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Norris Divide

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
EUGENE DISTRICT OFFICE

ENVIRONMENTAL ASSESSMENT NO. OR090-03-17
Norris Divide Timber Sale

1.0 INTRODUCTION

1.1 BACKGROUND

This action proposes timber harvest and other forest management activities within a 255-acre project area located in Section 9, Township 20 South, Range 4 West, Willamette Meridian, Lane County, Oregon in the Siuslaw Resource Area of the Eugene District of the Bureau of Land Management (BLM). The project area consists of 53-63 year old timber. Three action alternatives are analyzed that consider density management and regeneration harvest on 210-240 acres. The No Action alternative is also analyzed.

1.2 PURPOSE OF AND NEED FOR THE ACTION

The project area is within a Connectivity/Diversity Block, which is a part of the Matrix Land Use Allocation (LUA). Riparian Reserves are also contained within the project area.

The purpose of the action is to provide a sustainable supply of timber while maintaining forest health and productivity, and to contribute to attainment of Aquatic Conservation Strategy (ACS) Objectives. The need is established in the Eugene District Record of Decision and Resource Management Plan (RMP) (June 1995), which directs that timber be harvested from the Matrix LUA, and that actions be taken to attain ACS objectives.

The Siuslaw Watershed Analysis (February, 1996) supports the need for regeneration harvest and density reduction in the Matrix (Connectivity) and Riparian Reserve to meet the above resource objectives.

1.3 MANAGEMENT OBJECTIVES AND GOALS FOR LAND WITHIN THE MATRIX

The following are the primary goals and objectives of the Matrix land use allocation (Eugene District Rod/RMP, June 1995):

- Produce a sustainable supply of timber and other forest commodities to provide jobs and to contribute to community stability.
- Provide connectivity (along with other allocations such as riparian reserves) between Late-Successional Reserves.
- Provide habitat for a variety of organisms associated with both late-successional and younger forests.
- Provide important ecological functions, such as dispersal of organisms, the carryover of some species from one stand to the next, and maintenance of ecologically valuable structural components, such as down logs, snags, and large trees.
- Provide early-successional habitat.

1.4 MANAGEMENT OBJECTIVES AND GOALS FOR THE RIPARIAN RESERVE

"Under the Aquatic Conservation Strategy, Riparian Reserves Are used to maintain and restore riparian structures and functions of streams, confer benefits to riparian-dependent and associated species other than fish, enhance habitat conservation for organisms that are dependent on the transition zone between up slope and riparian areas, improve travel and dispersal corridors for many terrestrial animals and plants, and provide for greater connectivity of the watershed" (ROD B-13).

1.5 CONFORMANCE WITH LAND USE PLAN

All alternatives are in conformance with the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl (NSO ROD) (April 1994), and the RMP, as amended by the Record of Decision for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines, USDA Forest Service and USDI Bureau of Land Management, January 2001.

Additional site-specific information is available in the Norris Divide Timber Sale project analysis file. This file and the above referenced documents are available for review at the Eugene District Office.

2.0 ISSUES SELECTED FOR ANALYSIS

The issues for analysis were developed based on interdisciplinary team discussion. The issues are summarized below and serve to focus the analysis and comparison of alternatives.

ISSUE 1: *How would timber harvest and related activities affect northern spotted owl dispersal habitat?*

The project area is in a Connectivity/Diversity Block established in part to provide dispersal habitat for the northern spotted owl. This area is also within the "South Willamette-North Umpqua Area of Concern" (AOC). The function of the AOC is to provide a bridge of dispersal habitat (primarily for spotted owls) between the Coast and Cascade provinces and their Late-Successional Reserves. Approximately 93% of the project area currently functions as dispersal habitat. A regeneration harvest would reduce the amount of dispersal habitat. By analyzing this issue, we can determine how each alternative affects northern spotted owl dispersal habitat.

Measures: *Quantity post-harvest dispersal habitat in acres at the stand scale, Connectivity block scale, and the Area of Concern scale.*

ISSUE 2: *How would timber harvest and related activities affect BLM's ability to attain ACS objectives?*

The project area contains several Riparian Reserves. Actions are being considered in the Riparian Reserves within the project area to contribute to attainment of ACS objectives. Analysis of this issue will allow comparison of how each alternative contributes toward accomplishing ACS objectives.

Measures: *ACS objective-effect determination (maintain, restore, or retard) for each alternative.*

ISSUE 3: *How would timber harvest and related activities affect the spread of noxious weeds and habitat for Cimicifuga elata and Aster vialis?*

Some of the area around the project area is heavily infested with scotch broom, and it is likely that false brome exists on the Cottage Grove-Lorane Highway that bisects the project area. Other noxious weeds (St. John's wort, thistle, etc.) are common throughout the vicinity. There are also two sensitive plant species within the project area: *Cimicifuga elat*a, a "Bureau sensitive" species, and *Aster vialis*, a "Survey and Manage, Category A" species. Analysis of this issue will show how each alternative would affect weed encroachment and sensitive plant habitat.

Measures: *Weeds: Acres of ground disturbance from roads, landings, skid trails, and logging, combined with occurrence of open light conditions.*

Cimicifuga elata and *Aster vialis*: *Acres of ground disturbance from roads, landings, skid trails, and logging, combined with occurrence of open light conditions within potential Cimicifuga elata and Aster vialis habitat.*

ISSUE 4: *How would timber harvest and related activities affect fuel levels in the rural interface?*

Rural residences are located on three sides of the project area. Fuel loading may be affected by timber harvest, either positively or negatively. Showing how fuel loading would change by alternative would allow for comparison of how each alternative affects fuels hazards in the rural interface area.

Measures: *Change in acres of high risk fuels over 2, 10, and 50 years.How would this project contribute to the Eugene District RMP goal for allowable sale quantity?*

ISSUE 5: *How would this project contribute to the Eugene District RMP goal for allowable sale quantity?*

One purpose of the project is to provide a sustainable supply of timber while maintaining forest health and productivity. Alternatives developed to address the issues above would produce different harvest volumes. Analysis of this issue will show how each alternative would affect the amount of timber harvested.

Measures: *Volume of timber harvested in million board feet (MMBF)*

3.0 ALTERNATIVES

Alternatives 1, 2, 3, consider timber harvest and other forest management activities on a project area of approximately 255 acres (see maps) and are summarized in Table 1 below. Design features pertaining to general design, density management, Riparian Reserve/stream protection, logging systems (cable yarding, ground-based yarding), road decommissioning, fuel reduction (roadside), and botany resources are described in detail in Appendix A, and would be applied to each action alternative, as summarized below.

3.1 ALTERNATIVE 1 - *Density Management (210 acres)*

This is a density management alternative that maintains existing levels of dispersal habitat. Approximately 210 acres would be treated (175 acres of upland Connectivity, and 35 acres of Riparian Reserve). Approximately 1.9 million board feet (MMBF) of timber would be offered for sale under this alternative.

Silviculture

Trees in the upland Connectivity would receive a density management treatment to provide a sustainable supply of timber, reduce tree stocking density, and redistribute growth and yield to the remaining stand. The outer 160 feet of Riparian Reserves would be thinned to speed the development of a diverse large conifer canopy to meet the ACS objectives. The Connectivity and Riparian Reserve would be "thinned from below" using a 14-inch diameter class (13.6" -14.5" in diameter) limit prescription. Harvested trees in the density management area would primarily be smaller than the 14-inch diameter class, with no more than 10% of the harvested trees in the larger diameter classes. An average of 80 trees per acre (TPA), with a basal area of approximately 135 sq. ft. per acre, would be retained in both the upland and Riparian Reserve.

Minor species, down wood, and snags would be retained as discussed in Appendix A. Conifers less than 6.5 inches DBH also would be retained where possible within Riparian Reserves to maintain structural diversity of the stand.

Yarding Methods

Both cable yarding and ground based (tractor) yarding would occur within the upland utilizing the logging system design features listed in Appendix A. Approximately 100 acres, where slopes are

less than 35 percent, would be ground-based yarded under this alternative. Approximately 110 acres would be cable yarded.

Directional felling and yarding away from streams would be required where feasible to provide for streambank stability and water quality protection. Cable yarding with at least one end log suspension would be required in the Riparian Reserve. Skyline cable corridors would be needed across streams and through the forested stream buffers to gain suspension of logs during yarding. No yarding of logs across streams would occur within skyline cable corridors except for Stream 13 and 18. Full suspension of logs would be required when yarding logs across these streams.

Fuel Reduction Treatments

Fuel reduction treatments would consist of roadside fuel reduction as described in Appendix A.

Riparian Reserves

The height of one site-potential tree has been determined to be 210 feet slope distance in the Siuslaw Watershed. Untreated stream buffers of approximately 50 feet from the stream channel would be prescribed to protect streams, stream banks, and riparian/aquatic resources. Stream 1 would receive a wider no-treatment buffer. Along the western-most 1,100 feet of the stream reach in Section 9, where the side-slopes are 70% or greater, Stream 1 would receive a buffer following the slope break when 50-100 feet from the stream. If no slope breaks are evident, approximately a 100 feet minimum buffer from the stream would be required.

Roads

Approximately 2,000 feet of new, temporary spur roads (Spurs A-F) would be constructed. A portion of BLM Road No. 20-4-9.1 (600 feet) would be renovated. Renovation would consist of brushing, scarifying the subgrade to a 14-foot width, and outsloping where possible. The timber purchaser would be given the option to surface rock both the new spur road construction and road renovation. The primary haul route of logs to the mill would be along the Cottage Grove–Lorane Highway (County Road 2600).

All newly constructed spur roads (Spurs A-F) would be decommissioned after use by blocking and waterbarring. The renovated portion of Road No. 20-4-9.1 (600 ft.) would be blocked, and drainage dips, water bars, or lead off ditches would be constructed as needed to direct surface water to the forest floor and leave the road in an erosion resistant condition once the project is completed.

3.2 ALTERNATIVE 2 - *Density Management (210 acres) and Regeneration Harvest (30 acres)* - PROPOSED ACTION

This is a density management treatment and regeneration harvest alternative that maintains most of the dispersal habitat within the stand but provides slightly more timber volume. The density management treatment would be the same as Alternative 1 (175 acres of upland, and 35 acres of Riparian Reserve). This alternative would also include approximately 30 acres of regeneration harvest in the upland. Approximately 240 acres would be treated, and approximately 2.6 MMBF of timber would be offered for sale.

Silviculture

The density management prescription for the upland Connectivity and Riparian Reserve would be the same as Alternative 1 as described in Appendix A.

Under Alternative 2, regeneration harvest of approximately 30 acres along the south boundary of the project area would be prescribed for an area of very dense, unstable stand conditions that would have a high potential for windthrow if thinned.

Retention trees within the regeneration harvest area would be left as described in Appendix A to provide habitat for cavity nesting birds, snags and down wood, species diversity, and legacy trees. Retention trees would be clustered in groups of 10-50 trees with less wind-firm trees grouped in larger

clumps. Existing down wood and snags would be retained as described in regeneration harvest design features shown in Appendix A. Harvested areas would be planted at a density of approximately 400 trees per acres (TPA) to produce full stocking of the future stand. Planted seedlings would be Douglas-fir, using improved stock from the Tree Improvement Program if available.

Yarding Methods

Yarding methods would be the same as in Alternative 1 for both the upland and Riparian Reserves. The ground-based yarding area would be the same as Alternative 1 (100 acres). Cable yarding would be required within Riparian Reserves and south of Stream 17.

Fuel Reduction Treatments

Roadside fuel reduction treatments would be as described in Appendix A.

Regeneration harvest area fuel reduction treatments and site preparation for replanting would be as described in Appendix A.

Riparian Reserves

Riparian Reserves would be managed the same as in Alternative 1.

Roads

Road construction, renovation, and decommissioning would be the same as Alternative 1, with the following exceptions:

An additional 300 feet of new spur road (Spur G) would be constructed and approximately 630 feet of BLM Road No. 20-4-9.2 would be renovated. The timber sale purchaser would have the option to rock these roads. Spur G and the renovated portion of Road No. 20-4-9.2 would be decommissioned by removing rock if present, tilling, blocking, and scattering wood debris where available on the road bed.

3.3 ALTERNATIVE 3 - *Regeneration Harvest (190 acres) and Density Management (50 acres)*

This alternative maximizes timber volume while maintaining dispersal habitat within the Riparian Reserves. Density management would occur on 35 acres of Riparian Reserves. This alternative would also include approximately 15 acres of density management and 190 acres of regeneration harvest in the upland. Approximately 240 acres would be treated and approximately 4.3 MMBF of timber would be offered for sale under this alternative.

