ENVIRONMENTAL ASSESSMENT

for the

RUM CREEK LANDSCAPE MANAGEMENT PROJECT

(EA# OR117-06-01)

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

June 2006
Dear Reader:

We appreciate your interest in the BLM's public land management activities, including the Rum Creek Landscape Management Project. A scoping letter was sent in February, 2005 to residents and landowners near the Rum Creek project area as well as to federal, state, and county agencies, and private organizations or individuals who requested information concerning projects of this type. Personal discussions and scoping comment letters provided public input to BLM for consideration in this Environmental Assessment (EA).

We appreciate your taking the time to review this EA. If you would like to provide us with written comments regarding this project, please send them to me at 2164 NE Spalding Ave, Grants Pass, OR 97526 or via email at orl10mb@or.blm.gov.

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 and 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
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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 action 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 or complies with the following documents:

2. Final SEIS 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 Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl (NWFP) (1994).
8. REO Exemption Memo: Criteria to Exempt Specific Silvicultural Activities in Late-Successional Reserves and Managed Late-Successional Areas from Regional Office Review (1996).

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

2. Rogue-Recration Section Watershed Analysis for the Big Hog Watershed (1999)
4. Rogue River/South Coast FY04-08 Timber Sale Projects Biological Assessment (2003) and USFWS Biological Opinion (#1-14-03-F-511, October 2003).
5. Rogue River/South Coast FY06-08 Timber Sale Projects Biological Assessment (June 2006).

1.1 Purpose

The purpose of the Rum Creek project is to accelerate the development of late-successional forest conditions within younger previously managed stands, while protecting, maintaining, and enhancing current late-successional stands in the Rum Creek drainage. The proposed actions are designed to meet the objectives of the Northwest Forest Plan (NWFP) and the Medford District RMP. The treatment and management strategies and recommendations for the Fish Hook/Galice Late-Successional Reserve (LSR) outlined in the Southwest Oregon Late-Successional Reserve Assessment (SOLSRA) and the Wild Rogue South Watershed Analysis were used to design the proposed actions.
Without this project, young stands in the Rum Creek drainage would lack complex structure and would be susceptible to significant habitat loss due to natural disturbance such as fire. This project would also add forest stand structure and complexity by promoting understory development in previously managed stands that are lacking multi-canopy layers. Without active management, it would take longer for riparian areas in younger stands to develop late-successional habitat and forest structure. Without the proposed road work, there would be an increased risk of road and culvert failure, which would deliver more sediment to Rum Creek and the Rogue River. A secondary purpose of this project is to provide forest products as identified in the RMP and as described in the O&C Settlement Agreement.

1.1.1 Desired Future Conditions

- Young stands with structural diversity
- Fire-resilient stands
- Additional stands in the project area with late successional habitat characteristics: large live trees, large standing snags, large down wood, multiple canopy layers, smaller understory trees, canopy gaps, and patchy understory.
- Late-successional habitat characteristics within riparian areas.

1.2 Need

The proposed action is designed to meet a variety of resource, social and economic needs outlined in the NWFP, RMP, SOLSRA, and Wild Rogue Watershed Analysis.

➢ Late-Successional Habitat Restoration

In the Rum Creek drainage, many mid-seral forest stands, including upslope and riparian areas, currently lack species diversity and structure. High stocking density and underbrush competing for light and water resources have reduced stand vigor and resiliency, prolonging development of late-successional forest characteristics. Additionally, stand growth rates and resiliency to disease are reduced. There is a need to reduce the number of trees per acre to levels that would provide for a productive, diverse, and resilient forest, and which would accelerate late-successional forest development. Previously managed stands with simplified canopy structures need multi-canopy layer development. There is a need to provide connectivity throughout the drainage and between adjacent drainages and protect the large core of late successional habitat by enhancing structure in adjacent stands.

➢ Riparian Habitat Restoration

Young stands provide poor instream large wood recruitment potential. Due to past management in riparian reserves, approximately 50% of riparian stands surveyed in the Rum Creek drainage lack this large tree component; therefore, there is a need to promote large wood recruitment to increase future levels within the drainage. Additionally, the existing low diversity of tree species offers less than desirable habitat for wildlife using the riparian corridors.

➢ Hazardous Fuels Reduction

Reduced fire frequency in the drainage has significantly altered vegetation attributes, fuel loading, and fire behavior. As a result, a majority of the area is dominated by dense vegetation...
which contributes to extreme fire behavior potential. There is a need to reduce horizontal and vertical fuel loading to protect current late-successional forest patches.

