ENVIRONMENTAL ASSESSMENT

for the

BIRDSEYE JONES LANDSCAPE MANAGEMENT PROJECT

(EA# OR110-02-23)

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

June 2004

Dear Reader:

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

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

I look forward to your continued interest in the management of our public lands.

Abbie Jossie
Field Manager
Grants Pass Resource Area

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MEDFORD DISTRICT

EA COVER SHEET

RESOURCE AREA: *Grants Pass Resource Area* EA # OR-110-02-23

ACTION/TITLE: *Birdseye Jones Landscape Management Project*

LOCATION: T36S, R5W, Sections 1, 2, 3, 4, 5, 9, 10;
T36S, R4W, Sections 28, 29, 31, 32;
T37S, R4W, Sections 5, 6, 7

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1.0 Purpose of and Need for Action

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

This EA tiers to the following documents:

(1) *Final EIS and Record of Decision for the Medford District Resource Management Plan* (RMP) (June 1995).
(2) *Final Supplemental EIS on Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl* (February 1994).
(3) *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl and its attachment A entitled the Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl* (NFP)(April 13, 1994).
(4) *Final Supplemental Environmental Impact Statement for Amendment to the Survey & Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (March 2000), and the *Record of Decision and Standards and Guidelines for Amendment to the Survey & Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines* (January 2001)
(5) *Record of Decision* and the *Final Supplemental EIS to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines* (March and January 2004);
(6) *Record of Decision Amending Resource Management Plans for Seven Bureau of Land Management Districts and Land and Resource Management Plans for Nineteen National Forests Within the Range of the Northern Spotted Owl,* and its *Final Supplemental EIS for the Clarification of Language in the 1994 Record of Decision for the Northwest Forest Plan* amending wording about the Aquatic Conservation Strategy (March 2004).
(7) *Medford District Noxious Weed Environmental Assessment* (April 1998).

Planning and biological surveys for this project began prior to the March 2004 ROD that changed the Survey and Manage program. The ROD (p. 8) does allow such a project to be completed under the S&M standards and guidelines. The Birdseye Jones project is designed in accordance with these standards and guides.

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

(1) *Rogue-Grants Pass Watershed Analysis* (August 1998)
(2) *Rogue River/South Coast FY04-08 Timber Sale Projects Biological Assessment* (July 2003) and *USFWS Biological Opinion* (#1-14-03-F-511, October 2003).
(3) *USFWS Biological Opinion* (1-7-98-F-3211, September 1998)
(4) *2003 Survey and Manage Annual Species Review* (Forest Service Memorandum November 20, 2001, file code 1900/2620; and BLM Information Bulletin No. OR-2002-033).

Terminology used in this EA follow the definitions of the RMP.

1.1 Purpose of and Need for Action

The purpose of the proposed action is to implement the RMP. The proposed action is designed to meet a variety of resource, social and economic needs and objectives outlined in the RMP including:

- Management of the watershed in a manner that will provide for and promote a wide variety of non-commodity outputs and conditions including wildlife habitats, sustainable forest conditions, fuel hazard reduction, recreation opportunities, maintenance or improvement of water quality, and fisheries consistent with the direction of the RMP.
- Contribution to the Medford District's timber harvest/forest products commitment, thus helping to meet the demand for wood products regionally and nationally and supporting local and regional economies.

1.2 Project Location and Land Use Allocations

The project area is primarily in the Rogue-Grants Pass 5th field watershed. A portion of the project area is in the Jumpoff Joe Creek 5th field watershed. Project area maps are in Appendix A. The project area is within matrix (Southern General Forest Management Area) and riparian reserve land allocations. Management objectives for the different land use allocations (LUA) are set forth in the NFP and RMP. Refer to these documents for a discussion of relevant objectives.

1.3 Issues and Concerns

A variety of issues and concerns were raised during project scoping by interested individuals or groups outside the BLM and by BLM's interdisciplinary team. In this EA an issue is something unique to the project area that may need particular consideration and which may contribute to defining a particular action alternative.

Pertinent issues are listed below. Many of these issues were identified in the Rogue-Grants Pass Watershed Analysis and were used in the design of the proposed project and alternatives. In some cases, an issue was initially considered by the planning team and then eliminated from further analysis because it was not within the scope of the project or did not meet the purpose and need. These are summarized in Appendix E. The pertinent planning issues are:

- High stand densities throughout the project area are resulting in declining vigor of conifers and oaks. Fire exclusion has contributed to growth stagnation in some stands as well as to slow seral stage progression/succession. There is recent mortality from drought stress and subsequent insect infestation within the project area.

- Fire exclusion has led to a high fuel hazard and decline in vigor and extent of oak woodlands, meadows and associated habitats.

- Late-successional forest habitat is fragmented throughout the project area due to edaphic (soil impacts on organisms) conditions and past management, thus making dispersal difficult for some species.

- Vegetation conditions combined with increasing rural residential development in the project

area are continuing to increase the fire hazard and risk. The project area is within and adjacent to Grants Pass, a National Fire Plan designated Community at Risk (CAR).

- There is a high potential for year-round recreation opportunities on public lands in the project area.

- Over 200 acres of young stands have been identified as overstocked with the potential for rapid growth after release.

- Portions of individual units have poor stocking of healthy vigorous regeneration in the understory and a declining overstory resulting in a decline in conifer annual growth.

- Habitat for federally listed species is located in the project area. There are six spotted owl sites within the Rogue-Grants Pass watershed. Suitable nesting and foraging habitat is fragmented throughout the watershed and occurs primarily on federal land.

- The Rogue-Grants Pass watershed has a high density of roads on private lands within the watershed which can lead to numerous impacts on fish and wildlife including increased sedimentation and wildlife habitat fragmentation (BLM has no jurisdiction over private lands).

- Proposed actions may be visible to residents of Grants Pass and those traveling through the area on Interstate 5. Some of the units near the I-5 corridor are visual resource management (VRM) Class II, while the rest of the project area is VRM Class III.

2.0 Proposed Action and Alternatives

2.1 Alternative 1: No Action

The no action alternative is defined as not implementing the proposed action. The no action alternative also serves as a baseline for evaluating the environmental effects of the action alternative. Inclusion of this alternative is done without regard to whether or not it is consistent with the Medford District RMP.

The no action alternative is not static: implied is a continuation of current environmental conditions and trends that currently exist in the project area. This includes trends such as vegetation succession and consequent wildlife habitat changes, road conditions/deterioration, erosion, road densities, fire hazard, off road vehicle use, etc.

2.2 Alternatives 2 and 3: Action Alternatives

Two action alternatives are proposed and analyzed. There are many elements common to both alternatives. The alternatives differ with regard to their objectives and stand treatment/timber harvest proposals in older seral stage stands. Alternative 3 retains more late successional forest habitat than does Alternative 2. In designing the two action alternatives a host of other options or alternatives were considered. Those carried forward in the two proposed action alternatives are described in this section. Alternatives considered but eliminated are listed in Appendix E.

The action alternative descriptions are based on general types of action such as road treatments, riparian restoration, fisheries enhancement, vegetation treatments, recreation developments, etc. While presented in these discrete groupings, interrelationships between them must be kept in mind, especially when considering the overall effects of the alternatives.

Table 1: Summary Comparison of Action Alternatives

Treatments that differ between the alternatives	Alternative 2	Alternative 3
Target Post treatment Canopy closure	20-70%	40-60% (5 units, or 238 acres). All others would be 20-70%.
Group selection prescription (including modified group selection)	Variable	No more than one for every 10 acres
Tree selection for harvest	Variable-all canopy layers, all size classes	Greater focus on understory removal than in Alternative 2.

2.2.1 Older Seral Stage Stand Treatments

2.2.1.1 Alternatives 2 and 3 – Older Seral Stage Stands

2.2.1.1.1 Objectives

Two alternatives regarding thinning and harvesting timber in mid and mature seral stage stands are presented. The broad objective of both alternatives is to promote tree growth and species diversity across the landscape mosaic by removing suppressed trees/vegetation and conducting variable density thinning in older stands. Another objective is to reduce canopy bulk density to reduce the risk for stand replacement wildfire. Another common objective is to harvest timber to meet BLM's commitment to provide forest resources to the local and regional economy.

2.2.1.1.2 Proposed Action

The model vegetation treatment scenario is to harvest followed by understory treatments and post harvest treatments. Fuel hazard reduction and site preparation treatments would be last. If harvest is delayed or deferred in the overstory, proposed post harvest treatments, understory treatments and fuel treatments shown in Appendix B may occur.

Due to recent insect infestation (2002 Region 6 Forest Service Forest Insect and Disease Aerial Detection Survey) in previously thinned stands in the Birdseye Rogue Timber Sale Area (T36S, R5W, Sections 28, 29, 31, and 32), dead and dying trees would be harvested using commercial thin/modified group select or structural retention harvest prescriptions in matrix in order to prevent widespread tree mortality.

Both alternatives also contain wildlife migration/dispersal corridors between adjacent watersheds.

2.2.1.2 Alternative 2 - Older Seral Stage Stands

2.2.1.2.1 Objectives

Alternative 2 emphasizes increasing long term stand growth by reducing stem densities from all canopy layers and tree size classes. Vegetation treatments and harvesting in older seral stage stands would follow the Southern General Forest Management Area (SGFMA) silvicultural prescription in the RMP. Residual stand structures and stand variability would also be as described in the RMP (p. 192). Post treatment canopy closure would be 25-60% in harvest units. Project area diversity would be maintained through the variety of RMP prescribed reserves within the project area (e.g., riparian reserves and spotted owl sites).

2.2.1.2.2 Proposed Action

See Appendix B and the maps in Appendix A for specific unit treatment proposals. Treatment summaries are shown in Table 7. The following describes the various treatment proposals:

Commercial Thin/Modified Group Selection (CT/MGS)
In Douglas-fir series stands, this treatment would strive to retain a healthy, growing conifer overstory. It would remove merchantable size trees (≥ 4" DBH) that have reduced growth or vigor. Also, this treatment would insure that hardwood and pine components would be developed for species diversity and soil productivity. On sites identified as a pine series or pine association, fewer trees per acre would be retained than on the Douglas-fir sites. Portions of some of these stands may be treated with a structural retention for stand regeneration (SR) prescription if appropriate. Scattered unthinned patches 0.25-0.5 acres in size would be retained. The following is a more specific discussion of objectives and description of treatments.

Commercial thinning of Douglas-fir, pine species, and other conifers would reduce stand density. Suppressed trees, intermediate and dominate trees would be removed to increase individual tree growth and accelerate seral stage stand progression. Diameters of the healthiest trees would be used to determine spacing between the retention trees with a goal of density indices of RD = 0.35 for stands in the Douglas-fir series and RD = 0.25 for stands in pine series.

Commercial thinning may include *group selections* to encourage the growth of existing Douglas-fir reproduction and to retain shade intolerant ponderosa pine and sugar pine in mixed conifer stands. Group selection is an uneven-aged silvicultural system in which a small group of trees ranging from one-half to three acres in size are periodically harvested from larger stands. These sites are then regenerated either naturally or through planting to ensure prompt reforestation. The resultant openings would vary in size, shape and distribution. Distribution of groups would be first centered on existing conifer reproduction and large pine which would avoid aggregating groups to one area in the unit.

Modified group selection for pine survival removes nearby trees (usually Douglas-fir) that are competing with vigorous pines. It favors and retains the larger vigorous ponderosa and sugar pine that have a ≥ 30% live crown ratio and is intended to increase pine survival and to encourage pine seedlings.

Modified group selection for hardwood survival removes trees around a selected hardwood tree. It would be done when large healthy hardwoods are present. This treatment manages for long term survival of large hardwoods such as black oak, madrone, white oak, live oak, maple, or tree form tanoak. It is intended to maintain stand species diversity. Between one and five vigorous hardwood trees per acre would be selected for retention. Vigorous hardwoods have a ≥ 25% live crown ratio, show little disease (rot), and are expected to live for the next 15 years. Long term survival would be encouraged by removing competing conifers. On sites especially suited to hardwood dominance, >5 hardwoods would be left per acre. In these situations, selected hardwoods would be included in the conifer spacing pattern and favored for retention over conifers. In areas where the white oak series is present, treatment objectives would be to manage for white oak survival.

Structural Retention for Stand Regeneration (SR)

This stand treatment increases the growth of the existing understory trees or regenerates a new understory with natural seeding and/or tree planting. Stands with an overstory stand age >120 years and which have a poor annual stand growth rate would be selected for this treatment. Commercial thinning would not increase stand productivity to the extent that SR would. A range of 16-25 large conifer trees per acre (SGFMA guideline) would be retained. Trees >6" DBH would be removed between the trees selected for retention. Portions of some of these stands may be treated with the CT/MGS. The following is a discussion of the other features of this prescription.

Long term survival of large hardwoods would be encouraged (black oak, madrone, white oak, live oak, or maple). One to five hardwood trees per acre would be retained. Long term survival would be encouraged by removing competing conifers. On sites especially suited to hardwood dominance, >5 hardwoods would be retained per acre, would be included in the leave tree spacing pattern, and would be favored for retention over conifers. In areas where the white oak series is present, the treatment would manage for the survival of the white oak. Vigorous hardwoods have a 25% or greater live crown ratio, little disease (rot) and are likely to live at least 15 more years.

Post Harvest Treatments for All Units

After thinning/harvesting is completed, the following treatments may occur:

In order to reduce competition for water and nutrients, suppressed smaller trees inside the drip line of larger trees would be cut. Suppressed trees are those judged to be unlikely to recover and thrive following harvest.

Damaged residual saplings and damaged pole size trees would also be severed to reduce competition. In general, a damaged tree would be <6" DBH and would like to be slow to recover from injury (e.g., a sprung tree or a broken top tree that was bent over by the skyline cables during logging).

Understory vegetation would be selectively thinned. Species diversity would be maintained by selectively slashing hardwoods, conifers and shrubs and by reserving specified species. Leave vegetation would be spaced 15-45' apart. Wider spacing would be used for larger leave trees or for species such as pine or oak which thrive in less dense conditions. The healthiest and most vigorous trees would be retained. To maintain species diversity some hardwoods would be retained in the understory.

Logging and thinning slash would be burned. Under burning or hand piling and burning tree limbs and other debris on the ground would follow logging and thinning. Multiple treatments over several years may be needed to reduce fuel loading incrementally or to create planting spaces. Brush would also be burned to reduce conifer seedling competition.

2.2.1.3 Alternative 3 - Older Seral Stage Stands

2.2.1.3.1 Objectives

The objective of Alternative 3 is to emphasize greater retention of late-successional forest characteristics (greater canopy closure with a more complex structure) in selected stands (see shaded units, Appendix B) while also providing commercial harvest. These stands represent the highest quality stands of late-successional forest habitat on matrix lands in the project area.

Alternative 3 would manage for more habitat and connectivity of late-successional forest dependent species than Alternative 2. Greater emphasis would be placed on canopy retention in the more dominant canopy layers. Post treatment canopy targets would be 40-60% in those 5 units with high quality late-successional habitat. Large mature trees with old growth characteristics (for example, large, open limbed trees with nesting/roosting potential) would be retained.

2.2.1.3.2 Proposed Action

See Appendix B and maps in Appendix A for specific unit treatment proposals.

Alternative 3 proposes the same harvest and vegetation treatments as Alternative 2, except regarding stands identified for late-successional forest habitat management. These units are shaded in Appendix B and would be thinned from below with a limited group selection (CTB/LGS) treatment. Commercial thinning would target trees in the codominant, intermediate and suppressed layers in order to maintain a relatively high canopy closure in the large tree/overstory population. Group selections would be limited to one group per 10 acres. In all other respects, harvest and post harvest treatments would be the same as for Alternative 2.

2.2.2 Young Stand/Forest Development (Alternatives 2 and 3)

2.2.2.1 Objective

The objective is to accelerate young stand growth while retaining species composition and diversity that are site-appropriate in matrix and riparian reserves.

2.2.2.2 Proposed Action

Treatment locations are shown in Appendix B and the proposed treatments are described below:

Brushing (BR)
This treatment provides more growing space and reduces competition to enhance conifer and/or hardwood survival and growth. Conifer leave trees would be spaced approximately 8' apart on most units and hardwoods, approximately 25' apart. Trees would be cut with a chain saw. Surplus hardwoods would be all brush and hardwoods <8" DBH that are not designated as leave trees. Surplus conifers are ≤ 6" DBH that are not designated as leave trees. All tanoak <12" DBH would be removed.

Precommercial Thinning (PCT) and Release
In young managed stands, surplus trees and brush would be cut or girdled to increase moisture, growing space and nutrient availability for conifer and hardwood leave trees. All tanoak <8" DBH and brush would be cut. All sprouting hardwoods not selected as leave trees and all surplus trees up to 8" DBH would be cut. Vigorous and well-formed conifer leave trees would be spaced approximately 14' apart (220 trees/acre) and well-formed hardwood leave trees would receive 20-25' spacing (110-70 TPA) depending on the treatment unit. Where average stand diameter exceeds 7" DBH, surplus trees ≤ 12" DBH would be cut. Vigorous and well-formed conifer leave trees would be spaced no more than 20' apart (110 TPA) and well-formed hardwoods would be 20-25' apart (110-70 TPA) depending on the treatment unit. Units designated for release (see Appendix B) would receive conifer and hardwood treatment whereas units with a PCT prescription would have only conifers treated.

Slash treatment
Following the above treatments, slash would be evaluated for hazard reduction treatment. The most common slash treatment would be hand piling and burning. Other options include lop and scatter, removal of slash as poles or firewood, and slash busting (see also Prescribed Fire/Fuel Hazard Reduction, section 2.2.7.2).

Tree Planting (TP) and Maintenance
This includes the initial planting of nursery seedling stock after site preparation has been completed on a unit. In some cases, the entire unit would be planted. In other cases, the inter-planting of nursery stock would occur in stands that need more seedlings between existing trees to raise stocking levels to meet BLM's fully stocked standards. Tree planting may include a delay release fertilizer packet. Seedling maintenance treatments would enhance growth and increase survival until seedlings become well established. Treatments may include removing competing grasses and forbs with hand tools, scalping an area around the seedling, or installing paper or Vispore mulch to prevent soil moisture loss. Tree netting may also be used to prevent browsing by wildlife.

2.2.3 Special Forest Products and Small Sales (Alternatives 2 and 3)

2.2.3.1 Objective

The objective is to utilize and provide a wide variety of special forest products (SFP) sale/collection opportunities consistent with vegetation, habitat and stand objectives.

2.2.3.2 Proposed Action

All units proposed for harvest, fuel reduction or young stand treatment (see Appendix B) would be available for special forest product and small sales (e.g., poles, merchantable trees, fuel wood, burls) harvesting/collection. Pole harvesting/collection could include helicopter removal of poles to designated areas (e.g., operator spurs, landings and roads). All logging systems' project design features (e.g., seasonal operating constraints, soil protection measures) would be followed. SFP and small sale harvesting / collection would be permitted only as consistent with stand treatment and silvicultural objectives. Some units would be entered prior to service contract work as in the case with manzanita cutting, since the quality of the special forest products is usually destroyed or the products become inaccessible during contract treatments.

2.2.4 Riparian Reserves (Alternatives 2 and 3)

2.2.4.1 Objectives

Maintain the primary shade zone and minimize shade reduction in secondary shade zones adjacent to perennial streams.

Accelerate the growth rate of early seral riparian vegetation to promote late-successional characteristics.

Decrease fuel loads to reduce the risk of fire hazard.

Encourage the potential for long term recruitment of snags and woody debris within the riparian reserves. Where possible, increase levels of woody debris through immediate recruitment.

Eliminate the three known populations of scotchbroom and one population of yellow starthistle.

2.2.4.2 Proposed Action

Vegetation would be treated in some riparian reserves. Riparian reserve treatments would be based on local stand/vegetation conditions and would be designed to benefit aquatic systems and meet or promote ACS objectives in the short and long term. The following streams are listed by the Oregon Department of Environmental Quality on the 303(d) list for high water temperatures: Rogue River, Savage Creek, Louse Creek, and Birdseye Creek.

Riparian reserve widths would conform to the interim widths prescribed in the NFP (p. C-30). Unstable and potentially unstable areas (areas showing active movement and indications of past movement) are riparian reserves (NFP, p. C-30, C-31).

Table 2: Riparian Reserve Widths		
Stream Type	**Potential Site Class**	**Riparian Reserve Width***
Fish-bearing streams (none identified in project)	IV	300' or 2 site potential tree heights, whichever is greater
Perennial streams & springs and intermittent streams	IV	150' or 1 site potential tree height, whichever is greater
Unstable or potentially unstable areas		150' or 1 site potential tree height, whichever is greater

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

Vegetation treatments would include thinning, brushing, hand pile burning and under burning in early, mid, and mature seral stands. Most treatments would not occur in the no-treatment areas adjacent to the stream banks. Light brushing of brush species such as tanoak (not riparian species) would occur in some areas adjacent to intermittent streams. Road maintenance and roadside fuel treatment would occur where the road passes through a riparian reserve. The table below shows the width of the no-treatment zone. See Appendix C for more detailed information on proposed actions in the riparian reserves.

Table 3: Riparian Reserve No Treatment Buffers	
Stream Type	**No Treatment Widths**
Perennial streams & springs	60'
Intermittent streams	50'

Vegetation treatments outside the riparian reserve no-treatment buffers would include thinning, brushing, fire hazard reduction, hand pile burning, and under burning. Trees greater than 12" DBH would not be cut. Trees 8-12" DBH would not be felled within 75' of perennial streams. To reduce potential fuel loadings and fuel treatment needs, trees smaller than 12" DBH may be removed from riparian areas. Target post-treatment canopy closures in riparian reserves would be >60% on perennial streams and >40% on intermittent streams.

Slash and fuel reduction treatments in riparian reserves would include the use of a slashbuster.

Low intensity under burns in riparian reserves may extend into no-treatment zones which would simulate naturally occurring, low intensity ground fire. Burn objectives include the reduction of fuels created by vegetation treatments and consumption of smaller diameter down woody debris.

BLM stream survey data indicates limited quantities of woody debris in the project area based on ODF&W benchmarks. The table below shows the areas that would be treated to increase large wood. Snag and down wood criteria would be met in the riparian reserves (outside the no treatment zones) by girdling trees of different size classes to create snags that will fall naturally or felling and leaving trees greater than 14" DBH. Once snag objectives are achieved, trees would be felled and left in place to meet down wood objectives. Where the following conditions exist, snag and down wood treatments would be implemented:

- Relative stand density is >0.4 and average stem diameter within the stand is >14" DBH.
- Canopy cover exceeds 60%.
- There are fewer than 19 snags ≥ 14" DBH.

- There are fewer than 1,200 linear feet of down wood per 5 acres (725 linear feet of full width riparian reserves) that are ≥ 16" diameter and 16' long.