Silviculture

The silvicultural prescription for density management in the upland Connectivity and Riparian Reserve would be the same as Alternative 1 as described in Appendix A. The silvicultural prescription, retention, and planting for regeneration harvest in the upland Connectivity would be the same as Alternative 2 as described in Appendix A. The density management prescription would be applied to 50 acres (15 acres of the upland and 35 acres of the Riparian Reserve), and the regeneration harvest prescription would be applied to 190 acres in the upland.

Yarding Methods

Yarding methods (cable and ground-based) would be the same as in Alternative 2. The tractor yarding area would be the same as Alternatives 1 and 2 (approximately 100 acres in the upland). Approximately 140 acres of cable yarding would occur under this alternative, the same as Alternative 2. Cable yarding would be required within Riparian Reserves and south of Stream 17.

Fuel Reduction Treatments

Roadside fuel reduction treatments would be as described in Appendix A.

Regeneration harvest area fuel reduction treatments and site preparation for replanting would be as described in Appendix A.

Riparian Reserves

Riparian Reserves would be managed the same as in Alternatives 1 and 2.

Roads

New spur road construction, road renovation, and decommissioning would be the same as Alternative 2 with the following exceptions:

All newly constructed spur roads would be decommissioned by removing rock if present, and tilling. Wood debris (where available) would be scattered on tilled road beds except on Spur F. No debris would be scattered on the roadbed of Spur F in order to minimize fuels adjacent to the nearby private residence.

3.4 ALTERNATIVE 4 - NO ACTION

All timber harvest activities would be deferred; no road building, road renovation or management activities described under the action alternatives would occur, and no timber would be offered for sale at this time.

3.5 ALTERNATIVES CONSIDERED BUT NOT ANALYZED

A no-new-roads alternative was considered but not analyzed because of safety concerns. In order to provide for traffic safety and logging safety, logging operations need to be away from the Cottage Grove-Lorane Highway and an existing powerline within the project area.

An alternative that would apply a density management thinning to approximately 30 acres along the south boundary of the project area was not considered because it has very dense, unstable stand conditions with high potential for windthrow if thinned. A 30-acre windthrow would create high fire risk and would likely be salvage harvested, resulting in the same effects as described in Alternative 2.

Table 1. *Comparison of Alternatives*

	Alternative 1	Alternative 2 Proposed Action	Alternative 3	Alternative 4 No Action
	Density Mgmt (210 acres)	*Density Mgmt* (210 acres) *Regen Harvest* (30 acres)	*Density Mgmt* (50 acres) *Regen Harvest* (190 acres)	
TREATMENT (*acres*)				
Uplands	• DM[1] 175	• DM 175 • Regen[2] 30	• DM 5 • Regen 190	• None
Riparian Reserve	• DM 35	• DM 35	• DM 35	• None
Total Acres treated	210	240	240	• None
VOLUME (*MMBF*)				• None
Matrix	• 1.3	• 2.0	• 3.7	
Riparian Reserve	• 0.6	• 0.6	• 0.6	
ROADS	• Purchaser option to rock	• Purchaser option to rock	• Purchaser option to rock	• None
New Construction	• 2,000 ft - Spurs A-F	• 2,300 ft - Spurs A-G	• 2,300 ft - Spurs A-G	
Renovation	• 600 ft - Rd 20-4-9.1	• 1,230 ft - Rds 20-4-9.1, 20-4-9.2	• 1,230 ft - Rds 20-4-9.1, 20-4-9.2	
Decommissioning	• 2,000 ft - Spurs A-F; block and waterbar	• 2,000 ft - Spurs A-F; block and waterbar	• 2,300 ft - Spurs A-E, G; till, block, waterbar, scatter wood debris on roadbed; Spur F till, block and waterbar	
	• 600 ft - Rd 20-4-9.1; block, waterbar, drainage dips or ditches	• 600 ft - Rd 20-4-9.1; block, waterbar, drainage dips or ditches • 630 ft - Rd 20-4-9.2, 300 ft - Spur G; till, block, scatter wood debris on roadbeds	• 600 ft - Rd 20-4-9.1; block, waterbar, drainage dips or ditches • 630 ft - Rd 20-4-9.2; till, block, scatter wood debris on roadbed	
RETENTION				
Green Tree	• DM -Approx 80 TPA	• DM - Approx 80 TPA • Regen - 12-18 conifers TPA plus 1.7 TPA snags and 3 conifer TPA for future CWD	• DM - Approx 80 TPA • Regen - 12-18 conifers TPA plus 1.7 TPA for snags and 3 conifer TPA for future CWD	• N/A
Down Wood	• DM - Retain existing decay class 3,4 and 5 down logs	• DM - Retain existing decay class 3, 4 and 5 down logs • Regen - Retain existing decay class 1, 2, 3, 4 and 5 down logs	• DM - Retain existing decay class 3, 4 and 5 down logs • Regen - Retain existing decay class 1, 2, 3, 4 and 5 down logs	• N/A
YARDING				• None
Cable	• Approx 110 acres of cable yarding	• Approx 140 acres of cable yarding.	• Approx 140 acres of cable yarding	
Ground-based	• Approx 100 acres of ground-based yarding	• Approx 100 acres of ground-based yarding	• Approx 100 acres of ground-based yarding	• None
FUELS TREATMENT	• Roadside fuel reduction.	• Roadside fuel reduction • Fuel reduction and site-prep within regen area of 30 acres	• Roadside fuel reduction • Fuel reduction and site-prep within regen area of 190 acres	• None

[1] Density Management
[2] Regeneration Harvest

4.0 EXISTING CONDITIONS

4.1 WATERSHED

Siuslaw Watershed

The project area is located within the Siuslaw Watershed, in Lane and Douglas County, southwest of the city of Eugene. The watershed lies at the southeastern headwaters of the Siuslaw River Basin.

The Siuslaw Watershed contains approximately 104,683 acres. The land use pattern of the current landscape in the Siuslaw Watershed is largely influenced by the checkerboard ownership pattern between BLM (federal) and private interests. Approximately 41 percent (43,000 acres) of the Siuslaw Watershed is managed by the BLM. Other government agencies manage 1%. Forest industry companies manage 46%, and other private owners manage 12% of the watershed (Siuslaw Watershed Analysis, February 1996).

The forests within the watershed are highly fragmented with respect to the distribution of trees among the various age classes. (Siuslaw Watershed Analysis, February 1996). Primary post-European settlement uses of the watershed have been logging and agriculture. Approximately 32 percent of BLM forests within the Siuslaw Watershed are in the 0-30 year age classes. Approximately 32 percent are in the 40 to 70 year age classes, and approximately 36 percent are in the late-successional or 80 year and older age classes (Based on Forest Operations Inventory (FOI) stand data 2003).

Riparian Reserves

The Siuslaw Watershed Analysis assessed the condition of the Riparian Reserves in the watershed and established guidelines under which they may be treated (Siuslaw Watershed Analysis, February, 1996; Chapter V).

The plants and animals in this project area do not differ significantly from those discussed in the Eugene District Proposed Resource Management Plan/Environmental Impact Statement (RMP EIS, Chapter 3). The following resources are also discussed in greater detail in the project file.

4.2 PROJECT AREA DESCRIPTION

The project area is predominantly dense canopied, second-growth Douglas-fir established from 1940 to 1950 following clearcut logging. Western red cedar, incense cedar, western hemlock, grand-fir, and hardwoods are minor components of the overstory canopy. Hardwoods include golden chinquapin, madrone, oak, red alder, and bigleaf maple. Understory is sparse and includes western hemlock with golden chinquapin. Brush is generally heavy in density, and dominant species include salal and vine maple. Other common brush species include ocean spray, hazel, salmonberry, and huckleberry.

Timber in the project area is currently in a mid- to late-seral stage condition (described on page 3-42 of the Eugene District RMP/EIS), ranging in age from 53-63 years. Portions of the project area are differentiating in dominance and diameters, and are self-thinning. Mortality of the less vigorous intermediate and suppressed trees is occurring. The southern part of the project area is currently self-thinning without differentiation due to the dense, uniform canopy and stand conditions present. Inter-tree competition for little available growing space in these areas is contributing to an unstable stand condition with weakened trees, small crowns, and some stagnation of growth.

4.3 WILDLIFE

Threatened and Endangered Species

The project area lies within a 330-acre stand of Douglas-fir. For this assessment, the 330-acre stand is the analysis area for Issue 1 (Effects to Dispersal Habitat). Within the stand, there are no known activity centers or suitable habitat for any terrestrial wildlife species listed or proposed for listing under the Endangered Species Act. The closest historic spotted owl nest site is located approximately 1.75 miles from the project area. The project area is not located within a Critical Habitat Unit (CHU) for either the marbled murrelet or the spotted owl. It does not contain suitable nesting habitat for the spotted owl, marbled murrelet or bald eagle, nor does such habitat exist within 0.25 mile.

The stand provides dispersal habitat for the northern spotted owl. Dispersal habitat is generally defined as a stand having an average diameter at breast height (dbh) of =11" and at least 40% canopy closure. Dispersal habitat generally lacks structure suitable for nesting, but does offer cover and foraging opportunities that provide temporary sites for transient owls seeking more suitable sites for nesting. Stand exams of the project area show an average dbh of 14" and canopy closure estimated at approximately 92%.

The stand is located within Connectivity Block C244_03, which is composed of BLM-managed lands in T20S, R04W, Section 9 (project area) and T19S, R04W, Section 31. This block totals approximately 560 acres (81 acres in Section 31 and 479 acres in Section 9, see map). Approximately 404 acres of this Connectivity block are currently considered dispersal habitat for spotted owls. Approximately 75 acres of the block in Section 31 are over 100 years old.

The stand is located within the South Willamette/North Umpqua Area of Concern (AOC). This 50,517-acre area of federal ownership (see map) is where the Coast Range and Cascade foothills converge closer to one another than other areas in the Willamette Valley, thus providing a dispersal corridor for spotted owls and other forest animals between the Willamette and Coast Range physiographic provinces. Because of the link between the two provinces, dispersal habitat is of elevated importance. Habitat adequate for owl dispersal on federal lands within the AOC is about 31,794 acres, or 63%.