Forest Product Contribution

The O&C Settlement Agreement directed the BLM to conduct thinning projects on O&C lands in Late-Successional Reserves consistent with ecological objectives of the NWFP. Pre-commercial and commercial thinning would promote development of late-successional forest characteristics and would also provide a commodity by-product.

1.3 Project Location and Land Use Allocations

The Rum Creek drainage is in the Wild Rogue and Big Hog 5th field watersheds, approximately 17 miles northwest of Grants Pass. The project area is in the Fish Hook/Galice Late-Successional Reserve (LSR). Project area maps are in Appendix A.

1.4 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 identified through scoping are listed below. Many of these issues were identified in the Wild Rogue South Watershed Analysis. The issues below were used to formulate alternatives, identify project design features, and analyze environmental effects. Issues that were not considered to be within the scope of the project or were not considered to be drivers of the alternatives are summarized in Appendix E. The pertinent planning issues are:

- A high percentage of young stands occur in the project area, including high-density plantations with little diversity. The existing coarse woody material and snag components in these young stands are below levels that would be expected in comparably aged natural stands. Late-successional habitat is spatially fragmented throughout the project area.

- Fire exclusion and high fuel loading has led to a high potential for large, uncharacteristic wildfire which could reduce the quality and quantity of current late-successional habitat.

- The project is in a designated spotted owl critical habitat (CHU OR-65) which provides two inter-provincial links. Approximately 1,642 acres of suitable spotted owl habitat was lost in the portion of the 2002 Biscuit Fire that occurred in the SW corner of this CHU. However, the Biscuit Fire did not reach the Rum Creek drainage.

- The project area is in a Medford RMP designated Big Game Management Emphasis Area (deer and elk) which may require management that could conflict with guidance in the SOLSRA.

- Approximately 77% of the Rum Creek drainage is in the transient snow zone, which could lead to high stream peak flows and sediment levels during rain on snow events.
Some tributaries to Rum Creek flow through high deposits of sediment and coarse woody debris where the CWD stabilizes the deposit and prevents accelerated erosion as the stream slowly recovers to a state of equilibrium. Activities should be designed to maintain the recovery processes.

2.0 Proposed Action and Alternatives

2.1 Introduction

This chapter describes the two proposed action alternatives. In addition, a "No Action" alternative is presented to form a baseline for analysis. The EA interdisciplinary team developed a range of alternatives to meet the purpose and need identified in Chapter 1. Some of the alternatives that were considered but eliminated from further evaluation are summarized in Appendix F. This chapter also outlines Project Design Features (PDFs) which are included to reduce or eliminate anticipated adverse environmental impacts.

A large, intact block of late-successional habitat lies in the interior of the project area. One project objective is to expand this core area by speeding the development of adjacent previously managed stands towards late-successional habitat. In these adjacent managed stands, high stocking density and underbrush competing for light, water and nutrients have reduced stand vigor and resiliency, prolonging development of late-successional forest characteristics. Fuel hazard reduction would protect the habitat core area from natural disturbance and large scale habitat loss. Additionally, riparian areas in younger stands would be treated to enhance late-successional characteristics. Treatments would also result in a commercial by-product and biomass. A variety of tools, described below, would be used to meet the purpose and need identified in Chapter 1.

2.2 Proposed Treatments

2.2.1 Late-Successional Habitat and Other Habitat Restoration

The objective is to expand the existing late-successional core area by speeding the trajectory of adjacent previously managed younger stands towards late-successional habitat. Late-successional habitat characteristics, such as coarse wood and snags, would be added to younger stands where feasible. Elk habitat associated with these younger stands is also targeted for restoration. Specific tools to meet these objectives are identified below.

2.2.1.1 Variable Canopy Thinning with Gap Formation

Objective
Thinning and brushing would release residual conifers and hardwoods. Variable canopy thinning, which increases tree growth rates and promotes horizontal and vertical structural diversity in stands, capitalizes on existing stand diversity in homogenous stands to promote further stand diversity over time.

Proposed Treatment
Stands 40 to 80 years old would be thinned based on tree crown size. Tree spacing in crown-size based thinning is variable and is determined by natural variations in tree size, vigor, individual tree canopy depth, and unique limb structure. A minimum of ¼- to ½-acre no-treatment areas (10% or
more of the entire stand) would be untreated to further facilitate diversity. Buffers, hardwood areas, chinquapin patches, rocky outcrops, wet areas, and areas with large woodrat nests would contribute to or serve as these leave areas. Pre-existing small openings experiencing encroachment would be targeted first to restore open patches. Three to 10% of the stand would be in openings, in the form of ¼ to ½ acre gaps distributed throughout the unit. Retained species would represent those found in the unit’s dominant plant association. Conifers and hardwoods would be thinned to a 2x crown radius spacing. Retained stems per acre will vary widely, ranging from 40-500 trees per acre. Canopy closure would range from 40-60% percent following treatment. Trees up to 20” DBH would be available for harvest. Trees over 20” DBH would not be cut in any treatments in this project.