Table 4: Snag and Down Wood Treatment Areas		
Location	**Stream Type**	**Acres**
T36S, R5W, Sec. 4 002 Reaches* 4A, 4B, & 4C	Intermittent	11
T36S, R5W, Sec. 9 001 Reaches* 9G & 9I	Intermittent	8
T36S, R5W, Sec. 3 001 & 004 Reaches* 3C, 3E, & 3D	Perennial & Intermittent	6
T36S, R5W, Sec. 1 008 Reach* 1D	Intermittent	4
T37S, R4W, Sec. 32 005 Reaches* 32E & 32 G	Perennial	2
T37S, R4W, Sec. 7 003 Reach* 7N & 7M	Perennial	1

* The stream reach notations are from BLM stream survey data. Proposed treatment areas may include only a portion of the stream reach.

A 30'x 20' area of starthistle has been identified in T36S, R5W, section 9, within the stream reach 9K. This noxious weed would be eliminated by hand pulling over multiple years.

2.2.5 Wildlife Habitat Restoration and Enhancement (Alternatives 2 and 3)

Objectives are to:

- Restore a wide variety of plant communities to their natural range of conditions.
- Restore winter range to benefit big game animals such as deer and elk.
- Maintain or improve chaparral and the species that depend on this community.
- Maintain or improve bat roosting habitat, especially snags near ridges.

2.2.5.1 Woodlands, Oak Woodlands, Oak Savannahs

2.2.5.1.1 Objectives

Restore or maintain woodlands and oak savannah by removing encroaching conifers and thinning hardwoods. Current stand densities are nearly three times that which would likely occur under more frequent historic disturbance. For example, a healthy stand has 80-120 ft^2 of basal area and current stand conditions have basal areas approaching 300 ft^2.

2.2.5.1.2 Proposed Action

In the woodland and oak woodland and savannah portion of T36S, R5W, Sections 4 and 9, shrub density would be reduced by removing hardwoods and brush. Hardwoods with the largest diameters and canopies would be retained, as would vigorous pine and large limbed, open growth Douglas-fir. The treatments would include thinning, hand piling and burning, slash busting, under burning and/or large tree legacy management (LTLM). Treatments would be staged over multiple years. Midslope areas would be treated after the anchor points have been established. The last and on-going phase would be maintenance treatments such as prescribed fire to sustain desired fuel and stand conditions.

In woodland and oak woodland areas of T36S, R5W, Section 4 (Unit 003); Section 5; and Section 9 (Units 001, 002, 003, 004, 005, and 006) individual plants and untreated clumps measuring on average 25' x 25' at a density of two per acre would be left. Priority areas for untreated clumps would be moister microsites such as northerly aspects or concavities. These moister sites would have had a slightly different fire disturbance regime from the areas around them and would have the best potential for brush/shrub species to attain a larger size with normal fire disturbance. Special status plant buffers may be considered as clumps. In other cases, clump location would be determined by the equipment operator and would be at least 100' apart. No-treatment clumps would not be implemented in the timber harvest areas.

2.2.5.2 Meadows

2.2.5.2.1 Objectives

Restore meadows that have conifer encroachment and heavy grass thatch.

2.2.5.2.2 Proposed Action

In T36S, R4W, Section 32 (Units 001, 002, and 004) burn approximately 20 acres of natural meadow and burn meadows intermixed throughout the project area to remove grass thatch, woody plant material and encroaching conifers. Burning would be done when conditions allow for a cool, controlled burn (usually during the winter or early spring). A small temporary fire trail may be needed along the edge of the meadow to form a control point. All work would be done with hand tools such as chainsaws, shovels, axes and pulaskis.

2.2.6 Wildlife Corridors (Alternatives 2 and 3)

2.2.6.1 Objectives

Wildlife corridors provide wildlife dispersal habitat and connectivity between drainages. Objectives within these corridors would be to:

- Maintain 40-60% canopy cover
- Manage for CWD according to NFP Standards and Guidelines for riparian reserves.
- Manage for 4-6 snags >14" DBH per acre.

2.2.6.2 Proposed Action

Wildlife corridors would be established in four locations within the project area. These corridors would extend from intermittent streams to ridge lines (see Appendix A, map 2). In areas designated as migration/dispersal wildlife corridors, trees would be retained as leave dominants and co-dominants in all strata for all tree species (conifers and hardwoods) in each represented plant association. Treatment in the corridors would maintain at least 40-60% canopy cover to ridges along a 150' wide area. Where snags fall below 6/acre (minimum 14" diameter) different size class trees would be girdled or trees >14" DBH would be felled and left in place.

Corridor 1 (T36S, R5W, Section 3, NE ¼) would tie into the red tree vole (RTV) buffer in section 3,

NE ¼ and continue to the north boundary of the section (or to the resource area boundary).

Corridor 2 (T36S, R5W, Section 1) would tie into the RTV buffer in Section 1 and continue to the ridge.

Corridor 3 (T37S, R4W, Section 5) extends from west side of Section 5 into unit 6; this would provide for spotted owl and other wildlife species dispersal from the owl core.

Corridor 4 (T36S, R4W, Section 28, NW ¼, extending into Section 29) borders the golden eagle core to the north.

2.2.7 Prescribed Fire/Fuel Hazard Reduction (Alternatives 2 and 3)

2.2.7.1 Objectives

Reduce fuels and alter the fuel model in order to limit the potential rate of wildfire spread and burn severity in activity generated and natural fuels.

Reduce understory stem density in order to reduce wildfire heat intensity and flame lengths.

Reduce fuel hazard in higher fire risk areas such as Communities at Risk (CAR).

Treat logging slash to minimize fuel hazard. Review harvested areas to determine fuel reduction needs and treatments.

Restore selected wildlife habitats with prescribed burning to reduce decadent shrub fields and encroaching conifers in oak woodlands, oak savannahs, woodlands, and meadows.

2.2.7.2 Proposed Action

See Appendix B for unit locations where the primary treatment is fuel hazard reduction. Fuels would also be treated in units where the primary treatment is something other than fuels reduction (commercial harvest, habitat enhancement, etc.) In units containing harvest prescriptions, fuels treatments may encompass more acres than would be harvested.

Fuel hazard reduction treatments would not be applied within riparian reserve no-treatment zones. All treatments that produce special forest products (SFP) (e.g., firewood or poles) would be evaluated before burning for their potential for sale and use through the SFP and small sales program. In some cases, slash treatment using a slashbuster, helicopter or a mechanical wood chipper would be used when burning is not appropriate.

The fuel treatments proposed in Appendix B reflect the current best judgment regarding fuel hazard reduction. Proposed treatments may be adjusted based on interdisciplinary team post-harvest review of conditions and on considerations of site specific physical, biological, and social features at the time of review. If prescribed burning is proposed but not used on a harvest area, lopping and scattering of slash would most likely occur. Slash resulting from pre-commercial and understory thinnings that is not proposed for prescribed burning would also be lopped and scattered.

Understory Thinning (UT) reduces competition for nutrients, water, and light and also reduces fuel hazard. Understory vegetation density would be reduced by cutting and spacing of vegetation that is <12" DBH. All trees >12" DBH would be retained. Species diversity would be maintained by selectively slashing hardwoods, conifers and shrubs and by reserving specified species. Vegetation groups and clumps ranging in size from 1/10 to two acres in size would be retained. Leave vegetation would be spaced 15-45' apart. Wider spacing would be used for larger leave trees or for species such as pine or oak which thrive in less dense conditions.

Large Tree Legacy Management (LTLM) - In units T36S, R5W, Section 4 (Unit 003), Section 5 and Section 9 (Units 001, 002, 003, 004, 005, and 006), ladder fuels within a variable radius of up to 50' of the tree bole would be cut (see Appendix B). Ladder fuels include all vegetation <12" DBH under the large trees. Treated large trees will most often include pine and white oak and range from 5-20 trees per acre. For LTLM areas, hand piles would be constructed and burned 20-50' from the tree bole.

Understory Burning or Underburn (UB) is prescribed burning where residual trees and shrubs are present. The objective is to reduce the fuel hazard for both dead and down woody material and to reduce ladder fuels, which consist of live and standing dead vegetation such as shrubs and small trees in the understory and live and dead branches close to ground level on overstory trees. Understory burning is conducted throughout the year when fuel and weather conditions permit. Typically, burning occurs between fall and spring. Summer or early fall burning is less common, but can be feasible to meet resource objectives and when escape fire risk can be mitigated.

Wildlife Habitat Enhancement/Oak woodland, Oak savannahs, Woodland and Meadow Restorations - These treatments reduce both live and dead fuel, reduce fuel hazard, and improve wildlife habitat. Treatments may include thinning, hand piling and burning, slashbuster use or under burning. See Appendix B for the location of these restoration areas.

Hand piling and burning (HP/B) reduces hazardous slash buildup that results from other vegetation treatments and is typically used when understory burning is not possible. Sticks 1-6" diameter and longer than 2' would be piled by hand. The piles would be covered to create a dry ignition point and would be burned in the fall or winter after the risk of fire spread (scorch or mortality) to nearby residual trees and shrubs is reduced.

Pruning (PR) - Ladder fuels which consist of live and dead branches close to ground level on overstory trees may be pruned. Tree limbs would be cut close to the bole 6-12' from the ground. While fuel hazard reduction is a primary goal, future log value may also be enhanced. Pruning is primarily used on road side vegetation with control problems (e.g. power lines) or near boundary perimeters. Pruning slash would be hand piled and burned. No pruning would occur in riparian reserves.

Lop and Scatter (L/S) - The fuel (such as logging slash) is cut into smaller pieces and scattered so that it is in contact with the ground. This type of fuel bed produces a slower rate of spread and lower flame height and has a more rapid rate of decomposition. This treatment may be used when burning is not feasible.

Slashbuster (SB) - This treatment uses large excavators equipped with a ≥30' boom and a hydraulic chipping/shredding head to redistribute fuel loading and reduce fuel hazard. The machine

mechanically shreds slash, standing dead material, small diameter trees and live vegetation. The treatment immediately and substantially alters the fuel profile. This reduces the immediate need for prescribed burning and lowers burn intensities where prescribed fire has a role. It also results in fuel conditions that make fire control easier in the event of a wildfire. Treatment costs are highly favorable compared to hand piling and burning treatments.

Table 5: Survey and Manage Buffers for Slashbuster Use

Species	Location	No treatment buffer
Carex serratodens	T36S, R5W, Sec. 3	50’
Crumia latifolia	T36S, R4W, Sec. 28,29 T36S, R5W, Sec. 9,10	
Cypripedium fasciculatum	T36S, R5W, Sec. 3 T36S, R4W, Sec. 28,29,32	100’
Cypripedium montanum	T36S, R4W, Sec. 29,32 T37S, R4W, Sec. 5,7	
Clarkia heterandra	T36S, R5W, Sec. 4 T36S, R5W, Sec. 9	Occurrences <1 acre: 50’
Festuca elmeri	T36S, R4W, Sec. 29 T36S, R5W, Sec. 3 T36S, R5W, Sec. 10 T36S, R5W, Sec. 4	
Funaria muhlenbergii	T36S, R4W, Sec. 28,29 T36S, R5W, Sec. 9	50’

2.2.8 Recreation (Alternatives 2 and 3)

2.2.8.1 Objective

Provide additional low-elevation, easily accessible recreational opportunities to meet the growing demand for recreation on public lands adjacent to a highly populated area.

2.2.8.2 Proposed Action

The Beacon Hill trail would be constructed from Ridge Road in section 9 to the 35-5-33.4 road off Louse Creek Road in section 33 (Granite Hill Road to Louse Creek Road) (Appendix A, Map 2). The trail would switch back to the ridge and follow it north for two miles through section 4 to the Louse Creek road system. Two easements would be pursued to cross private land in section 4 before location or construction of this trail could be pursued. Trail use would be limited to non-motorized use and would provide easily accessible (close to town), all-season recreational opportunities such as horseback riding, mountain biking and hiking.

Adjacent to the Beacon Hill trail, created openings would provide views of Grants Pass. No thinning/no harvest 25’ buffers along portions of both sides of the trail would serve as a visual screen for adjacent treatment units. A 3’ wide tread would be retained when decommissioning roads in the NW¼ of section 4 and would become part of the Beacon Hill trail.

The trail head would be located off the I-5 frontage road. An agreement with the city of Grants Pass would be needed for trailhead access. This area has a wide turn around that would be improved for

horse trailers and parking. The trailhead/parking area would be approximately ½ acre (100' x 200') in size and would be surfaced with crushed aggregate. The trail would be 3' wide (2' tread width) with a clearing height of 8-10'. The trail would be built by hand or with mechanical equipment (e.g., chainsaws, trail building machines).

A 3' wide tread would be maintained when decommissioning the road in the SE¼ of section 3 which would be used for non-motorized recreation use (see Transportation Management, section 2.2.11.2 below).

2.2.9 Visual Resources Management (VRM)

2.2.9.1 Objectives

Eight units are designated as VRM Class II (see Appendix B). BLM objectives for Class II are to retain the existing character of the landscape by managing for low levels of change to the characteristic landscape. Management activities may be seen but should not attract the attention of the casual observer. Changes should repeat the basic elements of form, line, color and texture found in the predominant natural features of the characteristic landscape. The Medford RMP defines characteristic landscape as the established landscape within an area being viewed. This does not necessarily mean a naturalistic character, but could also refer to an agricultural setting, an urban landscape, a primarily natural environment, or a combination of these types.

Class III objectives are to manage lands for moderate levels of change to the characteristic landscape. Management activities may attract attention but should not dominate the view of the casual observer.

Project objectives are to manage for VRM designations and mitigate existing adverse visual impacts where possible.

2.2.9.2 Proposed Action in VRM Class II

Units in this designation include T36S, R5W, Section 5 (unit 002); T36S, R5W, Section 9, (units 001, 002, 004, 005, 006); T36S, R4W, Section 29 (unit 002); T36S, R4W, Section 31 (unit 003).

Design vegetative openings to repeat natural openings in the landscape, including low contrast edges and avoidance of straight lines.

Where the helicopter landing and future trailhead for the Beacon Hill trail is visible from I-5, plant a visual screen of conifers.

Minimize the impact on existing vegetation:

- Use irregular clearing shapes
- Mimic size and shape of existing openings or meadows in the characteristic landscape.
- Feather/thin the edges of cleared areas to reduce strong lines of contrast and to appear more natural. Retain a mix of tree/shrub sizes and species along edges.

Retain most large crowned trees and a variety of tree sizes and shapes to ensure that the resulting visual canopy does not distract from the surrounding landscape.

Rather than evenly spacing, clump or vary overstory tree spacing in structural retention units.

Feather and scallop edges of openings around legacy trees.

Avoid fan shaped yarding corridors.

Space leave trees irregularly in slashbuster treated units.

In fuels reduction units:
- Avoid straight edges when building fire lines.
- Chuck hand piles when burning to avoid left over unburned material.
- Rehabilitate fire lines by pulling in berms, covering with vegetation or water barring when necessary.
- Where possible, tie fire line into existing natural fire breaks.

To improve existing visuals, feather edges along the power line right of way.

Where road construction and/or cut banks on BLM land would be visible from I-5, marking prescriptions should incorporate feathering.

2.2.9.3 Proposed Action in VRM Class III

For road construction on BLM land:
- Marking prescriptions should include feathering when I-5 is visible from treated road profile.
- When multi-layered canopies occur adjacent to the road, leave dominant trees within each canopy layer to aid visual screening.

For road construction on private land:
- Seed and mulch the cut bank in section 34 to blend with the surrounding grassy opening.
- Plant shrubs and/or conifers that belong to the Douglas-fir and pine plant series.

2.2.10 Roads (Alternatives 2 and 3)

2.2.10.1 Objectives

The objective is to minimize permanent road construction, improve road drainage and maintain existing roads at levels consistent with the planned long term use of the roads. Another objective is to provide road systems that are safe for travelers.

2.2.10.2 Proposed Action

Roads treated would be those used to implement the proposed actions. Proposed road construction, maintenance, improvement, renovation or decommissioning is outlined in Appendix D and in Appendix A, Map 2. Construction, improvement, and renovation would be primarily part of the commercial harvest and vegetation treatment actions. For roads unrelated to harvest activities, decommissioning would be prioritized followed by recreation related road work and road maintenance.

The temporary road in the southern portion of section 3 would be constructed and obliterated in the dry season. After obliteration, a 3' tread trail would be maintained for non-motorized recreational access. A berm and sign would restrict motorized use. During construction, removal of trees 12" DBH or greater would be minimized. The road would be replanted after obliteration.

The temporary road in section 4 would be obliterated following use except for the first 200' which would be used to access the planned Beacon Hill trail. The trail would be maintained to a 3' tread for non-motorized recreational use.

Roads 36-4-32 and 37-4-7 would be treated to reduce roadside fuels. Where these roads cross riparian reserves, trees greater than 12" DBH would be retained for shade. To reduce low growing, "flashier" fuel types, dense patches of small conifers and hardwoods would be cut and removed. Vegetation would be cut, not pulled, unless necessary for noxious weed control. Riparian species such as willow, alder, Oregon ash, big leaf maple, vine maple, and dogwood would be favored for retention. Low growing trees or shrubs that hang over perennial streams would not be cut. All leave trees would be pruned to half the tree height or 12', which ever is less, leaving a crown ratio of at least 50%. Trees would be pruned and brush thinned 25' uphill and 50' downhill from the road edge.

In order to increase driver visibility and safety, approximately 42 miles of road would be brushed and pruned. Along approximately 35 miles of road, hazard trees (dead or dying trees) would be cut and left in place. Along approximately 7 miles, hazard trees would be cut and removed (see Appendix D). For driver visibility, pruning would be favored over cutting. Vegetation would not be pulled. Hazard trees in riparian reserves would be felled and left in place as large woody debris. In riparian reserves, overstory trees >12" DBH would be retained for shade. Dense patches of small conifers and hardwoods would be cut and removed. Riparian species such as willow, alder, Oregon ash, big leaf maple, vine maple, and dogwood would be retained unless they obstruct driver site distance. Low growing trees or shrubs that shade perennial streams would be retained as long as they do not obstruct driver site distance. Merchantable products could be removed.

2.2.10.2.1 Access options for T36S, R5W, Section 3

Currently, the BLM does not have legal road access to the portion of the project area that is in T36S, R5W, Section 3. Three road options are proposed that would provide logging access and that would not interfere with RTV buffers. New roads would be constructed to minimum BLM standards and would follow Medford District BMPs.

Alternative/option 1 proposes 0.80 miles of new road construction. The road subgrade would be 14' wide. An existing private road would be used that begins in the SW portion of T35S, R5W Section 26 and proceeds 0.81 miles into section 34. New road construction would cross approximately 0.28 miles of private land and proceed into the northern portion of Section 3 and BLM land. The road would continue for another 0.52 miles to allow access for tractor and cable thinning, and a helicopter log landing near the end of the road. Due to steep slopes, the first 0.32 miles would require full bench road construction with cut banks approximately 18' high. The majority of the remaining road would be located near the ridge top with 30-45% ground slopes. Following harvest activity the road would be gated to discourage vehicular traffic. After all project work is completed the road would be barricaded.

Alternative/option 2 proposes approximately 1.3 miles of new road construction that begins in the NW portion of T35S, R5W, Section 34 and would provide access to Section 3 crossing Josephine County and private land.

Alternative/option 3 would enlarge landings in T35S, R5W, Section 34 and T36S, R5W, Section 2 and construct a new landing in T36S, R5W, Section 3. Access to the new landing in Section 3 would require construction of 500' of temporary spur road of which 250' would be in a riparian reserve. The road and landing would be obliterated after use. The road would start near the stream and would proceed away from the creek and out of the riparian reserve. This temporary spur road would be winterized if it is to be left over a winter. The road would be constructed and obliterated in the dry season. During construction, the number of trees removed ≥ 12" DBH would be minimized. The road would be replanted after obliteration.

Alternative/option 4 would consist of enlarging pre-existing landings to the north and east of Section 3 using existing roads. Both landing sites are on high points along the ridge top. There would be no new road construction.

2.2.11 Transportation Management

2.2.11.1 Objectives

The objective is to provide access for long term management of the land, including future landscape management projects, fuels reduction, fire suppression, and restoration projects.

2.2.11.2 Proposed Action

Due to the area's checkerboard ownership pattern, the BLM is pursing reciprocal agreements and easements which would allow the BLM to use private roads to access BLM land.

Access to T36S, R5W, Section 9 is limited. The BLM does not currently have road access rights into the proposed trailhead in the western portion of T36S, R5W, Section 9 but an agreement with the city of Grants Pass is pending. The northeast portion of Section 9 can only be accessed by foot from Jones Creek County Road. Access to the trailhead would require 0.2 miles of road reconstruction which would entail widening the road to 14' and adding a chip seal surface to minimize erosion, abate dust, and provide suitable traction for recreation vehicles. A 60'x 60' turnaround would be constructed away from the Grants Pass city water tank and would be surfaced with 8" of crushed aggregate. Road drainage would be improved on the existing road beyond the trailhead.

Road access to T36S, R5W, Section 3 is pending an agreement with a landowner in T35S, R5W, Section 34 for the use of an existing private road. If this access is obtained, it would supplement the access options described in section 2.2.10.2.1, above.

2.3 Project Design Features

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

2.3.1 Logging Systems

2.3.1.1 All Systems

All harvested trees would be limbed (≥ 3" diameter limbs) prior to yarding to reduce damage to the residual stand and soil disturbance.

All natural surface landings constructed during the logging operation would be decompacted to a minimum depth of 18", seeded with an erosion control grass and legume mixture or native grass seed, if available, and straw mulched upon completion of harvest activity and before the onset of the rainy season. Landings that would be used in the future would not be decompacted.

Within riparian reserves, trees would be directionally felled to skid roads pre-approved for use. Priority for skid trail selection would be those that have not recovered from previous use and which would benefit from site amelioration/restoration treatments. Site restoration treatments would be applied after yarding has been completed and would include such things as ripping/decompaction, water barring, seeding, tree planting and blocking as needed.

Unstable and potentially unstable areas (areas showing active movement and indications of past movement), would be assessed for the risk of future slides. These areas are riparian reserves (NFP Standards and guidelines pp. C30-C31). In unstable areas, the objective is to maintain or improve root strength. Therefore, in unstable areas (such as slip plains, step benches, recent debris flows or debris slides) vegetative would not be treated. Potentially unstable areas may be treated (understory thinning, hand piling and slash burning) where long term root strength can be maintained or increased.

2.3.1.2 Tractor Yarding

To reduce ground disturbance and soil compaction, yarding tractors would be limited to the smallest size necessary. Tractors would be equipped with integral arches and 75' bull lines to obtain one end log suspension during skidding and would be restricted to approved skid trails. Existing skid trails would be used when possible. Tractors would be restricted to slopes <35% although short pitches >35% may be permissible if necessary. Tractors would not be used when soil moisture content at a 4-6" depth (6-8" in unit 10-1, T36S, R5W, where soils are serpentine influenced), exceeds 25% by weight as determined by a Speedy Moisture Meter.

Skid roads would be water barred in a manner appropriate to the slope and soil type. Main tractor skid trails would be blocked where they intersect haul roads and would be decompacted and water barred shortly after yarding is completed to reduce the erosion potential. Skid roads would be used during the dry season. If a skid road in a riparian reserve is used for more than one season it would be winterized (water barred, covered with debris, etc.). In areas proposed for planting (see Appendix B), ripped skid roads would also be planted. Other areas would be allowed to revegetate naturally.