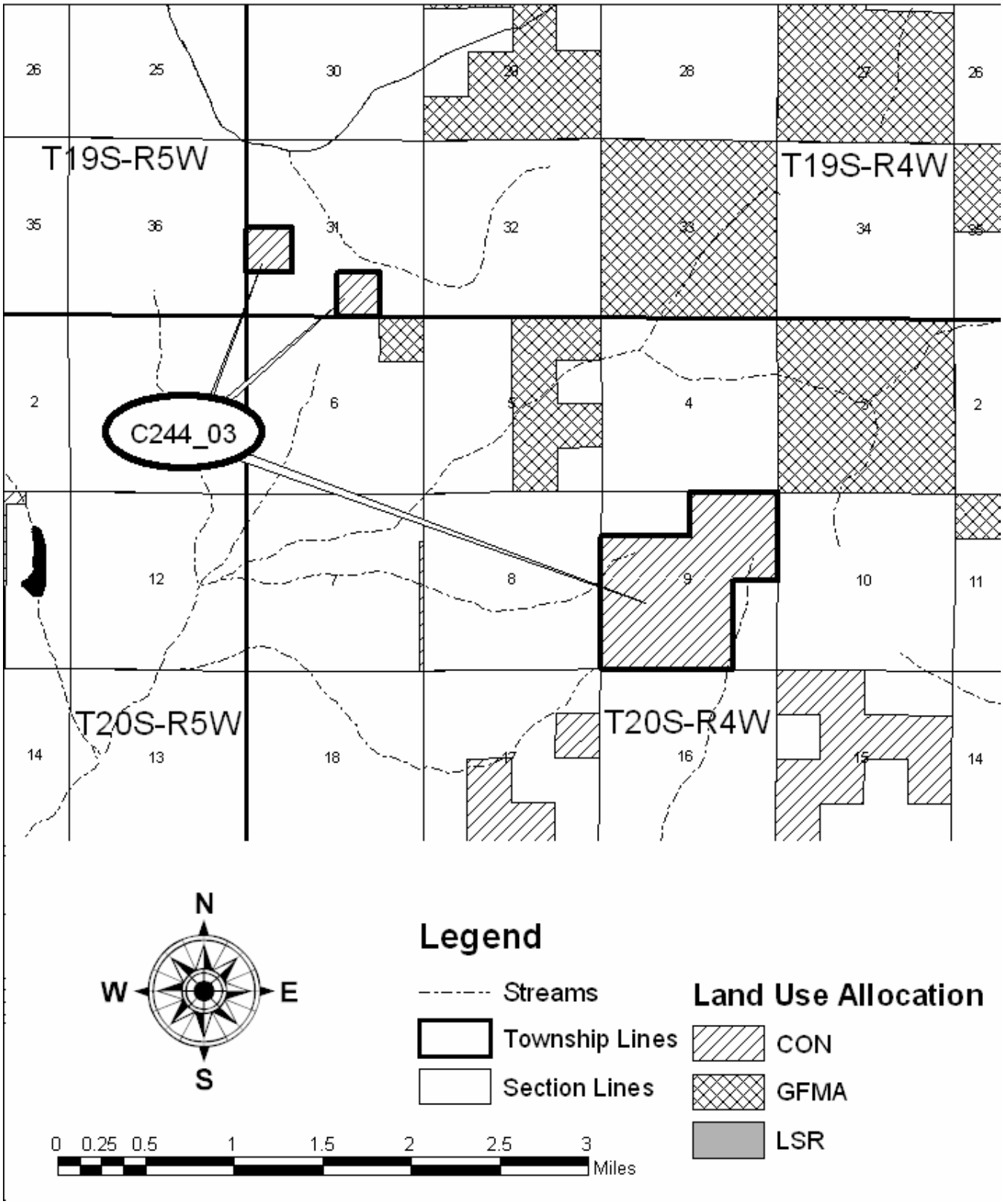
Survey and Manage Species

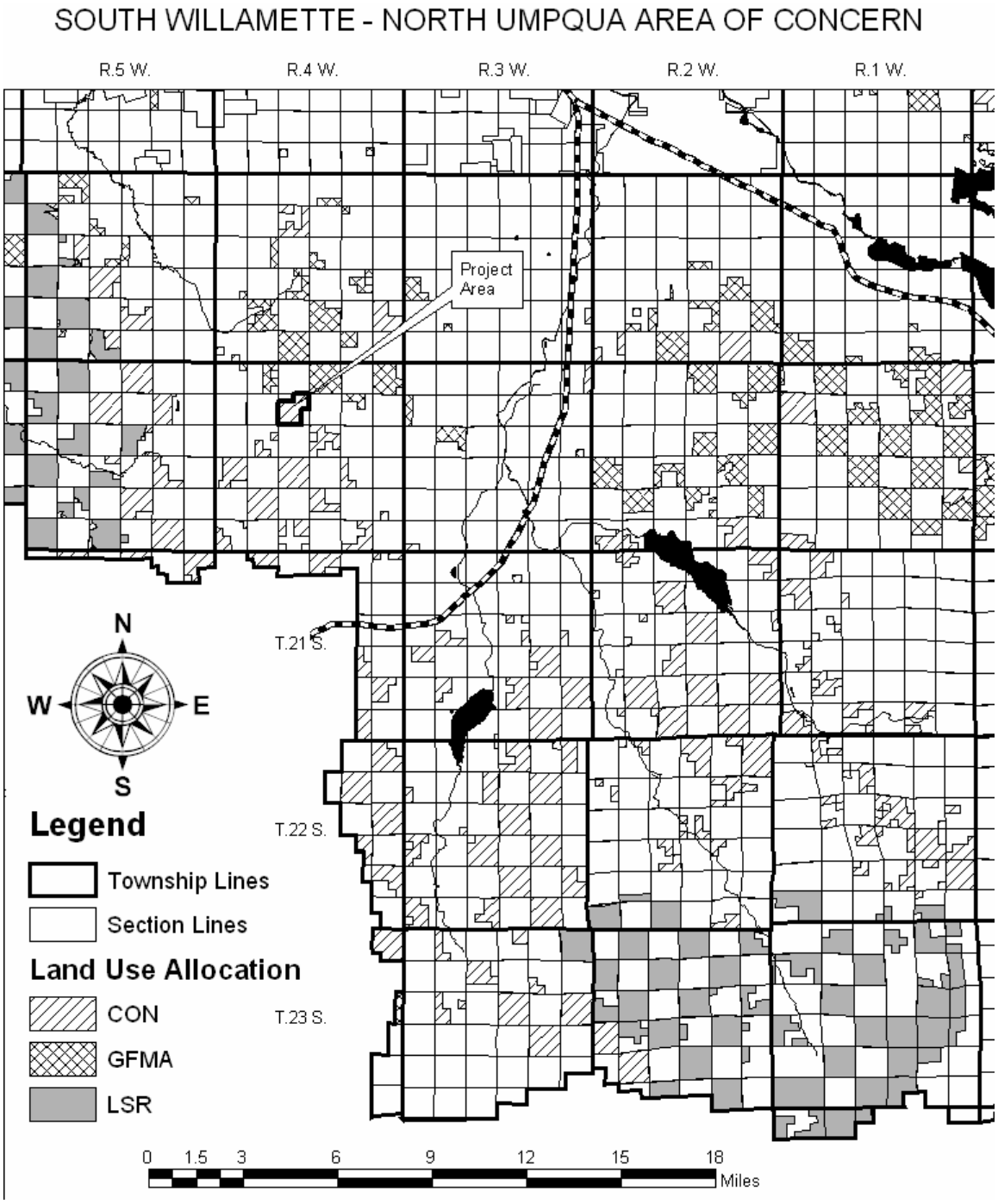
No surveys for Survey and Manage wildlife species are required, and no known sites of these species exist within the project area.

Other Special Status Species

No other special status species or unique habitats were encountered within the project area.

CONNECTIVITY BLOCK C224_03




SOUTH WILLAMETTE - NORTH UMPQUA AREA OF CONCERN
R.5 W.
R.4 W.
R.3 W.
R.2 W.
R.1 W.
Project Area
T.21 S.
T.22 S.
T.23 S.
N
W
E
S
Legend
Township Lines
Section Lines
Land Use Allocation
CON
GFMA
LSR
0 1.5 3 6 9 12 15 18
Miles

4.4 AQUATIC AND RIPARIAN RESOURCES AND FISHERIES

The project area lies in the headwaters of Kelly and Norris Creek drainages in the upper extent of the Siuslaw Watershed. Elevations are below the rain-on-snow zone. There are nineteen streams associated with the project area. Most streams are intermittent with flow ceasing as soon as the rainy season ends. Streams 1, 12, and 18 are perennial.

The majority of the project area is located in the headwaters of the Kelly Creek drainage, and includes the east and south portion of the project area. Six headwater tributaries of Kelly Creek were identified. Based on flow conditions during the project survey, these tributaries are most likely ephemeral streams, except for a portion of Stream 18. The south property line of Section 9 is the upper extent of fish use (cutthroat trout) within Stream 18 (BLM 2003). Further upstream fish migration is restricted because of low flow conditions, lack of habitat, and steep step-over bedrock/boulder features.

Coho salmon, which are listed as a threatened species under the Endangered Species Act, and steelhead do migrate into Kelly Creek during average to high flow years to spawn and rear. No major fish barriers have been identified in the mainstem. Coho have been observed as far as the north boundary line of Section 21, T. 20 S., R.4 W, considered to be the upper extent of coho use. Beyond this point, suitable flow and habitat conditions are lacking. The project area is estimated to be 1.2 miles upstream from the upper limits of coho habitat. Steelhead trout have not been documented in the system in the past decade.

Norris Creek is located on the west side of the project area. Twelve headwater streams of Norris Creek were identified, and all are considered ephemeral except for Stream 1 (Norris Creek) and Stream 12. A presence/absence survey (BLM 2003) was conducted on Stream 1 and its tributaries, and no fish were documented. Upper extent of fish use in the Norris Creek stream system is the west boundary line of Section 9. Steep step-over bedrock/boulder features restrict further upstream migration.

Norris Creek has the potential to support resident and anadromous fish species and numerous other aquatic-dependent species. However, due to downstream barriers and a highly modified system, the stream is not accessible to anadromous species and is considered marginal habitat for resident cutthroat and other fish species.

Project-area streams in both drainages occur as low-order streams, and are located at the mid- and upper-slope position. Stream channels can be characterized as moderate (3%-20%) to steep (>20%) gradient. Large woody debris and medium to large boulder material determine the bedform (vertical steps with shallow to moderately deep scour pools) and the overall stable channel condition. Channel material is predominately small boulders, gravel and sand, with lesser amounts of cobble. Some bedrock is sporadically spaced. These streams are classified as source and transport streams, which are short-term storage sites for sediments and can be associated with mass wasting events. The landform tends to be moderate, hillslope constrained, with colluvial deposition in a narrow and confined valley. Riparian sideslopes throughout the project area appear to be well vegetated and in a stable condition. The sideslopes on Stream 12 and the western most portion of Stream 1 are steep.

Along the stream banks, red alder occurs in small clumps, usually associated with woody shrub vegetation, such as: vine maple, salmonberry, salal, and huckleberry. Mid- to upper-Riparian Reserves (more than 100 feet from a stream) are dominated by moderate to high densities of second-growth conifers such as Douglas-fir, western hemlock, western red cedar, incense cedar, and grand-fir.

4.5 BOTANY

Vascular plant surveys were conducted in 2002 and 2003. Non-vascular plant (mosses, liverworts and lichens) surveys were also conducted in 2002.

Federally Listed Threatened or Endangered

No federally listed Threatened or Endangered plant species were located during botanical surveys.

Survey & Manage Species

Survey and Manage species found within the project area include:

Aster vialis, wayside aster, a vascular, Survey and Manage "Category A" species. Approximately 14 acres of high quality *Aster vialis* habitat are within the project area, including one known site of approximately 4 acres. Surveys on the remaining 10 acres of potential *Aster vialis* habitat did not locate any Aster populations.

Aster vialis is a rare, locally endemic species known only from Lane, Linn, and Douglas Counties, in Oregon. It is extirpated at various historically known sites. It occurs primarily between the cities of Eugene and Roseburg along ridges with higher fire frequency, partial shade, and little disturbance. *Aster vialis* inhabits mid-successional conifer stands at low elevations. It thrives most vigorously in open gaps within old-growth or edge habitat (FSEIS, Appendix J2, 1994).

This species may tolerate, persist after, or even benefit by, some types of disturbance (e.g., prescribed fire). *Aster vialis* does not appear to tolerate much competition, especially from weedy invaders. Decreases in light, due to competing vegetation, is probably a critical element in population decline and loss of vigor. Fire suppression and fragmentation of habitat have adversely affected this species (FSEIS, Appendix J2, 1994).

Aster vialis is severely limited in its ability to reproduce and disperse. Genetic isolation has occurred, and it is believed to cause "inbreeding depression" or lack of vigor related to the inability to exchange pollen widely.

Ramalina thrausta, a Survey and Manage "Category A" species of lichen found in trees and shrubs. Two known sites of *Ramalina thrausta* are within the project area. This species occurs only in the Pacific Northwest. Like other canopy epiphytes, it requires the retention of groups of standing trees to maintain suitable microclimate and to aid in dispersal of the species. This species prefers variable-spaced and multiple-species stand conditions that encourage stand heterogeneity (FSEIS, Appendix J2, 1994).

Special Status Species

Cimicifuga elata, tall bugbane, was found on a road-cut and the adjacent up-slope area. *Cimicifuga elata* is a "Bureau Sensitive" vascular plant species. Approximately 19 acres of potential *Cimicifuga elata* habitat occur within the project area.

Other Species of Interest

Orobanche pinorum (pine broomrape) is a non-green species of flowering plant currently on the Lane County Threatened and Endangered List B. This species was found on 5 sites within the project area. *Orobanche pinorum* is an uncommon, parasitic plant found on roots of oceanspray on dry ridge sites.

Geranium oreganum (Oregon geranium), was found within the project area, outside the proposed harvest area. *Geranium oreganum* is a Lane County T&E List C species. No other sites of *Geranium oreganum* are known to exist in the Siuslaw Resource Area. One known site in the Upper Willamette Resource Area has been extirpated due to weedy invasives, and another site in the Upper Willamette has recently been discovered.

Noxious Weeds and Non-native Plants

The lands adjacent to the project area are heavily infested with *Cytisus scoparius* (Scotch broom). Scotch broom is also found along most roads and within the ridgeline meadows. It is likely that *Brachypodium sylvaticum* (false brome) exists on the Cottage Grove-Lorane Highway that bisects the project area. Other noxious weeds present along the roadsides include *Hypericum perforatum* (St. John's wort), *Cirsium vulgaris* (bull thistle), and *Cirsium arvense* (Canada thistle). *Rubus armeniacus* (Himalayan blackberry), a noxious weed which competes especially well within moist areas, is located within some of the riparian bottoms as well. All of the above weed species are listed as noxious weeds with the State of Oregon Department of Agriculture.