Variable canopy thinning units are identified in the treatment table in Appendix B.

### 2.2.1.2 Incremental Canopy Thinning with Gap Formation

**Objective:**
Thinning and brushing would release residual conifers and hardwoods. Incremental canopy thinning treatments would gradually increase space between leave trees, and are primarily located adjacent to fuel hazard reduction units. Narrow spacing and higher canopy retention would occur in or near riparian reserves and the spacing would widen until the unit reaches a road. Incremental canopy thinning would also be used in stands where pine species influence stand dynamics and transition areas where sugar pine, ponderosa pine, Jeffery pine, knobcone pine, and shade intolerant hardwood species are diminishing in vigor and numbers because of overcrowded stand density conditions.

Spacing of residual trees would increase at intervals throughout the unit to allow for a blending of forest structures and accelerate the stand to multi-layered architecture. This treatment would gradually produce a mosaic pattern of stand structure and habitat conditions by allowing an increased variation of canopy retention.

**Proposed Treatment:**
Treated stands would be approximately 40-80 years old. Canopy cover reduction would be graduated in succeeding intervals of approximately 200 feet. Maximum canopy cover retention would be 60-80%, and the minimum, near roads, would be 40%. Gap creation (¼- to ½-acre openings) would occur around shade intolerant tree species. For no-treatment and gap creation parameters, the treatment would be the same as described above, for variable canopy thinning with gap formation.

Incremental canopy thinning units are identified in treatment table in Appendix B.

### 2.2.1.3 Tree and Shrub Planting

**Objective:**
The objective is to maintain a multi-layered mix of conifer, hardwood and shrub species that would occur in the dominant plant series. Planting would increase species and structural diversity and allow planted species to more successfully compete with invasive brush.

**Proposed Treatment:**
Planting may occur throughout the project area within one to three years following initial fuels or thinning treatments. Following initial treatment (thinning or fuel hazard reduction) units would be assessed for planting needs to compliment existing species in the stand. Highest priority units for planting include very dense stands where little or no conifer or shrub regeneration is occurring.

*Rum Creek EA June 16, 2006*
Monoculture/even aged stands and shelterwood stands would also be targeted for planting. Planted tree or shrub spacing would be clumped and random, rather than evenly spaced. Tree planting may include a delay release fertilizer packet. Seedling maintenance may include removing competing grasses and forbs with hand tools, scalping the area around seedlings, or installing paper or Vispore mulch to prevent soil moisture loss. Tree netting may also be used to prevent browsing by wildlife.

2.2.1.4 Young Stand Thinning

Objective:
Thinning in stands less than 40 years old would speed the stand’s growth trajectory towards late-successional habitat.

Proposed Action:
Surplus trees and brush would be cut or girdled. All tanoak less than 12” DBH and most brush would be cut. Hardwood stems not selected as leave trees and all surplus trees up to 10” DBH would be cut. Vigorous, well-formed conifer leave trees would be spaced for leave based on the tree’s DBH. When the leave tree DBH is 1-5”, spacing would be 8’ between drip lines. When the DBH is 5-10”, spacing would be 12’ between drip lines. For non-tanoak hardwoods, sprout clumps would be thinned to the largest stem and spaced 25’ apart. The straightest stems with the largest diameter at 2’ above ground level and the best formed crowns with origins closest to the base of the stump would be selected for leave within sprout clumps. A minimum of ¼- to ½-acre no-treatment areas (10% or more of the entire stand) would be untreated to further facilitate diversity. Buffers, hardwood areas, chinquapin patches, rocky outcrops, wet areas, and areas with large woodrat nests would contribute to or serve as these leave areas.

Trees with largest and best-formed crowns to be selected as leave trees regardless of defect or disease; the largest crowns in trees within the 1” – 12” DBH would determine spacing. Spacing variance on crown-based spacing is plus or minus 25%. All maple species, dogwood, pacific yew, black oak, Port-Orford cedar, alder, Vaccinium ssp (except evergreen), willows, and serviceberry would be reserved, regardless of spacing (i.e., not included in spacing or considered leave trees).

2.2.1.5 Snags and Coarse Wood Development

Objective:
Treatments would maintain and increase future snag and coarse wood development. Slash treatments and underburning would emphasize protection of snags, residual larger trees, and coarse woody debris.