2.3.1.3 Cable and Helicopter Yarding

In cable units, step landings would not be permitted. Cable corridors would be located away from draws and may be water barred as needed based on the slope and soil type.

All landings, including fill slopes, would be located away from headwalls and draw bottoms and adjacent draw side slopes. Some roads and landings already exist within the riparian reserves. If these roads and landings are stable, they would be reused to minimize additional new road or landing construction. All natural surface landings constructed during the logging operation would be decompacted after use, except landings on rocky ground or those planned for future use. They would be seeded with an erosion control grass and legume mixture or native grass seed. They would be straw mulched or covered with slash upon completion of the harvest activity and before the onset of the rainy season. At a minimum, effective drainage would be ensured on all landings and if erosion risk is high, seeding would help control erosion.

2.3.2 Seasonal Operating Restrictions

The table below outlines the seasonal operating restrictions:

Table 6: Seasonal Operating Restrictions

Location	Restricted Activities	Restricted Dates	Reasons / Comments
Entire project area	All logging and log hauling operations	Oct. 15 to May 15 of following year*	Erosion control. Dates may vary depending on weather, road surface, drainage, and soil moisture.
¼ mile around known spotted owl nest sites or those discovered during project activities.	All timber harvest activities (felling and yarding), road construction, chainsaw operation and prescribed burning	March 1 to June 15 (or later if nesting is in progress)	Dates and restriction dependent on nesting status. (Rogue River/South Coast Biological Assessment, 1998)
Entire sale area – ¼ to 2 mile radius around any raptor nest	All timber harvest activities (felling, yarding, road construction) and chainsaw operation.	Variable depending on the species	BLM Instruction Memo OR-99-036.
¼ mile around the golden eagle nest site	All timber harvest activities (felling and yarding), road construction, chainsaw operation and prescribed burning.	March 1 to July 15 (approximately)	Dates and restrictions depend on nest activity.
All harvest units and road construction ROWs.	Various activities depending on the species	Variable depending on the species	Restrictions only if special status species are located. (BLM Instruction Memo OR-99-036)
Entire project area	Fuel hazard reduction	Variable	Time fuel reduction treatments to reduce conditions that contribute to bark beetle build up in logging slash.

* An additional consideration would be made for continued road use and helicopter logging after rain events from October 15 to May 15 of the following year on some roads. Continued use would require roads that are well drained and have adequate surface stability (such as BST, crushed rock, grid roll rock, or pit run rock). The BLM would monitor road conditions during hauling and road maintenance would be kept current with hauling. The affected area would be closed/blocked and weatherized if weather conditions change and hauling is suspended.

2.3.3 Special Status Plants and Noxious Weeds

Where Survey and Manage component C (*Cypripedium spp.*) species are found in timber harvest units, a no harvest, no ground disturbance variable radius (100-150') protection buffer would be implemented around each site in order to maintain the species at the site.

Where *Cypripedium spp*. occur in young stands, a variable radius no-treatment buffer (50-100') would be used to protect populations.

Potential impacts to Bureau assessment (BAO) species would be analyzed (and management actions implemented) on a site specific basis. Small patches (less than one acre) of *Clarkia heterandra* and *Festuca elmeri* would be protected by variable radius no-treatment buffers (25-50') to protect them from direct effects due to slashing and hand pile burning. Treatments that retain the existing canopy and a mix of understory species would receive smaller buffers than those that result in substantial canopy reduction and/or ground disturbance.

Carex serratodens, *Crumia latifolia*, and *Funaria muhlenbergii* would be protected by 50-100' no-treatment buffers. In riparian areas, they would be protected by riparian no-treatment buffers.

For all plant protection buffers, trees would be directionally felled away from buffer edges.

Prescribed fire ignitions would be designed to avoid buffered sites. Prescribed fire would be allowed to creep into buffered sites.

No slashing or hand pile burning would take place within buffers.

Noxious weeds would be treated using an integrated pest management approach (RMP p. 92).

2.3.4 Wildlife

For special status species within or adjacent to the project area, established protection measures would be implemented (see below).

Buffers - Red tree vole and special status species sites would be buffered in accordance with management recommendations in effect at the time of the decision. Buffer size and strategy would be species and site specific in accordance with the management guidelines in effect when the decision record for this project is signed. Pre-commercial thinning, slashing and prescribed burning may be implemented within the buffers. Trees would be directionally felled away from these buffers.

Meadows/grasslands larger than one acre would be restored to their historic perimeters, then receive a potential site class tree length no-harvest buffer around their perimeters to maintain thermal and hiding cover for big game species.

Wildlife trees, dead and down material and adits - A minimum of three snags/acre >14" DBH would be reserved from cutting and removal in all units, unless they pose a safety hazard. If a reserved snag is incidentally felled in the course of operation it would remain on site. If during layout units are found to be snag deficient, an additional three poorly formed or defective trees per acre would be reserved as green wildlife trees to contribute to the future snag component. If a designated snag or decadent wildlife tree needs to be cut due to worker safety concerns the tree would be left on site and a replacement snag or tree identified.

Snag patches (≥ 6 snags) within 150' of ridge tops would be buffered by one tree length to protect roosting habitat for bats. Activities would be minimized within this buffer; timber harvesting, burning and young stand development may occur as long as snag patches are protected by falling trees away from snag patches and cutting fire lines around snag patches prior to burning.

Mine adits occupied by bats would receive 250' foot no treatment buffers.

All pre-existing down woody material would be retained. The coarse woody debris (CWD) objective for commercial thin units would be to meet an average of approximately half of the linear feet of the standards and guidelines described in the RMP. It is anticipated that these goals would be met post-harvest due to typical slash loadings, breakage, etc.

In stands identified for a structural retention or regeneration harvest, 120 linear feet of CWD would be retained. In units that are determined during layout to be deficient in CWD, trees would be marked to contribute to CWD objectives. These trees would be in addition to the minimal number required for structural retention harvest and would remain standing unless post harvest monitoring (3 years) indicates the site is deficit in CWD at which time the trees could be felled to provide CWD.

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

2.3.5 Fire and Fuels Management

Prescribed burning would be consistent with the Oregon Department of Forestry's Smoke Management Plan and the Department of Environmental Quality's Air Quality and Visibility Protection Program. Additional measures to reduce smoke emissions would include rapid mop-up, burning with lower fuel moisture in the smaller fuels to facilitate quick and complete combustion, burning with higher fuel moisture in the larger fuels to minimize consumption and burn out time, and covering hand piles to permit burning during the rainy season when atmospheric mixing and smoke dispersal are more likely.

All prescribed burn areas with sensitive plant species would be burned under the weather, fuel conditions or season that minimize impacts on plant reproduction and active growth. Areas with rock outcrops or talus where S&M molluscs or salamanders may occur would be buffered from prescribe burning to avoid potential impacts to these animals. Low intensity (winter/spring) under burning could occur 1-5ter mechanical treatment to reduce fuel hazard. Fires would be allowed to back into riparian reserve no-treatment areas, but no ignition would take place within 50' of streams.

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

Fireline construction would be used in broadcast and understory burning and would be built by hand. Water barring on fire trails where slope exceed 10% would control water runoff and limit potential erosion.

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

Mechanical chipping - Disposal of slash near unsurfaced roads, roads designated for decommissioning, operator spurs and landings may include mechanically chipping and spreading wood chips on the road surface and adjacent land. The material would be used to cover disturbed soils to help minimize erosion. A chip depth of 2" or less would allow seedlings to grow through the chip layer. Chip placement would not inhibit ditch and culvert drainage.

Slashbuster - The slashbuster machine would operate on slopes <40% with occasional use on short pitches >40%. Only low ground pressure (<4 psi) machinery equipped with semi-grouser tracks would be used. The shredding head would be mounted on an articulated boom at least 30' long. Slashbuster operations would occur when soil moisture content is <20% at the 6" depth (8-12" depth on serpentine soils). Coarse wood >10" diameter and snags would be protected. Snags felled for safety reasons would be retained and protected on site. No mechanical operations would be conducted (or material deposited) within special status plant or cultural site buffers. The slashbuster would cross intermittent streams at approved crossings and perennials streams only at improved crossings (i.e., a road with a culvert). S&M species buffers where slashbuster use is proposed are shown in the table below. To limit ground disturbance, the slashbuster would operate primarily on top of shredded vegetation.

Slash and fuel reduction treatments in riparian reserves would include the use of a slashbuster machine. The slashbuster would not treat areas within 60' of perennial streams, with the treads stopping at 85'. There would be no slash busting or slashbuster treads within 50' of intermittent streams.

In areas where the slashbuster is precluded from operation (e.g., special status species buffers, areas of excessive slopes, no treatment zone of riparian reserves, etc.), slash/fuel treatments would be accomplished by hand.

Riparian reserve under burning would be conducted when conditions allow for a cool controlled burn in order to reduce potential tree mortality and soil damage. Burning in the no treatment zone would take place only as a backing burn without direct ignition.

In areas where slash accumulation is 6" or deeper over a 200'x 200' area, slash would be spread out to reduce its depth and allow plant germination.

2.3.6 Roads - Construction, Improvement, Decommissioning, Closures

When roads would be used for more than one season, temporary roads or roads slated for decommissioning would be winterized and treated for erosion control (water barred, seeded, mulched, etc.). Temporary blocks would prevent wet season use prior to decommissioning.

2.3.7 Dust Abatement

Dust created from log hauling would be abated as necessary to reduce driving hazards and protect the fine materials that bind the road surface rock thus increasing road longevity. Dust abatement may include the application of water, lignin, or reduced vehicle speed.

2.3.8 Cultural Resources

Cultural resource features would be buffered with no-treatment zones.

Timber would be felled away from cultural resource sites.

No fire line construction or prescribed burning would occur within 20’ of cultural resource buffers.

No hand piling and burning of slash would occur within 20’ of cultural resource buffers.

Site specific protection measures would preserve the integrity of all existing or newly identified cultural sites and would be implemented in consultation with the State of Oregon Historic Preservation Office and BLM cultural resource specialists.

3.0 Environmental Consequences

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

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

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

The Birdseye Jones project is primarily located in the Rogue-Grants Pass 5th field watershed. The watershed is approximately 53,637 acres in size of which 12,539 acres (23%) are administered by the BLM. Approximately 2,880 BLM acres in the watershed will be treated (5% of the watershed). A small portion of it the project area (10 acres) is located in the Jumpoff Joe Creek 5th field watershed (69,699 acres).

The table below summarizes the acreages of some of the proposed treatments based on the more comprehensive information in Appendix B. It provides some of the context for assessing environmental effects of the Birdseye Jones proposals.

Table 7: Proposed Treatment Summary

Proposed Treatment	Alternatives 2 & 3 Acres (% Rogue-Grants Pass watershed)	
Harvest		
Commercial thin/ Modified group select	Alt. 2 1,028 (1.9%)	Alt. 3 876 (1.6%)
Commercial thin from below/ Limited group select	Alt. 2 0	Alt. 3 152 (0.3%)
Structural Retention (SR)	54 (0.1%)	
Subtotal	*1,082 (2.0%)*	
Fuel hazard reduction*		
Harvest related	1,028 (1.9%)	
Non-harvest related	1,778 (3.3%)	
Slashbuster	150 (0.3%)	

Table 7: Proposed Treatment Summary	
Proposed Treatment	**Alternatives 2 & 3 Acres (% Rogue-Grants Pass watershed)**
Riparian reserves*	
Riparian no treatment	183 (0.3%)
Riparian treatment	340 (0.6%)
Snag and down wood in Riparian Reserves	26 (0.05%)
Wildlife habitat	
Meadow restoration	34 (0.06%)
Habitat enhancement/woodland	244 (0.5%)
Subtotal	*278 (0.5%)*
Special Forest Products	2,002
Young stand management	161 (0.3%)
Noxious weed removal	2 species; 4 locations
Recreation trail construction	3 miles
Total BLM treatment acres	***2,890 ac***

*There are no subtotals shown for areas where various treatments overlap.

3.1 Soil and Water

3.1.1 Affected Environment

This proposed project is located in three 6th field watersheds, two in the Rogue-Grants Pass 5th field watershed and one in the Jumpoff Joe Creek 5th field watershed:

1) Rogue-Grants Pass, Upper
2) Rogue-Grants Pass, Lower
3) Louse Creek

More than 92% of the project area is in the Rogue-Grants Pass, Upper watershed.

Generally, the 6th field watersheds are characterized by long, narrow to wide valley bottoms with moderately steep to very steep ridges dissected by tributary streams on two sides in two of the watersheds and on three sides on and Louse Creek watershed. The Rogue-Grants Pass 5th field watershed includes the Rogue River in the lower Valley of the Rogue and the Grants Pass area. This valley bottom, made up of flood plains, stream terraces, and alluvial fans, is relatively wide.

The lowest elevation in the Rogue-Grants Pass 5th field watershed, at the confluence with the Applegate River, is roughly 840'. The highest elevation is 3,999' on Old Baldy. Main streams meander in the valley bottoms with perennial and intermittent tributaries that flow off the ridge slopes. Annual precipitation, in the form of rainfall with some snowfall at higher elevations, averages 28-36".

The dominant soils in the project area are shown in the Soil Conservation Service soil surveys of Josephine and Jackson counties:

Beekman-Colestine (6F, 7F) on steep sloping side slopes and ridge tops; 20 to 40+" deep, well drained, extremely gravelly loam and gravelly loam.

Cornutt-Dubakella (21F) on moderate slopes; 20 to 40+" deep, well drained, cobbly clay loam and very cobbly clay loam with underlying cobbly clay and very cobbly clay. Parent material is serpentine influenced.

Manita (108E Jackson Co.) on moderate slopes; Manita is >40" deep, well drained, loam over clay loam with underlying clay occurring at depth. The underlying clay is moderately slowly permeable.

Vannoy silt loam and Vannoy-Voorhies complex (78F, 79F, 196E -Jackson Co.) on moderate slopes; 20 to 40" deep, well drained, silt loam and gravelly loam over clay loam and gravelly clay loam. These soils have low to moderate forest productivity.

Caris-Offenbacher complex (25G, 26G *Jackson Co.*) on steep slopes; 20 to 40" deep, well drained, gravelly loam over very gravelly clay loam and loam.

Soils of particular concern are the serpentine influenced Cornutt-Dubakella. Dubakella, with its clayey subsoil, is susceptible to disturbance/compaction (due to high seasonal moisture content just above the subsoil that limits bearing capacity) and has limited productivity (low calcium to magnesium ratio). When combined with Cornutt it can be susceptible to mass movement, sliding and slumping though slopes are not steep. Dubakella and Cornutt soils are located in T36S, R5W, Section 10, Unit 1.

The Rogue River from the Applegate River upstream to Evans Creek is currently listed as water quality limited (2002 Oregon Section 303(d) list) due to high summer fecal coliform counts and warm summer temperature (moving 7 day average of daily maximums of >64° F). Savage, Louse and Birdseye creeks are also on the 303(d) list due to warm summer temperature.

3.1.2 Environmental Consequences

3.1.2.1 Short and Long Term Effects

The table below summarizes changes in local hydrologic conditions. They are based on a consideration of all vegetative treatments in Appendices B and D. Other proposed actions would have minimal or no short and long term effects. The ratings indicate short and long term changes that may occur within each 6th field watershed.

Table 8: Effect of Proposed Alternatives on Hydrologic Indicators

6th Field WS	Term	Indicator / Type of Effect	Alt. 1	Alt. 2	Alt. 3
Rogue-Grants Pass Upper	Short (1-5 yrs)	Disturbance / Erosion	0	Min.-	Min.-
		Added Compaction	0	Min.-	Min.-
		Productivity	0	Min.-	Min.-
		Sedimentation from main skid/haul roads & landings	0	Slight-	Slight-
	Long (5-20 yrs)	Disturbance / Erosion	Min.-*	0	0
		Compaction	Min.-*	Min.-	Min.-
		Productivity(Organic Activity)	Min.-*	Min.+	Min.+
		Sedimentation from main skid/haul roads & landings	Min.-*	0	0
Rogue-Grants Pass Lower	Short (1-5 yrs)	Disturbance / Erosion	0	Min.-	Min.-
		Added Compaction	0	0	0
		Productivity(Organic Activity)	0	0	0
		Sedimentation from main skid/haul roads & landings	0	Min.-	Min.-

Table 8: Effect of Proposed Alternatives on Hydrologic Indicators					
6th Field WS	**Term**	**Indicator / Type of Effect**	**Alt. 1**	**Alt. 2**	**Alt. 3**
	Long 5-20 yrs)	Disturbance / Erosion	Min.-*	0	0
		Compaction	Min.-*	0	0
		Productivity (Organic Activity)	Min.-*	0	0
		Sedimentation from main skid/haul roads & landings	Min.-*	0	0
- Louse Creek* (part of Jumpoff Joe Creek 5th Field WS) - Fielder Creek* (Lower Evans creek - Birdseye Creek* (Rogue-Birdseye/Ward watershed	Short (1-5 yrs)	Disturbance / Erosion	0	0	0
		Compaction	0	0	0
		Productivity (Organic Activity)	0	0	0
		Sedimentation from main skid/haul roads & landings	0	Min.-	Min.-
	Long (5-20 yrs)	Disturbance / Erosion	0***	0	0
		Compaction	0***	0	0
		Productivity (Organic Activity)	0***	0	0
		Sedimentation from main skid/haul roads & landings	0***	0	0

Ratings: (-) = negative effect; (+) = positive effect; (0) = neutral effect
Min. = minimal or very little effect, limited to few sites;
Slight = little effect distributed over most of affected area or high on local site;
Moderate = moderate effect distributed over most of affected area;
* Assumes high fire hazard and risk for no action on BLM land.
** Assumes existing skid roads designated then decompacted.
*** Assumes Granite Horse will be completed in planned time frame.
* 6th Field watersheds outside the project area but with haul roads passing through them.

In the above table, sedimentation includes the addition of sediment from gravel deterioration on haul roads caused by log trucks and other equipment. Some of the sediment may reach stream channels though most of it would likely be trapped before reaching stream channels. Disturbance/erosion, compaction, and productivity sections are based on planned vegetation treatments.

Beacon Hill trail building would have only short term localized minimal erosion and sedimentation. This is due in large part to its ridge top location, narrow width and limitation to non-motorized use.

Of the proposed early seral stand treatments, effects, including ground disturbance, would be none to minimal. The majority of treatment in young stands would be by hand labor.
The proposed vegetation treatment alternatives should have no effect on summer stream temperatures given that existing shade would be retained over all streams: fish bearing, perennial, and intermittent.

The impacts of the different Section 3 access road options are as follows:

Alternative / option 1
Permanent new road construction (0.8 miles) would occur at and near the top of the ridge and would, therefore, avoid hydrologically sensitive areas. A helicopter landing would be placed at the end of the road outside the riparian reserve. Effects of the road would be minimal due to the distance between the road and any surface water and that any surface runoff from the road would likely infiltrate the ground before reaching a stream. However, this road would contribute indiscernibly to the watershed's road density.

Alternative / option 2
This is similar to Option 1 but with more new road construction in lieu of improvement of an existing road. Approximately 1.3 miles of new road construction would begin in section 34 and continue into section 3. The road would not enter riparian reserves. Road density would increase slightly over that in Option 1.

***Proposed Mitigating Measure #1*:** To prevent OHV use in Section 3 via the upper road (new construction for road options 1 and 2), close the road to OHVs. In addition, place a gate on the steep side slope and boulders and slash along the road to discourage OHV use.

Alternative / option 3
There would be no addition to road density with this option; however, it would require building a 0.1 mile long temporary road, 0.07 miles of which would go through a riparian reserve. The road would parallel Kirkers Creek, approximately 60-70' from the channel. A helicopter landing would be built on a foot slope/alluvial fan near an ephemeral stream but outside the riparian reserve. Two existing helicopter landings outside riparian reserves in section 34 and 2 would be enlarged. The road, though temporary, would result in lost vegetation (including trees) and soil disturbance within the riparian reserve. The helicopter landing would be small, offering minimal space for helicopter logging operations while at the same time causing considerable localized changes in surface and shallow groundwater hydrology due to high cut banks on the upslope side of the landing.

Alternative / option 4
Helicopter landings would use enlarged, pre-existing landings located to the north and east of section 3 (in sections 34 and 2) using existing roads. Both landing sites would be on high points along the ridge top. There would be no new road construction and no discernible impacts.

3.1.2.2 Cumulative Effects

Four indicators are used to quantify cumulative hydrologic effects and are discussed below.

Extent of Early Seral Vegetation is estimated to be moderate now and after the proposed treatments. The hydrologic response to high amounts of early seral vegetation is increased stream yield due to reduction of evapotranspiration rates.

Compaction currently ranges from moderate (6-12%) to high (>12%). The hydrologic response to high compaction is increased surface flows due to decreased infiltration. Compaction also affects productivity; as subsoil density increases, root growth slows. This project would result in very slight additional compaction. No additional compaction would occur where existing compaction is high.

Transient Snow Zone (TSZ) Openings. The TSZ is the elevational band (3,000-4,500' above sea level) that is most susceptible to rain-on-snow events. Approximately 139 acres would be treated within the TSZ. The hydrologic response in TSZ openings is higher peak flows due to direct input of runoff from rain and melting snow. Given that the TSZ constitutes <5% of the watershed in which it occurs in this project (Rogue-Grants Pass Upper), t he amount of TSZ that would be impacted is negligible and there would be no discernible impact to erosion and sedimentation rates.

Road Density. High road density (4+ mi/mi^2) correlates to increased mid peak stream flows and slightly reduced low stream flows due to interruption of shallow ground water and routing of flow off roads to streams via the natural drainage system.

The Rogue-Grants Pass 5th field watershed has been impacted by high levels of urban, suburban, and rural development. The scale of effects of these development activities are orders of magnitude greater

than the potential effects resulting from this project. These effects include high levels of 100% runoff surfaces (roofs and paved surfaces), drainage systems that concentrate and route surface flow, manipulated surfaces (cuts and fills) that change the natural surface and subsurface drainage, high solar exposure to water surfaces, and irrigation withdrawal. The scale of these pre-existing impacts is orders of magnitude greater than any effects that would result from this project and it appears that this condition will continue through the foreseeable future. At the smaller 6th field watershed level, these effects are currently moderate for the Rogue-Grants Pass Upper watershed and the project would contribute not at all or very little to the road density in this watershed. In the Rogue-Grants Pass Lower watershed, road density is currently high. However, this project would not contribute to road density in the watershed.

Table 9 summarizes the cumulative effects for the four indicators of watershed hydrologic condition. This project would contribute negligible additional effects on water quality or quantity at the 6th or 5th field watershed level and would not impact summer temperatures (stream shade would not be reduced) or summer fecal coliform counts on the 303(d) water quality limited streams (Rogue River, Louse, Birdseye and Savage creeks).