4.6 FUELS/ DOWNED WOOD

Smoke Management

The project area is 6 miles west of the Cottage Grove Designated Area (DA) as defined in the State Implementation Plan for air quality. There are private residences to the west, north, and east.

Existing Fuels

Generally light dead fuels and a large brush component currently exist. Fuel Models within the project area are 70% Model 8 (light timber litter) and 30% Model 5 (brush)

Ladder Fuels and Dead and Down Fuel Component

Ladder fuels are present throughout most of the project area but do not reach the bottoms of the tree crowns in most places. Very few existing large diameter snags or down coarse woody debris were observed and a large number of small diameter snags are present from recent mortality within the stand.

The existing dead and down wood fuels component is approximately 3.3 tons per acre of fine fuels (0-3 inches), 7.2 tons per acre of moderate fuels (3.1-9 inches), and 2.3 tons per acre of the larger fuels (9.1+ inch) totaling 12.8 tons per acre.

Live Fuels Component

The live fuel component is dominated by Douglas-fir overstory and a heavy brush layer of vine maple, hazel, and salal. In most cases, the brush layer does not act as ladder fuels, due to the fairly high crown base of the overstory and lack of an understory.

Adjacent Fuels Profile and Ownership

Lands adjacent to the project area include BLM managed lands with young stands, along with State of Oregon and privately-owned commercial forests of young Douglas-fir plantations, scattered stands of timber, and brush. At least eight private residences are located within ¼ mile and are scattered to the west, north and east. Portions of the project area are behind locked gates and are only accessible to the public by foot or during fall deer hunting season. However, most is open to public access.

The adjacent fuels and ownership are variable and mixed in this area. Fuels are represented by Fuel Models 2 (mixed grass and conifer), 5 (moderate brush and reproduction) and 8 (closed timber litter). Some areas of heavy Scotch broom are also present, which under some weather conditions may behave like a Fuel Model 6 fuel (dormant brush). A Model 6 requires a moderate wind (>8 mph) to carry fire through the shrub layer, producing high flame lengths and fire intensities. At lower wind speeds a Model 6 becomes a low intensity, relatively slow moving ground fire.

4.7 CULTURAL RESOURCES

A cultural resource inventory of the project area has not been conducted. Past pre-project cultural resource surveys conducted in conjunction with surface-disturbing actions in the Coast Range physiographic province have not resulted in the discovery of significant cultural properties. Following the signing of the national Programmatic Agreement, the Oregon BLM and the Oregon Historic Preservation Office developed a protocol agreement recognizing the paucity of discoverable historic properties in the Coast Range. Under this protocol, pre-project cultural resource surveys are not required in the Coast Range physiographic province.

5.0 ENVIRONMENTAL CONSEQUENCES

This section explains and summarizes the environmental consequences including direct, indirect, short-term, long-term, and cumulative effects of all the alternatives.

This environmental assessment incorporates the analysis of Environmental Consequences, including Cumulative Effects, in the USDA Forest Service and USDI Bureau of Land Management "Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl," February 1994, (Chapters 3 & 4) and in the Eugene District "Final Proposed Resource Management Plan/Environmental Impact Statement," November 1994 (Chapter 4). These documents analyze most effects of timber harvest and other related management activities. None of the alternatives in this assessment would have effects on resources beyond the range of effects analyzed in the above documents. The following section supplements those analyses, providing site-specific information and analysis particular to the alternatives considered here.

Past and Reasonably Foreseeable Timber Sale Related Actions

Siuslaw Watershed

Past sales in the Matrix (Connectivity) include the Gowdyville, Tyrrell, Squeeze Play, Gowdy's Tuckered, and Bottom Line density management treatments, and Tucker Creek 2, a regeneration harvest. Other future potential Matrix sales proposed for fiscal year 2004 in the Siuslaw River Watershed include Douglas Creek Density Management, and Tucker Creek Density Management.

Past BLM timber sales implemented in the Late-successional Reserve of the Siuslaw Watershed have included the Alma Over and the Fawn Creek density management projects. Future timber sale planning in the Siuslaw River Watershed would also focus on density management treatments within the Late-successional Reserve (LSR).

Area of Concern:

On BLM-managed lands in the AOC, there have been approximately 580 acres of regeneration harvests and approximately 150 acres of heavy thinning since the inception of the Northwest Forest Plan (2% of the AOC). Moderate to light thinning has occurred on approximately 1,100 acres during the same period (slightly more than 2% of the AOC). There are an additional 140 acres of regeneration harvest and an additional 800 acres of thinning on BLM-managed lands that are in the planning stage and would likely be implemented over the next 5 years.

Private Lands:

On private lands in the watershed, more intensive timber management actions, including clearcutting and broadcast burning, are occurring and are likely to continue in the foreseeable future.

5.1 UNAFFECTED RESOURCES

The following resources are either not present or would not be affected by any of the alternatives: Areas of Critical Environmental Concern; prime or unique farm lands; wetlands; Native American religious concerns; solid or hazardous wastes; Wild and Scenic Rivers; Wilderness; minority populations; and low income populations.

None of the alternatives would affect any known federally listed, Threatened, or Endangered botanical species. The no-treatment areas, botanical buffers and other botany design features (listed in Appendix A) would remove the likelihood that the known sites of *Aster vialis*, *Cimicifuga elata*, *Ramilina thrausta*, and *Geranium oreganum* would be negatively impacted. However, the affects of the alternatives on *Aster vialis* and *Cimicifuga elata* habitat are analyzed in Issue 3. *Orabanche pinorum* would be managed by placing botanical buffers around four sites where it is feasible, to minimize disturbance to the species while maintaining operational feasibility.

Burning activities under all action alternatives would be consistent with Oregon Smoke Management Regulations. Smoke emissions from the burning of piles would be of short duration; however, the final decision to ignite would be made by Oregon Department of Forestry (ODF) through daily Smoke Management Instructions. The burning of piles would occur between November 1 and January 1 when the most favorable emission dispersion conditions are possible. Burning of piles may occur over a several day period, to avoid excessive impacts to nearby residences. Pile burning would not exceed the National Ambient Air Quality Standards or the State Implementation Plan for air quality.

Table 2. ***Impact Comparison***

	Alternative 1 *Density Mgmt* (210 acres)	Alternative 2 Proposed Action *Density Mgmt* (210 acres) *Regen Harvest* (30 acres)	Alternative 3 *Density Mgmt* (50 acres) *Regen Harvest* (190 acres)	Alternative 4 No Action
ISSUE 1: Impacts on northern spotted owl dispersal habitat ***Measures:*** *Post-harvest quantity (acres) dispersal habitat at Stand, Connectivity Block, and Area of Concern scale.*	**STAND (330 acres)** • 306 acres (no change) **CONN BLOCK (560 acres)** • 404 acres (no change) **AOC (50,517 acres)** • 50,517 acres (63%) dispersal habitat post harvest (no change).	**STAND (330 acres)** • 276 acres **CONN BLOCK (560 acres)** • 374 acres **AOC (50,517 acres)** • 50,487 acres (63%) dispersal habitat post harvest (<1% reduction)	**STAND (330 acres)** • 116 acres **CONN BLOCK (560 acres)** • 214 acres **AOC (50,517 acres)** • 50,327 acres (63%) dispersal habitat post harvest (<1% reduction)	**STAND (330 acres)** • 306 acres (no change) **CONN BLOCK (560 acres)** • 404 acres (no change) **AOC (50,517 acres)** • 50,517 acres (63%) dispersal habitat (no change).
ISSUE 2: Impacts on ASC Objectives ***Measure:*** *ACS objective-effect determination (maintain, restore, or retard) for each alternative.*	**OBJECTIVE 1** • Maintain short-term • Restore long term (Hasten LSC[1] in 35 acres RR) **OBJECTIVES 2-9** • Maintain	**OBJECTIVE 1** • Maintain short-term • Restore long term (Hasten LSC in 35 acres RR) **OBJECTIVES 2-9** • Maintain	**OBJECTIVE 1** • Maintain short-term • Restore long term (Hasten LSC in 35 acres RR) **OBJECTIVES 2-9** • Maintain	**OBJECTIVE 1** • Maintain short-term • No restoration long term **OBJECTIVES 2-9** • Maintain
ISSUE 3: Impacts on spread of noxious weeds and habitat for *Cimicifuga elata* (CIEL) and *Aster vialis (ASVI)* ***Measures:*** *Weeds--Acres ground disturbance from roads, landings, skid trails, and logging, combined with occurrence of open light conditions* *CIEL and ASVI - Acres ground disturbance from roads, landings, skid trails, and logging, combined with occurrence of open light conditions within potential habitat*	**WEEDS** • 11 acres high ground disturbance • 199 acres moderate ground disturbance **CIEL** • Degrade or remove approx 2 acres potential habitat • Moderate degradation on approx 13 acres habitat **ASVI** • Remove approx 0.5 acres high quality habitat • Degrade or remove approx 7 acres high quality habitat	**WEEDS** • 41 acres high ground disturbance from roads, landings, skid trails, and regen harvest • 199 acres moderate ground disturbance with open light conditions from thinning **CIEL** • Degrade or remove approx 2 acres potential habitat • Moderate degradation on approx 13 acres habitat **ASVI** • Remove approx 0.5 acres high quality habitat • Degrade or remove approx 7 acres high quality habitat	**WEEDS** • 201 acres high ground disturbance from roads, landings, skid trails and regen harvest • 39 acres moderate ground disturbance with open light conditions from thinning **CIEL** • Degrade or remove approx 2 acres potential habitat from roads, landings, and skid trails • Moderate degradation on approx 13 acres habitat **ASVI** • Remove approx 0.5 acres high quality habitat • Remove approx 7 acres high quality habitat	**WEEDS** • No new ground disturbance **CIEL** • No new ground disturbance **ASVI** • No new ground disturbance
ISSUE 4: Impacts on Fuels ***Measure:*** *Change in acres of high risk fuels (Fuel Models 10-12) over 2, 10, and 50 years*	**UNTREATED AREA** • 45 acres high risk fuels by year 50 **DM AREA** • No high risk fuels created	**UNTREATED AREA** • 15 acres high risk fuels by year 50. **DM AREA** • No high risk fuels created **REGEN AREA** • 30 acres high risk fuels at year 2 • No high risk fuels by year 10	**UNTREATED AREA** • 15 acres high risk fuels by year 50. **DM AREA** • No high risk fuels created **REGEN AREA** • 190 acres high risk fuels at year 2 • No high risk fuels by year 10	**PROJECT AREA** • 255 acres high risk fuels by year 50
ISSUE 5: Impacts on ASQ ***Measure:*** *Approx MMBF*	• 1.9 MMBF.	• 2.6 MMBF.	• 4.3 MMBF.	• No contribution toward ASQ

[1] Late-Successional Characteristics

5.2 ISSUE 1: *How would timber harvest and related activities affect northern spotted owl dispersal habitat?*

ALTERNATIVE 1 - *Density Management* (210 acres)

Dispersal Habitat Within the Stand

Within the stand, average canopy closure is currently about 92%. Under this alternative, 210 acres of spotted owl dispersal habitat would be thinned to approximately 80 trees per acre. The average post harvest canopy closure would remain above 40%, which means the stand would still be considered dispersal habitat for spotted owls. However, reduced canopy closure, modification of the mid-canopy, and reduction of understory vegetation, would temporarily lessen the quality of this habitat.

The function of this habitat is to provide temporary roosting and foraging opportunities for transient owls seeking a longer term territory. By reducing canopy density and understory vegetation, owls become more vulnerable to predation due to short term loss of cover. Also, habitat for the owls' prey species would be modified, resulting in a reduced prey base. Within five years, herbaceous and shrub components would resemble pre-harvest conditions. Within 10 years, the canopy would be similar to its present state, while in-growth of younger portions of the stand would provide an additional 45 acres of dispersal habitat. As the stand continues to develop, structure associated with late-successional forests would emerge, better accommodating the spotted owl, by providing improved and expanded dispersal and foraging opportunities in the future.

Dispersal Habitat Within the Connectivity Block

Effects on this larger area would be similar to those at the stand level. Since the stand would still function as dispersal habitat after treatment, there would be no change in the current level of this habitat in the Connectivity block. As stands mature, dispersal and foraging conditions would improve, better accommodating dispersing owls. Current level of dispersal habitat within the block would remain at 72%.

Dispersal Habitat Within the Area of Concern

Because the stand would still function as dispersal habitat after treatment, this action would not result in any change in dispersal levels within the AOC. The AOC would be unaffected by this alternative.