Proposed Action:
All trees greater than 20”DBH and all snags would not be cut, except in instances where safety concerns prevail. Where feasible, no treatments (thinning, hand pile burning or fire line construction) would occur within one tree height of hazardous snags. If within five years, the snag level is low, trees 14 – 20 “DBH could be girdled to provide hard snags and future CWD to average 4 per acre over 40 acres.

Trees 16 – 20” dbh would be cut and left in previously managed stands lacking coarse wood. The minimum coarse wood target would be 20 pieces per acre and may be achieved in more than one entry (USDA, USDI 1995). These trees would be felled from adjacent older seral stands within the identified core habitat area. This is the only time treatments would occur in older seral stands within the Rum Creek project area. This treatment is consistent with the REO Exemption Memo: Criteria to
Exempt Specific Silvicultural Activities in Late-Successional Reserves and Managed Late-Successional Areas from Regional Office Review (1996). The area identified for this treatment is T34S, R8W, Sections 9,10 (OI 900) Previous Progeny Site.

2.2.1.6 Elk Habitat Improvement

Objective:
Maintain and improve elk habitat, specifically forage conditions, within the drainage and the RMP designated Elk Management Area.

Proposed Treatment:
Specific components of vegetation treatments and road projects listed in the proposed action are also designed to improve elk habitat within the drainage:

- Canopy gaps would be created in variable and incremental canopy treatments and fuels (a minimum of one 1/4 to 1/2 acre gaps or approximately 3-10% of the stand) to allow forage vegetation to develop.
- Ripped skid trails, temporary operator spurs, helicopter landings, and decommissioned roads would be planted with grasses and native shrubs of high forage value.
- Roads would be blocked by gates or other barriers (See Road in Appendix C).

Additionally, the following big game palatable forage hardwood tree and shrub species would be protected from cutting throughout the project area: willows, maples, dogwood, alder, elderberry, huckleberry (except evergreen), and black oak.

2.2.1.7 Temporary Spur Roads

Objective:
Existing spur roads that are overgrown with vegetation would be opened to allow operator access to commercial harvest or biomass utilization units. The objective is to minimize effects to resources by utilizing existing roads, and obliterating operator spurs after use.

Proposed Action:
Approximately 0.61 miles of existing temporary spur road would be opened and renovated. Spur roads would be obliterated after all activities have been completed (harvest and/or fuels treatments). Slopes would be recontoured by pulling in fill material and placing slash and logging debris over the road.

<table>
<thead>
<tr>
<th>Road Number</th>
<th>Surface Type</th>
<th>Const Miles</th>
<th>Renov Miles</th>
<th>Oblit Miles</th>
<th>Road Closure Type</th>
<th>POC</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator Spur A</td>
<td>NAT</td>
<td>0</td>
<td>0.06</td>
<td>0.06</td>
<td>Obliterate</td>
<td>N</td>
<td>Open existing spur. Obliterate after use.</td>
</tr>
<tr>
<td>Sec 15</td>
<td></td>
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<td></td>
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<tr>
<td>Operator Spur B</td>
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<td>0.15</td>
<td>0.38</td>
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<td>0.40</td>
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<td>Open existing spur. Obliterate after use.</td>
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2.2.2 Hazardous Fuels Reduction for Habitat Retention

The objective would be to protect current late-successional forest habitat areas by reducing fuel loads in adjacent previously managed stands. Some of these are stands that have been pre-commercially
thinned and some are old shelterwood stands with a dense understory canopy of tanoak and other hardwoods and natural conifer thickets and reproduction. Species diversity would be maintained by selectively slashing hardwoods, conifers and shrubs, and by reserving specified species part of the dominant plant association for each unit.

Fuel reduction treatments would reduce natural fuels and activity generated fuels. *Natural fuels* are those that exist as a part of the current stand/vegetation type and *Activity fuels* are surface fuels that would be created as a result of other vegetation treatments described above.

A variety of tools would be used to reduce fuels/fuel hazards. Treatments would include selective slashing and burning. Specific tools and treatments are identified in more detail below.

### 2.2.2.1 Selective Slashing

**Objective:**
Selective slashing would reduce fuels and alter the fuel model in order to limit the potential rate of wildfire spread and burn severity through management of natural and activity related fuel accumulations. Understory stem densities would be reduced to lower wildfire heat intensity and flame lengths. In stands with previous shelterwood treatments stands with only two canopy layers, selective slashing would promote the development of multiple canopy layers by reducing competing vegetation and releasing the residual conifers and hardwoods.

