reach - An individual first order stream or a segment of another stream that has beginning and ending points at a stream confluence. Reach end points are normally designated where a tributary confluence changes the channel character or order. Although reaches identified by BLM are variable in length, they normally have a range of ½ to 1-1/2 miles in length unless channel character, confluence distribution, or management considerations require variance.

Structural Diversity - Variety in a forest stand that results from layering or tiering of the canopy and the die-back, death and ultimate decay of trees. In aquatic habitats, the presence of a variety of structural features such as logs and boulders that create a variety of habitat.

Succession - A series of dynamic changes by which one group of organisms succeeds another through stages leading to potential natural community or climax. An example is the development of series of plant communities (called seral stages) following a major disturbance.

Suitable Woodland - Forest land occupied by minor conifer and hardwood species not considered in the commercial forest land ASQ determination and referred to as noncommercial species. These species may be considered commercial for fuelwood, etc. under woodland management. Also included are low site and nonsuitable commercial forest land. These lands must be biologically and environmentally capable of supporting a sustained yield of forest products.

Surface Erosion - The detachment and transport of soil particles by wind, water, or gravity. Surface erosion can occur as the loss of soil in a uniform layer (sheet erosion), in many rills, or by dry ravel.

Thermal Cover - Cover used by animals to lessen the effects of weather. For elk, a stand of conifer trees which are 40 feet or more tall with an average crown closure of 70% or more. For deer, cover may include saplings, shrubs or trees at least five feet tall with 75% crown closure.

Threatened Species - Any species defined through the Endangered Species Act as likely to become endangered within the foreseeable future throughout all or a significant portion of its range and published in the Federal Register.

Timber Production Capability Classification (TPCC) - The process of partitioning forestland into major classes indicating relative suitability to produce timber on a sustained yield basis.

Transportation System - Network of roads used to manage BLM-administered lands. Includes BLM controlled roads and some privately controlled roads. Does not include Oregon Department of Transportation, county and municipal roads.

Understory - That portion of trees or other woody vegetation which form the lower layer in a forest stand which consists of more than one distinct layer (canopy).

Viable Population - A wildlife or plant population that contains an adequate number of reproductive individuals to appropriately ensure the long-term existence of the species.

Viewshed - The landscape that can be directly seen from a viewpoint or along a transportation corridor.

Visual Resources - The visible physical features of a landscape.

Visual Resource Management (VRM) - The inventory and planning actions to identify visual values and establish objectives for managing those values and the management actions to achieve visual management objectives.

Water Quality - The chemical, physical, and biological characteristics of water.

Water Yield - The quantity of water derived from a unit area of watershed.

Wetlands or Wetland Habitat - Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include, but are not limited to, swamps, marshes, bogs, and similar areas.

Wet Meadows - Areas where grasses predominate. Normally waterlogged within a few inches of the ground surface.

Wildlife Tree - A live tree retained to become future snag habitat.

Withdrawal - A designation which restricts or closes public lands from the operation of land or mineral disposal laws.

Woodland - Forest land producing trees not typically used as saw timber products and not included in calculation of the commercial forest land ASQ.