ALTERNATIVE 2 - *Density Management (210 acres) and Regeneration Harvest (30 acres)*

Dispersal Habitat Within the Stand

This alternative would result in 30 acres of regeneration harvest combined with 210 acres of thinning. The effect on dispersal habitat within the stand would be removal of 30 acres of federally controlled dispersal habitat, reducing the level of this habitat from the current 93% to 83% (276 acres). The regeneration harvest unit would be located in the southeast corner of the section, and once harvested, would create a gap in dispersal habitat in that area. The stand would still provide sufficient dispersal habitat, but would either require dispersing owls to move across a half mile opening in that area or to travel to the north or south where more contiguous habitat exists.

Dispersal Habitat Within the Connectivity Block

With 30 acres of regeneration harvest, dispersal habitat at the Connectivity block level would be reduced to approximately 67% from its current level of 72%. Dispersal habitat would still be at sufficient levels to maintain the functionality of the Connectivity block.

Dispersal Habitat Within the Area of Concern

Because of the large area involved (50,517 acres), the loss of 30 acres of dispersal habitat through regeneration harvest would be negligible. The AOC would continue to function at its current level.

ALTERNATIVE 3 - *Regeneration Harvest (190 acres) and Density Management (50 Acres)*

Dispersal Habitat Within the Stand

This alternative would result in a regeneration harvest of 190 acres in conjunction with 50 acres of thinning. The loss of 190 acres dispersal habitat would reduce this habitat at the stand level to 35% (approximately 116 acres). Until such time as the younger stands mature (approximately 20 years), the ability of the stand to provide dispersal habitat would be restricted to the narrow corridors comprising the untreated portions of the Riparian Reserves.

Dispersal Habitat Within the Connectivity Block

A regeneration harvest of 190 acres would reduce the dispersal habitat at the Connectivity block level to approximately 38% (with 214 acres remaining post-harvest). Dispersal habitat within this connectivity block would be restricted to the 80 acres of the block in Section 31.

Dispersal Habitat Within the Area of Concern

Because of the large area involved (50,517 acres), the loss of 190 acres through regeneration harvest would not greatly alter the level of dispersal habitat within the AOC. This habitat level would remain at 63%, but the gap in Section 9 may force transient owls to seek alternate travel routes.

ALTERNATIVE 4 - *No Action*

Dispersal Habitat Within the Stand

Alternative 4 would not involve any level of harvest. The current habitat quantity and quality in the stand would remain unchanged in the short term. As time progresses, heavier stocked portions of the stand would continue to self thin while some of the densest portions of the stand would be expected to stagnate due to inter-tree competition in those areas. Portions of the stand that have wider spacing and more variety in tree size would be expected to develop late seral characteristics at a faster rate.

Dispersal Habitat Within the Connectivity Block

Effects at the Connectivity Block level would be similar to those at the stand level.

Dispersal Habitat Within the Area of Concern

By not pursuing any harvest in the project area, there would be no effect to the larger AOC. Habitat would effectively remain the same as current conditions.

CUMULATIVE EFFECTS – *All Alternatives*

Within the AOC, the action alternatives would contribute between 0-190 acres of regeneration harvest to other federal regeneration harvests planned for implementation. Over the next five years, it is likely that an additional 140 acres of regeneration harvest would be implemented in the AOC. This, combined with Alternative 3, would total a maximum of 330 acres of regeneration harvest likely to occur in the AOC within the next five years. This would represent a 1% loss of dispersal habitat within the AOC. As younger federal stands within the AOC mature, approximately 10,400 acres would develop into dispersal habitat over the next 10 years, representing an increase of 33% of this habitat, including planned harvests.

The AOC would continue to provide dispersal habitat for spotted owls, although the spatial arrangement of the habitat would change over time as harvests continue and other stands mature. Because light to moderate thinning does not remove dispersal habitat, these types of actions would have no cumulative adverse impacts on dispersal habitat.

5.3 ISSUE 2: *How would timber harvest and related activities affect BLM's ability to attain ACS objectives?*

ALTERNATIVE 1 - *Density Management* (210 acres)

Objective 1: *Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic system to which species, populations, and communities are uniquely adapted.*

Thinning the Riparian Reserves within the project area would likely contribute to the restoration of the diversity, and complexity of watershed and landscape-scale features. Mid-seral, uniform Douglas-fir stands constitute the majority of the Riparian Reserve in the Siuslaw Watershed, including those found in the project area. These stands are low in species diversity and structural complexity; thinning would be expected to increase individual tree growth rates and would speed the development of late-successional structural characteristics, such as larger trees, snags, and down wood, over the long-term.

Untreated riparian areas designated on all stream reaches would protect streambank and channel stability, and streamside vegetation. There would be approximately 30 feet of temporary road construction (portion of Spur F) within the Riparian Reserves; however, this spur would not be hydrologically connected to any streams.

Cable corridors may pass through Riparian Reserves, requiring a number of trees to be felled in the untreated Riparian Reserve areas. These felled trees would be left on site, and would result in a small and localized benefit to Riparian Reserves as an immediate pulse of large woody debris.

Objective 2: *Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include floodplains wetlands, upslope areas, headwater tributaries, and intact refugia. These network connections must provide chemically and physically unobstructed routes to areas critical for fulfilling life history requirements of aquatic and riparian-dependent species.*

There would be no breaks in the riparian systems or the natural stream flow. All connectivity would be maintained.

Objective 3: *Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations.*

One-end suspension would be required where yarding takes place in riparian areas, with full suspension across streams. There would be no impacts to the physical aquatic system. Stream flows could increase spring, summer, and fall due to a decrease in evapotranspiration caused by the removal of trees. The chances for large storms are greatest in December, January, and February when the trees are dormant. In a storm large enough to alter the physical integrity of the stream, tree density would not make a difference in flow. The physical integrity of the aquatic system, including shorelines, banks, and bottom configurations would be maintained.

Objective 4: *Maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems. Water quality must remain within the range that maintains the biological, physical, and chemical integrity of the system and benefits survival, growth, reproduction, and migration of individuals composing aquatic and riparian communities.*

All streams would have a minimum of a 50 foot untreated buffer. Buffers would provide sufficient shade and would filter any sediment created by yarding so that water quality would not be affected. One small wetland in the eastern portion of the project area, just south of the county road, would be buffered as mapped. Overall water quality would be maintained.

Objective 5: *Maintain and restore the sediment regime under which the aquatic ecosystem evolved. Elements of the sediment regime include the timing, rate, and character of sediment input, storage, and transport.*

There would be no roads hydrologically connected to streams, as defined by Wemple, Jones, and Grant (1996). Although there could be up to 2,300 feet of new construction and 600 feet of renovation within the project area, it not expected that these roads would affect the sediment regime. Yarding would have one end suspension. These practices would prevent any measurable amount of sediment from entering the streams. The slopes in this area are not steep enough to cause a landslide concern. The current sediment regime would be maintained.

Objective 6: *Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrients, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.*

In-stream flow patterns would be maintained. This area is below the rain-on-snow zone; therefore, the only increase in available runoff would be from the lack of evapotranspiration. Trees do not transpire in the winter when the chances for larger peak flows are likely. The large flows would be approximately the same with or without the trees. There could be an increase in the summer low flows, but this would not be a large volume increase. All flows would be expected to stay in the range of natural variability.

Objective 7: *Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.*

Floodplain inundation and water table elevation in meadows and wetlands would be maintained. There is one small wetland, less than one acre, in the northeast portion of the project area. The flows into this area could be slightly higher in the spring and fall but they would be well within the range of natural variability.

Objective 8: *Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands to provide adequate summer and winter thermal regulation, nutrient filtering, appropriate rates of surface erosion, bank erosion, and channel migration and to supply amounts and distribution of coarse woody debris sufficient to sustain physical complexity and stability.*

Objective 8 would be maintained under this alternative. The 50-foot minimum untreated buffer would provide shading and streambank stability.

Objective 9: *Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, vertebrate riparian-dependent species.*

Objective 9 would be maintained under this alternative. Preserving selected untreated riparian areas would maintain the existing plant communities and protect sensitive areas from timber harvest activities.

ALTERNATIVE 2 - *Density Management (210 acres) and Regeneration Harvest (30 acres)*

The impacts would be similar to Alternative 1, except that there would likely be a larger increase in small peak flows, and summer low flows in Stream 17 due to the lack of evapotranspiration in the regeneration harvested area. Increases in flow would still not be sufficient to retard attainment of any ACS objective.

ALTERNATIVE 3 - *Regeneration Harvest (190 acres) and Density Management (50 acres)*

The impacts would be similar to Alternative 1, except that there would likely be more of an increase in small peak flows, more of an increase in overall water yield, and greater summer base flows. With this alternative, the larger peak flows produced by winter storm events would be similar to Alternative 1. However, none of the increases in flows would be sufficient to retard the attainment of any ACS objective.

Warmer, drier understory conditions would be expected in the Riparian Reserves due to the density management treatments above the untreated stream buffers and regeneration harvest of the upland area outside the reserves.

ALTERNATIVE 4 - *No Action*

Alternative 4 would have no impact on the distribution, diversity, or complexity of current watershed landscape-scale features and would have no impact on the physical integrity of the aquatic system. However, Alternative 4 would not hasten the development of late-successional forest characteristics of the Riparian Reserve, as would Alternatives 1, 2 and 3.

ACS Consistency

Based on the above analysis of the effects on attainment of the ACS Objectives, Alternatives 1-3 are consistent with the ACS and the objectives for the Riparian Reserves, and would not prevent or retard attainment of any of the ACS Objectives. Alternatives 1-3 would contribute to attainment of ACS Objective 1 by accelerating development of late-successional forest structure within the Riparian Reserves.

5.4 ISSUE 3: *How would timber harvest and related activities affect the spread of noxious weeds and habitat for Cimicifuga elata and Aster vialis?*

ALTERNATIVE 1 - *Density Management (210 acres)*

Noxious Weeds

Alternative 1 would cause approximately 11 acres of high disturbance from roads, landings, and skid trails, with high exposure to noxious weed seed under full sunlight, resulting in a high likelihood of noxious weed infestation on 11 acres. Infestation is defined as when noxious weeds displace native plants from an area, make re-establishment of conifers difficult, and occur in sufficient number so that eradication would be difficult.

Alternative 1 would cause approximately 199 acres of low disturbance from thinning, with moderate exposure to noxious weed seed and sunlight, resulting in a high likelihood of noxious weed occurrence. Occurrence, defined as when noxious weeds are present but not outcompeting other vegetation, is often the precursor to infestation.

Cimicifuga elata (CIEL) Habitat

Alternative 1 would degrade or remove approximately 2 acres of potential CIEL habitat due to high disturbance from roads, landings, and skid trails, with high exposure to noxious weed seed.

Alternative 1 would also cause approximately 13 acres of moderate degradation, with diminished but continued function of CIEL habitat. Low disturbance from thinning and moderate exposure to noxious weed seed would result in 13 acres of CIEL habitat with high likelihood of noxious weed occurrence. When noxious weeds occupy available CIEL habitat, it is unlikely that CIEL would be able to colonize the potential habitat.

Aster vialis (ASVI) Habitat

Alternative 1 would result in the direct loss of approximately 0.5 acres of high quality ASVI habitat due to roads, landings, and skid trails. Infestation of this 0.5 acres by noxious weeds would be likely

and there would not be habitat for ASVI colonization. Thinning and yarding would also degrade, or possibly remove, approximately 7 acres of high quality habitat. Thinning and yarding would result in low levels of ground disturbance, but moderate exposure to noxious weed seeds and moderate increases in sunlight reaching the forest floor. Increases in sunlight would likely stimulate the growth of the understory shrub layer. This, combined with an expected increase in noxious weeds, would likely preclude natural colonization in the project area, as well as remove opportunities for ASVI enhancement and future experimental introduction projects.

ALTERNATIVE 2 - *Density Management (210 acres) and Regeneration Harvest (30 acres)*

Noxious Weeds

Alternative 2 would cause approximately 41 acres of high disturbance from roads, landings, skid trails, and regeneration harvest, with high exposure to noxious weed seed under full sunlight, resulting in a high likelihood of noxious weed infestation.

Alternative 2 would cause approximately 199 acres of low disturbance from thinning, with moderate exposure to noxious weed seed and sunlight, resulting in a high likelihood of noxious weed occurrence.

Cimicifuga elata (CIEL) Habitat

Effects to CIEL habitat would be the same as Alternative 1.

Aster vialis (ASVI) Habitat

Effects to ASVI habitat would be the same as Alternative 1.

ALTERNATIVE 3 - *Regeneration Harvest (190 acres) and Density Management (50 Acres)*

Noxious Weeds

Alternative 3 would cause approximately 201 acres of high disturbance from roads, landings, skid trails, and regeneration harvest, with high exposure to noxious weed seed under full sunlight, resulting in a high likelihood of noxious weed infestation.