**Proposed Treatment:**
Vegetation less than 12 inches DBH would be cut (selective slashing) using variable canopy thinning, based on tree crown sizes (See section 2.2.1.2). Selective slashing treatments are different than the incremental or variable canopy thinning treatments by tree sizes cut, tree species retained, and stand location. However, all selective slashing units would include no-treatment areas and gap creation, as described above in the variable canopy thinning and incremental thinning units.

**Selective Slashing Treatment 1 (Pine dominated stands and Pine transition stands)**
Understory vegetation density would be reduced by cutting and spacing of vegetation that is <8” DBH for conifers and <12” DBH for hardwoods. All conifers >8” DBH and all hardwoods >12” DBH would be retained. Thin conifers to a 2x crown radius spacing (4-45 ft. spacing range), with leave tree species preference in the following order: Jeffrey Pine, Sugar Pine, Knobcone Pine, Douglas-Fir, Incense Cedar, True Fir, Ponderosa Pine, tanoak, liveoak, chinquapin, and huckleberry oak.

**Selective Slashing Treatment 2 (True fir/ Doug-fir/ and Doug-fir dominated stands)**
Treatment 2 would differ from Treatment 1 by thinning conifers to a 1½x crown radius spacing (4-45 ft. spacing range). Leave tree species preference order would change to Sugar Pine, Douglas-Fir, Jeffrey Pine, Incense Cedar, True Fir, Ponderosa Pine, liveoak, tanoak, and chinquapin.

*For all selective slashing treatments*, guidelines for leaving hardwoods not included for spacing or considered leave trees would be the same as described in the Young Stand Thinning Treatment, Section 2.2.1.5.
2.2.2.2 Hand Piling and Burning (HP/B)

Objective:
This treatment would reduce natural and activity fuels due to heavy fuel loads, such as in areas of hazardous slash buildup from fuels treatments and other vegetation treatments (including young stand thinning or other project related treatments).

Proposed Treatment:
Slash 1-6” in diameter and longer than two feet in length would be piled by hand within 6 months after fuels treatment. The piles would be covered to create a dry ignition point and would be burned in the fall or winter when the risk of fire spread (scorch or mortality) to nearby residual trees and shrubs is reduced. Materials 6”- 12” would not be piled but may be removed from the site as poles or firewood. The handpiles would remain on site until dry enough for complete combustion (cured). It is expected that handpiles would be burned in the first winter or early spring following the construction of the pile, but could take as long as 18 months. Exceptions to this would be if piles did not have enough time to cure, unseasonably dry winter/spring conditions, or atmospheric conditions not conducive for adequate smoke management.

2.2.2.3 Underburning (UB)

Objective:
Low intensity underburns would be used to maintain the site in the desired condition as described in the objective sections throughout Chapter 2 and provide risk reduction for the adjacent existing late-successional forest habitat. Underburns would be based on vegetation responses from initial treatments, ladder fuel conditions, and other natural disturbances (windthrow, ice/snow damage, or wildfire) that have occurred since the initial treatments and which may have added additional fuel loading and hazards.

Proposed Treatment:
Follow-up maintenance underburning would occur within 5 years following the initial hazardous fuels reduction treatment; approximately 90% of madrone and tanoak resprouts (one stem on each plant would be retained) would be cut. Fire lines would be cut around each unit. Fire lines would be <18” wide and would be cut using hand tools only. The area would then be under burned in a low intensity, mosaic pattern. Approximately 70% of the left over slash from the initial treatment and follow-up treatment would be consumed.

2.2.2.4 Pump Chance Restoration

Objective:
Pump chances are primarily used for road maintenance, initial wildfire attack, and also provide important water sources for wildlife. One existing site was identified for restoration and would be renovated to hold a minimum of 500 gallons of water. The site is in T34S, R8W, Section 10, near road 34-8-10.1 (See Appendix A, project map).

Proposed Treatment:
Accumulations of gravels, soil, and vegetation would be excavated and moved to a designated disposal site at the end of road 34-8-10.4. Filter fabric, sediment cloth and/or straw bales would be placed at the downstream end of the culvert prior to excavation of the pump chance and would be removed upon completion. The area of excavation would be contained to the existing pump chance pond. Rock
would be added to access ramps as needed. The access ramp to the pool would have a good rock surface and would be brushed to allow access by 4,000-gallon water tenders. Water inlets and outlets to the pool would be repaired or cleared of vegetation and debris to allow water flow through the pump chance.

2.2.3 Riparian Habitat Restoration

Riparian reserves are managed according to Aquatic Conservation Strategy (ACS) objectives (RMP p. 21). Riparian reserve widths (Table 2) are based on specific site conditions within the project area. The riparian reserve widths extend from each side of the active stream channel to a distance specified in Table 2. Unstable and potentially unstable areas (areas showing active movement and indications of past movement) are also considered riparian reserves (NWFP, p. C-30, C-31). Treatments within these reserves may include thinning, selective slashing, burning, and road work.