Table 9: Comparison of Four Indicators of Watershed Condition

6th Field WS	Early Seral %	Compaction %	TSZ Openings %	Road Density (mi/mi2)	Comments
Rogue G.P Upper %Additional (Alt 2 or 3)	Mod. 0.4	Mod. 0.03	Low 0.7	High (5.9) Opt. 1: .025 Opt. 2: .041 Opt. 3: 0.0 Opt. 4: 0.0	59% Non-BLM land
Rogue G.P. Lower %Additional (Alt 2 or 3)	Mod. 0	High 0	Low 0	High 0	89% Non-BLM land, I-5 and dense rural development account for high road density

3.2 Vegetation

3.2.1 Affected Environment

The historical natural disturbance pattern created by wildfires has been affected by fire suppression. In the absence of fire, species composition has shifted from pine and oak to Douglas-fir dominated stands. Stand densities of trees and shrubs have increased to levels that slow seral stage progression. High density and closed canopy conditions are far more extensive than in the past.

Dense stands of pole-size Douglas-fir are crowding out less shade tolerant species such as ponderosa pine, sugar pine and oaks. Stands consisting of dense poles or small diameter trees are more vulnerable to stand replacement wildfire.

Past forest management, particularly on non-federal lands, in the watershed have tended to simplify forest structures and alter the mix of seral and age class distributions. Ponderosa and sugar pine, California black oak and Pacific madrone are important mid-seral components of the forests that historically developed in the more open canopy conditions that existed prior to fire suppression.

In previously thinned stands (T36S, R5W, Sections 28, 29, 31, and 32) recent conifer mortality has resulted from drought stress and subsequent insect infestation. Additional pulses of conifer mortality are expected over the next several years. The scale of mortality could quickly increase, particularly in these low elevation locations.

3.2.2 Environmental Consequences

3.2.2.1 Alternative 1: No Action

3.2.2.1.1 Short and Long Term Effects

Reduced tree crown ratios and slow stand growth would continue. If the current condition and vegetation trends continue, many high density mid-seral stands would remain in the lower range of merchantability and would provide lower quality habitat for many wildlife and botanical species. Without disturbance, slow diameter growth would prolong the time until the densely growing small diameter trees attain large or merchantable diameters. These stands are dense enough to restrict the structure development and differentiation that are necessary to provide high quality late-successional forest habitat or merchantable trees. High mortality in trees with diameters <6" DBH would continue. Forest stands with high stem counts and small diameters would not reach commercial size (8" DBH) even with twenty additional years of growth. The area would remain a high hazard for stand replacing fire, which could cause existing mid and mature seral stages to revert back to early seral stages if fire intensity is high.

The area would be vulnerable to repeated stand replacement fires whenever fire hazard rebuilds. There would be a continued loss of large hardwoods and pine species due to competition. Crown size and height-diameter ratios in many stands in the project area are currently approaching a point that would render them incapable of a thinning growth response sufficient to maintain healthy, vigorous trees and stands. As a consequence, opportunities for effective stand treatments to maintain health and vigor may diminish rapidly if stands are left untreated over the next 5-10 years.

3.2.2.2 Alternative 2: Proposed Action

3.2.2.2.1 Short and Long Term Effects

The structural retention treatment would regenerate new stands beneath the older, slower growing, large trees and would result in more stands with productive under stories.

Thinning treatments would develop more multi-canopy structure than if left untreated. Canopy closure will average 40% over the harvested area. The proposed action would cause the necessary disturbance to provide growing space for additional canopy layers to form as a result of variable spacing and species selection criteria. Growth rates which are currently slowing would increase. Tree vigor and resiliency to insect and disease attack would be improved as competition is decreased. There would be an increased commodity potential on treated lands.

Brushing, pre-commercial thinning, and thinning in young natural stands would concentrate moisture, light and growing space on fewer trees. Release and thinning treatments would advance small diameter conifers more quickly to pole or larger sizes than in an untreated stand.

Immediately following treatment, approximately 83 acres would convert from a mature to an early seral stage. Approximately 62 acres would change from a mature to a mid-seral stage.

The reduction of stand densities, with associated fuel treatments, across the landscape would lower the probability of a stand replacement fire. Future commodity potential would be enhanced. In commercial thin and group selection units, mature forest characteristics would be retained or encouraged through multiple canopy layers, species diversity, multiple age classes and stand connectivity.

3.2.2.3 Alternative 3: Proposed Action

3.2.2.3.1 Short and Long Term Effects

Effects would be similar to Alternative 2 with the exception of effects on harvest acres specific to Alternative 3. In these stands, with a target canopy closure of 60%, individual tree growth would not be maximized.

Compared to Alternative 2, there are fewer choices for tree selection that would improve the growth of residual trees. Areas that do not currently meet 60% canopy levels would not be thinned. There would be fewer opportunities to improve pine stands that are being encroached upon by Douglas-fir. Based on field observations of stand conditions (stand exams and modeling) from Bloody Jones (FY99) comparing before and after canopy closure, stand density and snag levels, many aspects of late successional habitat can be met after harvest.

Alternative 3 focuses more harvest on the understory and less on the overstory. The result would be a more pronounced mosaic pattern where small openings would occur more frequently due to removal of a higher percentage of smaller diameter trees. Alternative 3 would result in a slightly broader range of stand densities compared to Alternative 2, from free-to-grow conditions to those favorable for snag and large woody debris formation in larger tree size classes.

3.3 Fisheries / Aquatic

3.3.1 Affected Environment

The Rogue River and Jones, Savage, and Little Savage Creeks are the main project area streams. Road work would be in the Louse Creek, Lower Evans and Rogue-Birdseye/Ward 6th field watersheds. Main streams near the proposed actions are Louse, Fielder and Birdseye Creeks. In the table below, fish occurrence is shown as distance in miles from the mouth of the creek.

Table 10: Fish Species Occurrence

Stream	Chinook	Coho	Summer Steelhead	Cutthroat	Pacific Lamprey
Rogue River	Present (fall and spring)	Present	Present (summer and winter)	Present	Present
Jones Creek	--	0.5	1.0	1.3	1.0
East Fork Jones Creek (Right Fork)	--	--	0.2	0.2	0.2
West Fork Jones Creek	--	--	--	1.3	--

Table 10: Fish Species Occurrence					
Stream	**Chinook**	**Coho**	**Summer Steelhead**	**Cutthroat**	**Pacific Lamprey**
Kirkers Creek (East Fork Jones Cr. trib.)	--	--	--	0.2	--
East Fork Jones Creek unnamed trib., Sec. 11	--	--	--	0.2	--
Savage Creek	--	1.0	1.5	2.5	1.5
Cold Springs Creek (Savage Ck. trib., Sec 31)	--	--	0.1	--	0.1
Birdseye Creek	--	0.25	3.25	4.4	--
Fielders Creek	--	--	1.3	1.3	1.3
Left Fork Fielders Creek	--	--	--	1.2	--
Louse Creek	--	5.5	9.0 winter, 9.0 summer	12.0	9.0
North Fork Louse Creek	--	--	--	2.5	--

Also found in the project area are Umpqua squawfish, Klamath smallscale sucker, brown bullhead, several sunfish species, carp, yellow perch, black crappie, large and smallmouth bass, golden shiner, western brook lamprey, speckled dace, redside shiner, and white sturgeon. In addition, there are perennial and intermittent non-fish bearing streams tributary to the Rogue River, Jones Creek, Savage Creek, Birdseye Creek, Fielders Creek, and their tributaries.

Coho salmon are federally listed as threatened under the Endangered Species Act. Steelhead were determined not warranted for listing in April 2001.

According to the Oregon Department of Fish and Wildlife (ODFW), large woody debris, pool depth and frequency, water flow and temperature, and riparian conditions limit salmon and trout production and survival in the project area.

Salmon production and survival in Jones Creek are limited. Jones Creek has an average gradient of 3% and gravel as the dominant substrate. Coarse woody debris in the riparian reserve and large woody debris in the stream channel are below ODFW benchmarks in most of the project area. Instream and riparian habitat complexity in Jones Creek is limited. An irrigation canal crosses just downstream from the confluence of West Fork Jones Creek and East Fork Jones Creek.

Savage Creek is limited in salmon production and survival due to limited instream complexity, low CWD content, lack of deep pools, high embeddedness, high silt content and lack of adequate shade. Spawning gravels are 75% embedded and 75 % of the spawning gravels contain sand and silt. This exceeds the maximum baseline conditions for adequate spawning of 25-30% embeddedness and 15% sand/silt.

Little Savage Creek is perennial, but does not support salmonids. The upper reaches are cobble dominated, with a low amount of CWD.

The following streams are 303(d) listed by the Oregon Department of Environmental Quality for exceeding the 17.8°C rearing criteria: Louse Creek, Birdseye Creek, Savage Creek and the Rogue River. Louse Creek is also listed for exceeding the 12.8°C spawning criteria.

3.3.2 Environmental Consequences

3.3.2.1 Alternative 1: No Action

3.3.2.1.1 Short Term (<10 years)

Road sourced sedimentation in the project area will continue at current levels. Currently, sedimentation within the project area is primarily due to the lack of riparian vegetation on private land, channelization and consequent stream bank erosion.

Current vegetation trends would continue and in the short term there would be little change in fisheries conditions. While riparian reserve seral stages would continue to advance, the size and amount of wood added to the stream would negligibly increase in the short term. Old logging roads and trails in the riparian areas which are compacted and not yet revegetated would remain in an unrecovered state. Roads such as these would continue to alter drainage patterns and could route sediment into streams. If these roads are located near streams, a lack of vegetation would decrease shade and future large woody recruitment to the stream. Salmonid production and survival would continue to be limited by low levels of large woody material, the associated low stream complexity, sedimentation, and high summer water temperatures which are limiting factors listed in the Watershed Analysis.

3.3.2.1.2 Long Term (10+ years)

Road sourced sedimentation impacts would be the same as for short term impacts.

As seral stages in riparian reserve continue to advance, the size and amount of wood added to the stream would increase in the long term (50-100+ years). This would result in increased pool frequency and depth, improved stream complexity, and improved rearing habitat quality. Canopy cover and stream shade would also increase. Riparian logging roads and trails within intact stands would begin to decompact and revegetate, thus reducing runoff and erosion. This in turn would contribute to increased salmonid production and survival by improving riparian structure, decreasing summer water temperatures and increasing stream habitat complexity. The cumulative benefit would be slight at the 6th and 5th field watershed scales due to differences in private land ownership objectives and management practices.

The slow long range recovery scenario presented above would be altered in the event of a stand replacing fire, where streams flow through high hazard areas. The riparian reserve would probably experience a severe burn in at least some areas over the long term

3.3.2.2 Alternatives 2 and 3: Proposed Action

3.3.2.2.1 Short Term (< 10 years)

3.3.2.2.1.1 Roads and Landings

The following discussion of effects refers to access options for section 3 and their impacts on Louse and Jones Creeks.

Alternative/option 1 - This portion of new road construction would occur in the Jones Creek drainage. New road construction to access section 3 would not enter riparian reserves. No adverse effects to fish or fish habitat would occur in Jones Creek as a result of this road construction due to the distance from fish or fish habitat and the lack of stream crossings.

Alternative/option 2 - This portion of new road construction would occur within the Jones and Louse Creek drainages. New road construction to access section 3 would not enter riparian reserves. No adverse effects to fish or fish habitat would occur in either creek as a result of this road construction due to the distance from fish or fish habitat and the lack of stream crossings.

Alternative/option 3 - A portion (0.07 miles) of a temporary spur road would be in riparian reserves adjacent to Kirkers Creek, which flows into East Fork Jones Creek. The portion of Kirkers Creek adjacent to the proposed road is a perennial non-fish bearing stream. Cutthroat use the lower 0.15 mile of Kirkers Creek which is approximately 0.7 miles downstream of the proposed road. New road construction in the riparian reserve would likely remove stream shade and cause soil disturbance. These localized effects would be unlikely to impact fish or downstream fish habitat in Kirkers Creek or East Fork Jones Creek.

Alternative/option 4 - No permanent or temporary roads to access section 3 would be constructed. This option would not impact fish or fish habitat in Jones or Louse Creeks.

Short term beneficial effects from road maintenance and renovation would help maintain salmonid survival and production through reduced sediment, improved road conditions during peak flows, and improved drainage. Sedimentation and erosion were listed as limiting factors to salmonid production in the Grants Pass Watershed Analysis. Savage Creek has levels of embeddedness outside of ODFW's desired habitat benchmarks. Road renovations would improve hydrologic function through outsloping, blading, water dipping, installing culverts, spot rocking, etc. Skid trails would be restricted to existing trails. Following use, the skid trails within riparian reserves would be water barred, closed, or mulched with native seed, reducing water concentration and routing. The use and subsequent decommissioning of pre-existing but unrecovered skid roads in riparian reserves would provide short term benefit for aquatic resources by reducing sediment delivery and re-establishing canopy cover on riparian roads.

Minimal, short term sediment pulses may occur from road maintenance and renovation, but are not likely to affect fish or their habitat due to project design features, District BMPs and the distance downstream to fish presence or habitat. The amount of sedimentation would be too small to exacerbate stream embeddedness, increased fines, or turbidity. Road work would have negligible effects to salmonid migration, spawning, egg incubation, rearing, and feeding. Sediment delivery associated with road maintenance and renovation would not overly degrade or modify fish habitat.

The proposed temporary spur roads would be short. Along with the helicopter landings, the spur roads would be on stable ridge tops and mid slopes and would not affect floodplain connectivity or salmonid habitat. Spur road construction and decommissioning would have negligible effects on riparian habitats, stream habitats, and hydrologic function at the 6th field level. Due to its short term nature and minimal quantities, sedimentation from spur road construction and decommissioning would not degrade or modify salmonid habitat. Road activities would be unlikely to negatively affect salmonid migration, spawning, egg incubation, rearing or feeding. Road maintenance would reduce the amount of sediment reaching fish bearing streams.

3.3.2.2.1.2 Vegetation Treatments

There are approximately 523 acres in riparian reserves in the BLM portion of the project area. Of that total, 183 acres are within no-treatment zones. Snag and down woody debris treatments would occur on approximately 26 acres (see Appendix C for specific riparian reserve treatments and project design features).

Prescribed Fire/Fuel Hazard Reduction
Intermittent and perennial streams (non-fish bearing) are adjacent to fuels treatment areas. Fuels treatment would not occur adjacent to fish bearing streams. Mechanical treatments and prescribed burning within riparian reserves would be restricted to areas outside of no-treatment zones (see Appendix C for specific riparian reserve treatments and no treatment widths).

Small woody material would be consumed during prescribed burning but coarse woody material would more likely be left intact. During riparian under burns, higher fuel moisture and relative humidity would slow fire movement, reducing the risk of large tree mortality and consumption of snags and large down wood, thus preserving shade and future large wood recruitment. Water-borne sediment and ash be unlikely to reach fish bearing streams due to distance from fish or fish bearing habitat and due to unburned vegetation strips in the no-treatment zones. The timing and duration of any sediment transport resulting from these burns would coincide with high winter flows and would not be likely to affect fish or their habitat.

Slashbuster
Approximately 150 acres may be treated for fuel hazard reduction using a slashbuster. While the slashbuster would operate adjacent to intermittent streams, it would not occur adjacent to perennial or fish bearing streams.
Stream bank stability would be maintained by restricting slashbuster treads from entering the stream channel. See the Soils and Water effects section for a discussion of compaction and erosion resulting from slashbuster activities.

A minimal number of stream crossings would be established where the channel is naturally armored and banks are low to minimize erosion and bank instability.

Overall, slashbuster and subsequent under burning effects would be localized, immeasurable, negligible, and of short duration.

Young Stand/Forest Development Treatments
There are no proposed young stand treatments adjacent to fish bearing streams (see Appendix C for specific buffers and PDFs for young stand treatments). See section below (Effects of Vegetation Treatment) for a discussion on the effects of young stand treatments to fish habitat.

Riparian Reserve Treatments
Vegetation prescriptions within the riparian reserve were developed to meet objectives for ecosystem function as outlined in the Aquatic Conservation Strategy of the NFP. Riparian reserve treatments would occur in units adjacent to perennial and intermittent streams but not adjacent to fish bearing streams. PDFs would minimize potential effects from vegetation treatments in the riparian reserve to fish and aquatic habitat (see Appendix C for specific riparian reserve treatments and PDFs).

Riparian reserve treatments (outside the no treatment buffers) would include girdling to create snags and falling trees for down wood. These treatments would not occur adjacent to fish bearing streams. Shade would not be decreased due to the presence of the no treatment area. Project design features help ensure that there are no potential adverse effects.

Effects of Vegetation Treatment

Potential effects to streams from vegetation treatments in and outside of the riparian reserve are anticipated to be highly localized, immeasurable, negligible, and of short duration at the project level (6th and 7th field scales) and 5th field scale. Effects to fish or fish habitat from vegetation treatments would be negligible for either action alternative. See Soils and Water section for a discussion on erosion, sediment delivery to streams and temperature changes.

Given that no vegetation treatments would occur adjacent to fish bearing streams, it is anticipated that the project's beneficial effects would help maintain salmon production and survival. The effects to fish or fish habitat due to sedimentation or disturbance are expected to be inconsequential due to PDFs. In addition, the distance of fish or fish habitat from vegetation treatments would further reduce the likelihood of sediment impacts.

The proposed actions would be highly unlikely to disrupt normal fish behavior patterns such as migration spawning, egg incubation, rearing and feeding.

3.3.2.2.2 Long Term (> 10 years)

3.3.2.2.2.1 Roads

Long term beneficial effects from road maintenance, renovation or decommissioning would likely help maintain salmon survival and production. During road renovation, cross drain culverts may be replaced and sized according to 100-year flood criteria. Decommissioning roads would increase infiltration and decrease overland flows and, in riparian reserves, allow the riparian vegetation to reestablish. Road decommissioning would not affect floodplain connectivity because riparian reserves would be maintained and stream channels would not be altered. Long term beneficial effects from road activities include sediment reduction, improved road conditions for peak runoff flows, and improved drainage. Reduced sediment delivery would aid egg and juvenile fish survival because the risk of egg suffocation would be lower. The risk of direct or latent mortality to juvenile fish from sediment delivery is decreased when compared to the no action alternative. The use and subsequent decommissioning of pre-existing but unrecovered skid roads and landings in the riparian reserve would provide a long term benefit for aquatic resources by reducing sediment delivery and reestablishing canopy cover on roads in riparian reserves.

No long term adverse affects to fish are anticipated as a result of roads. The new road construction in Section 3 would be obliterated and planted after use. The proposed road work in other areas would have short term, negligible effects only on water quality (temperature, sediment), channel condition and dynamics (floodplain conductivity, stream bank condition), flow/hydrology (peak/base flows, drainage network increase), or watershed condition (road density and location, riparian reserve function).

3.3.2.2.2.2 Vegetation Treatments

Potential adverse effects would be localized, negligible, and of short duration at the project level (6th and 7th field scales) and 5th field scale. The proposed vegetation treatments in the riparian reserves would accelerate the development of late-successional or old growth forest conditions resulting in greater structural diversity, canopy coverage, large woody debris recruitment and improved stream complexity and water quality. Snag and down wood treatments in the riparian reserves would contribute to future large wood recruitment and provide immediate down woody material. The lack of large woody debris in the streams, listed in the Grants Pass Watershed Analysis as a limiting factor to salmonid production, would improve over time. These treatments would have no long term adverse effects due to PDFs. Salmon production would likely increase as improved channel functions result in improved downstream fish habitat. Furthermore, sediment reduction in spawning gravels and improved water quality would increase egg survival and improved rearing habitat due to lower summer water temperatures would increase juvenile survival. Long term beneficial effects would maintain or improve salmon production and survival.

3.3.2.2.3 Cumulative Effects

3.3.2.2.3.1 Roads

Cumulative adverse effects from these proposed actions are not anticipated. Production and survival of salmonids would be maintained at current levels. The Grants Pass watershed's high road density and its negative effects on fish and fish habitat would remain at current levels.

Short term sediment inputs from road maintenance and renovation should not result in cumulative impacts due to project timing, duration and the widely dispersed nature of potential sediment sources.

3.3.2.2.3.2 Vegetation Treatments

Adverse cumulative effects would be minimal due PDFs that will prevent sediment delivery and disturbance. In fact, the proposed actions would, at a local level, help repair some of the salmon habitat degradation (poor riparian structure, inadequate large woody debris, elevated summer water temperatures, sedimentation, etc.) that has occurred in the Rogue-Grants Pass watershed.

3.4 Botany

3.4.1 Affected Environment

BLM special status species are those designated Federally Endangered or Threatened under the ESA, Survey and Manage (S&M) under the NFP, Bureau Sensitive Oregon (BSO), Bureau Assessment Oregon (BAO), Bureau Tracking Oregon (BTO) and Medford Watch (MW). Bureau Tracking Oregon (BTO) and Medford Watch (MW) are species on which information is collected when found, but protection measures are not required.

3.4.1.1 Special Status Vascular Plants

Special status vascular plant surveys were conducted between spring 2001 and spring 2004.
The project area is within the range of the federally endangered plants *Fritillaria gentneri* (FRGE) and

Lomatium cookii (LOCO). FRGE occurs in white oak woodlands, mixed evergreen forests and mixed white oak/rosaceous shrub chaparral. Although suitable habitat exists within the project area for FRGE, no plants have been located. LOCO grows in vernally wet meadows in the Illinois Valley and the Agate desert near Medford. No LOCO (or suitable habitat) was found during surveys.

Table 11: Special Status Vascular Plant Species in the Project Area

Species	Status	Project Area Occurrences	Known Occurrences / Estimated # of Plants on Medford BLM*
Allium bolanderi var *mirabile*	BTO	1	78 / >158,000
Carex serratodens	BAO	2	27 / 6300
Clarkia heterandra	BAO	9	78 / >150,000
Cypripedium fasciculatum	BSO, S&M: C	6	543 / 5600
Cypripedium montanum	BTO, S&M: C	15	168 / 1900
Festuca elmeri	BAO	10	55 / >74,000
Mimulus douglasii	BTO	1	60 / >39,000
Mimulus kelloggii	BTO	2	19 / >15,000
Smilax californica	BTO	1	17 / >1,600

*Medford District Rare Plant Database

Carex serratodens occurs in moist meadows and rocky places near streams and seepages and is frequently on serpentine soils at elevations below 6,000' from SW Oregon to the Sierra Nevada and California Coast ranges.

Clarkia heterandra occurs in dry, shaded sites in mixed woodlands and chaparral communities at 1,500-5,000' from SW Oregon to the Sierra Nevada and Coast ranges. In the project area, it occurs in mixed Douglas-fir / Black oak woodlands.

Cypripedium fasciculatum occurs primarily on moist, northerly aspects at mid-elevations in a variety of mixed evergreen forests – in the Grants Pass Resource Area, typically Douglas-fir with a hardwood component and 60-100% canopy closure. *C. fasciculatum* ranges from central Washington to northern California with some scattered populations in the Rocky Mountains. The species sparsely covers this range and is currently considered threatened or sensitive in most states.

Cypripedium montanum occurs in habitat similar to *C. fasciculatum* yet seems to tolerate slightly drier conditions. Its range is roughly the same but extends into Alaska.

Festuca elmeri occurs under a filtered canopy of oak woodland/mixed evergreen forest from the Klamath Mountains to California's central Coast Range. In the project area it occurs in white oak woodlands.

Allium bolanderi var. *mirabile*, *Mimulus douglasii*, *Mimulus kelloggii* and *Smilax californica* are Bureau Tracking species and do not require protection.