Alternative 3 would cause approximately 39 acres of low disturbance from thinning with moderate exposure to noxious weed seed and sunlight, resulting in a high likelihood of noxious weed occurrence.

Cimicifuga elata (CIEL) Habitat

Effects to CIEL habitat would be the same as Alternatives 1 and 2.

Aster vialis (ASVI) Habitat

Alternative 3 would remove approximately 0.5 acres of high quality ASVI habitat, due to roads, landings, and skid trails, same as in Alternatives 1 and 2. Infestation by noxious weeds would be likely and there would not be habitat for ASVI colonization. Regeneration harvest would also occur on 7 acres of high quality habitat, resulting in high levels of ground disturbance from harvest and yarding, high exposure to noxious weed seed, and high levels of sunlight. Increased growth in shrubs and infestation by noxious weeds would be expected. Noxious weed infestation and stimulation of shrub growth would exclude ASVI from the project area, by natural colonization or by BLM enhancement projects.

ALTERNATIVE 4 - No Action

Noxious Weeds

Alternative 4 would result in no new disturbance from logging operations and associated road building, low exposure to seeds, and continued low levels of sunlight. These conditions would result in a low likelihood of increased noxious weed presence. There would be continued low level background increases in shade tolerant noxious weed species, capable of transport by deer and germination in shaded and minimally disturbed soil.

Cimicifuga elata (CIEL) Habitat

Alternative 4 would result in 19 acres of potential CIEL habitat within the project area left intact with no new ground disturbance to the CIEL habitat.

Aster vialis (ASVI) Habitat

Alternative 4 would result in 14 acres of high quality ASVI habitat within the project area left intact, with no new ground disturbance. Although it is unknown how Aster colonizes new habitat, all 14 acres of high quality habitat would remain available under this alternative for natural colonization or enhancement projects.

CUMULATIVE EFFECTS - All Alternatives

Noxious Weeds

There would be a high likelihood of increased noxious weed occurrence associated with all the action alternatives due to close proximity of noxious weed seed sources, and the increased level of sun exposure and soil disturbance associated with the action alternatives.

The No Action Alternative would result in continued low level background increases in shade tolerant noxious weed species within the watershed.

Cimicifuga elata (CIEL) Habitat

There would be degradation or loss of potential Cimicifuga elata habitat within the watershed with all action alternatives as addressed in the direct effects. Species viability would likely remain stable. Habitat of this type is found elsewhere within the watershed, and could potentially be restored when shady conditions develop again.

The No Action Alternative would contribute to the maintenance of potential CIEL habitat within the watershed.

Aster vialis (ASVI) Habitat

There would be both degradation and loss of high quality Aster vialis habitat within the watershed with Alternatives 1-3. Noxious weed infestation and increased growth of shrubs subsequent to the actions could contribute to the potential displacement and exclusion of Aster vialis, leading to degradation or loss of additional habitat within the watershed.

The existing habitat of Aster vialis is highly fragmented both within its known natural range and within the watershed. Degradation and loss of Aster vialis habitat within the watershed could contribute to further fragmentation of its habitat, potentially restricting its ability to pollinate across populations and further limiting the species to isolated refugia within its range and the watershed. Species viability could be lowered over time.

The No Action Alternative would maintain existing habitat in the short term. Existing habitat would remain available for future experimental introduction projects. However, over the next 10-20 years, as the stand matures and shade increases, the habitat would become less conducive to colonization because Aster needs gaps in the canopy to thrive. Under current RMP direction for Connectivity Blocks, it is reasonably foreseeable that this area would be considered for a regeneration harvest in the next 20-40 years. Given this scenario, it would be unlikely that Aster habitat could be maintained in the long term.

5.5 ISSUE 4: *How would timber harvest and related activities affect fuel levels in the rural interface?*

ALTERNATIVE 1 - Density Management (210 acres)

Hazardous (High Risk) Fuels

Alternative 1 would result in no acres of high risk fuels (at 2, 10 and 50 years after harvest) within the area thinned (210 acres) and 45 acres of high risk fuels in the untreated areas at year 50. In the thinned areas, the fuel bed would be compacted from the felling and yarding operations. Numerous, small openings would be created by the movement of logs during the yarding operations. Fuels would tend to be heavier in the direction of the yarding and numerous small landing piles of unmerchantable material are expected along existing roads and temporary spur roads.

The current closed timber/litter fuels condition of the untreated areas would persist through year 10 but would transition to high risk fuels (Fuel Model 10 – high risk, heavy timber litter/understory) by year 50 as the stands experience increased tree mortality from competition (self-thinning) and an increase in ground fuels as the dead trees fall to the forest floor. Fires in Fuel Model 10 burn with greater intensity in surface and ground fuels than other timber models due to higher fuel loadings. Crowning, spotting and tree torching are frequent in this fuel type.

ALTERNATIVE 2 - *Density Management (210 acres) and Regeneration Harvest (30 acres)*

Hazardous (High Risk) Fuels

Alternative 2 would result in no acres of high risk fuels (at 2, 10 and 50 years after harvest) within the thinned area (210 acres), the same as in Alternative 1.

Alternative 2 would result in 30 acres of high risk fuels (Fuel Model 12 - moderate logging slash) at year 2 (prior to fuel reduction and site preparation) within the regeneration harvest area. Fires in Fuel Model 12 fuels spread rapidly and burn with high intensities and are capable of long range spotting. If a fire starts, it is generally sustained until a fuel break or change in fuel type is encountered. The post harvest fuel conditions resulting from the residual slash would be moderately heavy and uniform. Large landing piles would also be present but fewer in number than the smaller thinning landing piles. The depth and uniformity of the slash bed would make slash treatment necessary for hazard reduction and successful re-planting of the site. By 10 and 50 years after the regeneration harvest, there would be no acres of high risk fuels.

The current closed timber /litter fuels condition of the 15 acres receiving no treatment would persist through year 10. Fuels would transition to Fuel Model 10 by year 50 as the stand experiences increased tree mortality from competition (self-thinning) and increased ground fuels as dead trees fall to the forest floor.

ALTERNATIVE 3 - *Regeneration Harvest (190 acres) and Density Management (50 acres)*

Hazardous (High Risk) Fuels

The effects of Alternative 3 would be similar to those described in Alternatives 1 and 2, except Alternative 3 would result in approximately 190 acres of high risk fuels (Fuel Model 12) in the regeneration harvest area at year 2 (prior to fuel reduction treatments and site-preparation). By year 10 and 50, there would be no acres of high risk fuels remaining within the regeneration harvest area because standard fuel reduction treatments and pre-planting site preparation would have occurred.

The current, closed timber/litter fuels condition in the untreated areas would persist through year 10. Fuels would transition to Fuel Model 10 by year 50 as the stands experience increased tree mortality

from competition (self-thinning) and increased ground fuels as dead trees fall to the forest floor, the same as in Alternative 2.

This alternative would result in no high risk fuels (at 2, 10 and 50 years after harvest) within the density management area (50 acres).

ALTERNATIVE 4 - *No Action*

Hazardous (High Risk) Fuels

Alternative 4 would result in no acres of high risk fuels at 2 and 10 years. The untreated areas (255 acres) would have increased tree mortality from competition and increased ground fuels as dead trees fall to the forest floor. The current closed timber /litter fuels condition would persist through year 10 but would transition to high risk fuels (Fuel Model 10) by year 50.

Table 3. ***Hazardous (High Risk) Fuels***

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Acres Hazardous (High Risk) Fuels Year 2	0 acres	30 Acres FM 12 Fuels*	190 Acres FM 12 Fuels	0 acres
Acres Hazardous (High Risk) Fuels Year 10	0 acres	0 acres	0 acres	0 acres
Acres Hazardous (High Risk) Fuels Year 50	45 Acres FM 10 Fuels	15 Acres FM 10 Fuels	15 Acres FM 10 Fuels	255 Acres FM 10 Fuels

*Assumption is that FM 12 fuels would be treated during site preparation and not persist beyond 2 years.

5.6 ISSUE 5: *How would this project contribute to the Eugene District RMP goal for allowable sale quantity?*

ALTERNATIVE 1 - *Density Management (210 acres)*

Alternative 1 would provide 1.9 million board feet (MMBF) timber toward the 2004 allowable sale quantity.

ALTERNATIVE 2 - *Density Management (210 acres) and Regeneration Harvest (30 acres)*

Alternative 2 would provide 2.6 MMBF of timber toward the 2004 allowable sale quantity for the Siuslaw Resource Area and Eugene District.

ALTERNATIVE 3 - *Regeneration Harvest (190 acres) and Density Management (50 acres)*

Alternative 3 would provide 4.3 MMBF of timber toward the 2004 allowable sale quantity for the Siuslaw Resource Area and Eugene District.

ALTERNATIVE 4 - *No Action*

Alternative 4 would not provide timber toward the 2004 allowable sale quantity for the Siuslaw Resource Area and Eugene District.

CUMULATIVE EFFECTS - All Alternatives

No cumulative effects regarding allowable sale quantity were identified with any of the alternatives.

6.0 CONSULTATION AND COORDINATION

6.1 LIST OF PREPARERS

The Proposed Action and alternatives were developed and analyzed by the following interdisciplinary team of BLM specialists.

NAME	TITLE	DISCIPLINE
Karin Baitis	Soil Scientist	Soils
Mark Stephen	Forest Ecologist	Ecology
Jeff Apel	Engineer	Roads/Transportation
Dave Reed	Fuels Specialist	Fuels/Air Quality
Michael Southard	Archaeologist	Cultural Resources
Phil Redlinger	Silviculturist/Timber Planner	Silviculture
Dan Crannell	T & E and Wildlife Biologist	Wildlife Habitat
Chuck Vostal	Fisheries Biologist	Fisheries
Molly Widmer	Botanist	Botanical Resources
Saundra Miles	Recreation Planner	Visual Resources and Recreation
Rick Colvin	Landscape Planner	Environmental Coordination
Graham Armstrong	Forest Hydrologist	Hydrology

6.2 CONSULTATION

National Oceanic Atmospheric Administration (NOAA Fisheries)

ESA Effects Determination

The proposed action and alternatives contain design features that would maintain ecosystem health at watershed and landscape scales to protect habitat for coho salmon and other aquatic-dependent species. These design features include: 1) no harvest activity within 50 feet of all non-fish-bearing streams; 2) new roads (with exception), reconstructed roads, landings, and skid trails located outside of Riparian Reserves; 3) all new and renovated roads not hydrologically connected to any streams; 4) log haul operations occurring on road systems outside of critical habitat for coho salmon; and 5) all new road construction and reconstruction, and their use if left as natural surface, would be restricted to the dry periods of the year. Based on the analysis for the Norris Divide Forest Management project, the action alternatives are determined to be ANo Effect@ for Oregon Coast coho salmon and designated critical habitat.

Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) requires Federal agencies to consult with the Secretary of Commerce regarding any action or proposed action authorized, funded, or undertaken by the agency that may adversely affect Essential Fish Habitat (EFH) under the Act. The proposed alternatives, as described and analyzed in the Norris Divide Forest Management Environmental Assessment would have ANo Effect@ on waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.

U.S. Fish and Wildlife Service (USFWS)

ESA Consultation

This proposed action has been addressed in the FY 2003-04 programmatic Biological Assessment for Habitat Modification Projects dated July 24, 2002. A response from the U.S. Fish and Wildlife Service in the form of a Biological Opinion was submitted in September 30, 2002. The Proposed

Action, Alternative 2, would "Affect, and is Likely to Adversely Affect" the northern spotted owl due to a loss of 30 acres of spotted owl dispersal habitat through regeneration harvest. There would be "No Effect" to bald eagles or marbled murrelets.

Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians

The Bureau of Land Management Siuslaw Resource Area consulted with the Confederated Tribes of Siletz, and the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians. No response was received.

6.3 PUBLIC PARTICIPATION

A public notice advertising the availability of this EA and preliminary FONSI will be published in the Eugene Register-Guard on October 29, 2003. Additionally, the EA will be sent to eight groups or businesses, six state or local government agencies, and 11 individuals. A 30-day public comment period for the EA closes on November 28, 2003.

7.0 REFERENCES

USDA, Forest Service and USDI, Bureau of Land Management. February 1994. Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. Portland, Oregon.

USDA, Forest Service and USDI, Bureau of Land Management. February 1994. Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. Appendix J2. Portland, Oregon.

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USDI, Bureau of Land Management. November 1994. Eugene District Resource Management Plan/Environmental Impact Statement. Eugene District Office, .Eugene, Oregon.

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USDI, Bureau of Land Management. February 1996. Siuslaw Watershed Analysis. Eugene, Oregon: Eugene District Office.