<table>
<thead>
<tr>
<th>Table 2: Riparian Reserve Widths</th>
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</thead>
<tbody>
<tr>
<td>Stream Type</td>
</tr>
<tr>
<td>---------------------------------</td>
</tr>
<tr>
<td>Fish-bearing streams</td>
</tr>
<tr>
<td>(none identified in project).</td>
</tr>
<tr>
<td>Perennial streams &amp; springs and</td>
</tr>
<tr>
<td>intermittent streams.</td>
</tr>
<tr>
<td>Unstable or potentially unstable</td>
</tr>
<tr>
<td>areas.</td>
</tr>
</tbody>
</table>

2.2.3.1 Vegetation Treatments within Riparian Reserves

Objective:
Vegetation would be treated in designated riparian reserves. Treatments would be based on local stand/vegetation conditions and would be designed to benefit aquatic systems and be consistent with ACS objectives in the short and long term. These treatments would expedite large tree development for wildlife habitat and future instream large wood recruitment and increase the life span of individual trees, thus moving riparian conditions toward meeting ACS objectives. Designated no treatment buffers would be established for each proposed treatment to protect soil productivity, habitat for riparian-dependent species, and the role of streams in the distribution of large wood to downstream fish-bearing waters (USFS, BLM 1994 p. B-15). These buffer widths would also ensure protection of the primary shade zone based on NWFP Temperature Total Maximum Daily Load Implementation Strategies (USFS, BLM 2005).

Proposed Treatment:
In riparian reserves that fall within young stand thinning, fuels reduction, variable canopy thinning, incremental thinning, tree planting and biomass extraction, the treatment prescribed in the uplands would occur within riparian reserves. A designated no treatment buffer would be established for each proposed treatment (Table 3). Project Design Features (2.4) specific to riparian reserve protections were developed to be implemented with the proposed treatments.

Riparian reserves selected for variable or incremental thinning would be those with young to mid seral stand conditions. Vegetation would be thinned from below with a target canopy closure of 50% or greater. Leave trees would be the largest in the stand having the highest crown ratio.

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Table 3: Riparian Reserve No Treatment Buffer Widths

<table>
<thead>
<tr>
<th>Treatment</th>
<th>No Treatment Buffer Width*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable Canopy and Incremental Thinning</td>
<td>75’</td>
</tr>
<tr>
<td>Fuels Reduction</td>
<td>50’</td>
</tr>
<tr>
<td>Young Stand Thinning</td>
<td>50’</td>
</tr>
<tr>
<td>Tree Planting</td>
<td>0’</td>
</tr>
<tr>
<td>Biomass Extraction</td>
<td>75’</td>
</tr>
</tbody>
</table>

Buffer widths apply to perennial streams, intermittent streams, wet areas, and springs.

The no treatment buffers would be designated adjacent to the streambanks on intermittent and perennial streams. These buffer areas would be excluded from all treatment with the possible exception of a low-intensity underburn, which may potentially back into the no treatment buffer area. Table 3 lists the no treatment buffer widths according to specific treatments. No treatment buffer widths (50’) apply to all fuels reduction (ignition and pile burning) and young stand density management activities. The objective of these no treatment areas is to ensure the protection of the primary shade zone based on the Northwest Forest Plan Temperature Total Maximum Daily Load Implementation Strategies (USFS, BLM 2005).

In riparian reserves within variable density management thinning, incremental density management thinning and biomass extraction units, a no treatment buffer width of 75 feet adjacent to the stream banks would apply to these activities. Fuels treatments within thinning and biomass units would adhere to the 50’ buffer. This buffer is based on the Ecological Protection Width Needs Table in the NWFP Standards and Guidelines (USFS, BLM 1994 p. B-15) and takes into account soil type and percent slope to determine adequate widths to prevent surface erosion of streamside slopes and fluvial erosion of the stream channel.

2.2.3.2 Road Renovations, Maintenance and Improvements

Objective:
The proposed road work is intended to improve road drainage to decrease the potential over the long term for sediment to reach streams. The proposal also seeks to reduce road densities where possible and consistent with the anticipated long term resource management needs.

Proposed Treatments:
The Road Information table in Appendix C lists the roads that would be used, improved, renovated, and/or decommissioned as a part of this project. Improvement and renovation work would primarily be done in conjunction with vegetation treatment actions. The timing of other proposed road work would be dependant on future funding availability.