3.4.1.2 Special Status Non-Vascular Plants

The project area was surveyed for special status non-vascular plant species between spring 2001 and winter 2003.

Table 12: Special Status Non-Vascular Plant Species in the Project Area			
Species	**Status**	**Occurrences (Project Area)**	**Occurrences (Medford BLM)**
Crumia latifolia	BAO	18	101
Fabronia pusilla	BTO	4	58
Funaria muhlenbergii	BAO	7	32
Hedwigia detonsa	MW	7	16
Hedwigia stellata	BTO	2	31

Crumia latifolia occurs in a variety of forest types on wet rocks and cliff faces (usually) of calcareous origin from coastal and interior British Columbia to California and Nevada.

Funaria muhlenbergii forms small tufts on seasonally wet to dry exposed soil, often among rocks or on cliff ledges in open areas somewhat free of competition from other vegetation. Its status is Bureau Assessment Oregon.

Fabronia pusilla, Hedwigia detonsa and *Hedwigia stellata* are Bureau Tracking or Medford Watch species and do not require protection.

3.4.1.3 Noxious Weeds

The project area has been surveyed for noxious weeds. Approximately 5 acres (<1%) in the project area are currently known to be infested with noxious weeds.

Table 13: Noxious Weeds			
Location	**Species**	**Status***	**Occurrences**
T36S, R5W, Sec.9(004)	*Centaurea solstitialis*	T	1
T36S, R5W, Sec.9 (004,006)	*Cytisus scoparius*	B	1
T36S, R4W, Sec.29(012)	*Cytisus scoparius*	B	3
T37S, R4W, Sec.7(014)	*Cytisus scoparius*	B	1

* "T" – a priority noxious weed targeted by the State Weed Board for development and implementation of a statewide management plan.
* "B" – a regionally abundant weed with economic impact. It may have limited distribution in some counties.

3.4.2 Environmental Consequences

3.4.2.1 Alternative 1: No Action

There would be no direct effect on the continued persistence of any special status plant species in the project area. Canopy cover and cool, moist microsites would be maintained in the short term. Indirect effects include the increased risk of moderate to high intensity wildfire as fuels accumulate. In the absence of fire or other disturbance, plant succession results in reduced available light, effective precipitation, nutrient availability and space. Increased tree mortality due to overstocking, competition and disease could adversely affect *Cypripedium spp.*, *Crumia latifolia* and *Funaria muhlenbergii* through the short term loss of canopy cover and cool, moist microsite conditions to which these species are adapted.

At least two noxious weed species occupy open disturbed sites in the project area. These populations could continue to expand.

3.4.2.2 Alternatives 2 and 3

3.4.2.2.1 Recreation Trail Management

There are no known special status plant sites along the proposed Beacon Hill trail. Therefore, the trail would not impact special status plants. Since dispersal vectors for noxious weeds include humans and animals, the risk of infestation along the trail would increase. Treating the population of scotch broom near the proposed trail in T36S, R5W, Section 9, SW ¼ should control, and possibly eradicate, the infestation.

3.4.2.2.2 Riparian Treatments

No-treatment buffers (see PDFs) would protect special status plants (*Carex serratodens, Crumia latifolia*, *Funaria muhlenbergii*) in riparian reserves.

3.4.2.2.3 Special Forest Products and Young Stand Treatments/Forest Development

All known special status species sites occurring in these stands (two sites with *Cypripedium fasciculatum* and one with *Crumia latifolia*) would be protected by variable width buffers which would prevent trending of special status species towards listing (see PDFs).

3.4.2.2.4 Stand Harvest Treatments in the Older Seral Stages

3.4.2.2.4.1 Alternatives 2 and 3

The eight known occurrences of *Cypripedium montanum* and two of *C. fasciculatum* would be protected by no-treatments buffers, thus preventing trending of these species towards listing.

Five populations of *Clarkia heterandra* and three of *Festuca elmeri* occur in areas proposed for harvest. Population centers in large patches and peripheral patches would be protected by buffers. Allowing adjacent harvest/fuel treatments should enhance habitat suitability by reducing competition and risk of high intensity fire. PDF buffers would prevent trending of these species towards listing.

3.4.2.2.4.2 Alternative 2

Reducing canopy closure in harvest units to 25-40% would reduce *Cypripedium spp.* habitat quality outside the buffered population areas in the short term. Opening the canopy to <40% would reduce the extent of moist microsites which would have a short term detrimental effect on potential habitat for *Cypripedium spp.* It is expected that successional processes and the release of leave trees would increase canopy cover and improve habitat for *Cypripedium spp*. in approximately 5-10 years.

3.4.2.2.4.3 Alternative 3

Compared to Alternative 2, this alternative would reduce the effects of canopy openings on 406 acres. Canopy closure of 40-60% and more complex forest structure would be retained leading to increased

moisture retention and cooler temperatures. Therefore, the quality of *Cypripedium* habitat would be greater, specifically T36S, R4W, Section 32 (units 005 and 006) and T36S, R5W, Section 3 (unit 002).

3.4.2.2.5 Fuel Hazard Reduction Treatments

Fuels units harbor many special status sites: two *Cypripedium fasciculatum*, seven *C. montanum*, five *Clarkia heterandra*, eight *Fesuca elmeri*, 15 *Crumia latifolia* and seven *Funaria muhlenbergii* sites. All four known occurrences of noxious weeds (one *Centaurea solstitialis* and three *Cytisus scoparius*) in the project area are in fuels units. *Cypripedium* populations would be protected by no-treatment buffers. *Crumia latifolia* and *Funaria muhlenbergii* would be protected by riparian reserve no-treatment buffers. For *Clarkia heterandra* and *Festuca elmeri*, some individual plants may be lost due to trampling, slashing vegetation and handpile burning. However, the overall impact on all special status plants would be neutral to beneficial due to a reduction in interspecific competition and the potential for high intensity fire hazard. The incidental loss of individual plants is not expected to adversely affect species, threaten persistence, or trend these species towards listing.

There are no known special status plant sites in slashbuster units.

Ground disturbance, reduced competition and increased light due to fuel reduction may increase noxious weed spread. However, treating known noxious weed sites would mitigate this effect.

3.4.2.2.6 Wildlife Habitat Restoration and Enhancement

The woodland/oak woodland/chaparral units that are proposed for habitat enhancement harbor four large (2-5 acres) patches of *Clarkia heterandra* with an estimated average of >2,000 individuals per patch. One small population (10 plants in 2001) of *Festuca elmeri* would be protected with a 50' buffer. Although a small percentage of individuals may be lost due to direct treatment impacts, the overall effect of the action alternatives would be beneficial in that reduced competition from encroaching shrubs and trees would help maintain or enhance the size and vigor of these patches.

3.5 Wildlife - Special Status/Survey and Manage Species and Habitats

3.5.1 Affected Environment

A majority of the project area is dominated by forest with small inclusions of non-forested areas. The watershed is a checkerboard of private and public ownership resulting in a fragmented forest landscape. The only extant old-growth forest habitat in the watershed is on federal lands. Past land management in the watershed includes mining, road construction and timber harvest. Land management activities in the project area have been more limited with moderate amounts of timber harvest.

The northern spotted owl (*Strix occidentalis caurina*) is the only ESA listed species known to nest in the project area. Currently, there are 907 acres (7%) on BLM land functioning as northern spotted owl nesting habitat (McKelvey class #1) and 1,900 acres (15%) of spotted owl roosting and foraging habitat (McKelvey #2) in the project area. There are six nesting sites and five established 100-acre owl cores in the Rogue-Grants Pass watershed. There are three additional sites whose provincial home ranges are partially within the watershed. None of the core areas or spotted owl sites exceed the 1,388

acres of suitable roosting, nesting and foraging habitat within 1.3 miles of nest sites considered necessary to maintain long term viable populations.

Habitats within the project area include woodlands, riparian areas, meadows, late-successional forest, snags, down wood, Jeffrey pine savannahs, serpentine meadows and brush fields. Habitat for a number of sensitive species exist including the northern spotted owl, red tree vole (*Arborimus longicaudus*), great gray owl (*Strix nebulosa*), Del Norte salamanders (*Plethodon elongatus*), northern goshawks (*Accipiter gentilis*), and other raptors as well as all five species of U.S. Fish and Wildlife designated Species of Concern. Spotted owls and red tree voles have been detected in the project area.

There is one historic golden eagle (*Aquila chrysaetos*) nest site in the watershed. Surveys in 2001 located one fledged eaglet. A 30 acre no-harvest core was designated in the RMP for this nesting pair of eagles.

Surveys have been completed for all S&M but not all special status species. Potential habitat exists in the project area for some of these special status species. The following discussion of impacts is based on alteration of potential habitat. For the analysis, it is assumed that these habitats are occupied. Actual effects would be equal to or less than those presented.

The 560 acres in T36S, R5W, Section 3 represents one of the largest tracts of unroaded public land remaining in the Rogue-Grants Pass watershed. It provides undisturbed habitat for a number of species including black-tailed deer, elk, black bear, bobcat, coyote and cougar as well as a host of smaller animals. Much of the area is dominated by small diameter Douglas-fir. There are areas of more mature, late-successional forest within the area (Units 2, 3, 4, 5 and 6) that currently meet nesting, roosting and foraging habitat for spotted owls. The area is at high risk for fire due to fire exclusion and lack of disturbance.

3.5.2 Environmental Consequences to Habitats

3.5.2.1 Alternative 1: No Action

The no action alternative could be favorable or harmful to wildlife. In the absence of significant disturbance, late-successional forest habitat would be maintained and would develop at current rates providing habitat and dispersal opportunities for late-successional dependent species. Snag and down wood cycling would also continue at current rates, which is very high in some areas due to density induced mortality and subsequent insect infestations. Other areas have suitable levels of snags and down wood while some are deficient. Species utilizing snags and down wood such as pileated woodpeckers would benefit from continued snag recruitment. The forest maturation process would continue at its current rate including development of larger trees and canopy layers which are hindered by overly dense conditions in some stands. Stand densities would continue to increase and stagnation and mortality would begin to select out individual trees. Species associated with snags and down wood, such as woodpeckers, would benefit from the increase in habitat.

The current vegetation successional trajectory would continue. Stand development patterns would continue to differ from the patterns that existed before the fire suppression period (natural disturbance regimes). Fire would continue to be excluded from the ecosystem to the greatest extent possible. Forest fuels would continue to accumulate. Fire hazard conditions in the understory and surrounding

vegetation would continue to put late-successional, mature forest habitat at a high risk and probability for stand replacing fire.

The actual effects of a potential wildfire are impossible to gauge. Late-successional forest habitat can be benefited or devastated by a fire depending on fire intensity. A moderate ground fire may benefit late-successional forest by creating gaps in the canopy, encouraging shade intolerant tree species and increasing forest complexity. A severe stand replacing fire would reduce late-successional habitat which could lead to the local extirpation of associated wildlife species within the project area. Under the "no action" alternative, fire adapted, shade intolerant tree species (e.g. California black oak, Oregon white oak and pines) would continue to be lost from the stand. Stand structure complexity would continue to be simplified by the loss of tree species such as Pacific madrone and California black oak which create horizontal structure. Species utilizing these tree species for mast and berry crops as well as cavities and nesting structure would lose habitat.

Early seral forested stands would continue to develop on their current successional trajectory which is inhibited by overly dense stands. Species utilizing early forest conditions, such as elk, would slowly lose browse through succession.

Pine and oak woodlands and savannahs as well as meadows would continue to decline in extent and vitality due to the invasion and encroachment by fire intolerant species. Current habitat trends for these plant associations negatively affect wildlife species such as the flammulated owl, western bluebird and violet-green swallow all of which prefer white oak and ponderosa pine plant associations for nesting and foraging. Western bluebirds have been experiencing population declines throughout Oregon, Washington and Northern California from the crest of the Cascades to the coast (Saurer, 1997).

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

The area would continue to provide low elevation older forest conditions that offer refugia for late-successional forest species. It would also continue to provide a stepping stone of older forest habitats and serve as a link between the Grants Pass and the Jumpoff Joe watersheds.

3.5.2.2 Stand Treatments – Alternatives 2 and 3

Two prescriptions would be used: commercial thinning with modified group selections and structural retention harvests. Stands which receive a commercial thin with a modified group select treatment would retain some structural components of older forests including a recruitment source for snags/down wood and large trees, but would lack the multi-story canopies and high canopy closure associated with late-successional habitat. It is anticipated that after harvest these units would retain approximately 25-40% canopy closure (Alternative 2) or potentially higher for Alternative 3 (40-70%). Certain microsite habitat conditions may not be met for some species in stands with canopy closure <40%. For example, some salamanders and molluscs appear to require cool moist forest floors and may be absent from warmer drier conditions that are anticipated post harvest. In general, canopy

reduction below 50% no longer provides late-successional forest habitat, which was also analyzed in the RMP EIS (1994) to which this EA is tiered (EIS p. 4-55). In addition, more open conditions may lead to increased predation as generalist species such as the great horned owl (*Bufo virgianus)* move in and compete with interior forest or old growth obligate species.

Fire tolerant/shade intolerant tree species would be retained, including California black oak and Pacific madrone which provide the majority of horizontal structure in late-successional forests in the project area. These trees improve the overall quality of the forest by producing mast and berries as well as provide nesting and resting structure for wildlife. They are also host plants for a number of mycorrhizal species that produce fruiting bodies which species such as the northern flying squirrel (*Glaucomy sabrinus*) use as a primary food source. In addition, a number of molluscs are known to utilize hardwood litter as food. Retaining these components in the forest maintains a structure and microclimate more suitable for these organisms.

Stands receiving a structural retention prescription (37 acres) would have an anticipated post harvest canopy closure of 25%. A minimum of 16-25 trees per acre would remain in aggregate and dispersed patterns. These stands would provide early seral conditions with scattered remnant large trees.

Wildlife corridors would provide for wildlife dispersal into the Louse Creek drainage. The Grants Pass Watershed Analysis (BLM 1998) identifies this as an important dispersal corridor between these drainages

Big Game Habitat
Big game habitat, particularly for winter, exists in the lower elevations of the project area. Both action alternatives would open the understory in oak woodlands, resulting in improved habitat for foraging ungulates.

Snag Habitat
Snags are often reduced during projects and sometimes in follow-up fuel treatments. Current snag levels vary within the project area due to past management. Stands that have never been managed for timber may be rich in snags but could be impacted by timber harvest. Alternatives 2 and 3 differ on the potential for future snag recruitment. Alternative 2 would reduce canopy closures to 25-40%, which would eliminate a great deal of competition between trees, thus reducing snag development. However, there may be a short term, immediate increase in snags due to breakage and damaged trees from the proposed action. Alternative 3 provides greater potential for future snag recruitment in that greater canopy closure would be retained thus providing for more competition between mature trees and greater snag development. Species associated with snags such as cavity nesters would be retained to a greater degree under Alternative 3.

***Proposed Mitigating Measure #2*:** Buffer snag clumps in timber sale units and pull fuels away from their bases prior to under burning to retain adequate snag densities.

3.5.2.3 Young Stand Development – Alternatives 2 and 3

All proposed pre-commercial thinning/brushing is in managed plantations of early and mid-seral forest stands. Pre-commercial and commercial thinning in stands that currently do not provide late-successional habitat may accelerate the development of this habitat or place these stands on a trajectory

such that they may lead to a more structurally complex forest earlier than would occur without active management. Species which require complex older forest may benefit over the long term.

3.5.2.4 Road Treatments – Alternatives 2 and 3

Under both action alternatives, 1.39 miles of BLM road would be decommissioned. The net gain or loss of road miles would be the same for both alternatives and would include some new road construction.

Road construction in T36S, R5W, Section 3: Road construction to access this section would be difficult due to the rough terrain and would have long term adverse effects to wildlife due primarily to a potential increase in OHV use. Section 3, road option 1 would result in a net increase of 0.14 road miles. Option 2 would result in 0.64 miles of new road. Options 3 and 4 would result in a net loss of 0.66 miles.

Section 3 access options 1 and 2 propose new road construction across private and public land. Both options would have a similar impact on wildlife. These roads could provide additional access into the section by OHVs, which could have a long term detrimental effect to wildlife through increased disturbance and habitat fragmentation.

Section 3 access options 3 and 4 propose similar actions and present similar effects. Option 3 proposes construction of a temporary spur road and helicopter landing at the bottom of Section 3, while option 4 would operate without this construction. Because of the location of the additional helicopter landing at the urban interface, effects to wildlife would be minimal. The spur road would traverse through a riparian reserve for a short distance and be obliterated after use. This could have a short term impact to wildlife, but it would be minimal because of its location at the urban interface which already experiences a relatively high level of disturbance. Option 4 would result in the least impact to wildlife, utilizing helicopters for all commercial thinning, and minimizing fragmentation of the 560 acre unroaded block of land.

3.5.2.5 Fuel Treatments – Alternatives 2 and 3

Reduced fuel loading, tree density and ladder fuels would reduce the chances for a stand replacing fire and also the potential loss of late-successional forest habitat. Snags and down wood habitat would be reduced. Species associated with down wood such as the Ensatina salamander (*Ensatina eschscholtzii)* would lose habitat as would some molluscs. The mosaic patterns of treatments would minimize this effect and would make it inconsequential.

Oak woodlands and meadows would be restored towards pre-fire suppression conditions and would be more within their historical range of conditions. Habitat would be reduced for some species such as the spotted towhee (*Pipilo erythrophthalmus*), but this would be moderated by the mosaic pattern achieved during prescribed burning. Quality winter range and browse for species such as elk (*Cervus elaphus*) would improve. In general the mosaic vegetative nature of the project area and the unique habitats represented would be restored and preserved, benefiting associated wildlife species.

3.5.3 Environmental Consequences to Species

3.5.3.1 Northern Spotted Owls

3.5.3.1.1 Alternative 1: No Action

Habitat for the NSO would remain at its current level. The forest would continue to develop older forest conditions which would benefit the spotted owl and other species associated with late-successional forest habitats. The potential for a fire in the project area would remain high, potentially leading to loss of late-successional forest habitats in the project area.

3.5.3.1.2 Alternatives 2 and 3

Both alternatives propose to harvest timber in suitable spotted owl habitat but would contribute no direct adverse effects. However, indirect impacts to habitat would affect spotted owls. Under alternative 2, commercial harvest would occur on 878 acres of mature Douglas-fir forest. This action would alter 437 acres of suitable spotted owl habitat from nesting, roosting and foraging habitat to approximately 40% canopy cover, the minimum canopy required to meet spotted owl dispersal habitat. Alternative 2 would also degrade four acres of suitable habitat to unsuitable habitat with a canopy cover below 40%.

Alternative 3 proposes to harvest the same amount of habitat as alternative 2, but would retain a canopy closure of up to 60% on 238 acres, which would maintain suitability for spotted owl nesting, roosting and foraging. Alternative 3 would maintain up to 60% canopy closure on the 117 acres of suitable nesting habitat and an additional 116 acres of mature Douglas-fir forest. Because stands are overly dense due to historical fire suppression, commercial thinning could accelerate stand development towards late-successional habitat conditions sooner than with no action. While there are short term impacts (habitat fragmentation) to wildlife, long term wildlife benefits would include more late-successional habitat with a lower potential for stand replacing fire in the project area.

In summary, Alternative 2 would have a greater impact on habitat because of the already fragmented landscape (there is no suitable spotted owl habitat on non-federal land in the watershed). Alternative 3 would not contribute to fragmentation as much because of the 238 acres that would retain 40-60% canopy closure.

3.5.3.1.3 Cumulative Effects

Implementation of the proposed action would reduce the amount of spotted owl nesting, roosting, and foraging habitat in the Middle Rogue watershed from 2,807 to 2,307 acres, degrading this habitat to dispersal. Under Alternative 2, four acres would be degraded to not meeting characteristics of dispersal habitat. In addition, approximately 1,197 acres of dispersal habitat would be degraded to approximately 40% canopy closure, but would still function as dispersal habitat (see the two tables below).

There is some overlap (<25%) in provincial home ranges within the project area for the Bootstrap, Savage Coffey and Savage Joe spotted owl sites (see table below). Therefore, impacts may be greater than if there were no habitat overlap. Under worst case analysis, the

impact on the Bootstrap suitable habitat may result in reduced reproductive success until habitat grows back and becomes suitable.

Most non-federal lands in the Birdseye and Jones creek drainages are dominated by relatively homogeneous stands. The majority of structurally complex forest occurs on BLM lands. There is no suitable spotted owl nesting, roosting, foraging habitat on non-federal lands in the watershed. It is anticipated that 1,682 acres of mature Douglas-fir forest (see Appendix B) and associated biodiversity would be adversely impacted by the proposal in the short term. Stand recovery rates would vary depending on current stand condition, but for the majority of the project, stands would likely recover to provide mature forest conditions in 15-20 years. Reduced stand capability as refugia, as well as a reduced ability of these stands to temporally and spatially function as mature forest would be hindered, but not eliminated. Reasonably foreseeable activities on private, county, and state lands would be for continued short rotation forest harvest. Maintenance and development of late-successional habitat in these drainages would largely rely on the BLM.

Table 14: Effects on Known Spotted Owl Sites under Alternative 2

Site Name	Suitable habitat acres within 1.3 miles (current)	Suitable habitat acres within 1.3 miles (post project)
Spotted Owl Sites in the Watershed		
Fielder Creek	896	805
Bootstrap	585	269
Greens Creek	444	444
Little Savage Creek	237	237
Savage Coffey	742	654
Savage Joe	1,205	1,112
Spotted Owl Sites Outside the Watershed with Provincial Home Range Partially in the Watershed		
Granite Key	1,070	1,070
Lousy Ida	1,026	1,026
Shiloh's Rock Mine	944	944

Under alternative 3, two sites would have more suitable habitat post-project than under alternative 2 (see table below).

Table 15: Effects on Known Spotted Owl Sites under Alternative 3

Site Name	Suitable habitat acres within 1.3 miles (current)	Suitable habitat acres within 1.3 miles (post project)
Spotted Owl Sites in the Watershed		
Fielder Creek	896	836
Bootstrap	585	359

3.5.3.2 Red Tree Voles

3.5.3.2.1 Alternative 1: No Action

The forest would continue to develop towards older forest conditions which would benefit red tree voles (RTV) and other species associated with late-successional forest habitats. The potential for a fire in the project area would remain high.

3.5.3.2.2 Alternatives 2 and 3

The RTV is an arboreal rodent with very low dispersal capabilities. The objective for this species is to retain sufficient habitat to maintain reproduction, dispersal and genetic exchange. RTV surveys have been conducted in appropriate habitat. Active RTV sites have been buffered. Additionally, the proposed wildlife corridors should allow for dispersal and genetic exchange between populations and watersheds.

Proposed pre-commercial thinning and brushing may hasten the development of potential RTV habitat which would help maintain the species in the project area and watershed.

3.5.3.3 Northern Goshawks

3.5.3.3.1 Alternative 1: No Action

The forest would continue to develop towards older forest conditions which would benefit the northern goshawk (*Accipiter gentilis)* and other late successional forest species. Habitat for the species would be maintained in the project area. The potential for a fire, which could impact habiat, would remain high.