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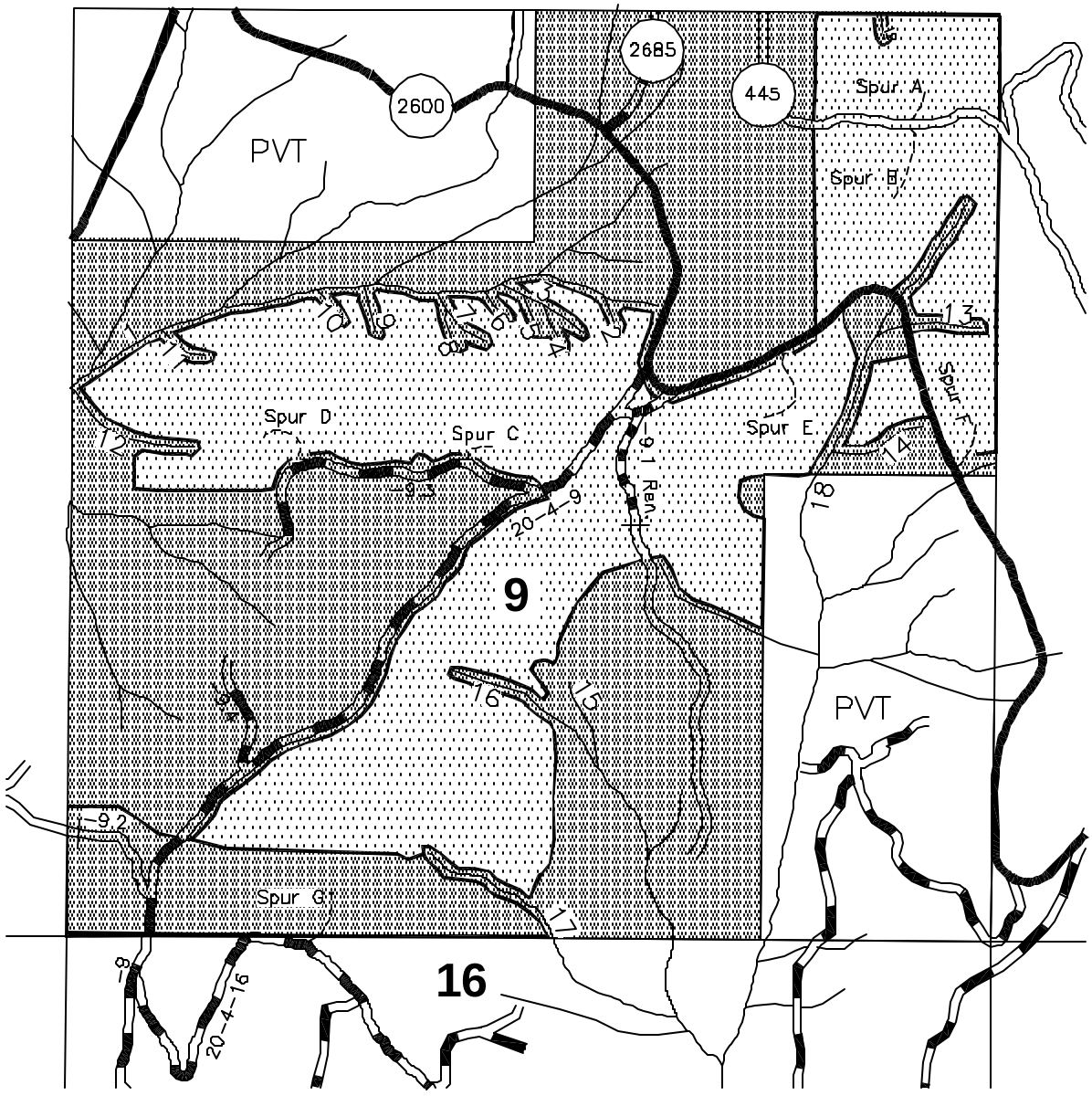
Wemple, B. C., Jones, J.A., and Grant, G. E. 1996. Channel Extension By Logging Roads In Two Basins, Western Cascades, Oregon. Water Resources Bulletin Vol. 32, No. 6.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NORRIS DIVIDE
ALTERNATIVE 1

T. 20S , R. 4W , SEC. 9 , WILL. MER., EUGENE DISTRICT



LEGEND

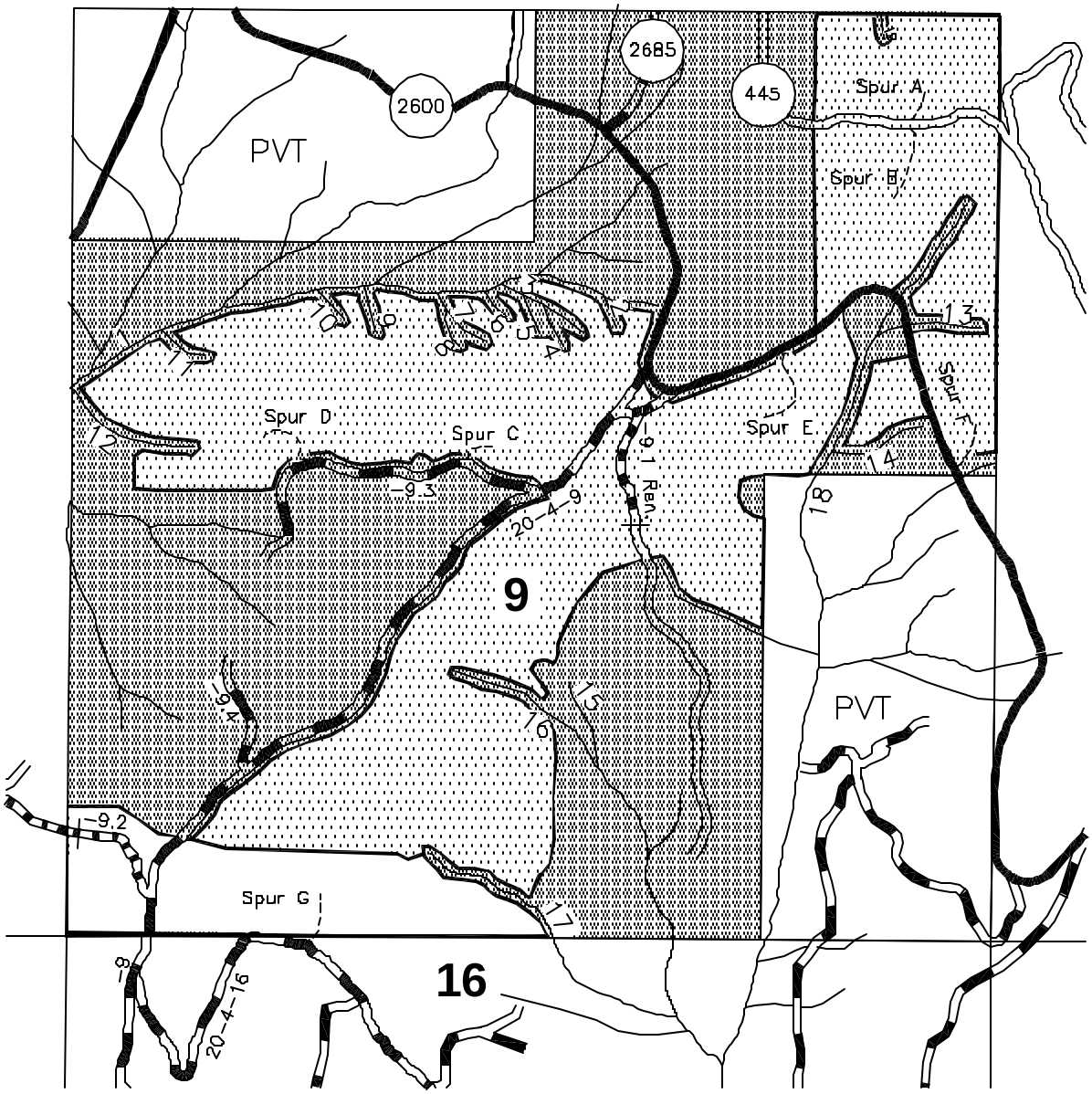
- DENSITY MANAGEMENT AREA
- RESERVE AREA
- EXISTING GRAVEL ROAD
- EXISTING DIRT ROAD TO BE RENOVATED
- EXISTING DIRT ROAD
- NEW CONSTRUCTION
- STREAMS/STREAM NUMBER

0 1 MILE 2 MILE
SCALE

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NORRIS DIVIDE
ALTERNATIVE 2

T. 20S , R. 4W , SEC. 9 , WILL. MER., EUGENE DISTRICT



LEGEND

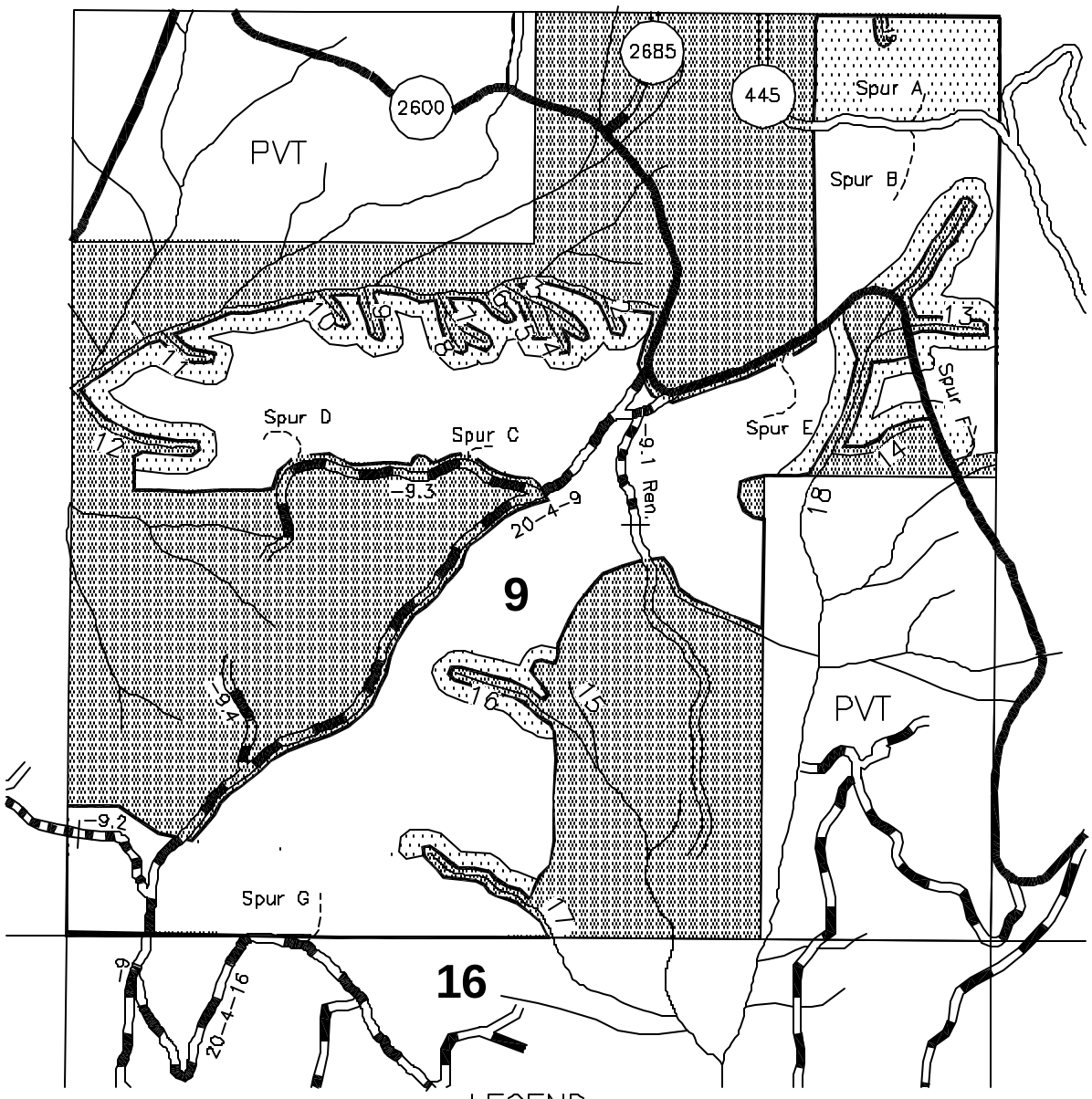
- DENSITY MANAGEMENT AREA
- RESERVE AREA
- REGENERATION HARVEST AREA
- EXISTING GRAVEL ROAD
- EXISTING DIRT ROAD TO BE RENOVATED
- EXISTING DIRT ROAD
- NEW CONSTRUCTION
- STREAMS/STREAM NUMBER

0 1 MILE 2 MILE
SCALE

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NORRIS DIVIDE
ALTERNATIVE 3

T. 20S , R. 4W , SEC. 9 , WILL. MER., EUGENE DISTRICT



LEGEND

- DENSITY MANAGEMENT AREA
- RESERVE AREA
- REGENERATION HARVEST AREA
- EXISTING GRAVEL ROAD
- EXISTING DIRT ROAD TO BE RENOVATED
- EXISTING DIRT ROAD
- NEW CONSTRUCTION
- STREAMS/STREAM NUMBER

0 1 MILE 2 MILE
SCALE

APPENDIX A

DESIGN FEATURES FOR ACTION ALTERNATIVES
Norris Divide

The following general design features would be implemented in conjunction with the proposed action and other action alternatives. Project design features are either (1) operating procedures normally used to avoid or reduce adverse environmental impacts as developed by the interdisciplinary team, or (2) required standards and guidelines included in a timber sale contract.