Approximately 2.75 miles of existing road would be upgraded to reduce erosion and sediment deposits into streams. Road drainage would be improved, and deteriorated surfacing would be replaced. Additional culverts would be installed on existing roads to improve drainage.

Prior to harvest activities, selected road surfaces and ditch lines would be bladed; catch basins would be cleaned or enlarged; corrugated metal pipes would be flushed; brush growing near pipe inlets or outlets would be removed; pipe inlets and outlets would be cleaned; and brush, limbs, and trees would

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be removed along roadways to improve sight distance and allow for proper road maintenance. All
drainage structures, including corrugated metal pipes, water dips, and ditch relief outlets, would be
inspected and required work performed so water flow would not be impeded.

2.2.3.3 Full Road Decommissioning

Objective:
Approximately 2.6 miles of roads would be decommissioned to reduce sedimentation and altered peak
flows to streams.

Proposed Treatment:
The selected roads, determined to have no future management use, would be sub-soiled (or ripped),
waterbarred, seeded with native grasses or others as appropriate, mulched, and planted to reestablish
vegetation. Cross drains, culverts and fill slopes in stream channels and potentially unstable fill areas
would be removed to restore natural hydrologic flow. Roads would be left in an “erosion-resistant”
condition. Exposed soils would be covered with mulch to reduce sedimentation. Roads would be
closed with a device similar to an earthen barrier or equivalent. These fully decommissioned roads
would not be maintained in the future. See the roads table in Appendix C for specific roads designated
for decommissioning. Road decommissioning would be completed when funding is available once the
roads are no longer necessary for treatments proposed under this project.

2.2.4 Forest Product Contribution

Forest product contribution is common to all action alternatives, which complies with RMP guidelines.
Commercial harvest of trees <20” DBH would occur in each alternative. An average of 5mbf per acre
would be removed. Additionally, all proposed treatment units are candidates to provide forest products
by the methods described below. No treatments would occur in the identified core habitat areas.

2.2.4.1 Stewardship Projects

Objective:
Stewardship contracting was identified as one potential method to treat areas to accomplish ecological
objectives while providing opportunities that would benefit the local community.

Proposed Action:
Units in the project area that would be difficult to treat under our traditional contracts or timber sale
contracts may be treated under Stewardship contracting. The best opportunity to utilize stewardship
contracting is in many of the Incremental and Variable Canopy Thinning units; however, it could be
used in any of the other treated units (fuels, young stand thinning). The sawlog/pole volume within
these units is not conducive to inclusion within a commercial timber sale. An average of less than 5mbf
per acre would be removed. Stewardship contracting would allow the BLM to treat units, which
contain various products and provide ecological services, while providing local contracting
opportunities and added economic benefits to the local community.
2.2.4.2 Special Forest Products (SFP) and Biomass Projects

Objective:
The primary objective is to provide a variety of special forest products sale/collection opportunities and to utilize forest products where consistent with the vegetation, habitat and stand objectives. A secondary objective is to promote opportunities to try new methods to utilize woody material for energy production or other uses that would typically be left on site or burned. Estimates show that 5 tons to 15 tons per acre of biomass could be available for removal.

Proposed Action:
All units proposed for incremental and variable canopy thinning, fuels treatments, and young stand thinning (see Appendix B) would be available for biomass and SFP (e.g., poles, fuelwood, burls) harvesting/collection. SFP harvesting/collection would be permitted only to the extent consistent with the stand treatment and silvicultural objectives. All logging system PDFs (e.g., seasonal operating constraints, soil protection measures) would be complied with. Collection/harvesting could occur before or after the primary stand treatment. Pole harvesting/collection could include helicopter removal of poles to designated areas (e.g., operator spurs, landings and roads). In any treatment unit, the contractor will have the option to helicopter yard in lieu of a ground based or cable yarding system. Six locations have been identified as potential for new helicopter landing construction. See project map in Appendix A for locations. Helicopter landings would be sized the minimum required needed for OSHA safe operations, and could be as large as 60’ x 180’. The locations are along existing roads, therefore construction may require widening of the existing road (adjacent to young stands). If widening is required it would occur outside of riparian reserves. One identified helicopter landing may serve as a service landing for the project area. Natural surface landings constructed during operations would be ripped/subsoiled, and seeded with grasses and planted with native shrubs and trees. Slash would be used to cover fill slopes for erosion protection. Helicopter landings (service and log) would not be built within a riparian reserve or in headwall areas. Helicopter removal areas would include areas to minimize soil disturbance and reach areas not accessible with cable systems. The overall alternative and stand treatment objectives and the silvicultural prescription would guide any SFP and Biomass activity (See Appendix B).