3.5.3.3.2 Alternatives 2 and 3

Potential habitat for northern goshawks is scattered throughout the project area. There are no known sites in the project area. Proposed commercial thinning and regeneration harvest would modify approximately 437 acres of habitat from a nesting to non-nesting condition/quality. Timber harvest may lead to a reduction in the local population of goshawks. Pre-commercial thinning and brushing would hasten the development of potential goshawk habitat which would help maintain the species in the project area and watershed.

3.5.3.4 Del Norte Salamanders

3.5.3.4.1 Alternative 1: No Action

The forest would continue to develop towards older forest conditions which would benefit Del Norte salamanders (*Plethodon elongatus*). The potential for a fire in the area would remain high.

3.5.3.4.2 Alternatives 2 and 3

Habitat for Del Norte salamanders would not be greatly affected given that little suitable habitat (rock and talus) has been found in the project area. This type of microhabitat is sporadically distributed across the landscape, occurring primarily near rock outcrops, ridge tops, and along riparian areas. Surveys are neither required nor planned for the species. The species is on the state of Oregon “vulnerable” species list and is also a Bureau Tracking species. The RMP requires management of all known sites.

3.5.3.5 Great Gray Owls

3.5.3.5.1 Alternative 1: No Action

The forest would continue to develop towards older forest conditions which would benefit great gray owls by increasing the amount of nesting habitat. Foraging areas would continue to be encroached upon by fire intolerant plant species. The potential for a fire that could impact owl habitat in the project area would remain high.

3.5.3.5.2 Alternative 2 and 3: Action Alternatives

No great gray owl (*Strix nebulosa*) habitat deemed suitable for surveys is located in the project area. Locally, great grey owls have been found nesting in a variety of stand types, but appear to prefer mature park like stands with a closed canopy (>60%) and room for flight. Foraging occurs in open stands, old clearcuts, natural meadows, and agricultural land. Because of the overly dense stands in the project area, commercial thinning would likely accelerate development of suitable habitat.

3.5.3.6 Song Birds

3.5.3.6.1 Alternative 1: No Action

Habitat conditions for nesting song birds would continue on current successional trajectories. This restricts nesting and foraging opportunities for birds that have historically nested in the more open stands that occurred prior to the era of fire suppression.

3.5.3.6.2 Alternatives 2 and 3

The two action alternatives would affect song birds similarly, but Alternative 2 would have a greater impact than Alternative 3. Species composition would likely shift as a result of logging and fuels reduction (Hayes et al. 2003). Some species such as the Pacific-slope flycatcher (*Empidonax difficilis*), Hutton's vireo (*Vireo huttoni*), and brown creeper (*Certhia americana*) would likely become less prevalent in treated stands. Other species, such as the dark-eyed junco (*Junco hyemalis*) and hairy woodpecker (*Picoides villosus*) would likely become more common. The degree of change within these species would likely correlate with the degree of stand thinning (i.e. the heavier the thin, the greater the change). Other species that would likely increase included Townsend's solitaire (*Myadestes townsendi*) and western tanager (*Piranga ludoviciana*).

Adequate areas would remain untreated (riparian reserves, botanical and wildlife buffers, wildlife corridors and untreated units) to provide habitat for those species that prefer or require denser stands for nesting and foraging. Therefore, adverse impacts would be minimal under either action alternative.

3.5.3.7 Molluscs

3.5.3.7.1 Alternative 1: No Action

The forest would continue to develop towards older forest conditions which would benefit molluscs. Late seral habitat conditions would increase. Foraging opportunities for species associated with shade intolerant hardwoods would diminish. The potential for a fire in the project area would remain high.

3.5.3.7.2 Alternatives 2 and 3

All lands identified for commercial timber harvest were surveyed for S & M mollusks and none were found. This group generally requires cool moist environments with the exception of *Helminthoglypta hertleini* which may utilize rocky talus on open exposed slopes. If this species is found, sites would be buffered against any treatment for a distance of one site tree. With the implementation of the management recommendations from the NFP standards and guidelines there would be no anticipated effects to these species.

3.5.3.8 Townsend's Big-Eared Bats and Other Bat Species

Bats often prefer snags near ridges for roosting and raising young. It is hypothesized that snags in these locations provide microclimate conditions that reduce energetic costs of metabolism and reproduction.

3.5.3.8.1 Alternative 1: No Action

The forest would continue to develop towards older forest conditions which may benefit bats. Bats utilize both large snags as well as large live green trees as roosts. With no action, more trees would become snags through competition and mortality. Small trees generally do not provide the large radial cracks or exfoliated bark that provide bat habitat. Smaller suppressed trees would stay on their current trajectory and would not provide habitat until the stand becomes released through disturbance. The potential for a fire in the project area would remain high. Mine adits in T36S, R4W, Section 32 would continue to provide a secure day roosting location for cave dwelling bats.

3.5.3.8.2 Alternatives 2 and 3

Snags and green trees that harbor bats would most likely be disturbed by the action alternatives. Though there would be some loss of habitat, sufficient snags and large decadent green trees would be preserved to provide bat habitat. Mine adits in T36S, R4W, Section 32 would continue to provide a secure day roosting location for cave dwelling bats.

3.5.3.9 Golden Eagles

There is one historic golden eagle (*Aquila chrysaetos*) nest site in the watershed. There would not be any anticipated impact to this nesting pair because of the seasonal restriction that would be instituted when the nest is active. The project may benefit the species by promoting growth of larger trees.

3.5.3.9.1 Alternative 1: No Action

The forest would continue to develop towards older forest conditions. This would retain large trees which serve as roost and potential nest trees. The single pair would likely be maintained. The potential for a fire that could impact eagles or their habitat in the project area would remain high.

3.5.3.9.2 Alternatives 2 and 3

Thinning of stands under both alternatives would likely accelerate the growth of large trees which would lead to improved roosting and nesting conditions. Because golden eagles forage in open areas, there would be no effect to foraging habitat for this species.

3.5.3.10 Bald Eagles

There are no known bald eagles in the project area. Stand thinning could lead to increased growth of large trees with potential as nesting or roosting trees above the Rogue River, which bisects the project area. It is likely that bald eagles migrate through the area or forage along the Rogue River. There are no units near enough to the river to disturb foraging eagles. If a new eagle nest site is located, appropriate protection measures consistent with the RMP and the programmatic FY 04-08 BA/BO would be implemented.

3.6 Special Forest Products and Small Sales

3.6.1 Affected Environment

Historically and currently, there is a high demand by residents of Grants Pass and Rogue River for firewood and small timber sales. The development of markets and uses for poles and manzanita during the last five years has increased. Other special forest products (SFP), such as burls, mushrooms, and boughs have been harvested in small quantities.

In recent years, the quantity of firewood available to the public from BLM lands has been variable. Firewood opportunities are traditionally connected to timber sales and are limited to slash left over from logging activities. With the emphasis on commercial thinning, firewood tends to be softwoods and may be located in more remote locations due to helicopter yarding. Appeals and lawsuits further restrict the availability of public firewood areas. In the project area, there are no areas currently available for firewood or pole cutting. Firewood theft is common.

3.6.2 Environmental Consequences

3.6.2.1 Alternative 1: No Action

Opportunities for firewood, poles, and small timber sales in the project area would be extremely limited or nonexistent. Demand for products would greatly exceed supply. Firewood theft would continue to be a common occurrence.

3.6.2.2 Alternatives 2 and 3

The greatest potential for pole cutting and small timber sales are in units with gentle slopes adjacent to roads which provide the most accessible and economically feasible opportunities for

small operations. The greatest potential for public and commercial firewood cutting would be in the following situations:

- Madrone thinning in commercial timber sale units would yield high quality firewood (approximately 25 cords).

- Cutting along roads in units targeted for fuel hazard reduction. Opening these areas for firewood cutting prior to service contract work would make approximately 20 cords of firewood available to the public.

- Logging slash from the timber sale units and at landings would be available for firewood cutting when the timber sale contract terminates.

In addition, there may be opportunities for salvaging firewood after brushing, pre-commercial thinning, and other fuel hazard reduction treatments.

The local public would benefit by creating opportunities to collect firewood, poles or other special forest products. Increased permitted firewood supplies may reduce firewood theft.

3.7 Fire and Fuels

3.7.1 Affected Environment

A fuel hazard and wildfire occurrence risk rating analysis was completed for the Rogue-Grants Pass Watershed Analysis (1998), which included the lands in the Birdseye Jones project area. The project area includes 3,250 acres of BLM administrated lands and 4,082 acres of non-federal lands for a total of 7,332 acres. An additional 1,589 acres are outside of the Rogue - Grants Pass watershed. The project area is within the Grants Pass Community at Risk (CAR).

Hazard is defined as the existence of a fuel complex that constitutes a threat of wildfire ignition, unacceptable fire behavior and severity, or suppression difficulty. *Risk* is the source of ignition: human or lightning. Wildfire risk throughout the project area is high.

Table 16: Fire Risk

Ownership	High Risk	Moderate Risk	Low Risk
All Ownerships 7,332 Acres	94 % 6,895 acres	4 % 299 acres	2 % 138 acres
BLM 3,250 Acres	91 % 2,951 acres	9 % 299 acres	0 % 0 acres
Non-federal 4,082 Acres	97 % 3,944 acres	0 % 0 acres	3 % 138 acres

The fire risk rating assigned for watershed analysis was determined during field data collection in 1996 and 1997. The current high level of risk is primarily due to human use and historical lightning activity within the project area. Risk is difficult to change or influence through land management activity as it is a function of weather (lightning) and human behavior. Reducing public access can reduce human caused fire, but reducing access can hinder fire suppression and result in bigger fires and greater fire impacts. Human use is expected to increase but its

influence on fire risk is difficult to determine. Therefore, for the purpose of this analysis, risk is considered unchanged for the next 10 years.

Fuel includes dead/down wood and live vegetation. Fuel hazard changes over time, and can be altered through land management activities. Wildfire prior to settlement in the 1800s prevented large scale fuels buildup. This fire regime was one of frequent, low intensity surface fires which prevented excessive understory vegetation development and the buildup of large amounts of dead/down wood. With human settlement and wildfire suppression, fuels have accumulated and dense vegetation has grown unchecked. Fuel hazard will increase over time in the absence of disturbance or land management activities which remove or reduce fuels. Without disturbance, fuel hazard conditions become more uniform and continuous which increases the potential for large, high severity fire. Dense, overstocked stands contribute to large stand replacing fire due to closed canopies and ladder fuels. For example, the Walker Mountain fire (T35S, R5W, Section 5, approximately 5 miles north of the Birdseye Jones project area) was ignited by lightning and before it was controlled had consumed 2,150 acres. Nearly 90% of the area burned was a high intensity, stand replacement fire.

Fire exclusion has caused meadow and oak woodland areas to decline in size. These fire dependent areas were maintained by frequent low intensity burning. Encroachment by conifers and shrub species have replaced and altered these habitats.

The table below shows current fuel hazard ratings for the project area using data collected in 1996-97.

Table 17: Fire Hazard

Ownership	High Hazard	Moderate Hazard	Low Hazard
All Ownerships 7,332 Acres	59 % 4,321 acres	33 % 2,393 acres	8 % 617 acres
BLM 3,250 Acres	59 % 1,920 acres	37 % 1,212 acres	4 % 117 acres
Non-federal 4,082 Acres	59 % 2,401 acres	29% 1,181 acres	12 % 500 acres

3.7.2 Environmental Consequences

Projections on future hazard are based on current vegetation conditions and vegetation trends. The trend for the next 5-10 years, assuming no active management, is for increasing vegetation density and increasing dead and down fuel accumulation.

The following assumptions were used to determine potential treatment effects on fire hazard over the next 5-10 years, which is assumed to be the longest time interval before further management activity would be prescribed. Treatments which cut or remove vegetation without treating the slash increase the hazard rating. Hand piling and burning reduce the hazard rating to low in the short term. Density reduction treatments in both the overstory and understory with under burning or hand piling and burning reduce the hazard rating to low. Broadcast burning and under burning also reduce the hazard rating to low. Understory treatments in conjunction with prescribed burning are beneficial in both the short and long terms as reduced stocking and ladder fuels create a fuel profile that is less susceptible to crown fire.

Stands that would be mature or nearly so within 10 years would be susceptible before then to stand replacing fire due to conditions such as thin bark, high canopy ratios, presence or ability to reestablish ladder fuels, and continued stand mortality. The trend in these stands is for treated and untreated areas to increase in hazard as understory vegetation, crown closure, and dead and down fuels increase. For under burned stands that are mature or will reach mature conditions within 10 years, their hazard is low. Stands that are currently younger and in mid seral stage conditions and would not have as much down fuel removed (hand pile burn units), hazard over the long term would return to moderate or high.

3.7.2.1 Alternative 1: No Action

Dead and down fuels and live fuels will increase over time. The fuels buildup creates conditions that lead to high-intensity, stand replacement fire. Currently, 59% of the project area is in a high hazard condition. This would increase 5-10% over the next 5-10 years due to increasing stocking density and multi-canopied layers throughout the project area.

The no action alternative would allow continued fuel build up and increased potential for large scale, stand replacing fire that could impact the project area and adjacent drainages. Such large scale fire events are natural and are usually rare. The Walker Fire is an example of a larger scale fire occurring in 1988. Impacts of the Walker Mountain Fire on visual, wildlife, and forest resources were considerable with approximately 90% of the fire area burning at high intensities. Much of the impact is still visible today. If a wildfire were to occur, as much as 30-60% of the area could burn at high intensity with as little as 20% burning at low intensity, similar to what happened during the Walker Mountain Fire.

3.7.2.2 Alternatives 2 and 3

The comparison of fire hazard for all alternatives is shown below. Management activities beyond those proposed for this project are unknown and, therefore, none will be assumed for analysis purposes. Project maintenance activities for fuel hazard reduction such as under burning, hand piling and burning and vegetation removal for the next 10 years are assumed.

Table 18: Fire Hazard – Comparison of Alternatives

Alternative and Timeframe	High Hazard	Moderate Hazard	Low Hazard
Current Condition	59% 1,921 acres	37% 1,212 acres	4% 117 acres
Alt 1: No Action 5-10 Years	65% 2,112 acres	31% 1,021 acres	4% 117 acres
Alternatives 2 & 3 1-5 Years	35% 1,152 acres	30% 970 acres	35% 1,128 acres
Alternative 2 & 3 5-10 Years	24% 786 acres	26% 848 acres	50% 1,616 acres

For a short time, between vegetation treatment and piling/burning of activity fuels, fire hazard would increase. However, following pile burning, both action alternatives would reduce the fuel hazard in the long and short term at the project level. Fuel hazard would be reduced over the long term at the landscape level.

Under either action alternative, wildfire within treated areas would be less severe due to reduced ladder and ground fuels. Suppression would be facilitated because wildfires would burn with reduced intensity, duration, and flame length. Therefore, fire spread as well as damage to property, homes and forest resources would also be reduced.

The action alternatives would substantially reduce the fuel hazard within the project area. When wildfire occurs the potential effects would include a mosaic of fire intensities. A wildfire of 100 acres or larger would exhibit areas of high intensity burning producing total stand replacement, areas of low intensity under burn with little overstory mortality, and areas with a mixture of both extremes side by side. Areas exhibiting extreme fire effects would be determined by steep slopes, hot aspects, fuel amounts, fuel continuity, ladder fuels, and weather conditions. The proposed actions would reduce the amount of area impacted by higher burn intensities such that <25% of the area may experience high intensity and 50% or more, low intensity burning.

3.8 Recreation

3.8.1 Affected Environment

Recreation is dispersed and includes: equestrian use, hunting, driving for pleasure, hiking, and bicycling. Recreational use follows existing roads and non-maintained trails. An unmaintained trail in Section 3 runs along Kirkers Creek to the north and is used by local residents. An informal trail (proposed Beacon Hill trail) receives equestrian and motorcycle use.

3.8.2 Environmental Consequences

3.8.2.1 Alternative 1: No Action

In the no action alternative, no low elevation, easily accessible trails would be developed for recreational use. Current dispersed recreation trends on public and private lands would continue.

3.8.2.2 Alternatives 2 and 3

In Alternatives 2 and 3, additional recreational opportunities would be provided through the upgrade and establishment of a two mile trail system along the Beacon Hill ridge. This trail would provide the community of Grants Pass with nearby, accessible, year round hiking, biking and horseback riding opportunities with views of the surrounding valley.

3.9 VRM

3.9.1 Affected Environment

The proposed project area ranges includes VRM Classes II and III, as delineated by the Medford District RMP. The landscape is characterized by ridges with moderate to steep slopes. The hillsides are covered with nearly continuous hardwoods and pines.

Various human activities have impacted the characteristic landscape. Past timber harvest on non-BLM lands is evident in the viewshed. Past logging activities have created areas of vegetation with distinctly differing heights. In the Birdseye Rogue area, dead trees dot the dappled green/dark green landscape with brown hues.

Existing visually dominant engineering facilities include a grayish-white, reflective cell phone tower at the apex of Beacon Hill as well as several structures including homes and offices. Two swaths of cleared vegetation for power lines are dominant lines in the landscape. Interstate 5 and other roads dissect the viewshed.

3.9.2 Environmental Consequences

3.9.2.1 Alternative 1: No Action

Under this alternative, no vegetation, lands, or structures would be changed, altered or managed. There would be no change to the line, form, color or texture of the characteristic landscape. Over time, the texture would become coarser as the canopy becomes denser. The existing linear clearing under the power line in Section 9 would remain visible and continue to greatly contrast with the existing vegetation.

3.9.2.2 Alternatives 2 and 3

In fuel treatment units, short term blackened areas could be evident, changing to lighter green after winter and spring rains. More grassy openings would be visible. Contrasting cutbanks would be visible in the short term for the new road construction in section 34. In the long term, planted shrubs and grasses along this road would lessen the contrast on cutbanks. The existing contrast from power line clearings would be lessened by scalping and feathering the clearing edges. Vegetation changes would include more visible grassy openings. Brown, dead conifers would be removed, lessening the color contrast with the dark to light green canopy.

Contrasts resulting from the proposed project would not be apparent to the casual observer because they will blend in with the existing variances in form, line, texture and color. Therefore, objectives for VRM Classes II and III would be met.

3.10 Road and Transportation Systems Management

3.10.1 Affected Environment

Road density varies greatly across the Rogue-Grants Pass watershed. The average road density on BLM lands is 1.8 mi/mi^2 and is 1.51 mi/mi^2 in the project area. The average road density in the Rogue-Grants Pass watershed (outside the urban growth boundary) on other than BLM lands is approximately 7.1 mi/mi^2.

Most BLM roads in the project area were constructed and improved for timber management objectives. From the 1960s through the 1980s, roads were mostly maintained in conjunction with timber haul. Beginning in the 1990s, however, reduced timber hauling and funding for road maintenance has caused road maintenance to be deferred.

Road conditions vary depending on use, location, weather, maintenance cycle, and soil type.

3.10.2 Environmental Consequences

3.10.2.1 Alternative 1: No Action

The no action alternative would have no effect on road density.

The no action alternative would continue to leave BLM roads without repairs until cyclic maintenance can be accomplished. Erosion and sedimentation on those roads would continue.

3.10.2.2 Alternatives 2 and 3 - Road Density

The use of temporary spurs that would be decommissioned or obliterated upon conclusion of the project and the decommissioning of 0.60 miles of existing BLM system roads would help maintain existing road densities. New road construction into Section 3 (Option 1) would require 0.80 miles of new road and increase the net miles of road by 0.14 miles. The average road density on BLM lands would remain low at 1.55 mi/mi^2.

3.10.2.3 Alternatives 2 and 3 - Road Improvements and Deferred Road Maintenance

Approximately 42 miles of road would be maintained thus reducing deferred road maintenance and also improving driver site distance. Road reconstruction, improvements, and decommissioning would have minimal short term erosion and sedimentation but in the long term would decrease the current amount of erosion and sedimentation.

3.11 Cultural Resources

3.11.1 Affected Environment

Previous archaeological investigations in the project area include several small BLM surveys as well as the survey conducted as part of this project. The Birdseye Jones Cultural Resource Survey (January 2003) encompassed approximately 3,140 acres in the Middle Rogue watershed. Six sites were recorded (3 new sites and 3 updated sites) in the project area. All six sites are historic. Historic sites recorded in the project area represent lode mining technology used to extract gold and other minerals. These features include adits (horizontal mining tunnels), trenches, prospect pits, associated habitation flats and structures, and refuse scatters. Historic documentation indicated the presence of a lode mine and mill in T36S, R5W, Section 3. However, this site was not located during the cultural resource survey for this project.

3.11.2 Environmental Consequences

3.11.2.1 Alternative 1: No Action

Conifers and hardwoods would continue to encroach upon mining features or other cultural sites. Fuels buildup would increase and in the event of a severe fire flammable cultural resources would be destroyed.

3.11.2.2 Alternatives 2 and 3

In areas slated for new road construction, OHV use may begin or increase. This would greatly increase the probability of impacts to nearby cultural resources.

A proposed helicopter landing and spur road in T36S, R5W, Section 3 has the potential to impact a recorded cultural site. Possible impacts include encroachment of heavy equipment during and after construction of the helicopter pad and road, and erosion after project completion. Information regarding past lifeways inherent to the site was collected during initial site recording; therefore, the project would have no adverse effect on the site.

4.0 Agencies and Persons Consulted

4.1 Public Involvement

Public involvement began in May 2002 when a scoping letter was sent to residents near or adjacent to the project area as well as federal, state, and county agencies. Private organizations and individuals that requested information concerning projects of this type or in this area were also sent a scoping letter. Conversations with BLM employees and adjacent landowners/residents about the project have occurred while performing field work. Most contact has been to provide information about planned activities on specific portions of the project. Letters, phone calls, and field visits solicited the following issues or concerns:

- A concern about having a trail behind a residence in T36S, R5W, Section 4.
- One individual expressed concern about BLM leaving slash on private land, but could not identify a location because he had heard about it from other people.
- A landowner near section 29 provided information about spring locations.
- A nearby resident did not want logging on the hillside behind his home because of the potential for landslides.
- Landowners bordering Section 10 wish to pursue combined efforts to reduce fuel hazard on their lands and bordering BLM land. This area is being proposed for a wildlife/meadow restoration burn.
- The city of Grants Pass was concerned about security and a proposed road location.
- A landowner adjacent to Section 3 stated he enjoyed walking on a path in the riparian area in Section 3 and hoped there would not be too much disturbance along the creek. He was in support of fuels reduction activities in the area.

All public input was considered by the planning and interdisciplinary teams in developing the proposals and in preparing this EA.

The following agencies were consulted during the planning process: Josephine County, the city of Grants Pass, US Fish and Wildlife Service, National Marine Fisheries Service.