General Design Features

1. All "plus" trees (genetically select trees) would be reserved (tree numbers 3410501, 3410502, 3410503, 3410504, 3410504, 3410505, 3410506, and 3401301).
2. Directional felling away from powerlines would be required. Trees leaning into the powerline right-of-way would be cut. The power company would be notified prior to beginning operations.
3. All Pacific yew, western red cedar, incense cedar, and hardwoods would be retained to the extent possible, to maintain diversity of tree species. These would count toward the retention trees in the regeneration harvest areas.
4. Unmerchantable tree tops and limbs would not be yarded to the landing and would be left on site to contribute to soil productivity.

Density Management

5. For the purpose of long term productivity and maintenance of biological diversity, all down material or coarse woody debris of advanced decay (Decay Classes 3, 4, or 5) would be retained on site
6. To provide habitat for cavity dependent wildlife and to protect the future source of down logs, snags not posing a safety hazard would be reserved. Directional felling and yarding would be utilized to protect residual green trees and snags consistent with State safety practices. Snags felled as danger trees would be retained as coarse woody debris (CWD).
7. Harvest activities would not occur during sap flow season (April 15-June 15) to limit bark/cambium damage to residual trees, unless waived by the Authorized Officer. Log lengths would be restricted to a maximum of 40 feet in the thinning areas in order to protect residual trees during yarding.

Regeneration Harvest

8. Twelve to eighteen conifers per acre of size and species typical of the stand would be retained to provide legacy trees to be carried on into the next rotation and would eventually become snags or CWD. Leave trees would be clustered in groups of 10-50 trees in number, with less wind firm trees grouped in larger clumps.
9. The number of existing snags in the project area was found to be below the minimum RMP/ROD standards to meet the primary cavity nesting bird needs. Snags would need to be created to attain the RMP/ROD guidelines of meeting 40% primary cavity nester requirements. Approximately 1.7 additional green trees per acres that are at least 15" D.B.H. would be retained. All existing snags not posing a safety hazard would be reserved. Where snags create a hazard, they would be cut and left on site for CWD.
10. CWD would be provided in the regeneration harvest areas by retaining existing =20" diameter down material of Decay Classes 1 and 2. Since there is little existing =20" diameter down material present, three additional trees per acre would be reserved to provide future material. For the purpose of long term productivity and maintenance of biological diversity, all down material of advanced decay (Decay Classes 3, 4, or 5) would be retained for CWD.

Riparian Reserves and Stream Protection

11. Untreated 50-foot stream buffers would be provided to maintain existing water quality and to meet ACS objectives for all streams within the project area. Stream 1 would receive a wider stream buffer along the western most 1,100 feet of the BLM ownership of the stream reach where the side-slopes are 70% or greater. Here, Stream 1 would receive a buffer following the slope break when 50 feet to 100 feet from the stream. If no slope breaks are apparent, approximately 100 feet minimum buffer from the stream would be required.

12. No ground-based yarding would occur within Riparian Reserves.

13. Conifers that are 6.5 inches DBH and smaller would be protected wherever possible within the Riparian Reserves to maintain stand diversity.

Logging Systems

Cable Yarding (Upland and Riparian)

14. All cable yarding would be to designated or approved landings. Landings would be located to minimize impacts to reserve trees and soils.

15. Cable corridors would be kept approximately 150 feet apart at the far end to minimize impacts to reserve trees and would be limited to 12 feet in width in the density management areas. (A cable system capable of lateral yarding 75 feet would be used.)

16. A minimum of one-end suspension would be required when cable yarding. Intermediate supports may be necessary to achieve the required suspension.

17. Cable yarding (minimum of one end suspension) would be required in Riparian Reserves. Full-suspension of logs would be required when yarding logs across streams.

18. Skyline cable corridors may be required through Riparian Reserves, including untreated stream buffers, in order to gain additional lift or deflection of the skyline, and to attain the required suspension of logs during yarding. Except where specified below in design feature 20, yarding logs across streams and through untreated buffers within skyline cable corridors would not occur. Intermediate supports or lift trees may be needed to attain the required suspension. Trees in the skyline cable corridors located within the untreated stream buffers would be felled, left parallel to the stream to the extent possible, and retained on-site to provide down wood.

19. Directional felling and yarding away from streams would be required where feasible to provide for streambank stability and water quality protection. Cable yarding of logs across non-fishbearing Streams 13 and 18 would occur with all action alternatives. Any skyline cable corridors across these streams would be within 45 degrees of perpendicular to the stream channel.

20. Cable yarding corridors would be waterbarred using hand tools immediately after use, if necessary to prevent erosion. Any exposed soil in yarding corridors located within untreated stream buffers where there is the potential for adding sediment to streams would be covered with tops and branches.

Ground-based Yarding

21. All ground-based yarding would be limited to slopes less than 35% and pre-approved by the Authorized Officer. All ground-based yarding would be to designated or approved landings.

22. Ground-based yarding operations would only occur when soil moisture content provides the most resistance to compaction (generally during the dry season), as approved by the Authorized Officer.

23. All ground-based yarding skid trails would be pre-designated and approved by the Authorized Officer and would occupy less than 10% of the tractor logged area. Existing skid trails would be used wherever possible. Trees would be felled to the lead of skid trails.

24. All ground-based skid trails would be limited to 12 feet in width or less. Excavation (gouging) on skid trails would be limited to a maximum cut of one foot. .

Road and Ground-based Yarding Skid Trail Decommissioning

Winterization (interim storm proofing)

25. Ground-based yarding skid trails, natural surfaced renovated roads, newly constructed spur roads, and landings requiring operation during more than one dry season would be placed in an erosion-resistant condition and temporarily blocked prior to the onset of wet weather. This would include construction of drainage dips, water bars, lead-off ditches, and earthen/brush barricades. Only rocked roads would be used for logging operations during the wet season.

Newly Constructed Road Spurs

26. Decommissioning methods for newly constructed spur roads would vary by alternative:

    a) Alternative 1 - Spurs A-F would be waterbarred and blocked. Approximately 2,000 ft. of newly constructed spur roads would be decommissioned under Alternative 1. Spur G (300 ft.) would not be built under Alternative 1.

    b) Alternative 2 - Spurs A-F would be waterbarred and blocked. Spur G would be decommissioned by removing rock if present, tilling, and scattering wood debris, where available, on the road bed, and blocking. Approximately 2,300 ft. of newly constructed spur roads would be decommissioned under Alternative 2

    c) Alternative 3 - Spurs A-G would be decommissioned by removing rock if present, tilling, waterbarring, and blocking. Wood debris, where available, would be scattered on road beds, except on Spur F. Approximately 2,300 ft. of newly constructed spur roads would be decommissioned under Alternative 3.

Renovated Roads

27. After project completion, renovated Road No. 20-4-9.1 (600 ft) would be blocked, and drainage dips, water bars, or lead-off ditches would be constructed as needed to direct surface water to the forest floor and leave the road in an erosion resistant condition (Alternatives 1-3).

28. After project completion, renovated Road No. 20-4-9.2 (630 ft) would be decommissioned by removing rock if present, tilling, scattering wood debris where available on the road bed and blocking (Alternatives 2 and 3). Road No. 20-4-9.2 would not be built under Alternative 1.

Ground-based yarding skid trails

29. Ground-based Skid Trails - After project completion, compacted skid trails would be tilled using appropriate "decompaction" equipment and tools, and blocked.

Fuel Reduction and Site Preparation

30. **Roadside fuel reduction** methods would vary by alternative:

    a) Alternative 1 - The landing piles and slash within 25 feet of either side of existing Road Nos. 20-4-9.0, 20-4-9.1 and 20-4-9.3 would be piled using a tracked excavator, covered and burned. Coarse woody debris would be left in place. Debris piles adjacent to Spur Roads A-F would be burned.

    b) Alternative 2 - The landing piles and slash within 25 feet of either side of Road Nos. 20-4-9.0, 20-4-9.3, and Road No. 20-4-9.1 would be piled using a tracked excavator, covered and burned for fire hazard reduction. Coarse woody debris would be left in place. Debris piles adjacent to Spur Roads A-F would be burned. Debris piles adjacent to Road No. 20-4-9.2 and Spur G would be scattered on the road bed in conjunction with road decommissioning.

    c) Alternative 3 - The landing piles and slash within 25 feet of either side of existing Road Nos. 20-4-9.0 and 20-4-9.3, and renovated Road No. 20-4-9.1, would be treated as described in Design Feature 32. Debris piles adjacent to the renovated Road No. 20-4-9.2, Spurs A-E, and Spur G would be scattered on the road bed in conjunction with road decommissioning. Debris piles adjacent to Spur Road F would be burned.

31. **Fuels Reduction Treatments in Regeneration Harvest Areas**: Areas of less than 40% slope would be excavator piled, covered and burned for fire hazard reduction and/or site preparation. Treatment areas would be determined after harvest. It is anticipated that some small areas would not require treatment for replanting. On

slopes greater than 40%, a combination of hand piling, brush slashing, pile covering and burning would be utilized. Under both treatments, only material less than 6" in diameter will be piled. All debris larger than 6" diameter would be left on site.

32. Fire hazard reduction and site preparation would utilize the Best Management Practices as described in Appendix C of the Eugene District ROD and RAMP (June 1995) to minimize soil disturbance, litter and coarse woody debris consumption.

33. Untreated areas would not receive fuels treatment.

Botany

34. In order to slow the spread of noxious weeds, all yarding and road construction equipment would be cleaned prior to arrival on BLM Land. Road construction and renovation would proceed outward to the existing roads to avoid spreading noxious weeds to the interior of the stand.

35. ***Ramalina thrausta***, a "Survey and Manage, Category A" species, occurs within the proposed harvest area. *Ramalina thrausta* sites would receive one site tree (210 ft.) radius (approximately 3-acre) buffers to reduce edge effects and disturbance to the species. No operations would be permitted within these buffer areas.

36. ***Cimicifuga elata***, a "Bureau Sensitive Species", occurs within the proposed harvest area. The one known *Cimicifuga elata* site would receive a 100 feet radius (approximately 3/4-acre) buffer to reduce edge effect and disturbance to this species. No operations would be permitted within the buffer area.

37. ***Orabanche pinorum*****,** a non-green species of flowering plant on the Lane County Threatened and Endangered List B, occurs within the proposed harvest area. Two sites would receive approximately 60 ft. radius (approximately 1/4-acre) buffers to reduce disturbance to the species. Two sites would receive buffers modified in design to insure the operability of adjacent timber harvest activities. No operations would be permitted within the buffer area.

UNITED STATES DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT
EUGENE DISTRICT OFFICE

Finding of No Significant Impact
for
Norris Divide Timber Sale

Determination:

On the basis of the information contained in the EA (OR090-EA-03-17), and all other information available to me, it is my determination that: (1) the implementation of the Proposed Action or alternatives will not have significant environmental impacts beyond those already addressed in the "Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl," (April 1994) and the "Eugene District Record of Decision and Resource Management Plan," (June 1995); (2) the Proposed Action and alternatives are in conformance with the Eugene District Record of Decision and Resource Management Plan; and (3) the Proposed Action and alternatives do not constitute a major federal action having a significant effect on the human environment. Therefore, an environmental impact statement or a supplement to the existing environmental impact statement is not necessary and will not be prepared.

Steven Calish, Field Manager
Siuslaw Resource Area

Date:

ENVIRONMENTAL ASSESSMENT NO. OR090-03-17

Norris Divide
Timber Sale Tract No. E-04-509

October 2003

United States
Department of the Interior
Bureau of Land Management
Eugene District Office
Siuslaw Resource Area