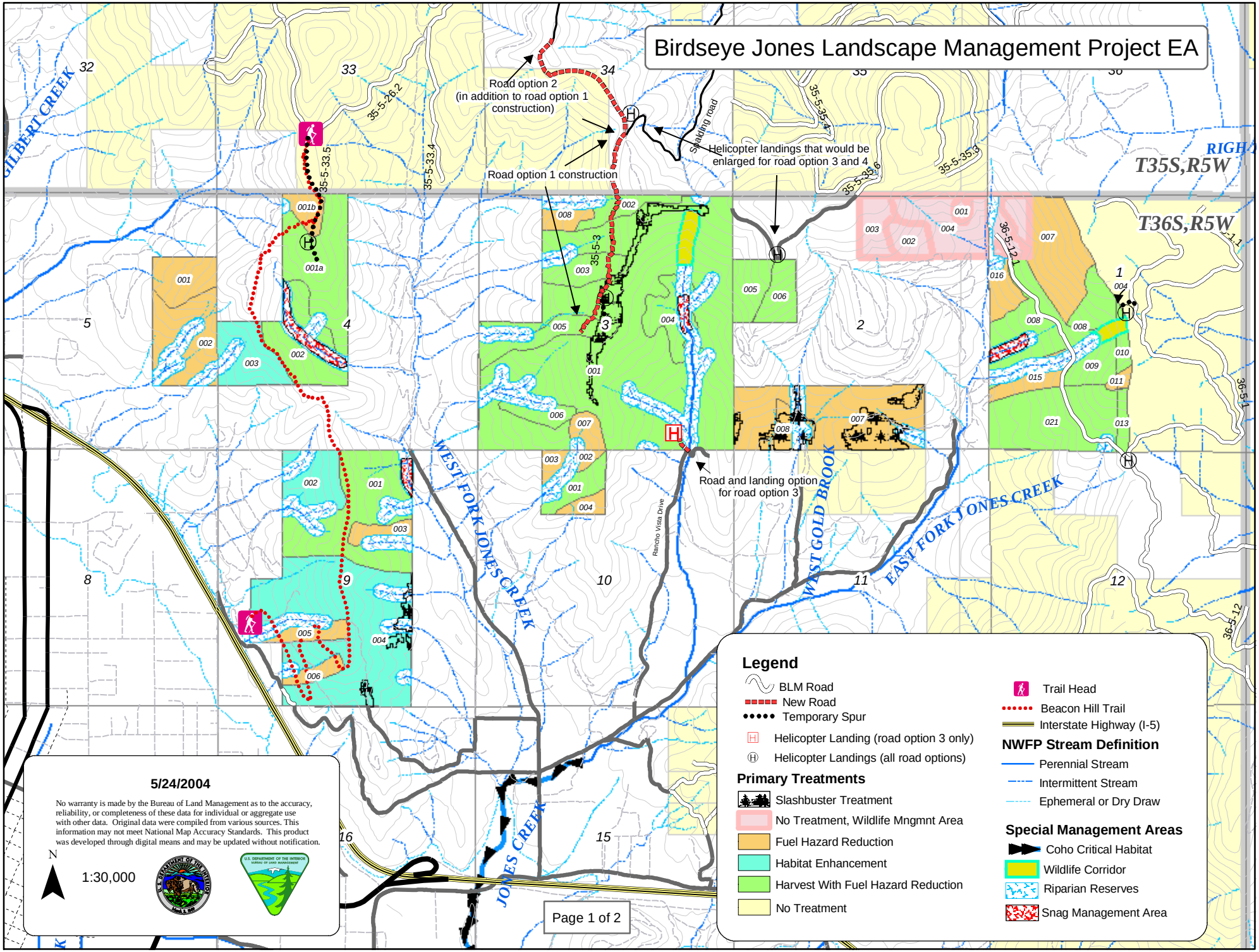
4.2 Availability of Document and Comment Procedures

Copies of the EA will be available for public review in the BLM Medford District Office and online at *www.or.blm.gov/Medford/planning*. A formal 30 day public comment period will be initiated by an announcement in the Grants Pass Daily Courier.

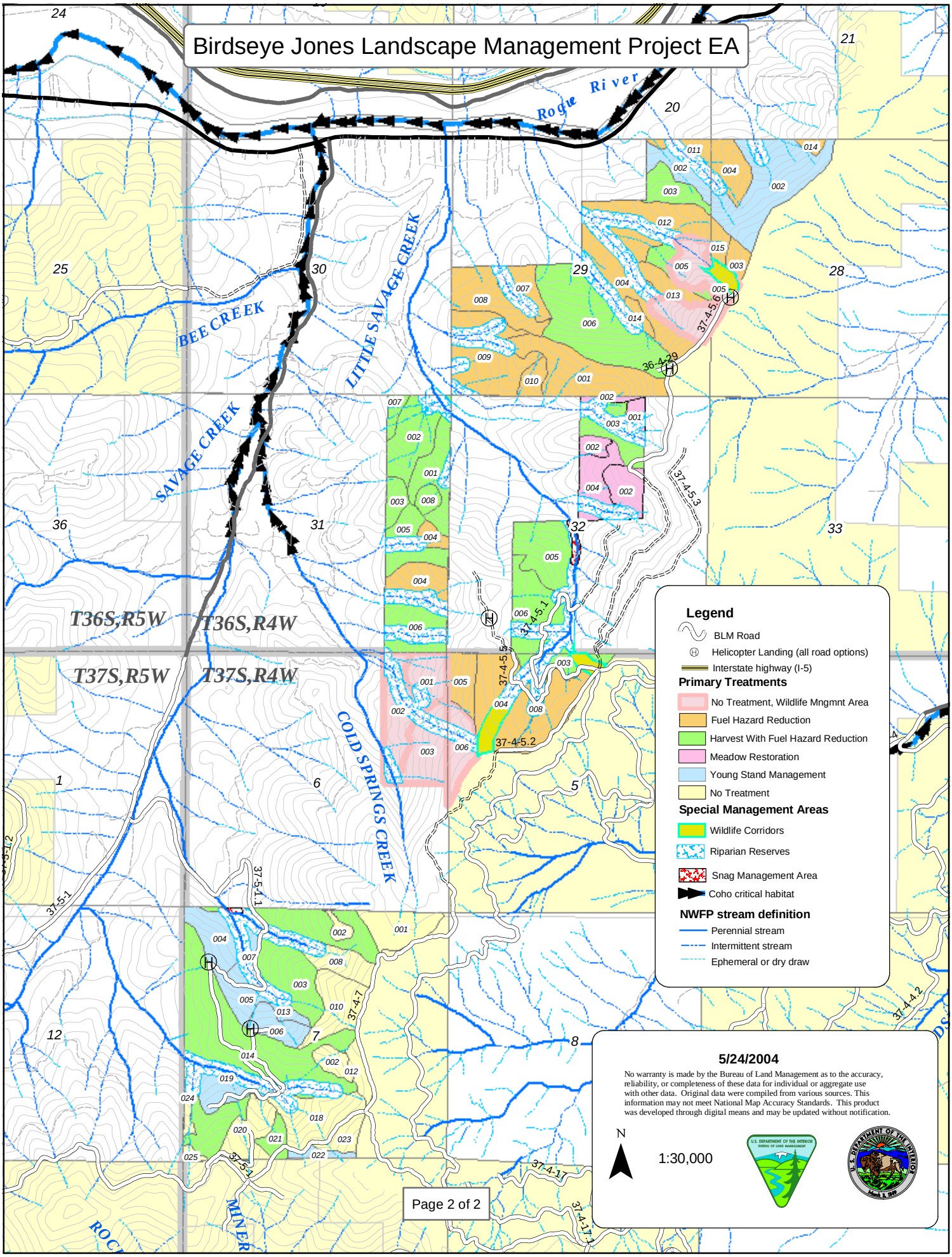
Written comments should be addressed to Abbie Jossie, Field Manager, Grants Pass Resource Area, at 3040 Biddle Road, Medford, OR 97504. E-mailed comments may be sent to *or110mb@or.blm.gov*.

Appendix A: Project Maps

Birdseye Jones Landscape Management Project EA



Birdseye Jones Landscape Management Project EA



Appendix B: Unit Treatments

Township Range Section Unit	Unit Acres	Land Allocation / VRM	TPCC	Plant Series & Seral Stage *Post treatment seral stage (if different)	Primary Treatment	Logging System	Fuel Hazard Reduction Treatment	Estimated Commercial Harvest				Riparian Treatment (if different from primary/fuel treatment)	Plant Acres	Comments
								SR (acres)	CT/ MGS (acres)	Vol/ Acre (mbf)	Vol Total (mbf)			
36S-05W-01-004	4	Matrix VRM III	FGNW /RTW	W Oak / DF	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0		0	
36S-05W-01-007	63	Matrix VRM III	FGNW	W Oak / DF	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0		0	
36S-05W-01-008	94	Matrix VRM III	RTR	Mature DF	Harvest CT/MGS	H 20% C 80%	UT/HP/B/UB	0	25	4.5	113	50' buffer Snags &CWD	5	5ac Wildlife Corridor
36S-05W-01-009	19	Matrix VRM III	RTR	Mature DF	Harvest CT/MGS	H 100%	UT/HP/B/UB	0	15	4.5	68	50' buffer	5	2ac Wildlife Corridor
36S-05W-01-010	4	Matrix VRM III	RTR	Mature DF	Harvest CT/MGS	H 100%	UT/HP/B/UB	0	5	4.5	23		0	
36S-05W-01-011	2	Matrix VRM III	RTW	W Oak / DF	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0		0	
36S-05W-01-013	8	Matrix VRM III	RTR	Mat DF ** Early DF*	Harvest CT/MGS/SR	H 70% T 30%	UT/HP/B/UB	0	1	3	3		3	
36S-05W-01-015	21	Matrix VRM III	RTR	Early DF	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' buffer	0	
36S-05W-01-016	18	Matrix VRM III	RTR	Early DF	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' and 60' buffers (w/springs)	0	
36S-05W-01-021	75	Matrix VRM III	RTR	Mat DF ** Early DF*	Harvest CT/MGS/SR	H 60% C 30% T 10%	UT/HP/B/UB	20	33	4.5	239	50' buffer	10	
36S-05W-02-001	4	NSO VRM III	RTR	Mature DF	No Treatment			0	0	0	0		0	NSO Core
36S-05W-02-002	14	NSO VRM III	FGNW	Mature DF	No Treatment			0	0	0	0		0	NSO Core
36S-05W-02-003	24	NSO VRM III	RTR	Mature DF	No Treatment			0	0	0	0		0	NSO Core
36S-05W-02-004	42	NSO VRM III	FGR/RTR	Mature DF	No Treatment			0	0	0	0		0	NSO Core
36S-05W-02-005	22	Matrix VRM III	FGR/RTR	Mature DF	Harvest CT/MGS/SR	H 90% C 10%	UT/HP/B/UB	5	10	4.5	68		5	
36S-05W-02-006	19	Matrix VRM III	RTR	Mature DF	Harvest CT/MGS	H 90% C 10%	UT/HP/B/UB	0	14	3	42		4	
36S-05W-02-007	105	Matrix VRM III	RTR/RMR	Mid DF	Fuel Hazard Reduction		UT/HP/B/UB /SB	0	0	0	0		0	60 ac slashbuster
36S-05W-02-008	8	Matrix VRM III	LSW	W Oak	Fuel Hazard Reduction		UT/HP/B/UB /SB	0	0	0	0		0	6 ac slashbuster
36S-05W-03-001	419	Matrix VRM III	RMR	Mature DF	Harvest CT/MGS	H 70% C 20% T 10%	UT/HP/B/UB/SB	0	334	4.5	1,503	50' and 60' buffers (w/springs) Snags &CWD No slashbuster	50	4ac Wildlife Corridor 52 ac slashbuster

Township Range Section Unit	Unit Acres	Land Allocation / VRM	TPCC	Plant Series & Seral Stage *Post treatment seral stage (if different)	Primary Treatment	Logging System	Fuel Hazard Reduction Treatment	Estimated Commercial Harvest				Riparian Treatment (if different from primary/fuel treatment)	Plant Acres	Comments
								SR (acres)	CT/ MGS (acres)	Vol/ Acre (mbf)	Vol Total (mbf)			
36S-05W-03-002	25	Matrix VRM III	FGR/RMR /RTR	Mature DF	Harvest (Alt 2) CT/MGS	H 70% C 25% T 5%	UT/HP/B/UB	0	9	10.5	95	50' buffer	5	Alt 3 CTB/LGS
36S-05W-03-003	19	Matrix VRM III	FGR/RMR	Mature DF	Harvest (Alt 2) CT/MGS	H 50% C 40% T 10%	UT/HP/B/UB	0	19	9	171	50' and 60' buffers (w/springs)	0	Alt 3 CTB/LGS
36S-05W-03-004	36	Matrix VRM III	RMR	Mature DF	Harvest (Alt 2) CT/MGS	H 100%	UT/HP/B/UB	0	19	9	171	50' and 60' buffers (w/springs) Snags &CWD	0	Alt 3 CTB/LGS
36S-05W-03-005	24	Matrix VRM III	RMR	Mature DF	Harvest (Alt 2) CT/MGS	H 70% C 20% T 10%	UT/HP/B/UB/SB	0	19	6	114	50' buffer No slashbuster	5	Alt 3 CTB/LGS 8 ac slashbuster
36S-05W-03-006	13	Matrix VRM III	RMR	Mature DF	Harvest CT/MGS	H 100%	UT/HP/B/UB	0	9	6	54	50' and 60' buffers (w/spring)	3	
36S-05W-03-007	12	Matrix VRM III	LSW	W Oak	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0		0	
36S-05W-03-008	10	Matrix VRM III	FGR/RMR /RTR	Mature DF	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' and 60' buffers (w/spring)	0	
36S-05W-04-001	63	Matrix VRM III	RTR/RMR	Mature DF	Harvest CT/MGS	H 30% C 50% T 20%	UT/HP/B/UB	0	58	6	348	50' buffer	0	
36S-05W-04-001B	10	Matrix VRM III	RMR/RTR	W Oak	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' buffer	0	
36S-05W-04-002	48	Matrix VRM III	RTR/RMR	Mature DF	Harvest (Alt 2) CT/MGS	H 90% C 10%	UT/HP/B/UB	0	33	4.5	149	50' and 60' buffers (w/springs) Snags &CWD	0	Alt 3 CTB/LGS
36S-05W-04-003	38	Matrix VRM III	LSW	W Oak	HE/Woodland		LTLM UT/HP/B/UB	0	0	0	0	50' and 60' buffers (w/spring)	0	
36S-05W-05-001	25	Matrix VRM III	RMW	W Oak / DF	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0		0	
36S-05W-05-002	55	Matrix VRM II	RTW	W Oak	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' and 60' buffer (w/spring)	0	
36S-05W-09-001	94	Matrix VRM II	RMR	Mat DF / Pine	Harvest CT/MGS	H 100%	UT/HP/B/UB	0	19	3	57		0	
36S-05W-09-002	36	Matrix VRM II	RTW	W Oak	HE/Woodland		LTLM/UT/HP/B/ UB/SB	0	0	0	0	50' buffer	0	8 ac slashbuster
36S-05W-09-003	12	Matrix VRM III	RTW	W Oak / DF	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' buffer	0	
36S-05W-09-004	170	Matrix VRM II	RTW	W Oak	HE/Woodland		LTLM/UT/HP/B/ UB/SB	0	0	0	0	50' and 60' buffer (w/spring)	0	16 ac slashbuster
36S-05W-09-005	17	Matrix VRM II	RMR	W Oak	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' buffer	0	

Township Range Section Unit	Unit Acres	Land Allocation / VRM	TPCC	Plant Series & Seral Stage *Post treatment seral stage (if different)	Primary Treatment	Logging System	Fuel Hazard Reduction Treatment	Estimated Commercial Harvest				Riparian Treatment (if different from primary/fuel treatment)	Plant Acres	Comments
								SR (acres)	CT/ MGS (acres)	Vol/ Acre (mbf)	Vol Total (mbf)			
36S-05W-09-006	9	Matrix VRM II	RMR	W Oak	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' buffer	0	
36S-05W-10-001	17	Matrix VRM III	RMR/RTR	Mature Pine * *Early Pine*	Harvest CT/MGS	H 100%	UT/HP/B/UB	0	14	4.5	63	50' and 60' buffers	5	
36S-05W-10-002	5	Matrix VRM III	LSW	W Oak	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' buffer	0	
36S-05W-10-003	11	Matrix VRM III	RTR	Mid Pine	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' buffer	0	
36S-05W-10-004	7	Matrix VRM III	RTR	W Oak / Pine	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0		0	
36S-04W-28-002	64	Matrix VRM III	FGR/RMR	Early DF	Release		HP/B	0	0	0	0	50' and 60' buffers (w/spring) UT/HP/B/UB	0	
36S-04W-28-003	9	Matrix VRM III	LSW	W Oak	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0		0	
36S-04W-28-004	19	Matrix VRM III	NCW	W Oak	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' and 60' buffers (w/spring)	0	
36S-04W-28-005	9	Matrix VRM III	FGR/RMR	Mature DF	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0		0	Birdseye Rogue TS Wildlife Buffer
36S-04W-28-014	3	Matrix VRM III	LSW	W Oak	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0		0	
36S-04W-28-015	7	Matrix VRM III	NCW	W Oak	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0		0	
36S-04W-29-001	47	Matrix VRM III	NCW	W Oak	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' buffer	0	
36S-04W-29-002	12	Matrix VRM II	FGR/RMR	Early DF	Release		HP/B	0	0	0	0	50' buffer UT/HP/B/UB	0	
36S-04W-29-003	15	Matrix VRM III	FGR/RMR	Mature DF	Harvest CT/MGS	H 100%	UT/HP/B/UB	0	8	4.5	36		5	Birdseye Rogue TS
36S-04W-29-004	82	Matrix VRM III	FGR/RMR /RTR	W Oak / DF	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' buffer	0	
36S-04W-29-005	22	Matrix VRM III	FGR/RMR	Mature DF	Harvest CT/MGS	H 100%	UT/HP/B/UB	0	15	4.5	68	50' buffer	5	Birdseye Rogue TS
36S-04W-29-006	86	Matrix VRM III	FGR/RMR	Mature DF	Harvest CT/MGS	H 90% C 10%	UT/HP/B/UB	0	70	15	1,050	50' buffer	15	Birdseye Rogue TS
36S-04W-29-007	11	Matrix VRM III	RTR	W Oak / DF	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' buffer	0	
36S-04W-29-008	28	Matrix VRM III	FGR/RMR	W Oak / DF	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0		0	
36S-04W-29-009	48	Matrix VRM III	LSW	W Oak	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' buffer	0	
36S-04W-29-010	5	Matrix VRM III	RTR	W Oak	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0		0	

Township Range Section Unit	Unit Acres	Land Allocation / VRM	TPCC	Plant Series & Seral Stage *Post treatment seral stage (if different)	Primary Treatment	Logging System	Fuel Hazard Reduction Treatment	Estimated Commercial Harvest				Riparian Treatment (if different from primary/fuel treatment)	Plant Acres	Comments
								SR (acres)	CT/ MGS (acres)	Vol/ Acre (mbf)	Vol Total (mbf)			
36S-04W-29-011	8	Matrix VRM III	NCW	W Oak	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' buffer	0	
36S-04W-29-012	36	Matrix VRM III	NCW	W Oak	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' and 60' buffer (w/spring)	0	
36S-04W-29-013	16	Matrix VRM III	NCW	W Oak	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0		0	
36S-04W-29-014	6	Matrix VRM III	NCW	W Oak	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' buffer	0	
36S-04W-31-001	27	Matrix VRM III	FGR/RMR	Mature DF	Harvest CT/MGS	H 100%	UT/HP/B/UB	0	22	3	66	60' buffer	15	Birdseye Rogue TS
36S-04W-31-002	31	Matrix VRM III	FGR/RMR	Mature DF	Harvest CT/MGS	H 100%	UT/HP/B/UB	0	27	3	81	50' and 60' buffers	15	Birdseye Rogue TS
36S-04W-31-003	8	Matrix VRM II	RTR	Mature DF	Harvest CT/MGS	H 100%	UT/HP/B/UB	0	8	6	48		4	
36S-04W-31-004	28	Matrix VRM III	NR	Grass / Shrub	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' buffer		
36S-04W-31-005	23	Matrix VRM III	FGR/RTR	Mature DF	Harvest CT/MGS	H 100%	UT/HP/B/UB	0	17	12	204	50' buffer	0	
36S-04W-31-006	33	Matrix VRM III	FGR/RTR /RMR	Mature DF	Harvest CT/MGS	H 100%	UT/HP/B/UB	0	20	7.5	150	50' and 60' buffers (w/spring)	5	
36S-04W-31-007	5	Matrix VRM III	FGR/RMR	Mature DF	Harvest CT/MGS	H 100%	UT/HP/B/UB	0	5	1.5	8		2	Birdseye Rogue TS
36S-04W-31-008	5	Matrix VRM III	FGR/RMR	Mature DF	Harvest CT/MGS	H 100%	UT/HP/B/UB	0	5	1.5	8		2	Birdseye Rogue TS
36S-04W-32-001	5	Matrix VRM III	RTR	Grass / Shrub	Meadow Restoration		UT/HP/B/UB	0	0	0	0	50' buffer	0	
36S-04W-32-002	27	Matrix VRM III	NCW	Grass /Shrub	Meadow Restoration		UT/HP/B/UB	0	0	0	0	50' buffer	0	6 ac meadow
36S-04W-32-003	22	Matrix VRM III	FGR/RMR /RTR	Mature DF	Harvest CT/MGS	H 80% C 20%	UT/HP/B/UB	0	13	1.5	20	50' and 60' buffers (w/springs)	5	Birdseye Rogue TS
36S-04W-32-004	24	Matrix VRM III	RTR	W Oak / DF	Meadow Restoration		UT/HP/B/UB	0	0	0	0	50' buffer	0	23 ac meadow
36S-04W-32-005	54	Matrix VRM III	FGR/RMR	Mat DF	Harvest (Alt 2) CT/MGS	H 90% T 10%	UT/HP/B/UB	0	30	10.5	315	50' and 60' buffers Snags &CWD	0	Alt 3 CTB/LGS
36S-04W-32-006	32	Matrix VRM III	FGR/RMR	Mat DF	Harvest (Alt 2) CT/MGS/SR	H 10% T 90%	UT/HP/B/UB	4	19	10.5	242	50' buffer	0	Alt 3 CTB/LGS
37S-04W-05-003	15	Matrix VRM III	RMR	Mat DF	Harvest CT/MGS	C 100%	UT/HP/B/UB/BR /PR	0	4	4.5	18	50' and 60' buffers	3	
37S-04W-05-004	40	Matrix VRM III	RMR	Mid DF	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0	50' buffer	0	
37S-04W-05-005	17	Matrix VRM III	RTR	Mid DF	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0		0	
37S-04W-05-006	34	NSO VRM III	RTR/RMR		No Treatment			0	0	0	0		0	NSO Core

Township Range Section Unit	Unit Acres	Land Allocation / VRM	TPCC	Plant Series & Seral Stage *Post treatment seral stage (if different)	Primary Treatment	Logging System	Fuel Hazard Reduction Treatment	Estimated Commercial Harvest				Riparian Treatment (if different from primary/fuel treatment)	Plant Acres	Comments
								SR (acres)	CT/ MGS (acres)	Vol/ Acre (mbf)	Vol Total (mbf)			
37S-04W-05-008	31	Matrix VRM III	RMR	Early DF	Fuel Hazard Reduction		UT/HP/B/UB	0	0	0	0		0	
37S-04W-06-001	20	NSO VRM III	FGR/RTR /RMR		No Treatment			0	0	0	0		0	NSO Core
37S-04W-06-002	29	NSO VRM III	FGR/RMR /RTR		No Treatment			0	0	0	0		0	NSO Core
37S-04W-06-003	32	NSO VRM III	FGR/RTR /RMR		No Treatment			0	0	0	0		0	NSO Core
37S-04W-07-001	20	Matrix VRM III	FMR/ RMR	Early DF	No Treatment		Rd Br & Prune Rd 37-4-7	0	0	0	0		0	Silv. Tx comleted
37S-04W-07-002	14	Matrix VRM III	LSW	Grass / Shrub / DF	No Treatment			0	0	0	0		0	Meadow
37S-04W-07-003	75	Matrix VRM III	FGR/RMR /RTR	Mat Pine / DF	Harvest CT/MGS	H 90% C 10%	UT/HP/B/UB	0	50	4.5	225	60' buffer (w/spring) Snags &CWD	5	
37S-04W-07-004	21	Matrix VRM III	FGR/RMR	Early DF	PCT/PR		HP/B	0	0	0	0	60' buffer UT/HP/B/UB	0	
37S-04W-07-005	15	Matrix VRM II	FGR/RMR	Early DF	Release		HP/B	0	0	0	0		0	
37S-04W-07-006	11	Matrix VRM III	FGR/RMR	Early DF	Release/PCT/P R		HP/B	0	0	0	0		0	
37S-04W-07-007	12	Matrix VRM III	FGR/RMR /RTR	Early DF	Release		HP/B	0	0	0	0	50' and 60' (spring) buffers UT/HP/B/UB	0	
37S-04W-07-008	18	Matrix VRM III	FGR/RMR /RTR	Early DF	No Treatment		BR/PR Rd 37-4-7	0	0	0	0	50' and 60' buffers UT/HP/B/UB	0	Release completed
37S-04W-07-010	36	Matrix VRM III	FGR/RMR /RTR	Early DF	No Treatment		BR/PR Rd 37-4-7	0	0	0	0		0	Release completed
37S-04W-07-012	9	Matrix VRM III	FGR/RTR	Early DF	No Treatment			0	0	0	0		0	Release completed
37S-04W-07-013	7	Matrix VRM III	FGR/RMR /RTR	Early DF	Release		HP/B	0	0	0	0		0	
37S-04W-07-014	108	Matrix VRM III	FGR/RMR /RTR	Mat Pine / DF * *Mid Pine/DF*	Harvest CT/MGS	H 40% C 50% T 10%	UT/HP/B/UB	20	79	3	297	50' and 60' buffers (w/spring)	15	
37S-04W-07-018	34	Matrix VRM III	FGR/RMR	Early DF	No Treatment		BR/PR Rd 37-4-7	0	0	0	0	50' buffer UT/HP/B/UB	0	Release completed
37S-04W-07-019	15	Matrix VRM III	FGR/RMR	Early DF	Maintenance		HP/B	0	0	0	0	50' and 60' (spring) buffers UT/HP/B/UB	0	
37S-04W-07-020	25	Matrix VRM III	RMR/RTR	Early DF	No Treatment			0	0	0	0		0	Treated under CE
37S-04W-07-021	7	Matrix VRM III	RMR	Early DF	Harvest SR	C 100%	UT/HP/B/UB	5	0	7.5	38		4	
37S-04W-07-022	4	Matrix VRM III	FGR/RMR	Early DF	Maintenance		HP/B	0	0	0	0		0	

Township Range Section Unit	Unit Acres	Land Allocation / VRM	TPCC	Plant Series & Seral Stage *Post treatment seral stage (if different)	Primary Treatment	Logging System	Fuel Hazard Reduction Treatment	Estimated Commercial Harvest				Riparian Treatment (if different from primary/fuel treatment)	Plant Acres	Comments
								SR (acres)	CT/ MGS (acres)	Vol/ Acre (mbf)	Vol Total (mbf)			
37S-04W-07-023	11	Matrix VRM III	FGR/RMR	Early DF	No Treatment		BR/PR Rd 37-4-7	0	0	0	0		0	Release completed
37S-04W-07-024	12	Matrix VRM III	FGNW	Grass / Shrub / DF	No Treatment			0	0	0	0	50' and 60' buffers UT/HP/B/UB	0	Riparian area
37S-04W-07-025	3	Matrix VRM III	RMR	Mid DF	No Treatment			0	0	0	0		0	
TOTALS	**3,253**							**54**	**1,028**	**n/a**	**6,155**		**205**	

Shaded units indicate where Alternative 2 differs from Alternative 3

Harvest acres vs. Unit acres: The difference in these acreages is attributable to large variability within the unit, unit inclusions of riparian reserves, non-forest, etc. Logging systems may vary if operator has obtained permission to use private property for access. Some variation of prescriptions and treatments may occur within a unit in response to (and to capitalize on) stand and site variations within the unit. Harvested acres do not solely reflect timber sale acres. They may also be harvested through small sales or stewardship contracting.

TPCC (Timber Productivity Capability Classification):

RTR-regeneration restricted due to hot temperatures and low soil moisture
RMR-regeneration restricted due to low soil moisture
RTW-withdrawn due to hot temperatures
LSW-withdrawn due to low site
NCW–noncommercial woodland
FGR-restricted due to steep slopes
FGNW-withdrawn due to fragile soils (steep slopes)
RMW-withdrawn due to low available soil moisture
NR-Non-forest

Stand Seral Stage: Units are often fairly heterogeneous in vegetation type, structure, ages and ecological processes. Identified seral stages are generalized unit descriptions.

Early - Vegetation is dominated by shrubs or conifers and hardwood trees in a seedling/ sapling size class (<5"DBH)
Mid - Vegetation is tree dominated. Trees at least small pole size (>4"DBH). Larger scattered trees may be present.
Mature - Forest has begun to differentiate into distinct canopy layers. Overstory dominant and codominant trees are conifers > 20"DBH, understory trees will be conifer-hardwood mix.
Old Growth - Stand is multilayered and has at least two distinct canopy layers. Large conifer trees > 35" DBH, eight or more per acre.

Primary Treatments

CT/MGS – Commercial Thin / Modified Group Select
SR – Structural Retention
CTB/LGS – Commercial Thin from Below / Limited Group Select
Meadow Restoration and HE/Woodland – wildlife habitat enhancement and meadow restoration using understory thinning (UT) and under burning (UB).
PCT – Pre-commercial thin (conifers only)
PR – Pruning
BR – Roadside brushing
Release – Thinning of conifers and hardwoods
Maintenance – Treatments to enhance growth and increase survival until seedlings become established.

Logging Systems: H - Helicopter C - Cable T – Tractor

Fuel Hazard Reduction Treatments (primary fuels treatment are in bold type):

LTLM – Large Tree Legacy Management
UT – Understory Thinning - understory thin vegetation < 12" DBH with spacing widths ranging from 15' to 45'.
HP/B – Hand Pile & Burn Hand pile and burn slash 1" to 6" x 2', cover, and burn piles
UB – Underburn - mosaic or spot burn under reserved overstory.
SB – Slashbuster

Riparian Treatment - CWD – Coarse Woody Debris

Appendix C: Riparian Management Guidelines

Riparian Management Guidelines			
Stream description	**Objective (The after note shows the related ACS* objective)**	**Treatment**	**Riparian management description relative to stream channel location**
Perennial Streams & Springs (No fish streams were identified in the project area)	Thin and brush young, dense stands to facilitate individual tree growth and reduced fuel hazard. *ACS #8*	Cut with chainsaws some vegetation ≤ 8" diameter. Leave conifers and hardwoods.	Hand cut some vegetation ≥ 60' from the stream channel. Within 60' of the channel (no treatment buffer) current vegetation density and species composition would be maintained.
	Chip woody brush and hardwoods to allow for resprouting, tree growth and reduced fuel hazard. Reduce slash produced from other treatments. *ACS #1*	Slashbust some vegetation ≤ 12" diameter. Leave conifers, hardwoods, and reserved dense pockets of vegetation.	Slash busting would not occur within 60' of the stream channel. Slashbuster treads would be at least 85' from the channel. All stream crossings would be designated by BLM and kept to a minimum. Stream crossing locations would minimize sedimentation and bank instability. The existing fuel hazard would be accepted within 60' of the channel.
	Reduce fire hazard. *ACS #1*	Conduct low intensity fall or spring under burns.	Burning within 60' of the stream channel would take place only as a backing burn without direct ignition. The existing fuel hazard would be accepted within 60' of the channel.
		Burn slash piles during or after rain events in the winter, fall or spring.	Slash would not be piled or burned within 60' of the stream channel; the existing slash and fuel hazard would be accepted.
	Thin dense stands to facilitate individual tree growth, species diversity and reduced fuel hazard. *ACS #1 and 8*	Remove trees using helicopters, tractors or cable systems. Canopy cover outside of the 60' no treatment buffer would be > 60%. Ensure snag and CWD requirements are met prior to tree removal.	Trees >12" DBH would not be cut in the Riparian Reserve. Trees 8-12" DBH would not be felled within 75' of perennial streams.
	Encourage long term and immediate recruitment of snags and woody debris in the Riparian Reserves. *ACS #1*	Girdle or fell and leave some trees >14" DBH.	This treatment would be applied outside of the 60' no treatment buffer. The canopy cover outside of the 60' no treatment buffer would be >60%. Existing stand density within 60' of the channel would be accepted.
Intermittent Streams	Thin and brush young, dense stands to facilitate individual tree growth and reduced fuel hazard. *ACS #8*	Cut with chainsaws some vegetation ≤ 8" diameter. Leave conifers and hardwoods.	Vegetation would not be cut within 50' of the stream channel except for tan oak and brush species other than big leaf maple, dogwood, and elderberry. All conifers would be retained.
	Chip woody brush and hardwoods to allow for resprouting, tree growth and reduced fuel hazard. Reduce slash produced from other treatments. *ACS #1*	Slashbust some vegetation ≤ 12" diameter. Leave conifers, hardwoods, and reserved dense pockets of vegetation.	Slashbusting would not occur within 50' of the stream channel. Slashbuster treads would be at least 75' from the channel. Stream crossings locations would minimize sedimentation and bank instability.
	Reduce fire hazard. *ACS #1*	Conduct low intensity fall or spring under burns.	Burning within 50' of the stream channel would take place only as a backing burn without direct ignition. The existing fuel hazard would be accepted within 50' of the channel.
		Burn slash piles during or after rain events in the winter, fall or spring.	Slash would not be piled or burned within 50' of the stream channel; the existing slash and fuel hazard would be accepted.
	Thin dense stands to facilitate individual tree growth, species diversity and reduced fuel hazard. *ACS #1 and 8*	Remove trees using helicopters, tractors or cable systems. Canopy cover outside of the 50' no treatment buffer would be > 40%. Ensure snag and CWD requirements are met prior to tree removal.	Trees >12" DBH would not be cut in the Riparian Reserve.

Riparian Management Guidelines			
Stream description	**Objective (The after note shows the related ACS* objective)**	**Treatment**	**Riparian management description relative to stream channel location**
	Encourage long term and immediate recruitment of snags and woody debris in the Riparian Reserves. *ACS #1*	Girdle or fell and leave some trees >14" DBH.	This treatment would be applied outside of the 50' no treatment buffer. The canopy cover outside of the 50' no treatment buffer would be >40%. Existing stand density within 50' of the channel would be accepted.
Restoration in Riparian Reserves	Ameliorate or restore landings, skid roads, or spur roads in Riparian Reserves to decrease erosion and sedimentation. *ACS #5*	Restore landings, spur roads, and skid roads	Only designated skid trails would be used in Riparian Reserves. Skid trail designation would be limited to those that have not recovered from previous use and which would benefit from decommissioning and restoration. With the exception of paved roads, all roads or skid trails used in Riparian Reserves would be decommissioned following use. Skid trail restoration would include ripping/decompaction, water barring, seeding, tree planting and blocking as appropriate for the site. Skid roads would be used in the dry season and generally for only one season. If a skid road in a Riparian Reserve is to be used more than one season it would be winterized (waterbarred, covered with debris, etc.)

**Aquatic Conservation Strategy Objectives*, (NFP p. B-11).
Forest Service and BLM-administered lands within the range of the northern spotted owl will be managed to:
11. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features to ensure protection of the aquatic systems to which species, populations and communities are uniquely adapted.
12. Maintain and restore spatial and temporal connectivity within and between watersheds. Lateral, longitudinal, and drainage network connections include flood plains, 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.
13. Maintain and restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations maintain and restore water quality necessary to support healthy riparian, aquatic, and wetland ecosystems.
14. 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.
15. Maintain and restore the sediment regime under which aquatic ecosystems evolved. Elements of the sediment regime include the timing, volume, rate, and character of sediment input, storage, and transport.
16. Maintain and restore in-stream flows sufficient to create and sustain riparian, aquatic, and wetland habitats and to retain patterns of sediment, nutrient, and wood routing. The timing, magnitude, duration, and spatial distribution of peak, high, and low flows must be protected.
17. Maintain and restore the timing, variability, and duration of floodplain inundation and water table elevation in meadows and wetlands.
18. 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 distributions of coarse woody debris sufficient to sustain physical complexity and stability.
19. Maintain and restore habitat to support well-distributed populations of native plant, invertebrate, and vertebrate riparian-dependent species.

Appendix D: Road Information

Proposed Road Use, Construction, Renovation, Improvement, Maintenance and Closures of Roads used for Haul									
Road # / Road Seg.	Road Control	Total Length (miles)	Current Condition/ Surface	Approx. Miles of Proposed Treatment:				Comments	Road Closure Type
				Maintenance	Construction	Renovation	Decommissioning		
35-5-21A	BLM	1.67	BST	1.67	0	1.67	0		
35-5-21B	BLM	1.26	ASC	1.26	0	1.26	0		
35-5-26A	BLM	1.09	ASC	1.09	0	1.09	0		
35-5-26B	BLM	3.20	ASC	3.20	0	3.20	0		
35-5-26.2	BLM	2.6	ASC	2.60	0	0	0		
35-5-26.7	Private	0.81	NAT	0.81	0	0.81	0	Pending amendment of reciprocal agreement M-1182.	
35-5-33.5	BLM	0.60	NAT	0.60	0.60	0	0.60	New construction - ridge top road with proposed helicopter landing near end of road. Currently used as informal trail. Decommissioning and convert to trail (Option 4)	
35-5-35.3	BLM	1.46	GRR	1.46	0	1.46	0		
35-5-34A	BLM	0.50	NAT	0.50	0.50	0	0	Option 2 access to Sec 3. New construction beginning on County, cross SW 1/4 Sec 34, ties to Spalding road Pending amendment of reciprocal agreement M-1182.	
36-4-5	BLM	3.23	PRR	3.23	0	3.23	0		
36-4-32	BLM	1.90	NAT	1.90	0	1.90	0	Proposed Helicopter landing	
36-5-3	BLM	0.80	NAT	0.80	0.80	0	0	Option 1 access to Sec 3. New Construction from existing Spalding road in Sec 34 into BLM Sec 3. Proposed helicopter landing near end of road. First 0.3 miles full bench construction. Pending amendment of reciprocal agreement M-1182	Close/gate/Earth Berm
36-5-9	BLM	0.35	ASC	0.20	0	0.35	0	Reconstruction 0.2 miles- Pending agreement with City of Grants Pass. Provides access to BLM and proposed trailhead/landing. Proposed chipseal road surface. Improve drainage on 0.35 miles.	
36-5-12.1	BLM	1.19	NAT	1.19	0	1.19	0		
37-4-4A	BLM	0.11	ASC	0.11	0	0.11	0		
37-4-4B	BLM	0.96	ASC	0.96	0	0.96	0		
37-4-4B2	BLM	2.02	ASC	2.02	0	2.02	0		
37-4-4C1	BLM	1.42	ASC	1.42	0	1.42	0		
37-4-4C2	BLM	0.56	ASC	0.56	0	0.56	0		
37-4-4C3	BLM	0.80	ASC	0.80	0	0.80	0		
37-4-4.1A	BLM	1.18	ASC	1.18	0	1.18	0		
37-4-4.1B	BLM	1.06	ASC	1.06	0	1.06	0		
37-4-4.1C	BLM	1.17	ASC	1.17	0	1.17	0		
37-4-4.1D	BLM	1.13	ASC	1.13	0	1.13	0		
37-4-4.1E	BLM	0.26	ASC	0.26	0	0.26	0		
37-4-5A	BLM	0.82	GRR	0.82	0	0.82	0		
37-4-5B	BLM	0.39	NAT	0.39	0	0.39	0		
37-4-5.1A	BLM	0.45	NAT	0.45	0	0.45	0.23	Decommission segment 2. Pending approval with private land owner.	
37-4-5.2	BLM	0.55	GRR	0.55	0	0.55	0		

Proposed Road Use, Construction, Renovation, Improvement, Maintenance and Closures of Roads used for Haul

Road # / Road Seg.	Road Control	Total Length (miles)	Current Condition/ Surface	Approx. Miles of Proposed Treatment:				Comments	Road Closure Type
				Maintenance	Construction	Renovation	Decommissioning		
37-4-5.3	BLM	0.10	ASC	0.10	0	0.10	0		
37-4-5.5A	BLM	0.50	NAT	0.50	0	0.50	0		
37-4-5.5B	PVT	0.20	NAT	0.20	0	0.20	0	Proposed Helicopter Landing, Existing reciprocal agreement M-1006	
37-4-7A	BLM	0.97	GRR	0.97	0	0.97	0		
37-4-7B	PB	0.11	GRR	0.11	0	0.11	0		
37-4-7C	BLM	0.09	GRR	0.09	0	0.09	0		
37-4-7.1	BLM	0.36	NAT	0.36	0	0.36	0.36	Proposed Helicopter Landing	
37-4-18.1	BLM	0.34	NAT	0.34	0	0.34	0		
37-5-1A	BLM	0.70	ASC	0.70	0	0.70	0	Proposed Helicopter Landing	
37-5-1B1	BLM	0.62	ASC	0.62	0	0.62	0		
37-5-1B2	BLM	0.80	PRR	0.80	0	0.80	0		
37-5-1C	BLM	1.28	PRR	1.28	0	1.28	0		
37-5-1D	BLM	0.28	NAT	0.28	0	0.28	0		
37-5-1E	PVT	0.13	NAT	0.13	0	0.13	0		
37-5-1F	BLM	1.06	NAT	1.06	0	1.06	0		
37-5-1.1	BLM	2.62	NAT	2.62	0	2.62	0	Proposed Helicopter Landing	
Operator Spur 36-5-1A	BLM	0.10	NAT	0.10	0.03	0.07	0.10	Renovate 0.07 miles of existing spur and New Construction of 0.03 to Proposed Helicopter Landing	
Operator Spur 36-5-3A	BLM	0.10	NAT	0.10	0.10	0	0.10	Lower landing in Sec 3. Proposed helicopter landing. Obliterate road after use.	
Operator Spur 36-5-3B	BLM	0.20	NAT	0.20	0.20	0	0.20	Center of Section 3. Obliterate road after use.	
T36S,R5W, SEC 2JoCo Rd.	PVT	0.60	NAT	0.60	0	0.60	0	Pending agreement with the Josephine County for road use and helicopter landing	
TOTAL		**42.1**		**41.95**	*****	**39.87**	**1.59**		

Option 1 and would have net road increase of 0.14 miles.
Option 2 would have a net road increase of 0.64 miles
Option 3 would have net road reduction of 0.66
Option 4 would have no net change in road miles.

Surface: BST=Bituminous Surface Treatment **ASC**= Aggregate Surface Coarse **GRR**= Grid Rolled Rock **PRR**= Pit Run Rock **NAT**= Natural Surface **H** = Construct Helicopter landing (approx. 100' x 200')

Maintenance may include surface grading, roadside brushing, for safety, spot rocking and maintaining existing drainage structures. Maintenance of natural surface roads may also include correcting drainage and erosion problems (e.g., improving or installing drainage dips, installing other drainage structures where needed, eliminating outside road edge berms or other features that obstruct drainage).
Decommissioning consists of subsoil ripping of the roadbed to promote the establishment of vegetation and promote drainage consistent with the surrounding undisturbed areas. Culverts may be removed. Grass seeding of the road prism, fill slope and cutbank, and mulching of the road prism may be used to minimize erosion prior to site revegetation. An earth berm/tank trap barricade may be constructed at the beginning of each road to prevent vehicular use following decommissioning.
Renovation consists of reconditioning and preparing the subgrade for heavy truck use, cleaning and shaping drainage ditches and structures, and trimming or removing vegetation from cut and fill slopes.

Appendix E: Alternatives Considered but Eliminated from Analysis

1. An alternative to apply a second thinning to the Birdseye Rogue T.S. units harvested in 1999 to reduce stand densities so maximum growth potential could occur was considered. This would occur approximately five years after slash from previous logging operation was reduced. Roads are in excellent shape and would support logging traffic with minimal road maintenance. The team decided a separate document based on stand conditions (e.g. increase of stand densities, crown ratios, snag formation) after the slash is reduced would better reflect possible changes in wildlife (eagles, osprey, owl) use and gain a better perspective on visual concerns of units seen from the I-5 corridor. In August 2003 these units were again proposed for thinning because of the threat of nearby beetle populations. Reducing the stand density and treating the fuel will lessen the possibility of serious beetle infestations. Individual dead trees and patches of dead trees are in the lower elevation of these units and on private lands. Salvage was considered in these areas, but a thinning may prevent the need for salvage.

2. Road alternatives that extend roads from county roads or private roads into Section 3 were considered: Josephine County Forestry officials (communication with Grants Pass Engineer 1/20/2000), do not want parallel road systems necessitating adding switch backs that would be too steep to safely handle road traffic.

Another proposal was for 1 mile of new road construction in Section 3 connecting to an existing road on Josephine County land in T36S, R5W, Section 2. Half of the new construction is located primarily on a ridge and the other half, on a sidehill with 0-30% slopes. This route involves construction in the deferred watershed and within a RTV buffer.

3. Road access to section 9 and 4: The BLM does not have access to use the existing road off of Lenella Lane that accesses the communications site. Road off of West.Jones Creek Road near the NE corner requires more investigation for access.

4. The potential adverse effect of logging activities and tree harvesting on water quantity and quality, both for wildlife and domestic uses. This concern is covered in the project design feature and by the RMP.

5. Concern about potential impacts of additional road construction on water quality and water flow. May become issue if a lot of new road construction-possibility of high road density issue.

6. Project area is located within the Medford/Grants Pass Air Quality Maintenance Area. This issue is addressed in the project design features and in the proposed actions.

7. A 25’ no treatment width adjacent to intermittent streams in the riparian reserve was considered, but replaced with a 50’ no treatment width. The width next to a stream that will not be ignited is 50’. Treatment would not likely occur if burning could not follow. The no-treatment width (vegetation treatments) was therefore pulled back to the no-ignition width.

8. A location for the trailhead in Section 9 was considered that is near the city of Grants Pass water tank. The city of Grants Pass expressed concerns about security. A new site is relocated to a more exposed location approximately 500' NE.

Appendix F: References Cited

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