Where appropriate, extraction of biomass material will be performed by low level aerial cable yarding systems, which offers one end log suspension for at least 80% of the turns. This method of cable yarding is designed to offer maximum mobility while still allowing the operator to cover a large area of ground per set-up with minimum ground disturbance. An example of areas in need of hazardous fuels reduction where equipment of this type would best be utilized is along roads for a distance of approximately 300 ft. above or below the road. In the category of biomass, material being extracted is generally small diameter and is intended to be removed from units in whole form, which will also reduce potential ground impact as the material is further suspended by the branches. All felling and skidding operations would use low-ground pressure equipment that operates with less than 6 pounds per square inch maximum. Ground-based equipment would only operate on slopes less than 35%. 

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2.3 Description of the Alternatives

2.3.1 Alternative 1: No Action

The no action alternative serves as a baseline or reference point for evaluating the environmental effects of the action alternatives. This alternative describes the existing conditions and the continuing trends. This includes trends, such as vegetation succession with consequent wildlife habitat changes, deterioration of road conditions, current rates of erosion, continuation of current road densities, continuation of the normal BLM road maintenance schedules, trends in fire hazard changes, and off-highway vehicle use. Future activities in this area would not be precluded and could be analyzed under a subsequent EA.

Selection of this alternative would not meet the purpose and need of this project to protect and enhance late-successional forests. If this alternative is selected: no vegetation treatments would occur in younger stands to promote their development towards late-successional forest habitat; no riparian treatments would occur in previously managed stands to enhance their conditions; no fuels treatments to reduce hazardous fuels build-up would occur; no road work or road decommissioning would occur to prevent future sediment delivery to streams; and no commercial by-product would be extracted. Only normal programmed road maintenance and young stand brushing would be expected to occur. Selection of this alternative would not constitute a decision to reallocate these lands to non-commodity uses.

2.3.2 Alternative 2

The intent of this alternative is to achieve a combination of the goals, objectives, and desired future condition of the forest stands as specified in the Northwest Forest Plan, Medford District ROD/RMP, Southwest Oregon Late-Successional Reserve Assessment, and the Wild Rogue - South Watershed analysis. This alternative is designed to protect and enhance the large intact block of late-successional habitat area identified within the project area. This alternative is also intended to reduce hazardous fuel conditions and restore riparian habitat conditions within the Rum Creek drainage. The proposed action focuses on treating stands outside of the intact block of late-successional habitat within the drainage. Units are prioritized for treatment for first consideration that would best protect the interior block of late-successional habitat (See treatment table in Appendix B). Treatments would be implemented as funding allows.

This alternative would meet the purpose and need of this project stated in Chapter 1. The priority of this alternative is to protect and enlarge the large interior core of late-successional habitat within the drainage through young plantation thinning and hazardous fuels reduction in previously managed stands. This alternative would also meet the need of the 2003 O&C Settlement Agreement by providing some commercial by-product.

Activities proposed under this alternative include treatment on 1,477 acres of BLM administered land designated as LSR, with approximately 93 acres of commercial harvest of young stands.
2.3.3 Alternative 3

Alternative 3 would include the same treatments proposed in Alternative 2, but would include additional units (40-80 years old) in the adjacent watershed (Big Hog), which is also within the Fish Hook/ Galice LSR. These additional units are located along the haul routes to Rum Creek, are within 1 mile of the Rum Creek drainage, and have the same needs as the stands identified for variable canopy and incremental treatments in alternative 2. The intent of this alternative is to achieve the same goals identified above in Alternative 2 (protect and enhance existing late successional habitat and meet the objectives of the O&C Settlement Agreement) and to make a potential timber sale more economically feasible. This alternative would meet the purpose and need of this project stated in Chapter 1.

Activities proposed under this alternative include treatment on 1,533 acres of BLM-administered land designated as LSR, with approximately 137 acres of commercial harvest of young stands.

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 Rum Creek Project.

<table>
<thead>
<tr>
<th>Table 4: Summary of Proposed Treatments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment Description</td>
</tr>
<tr>
<td>Prescription</td>
</tr>
<tr>
<td>Unit Acres</td>
</tr>
<tr>
<td>Riparian Reserve No Treatment Acres</td>
</tr>
<tr>
<td>Riparian Reserve Treatment Acres</td>
</tr>
<tr>
<td>Total Treatment Acres</td>
</tr>
<tr>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Alternative 2</td>
</tr>
<tr>
<td>Commercial timber harvest would occur on approximately 93 acres using incremental and variable canopy thinning.</td>
</tr>
<tr>
<td>In addition, this area would primarily reduce fuel hazard and also be part of the planned SFP (special forest products) thinning program. Some of the area may provide small diameter, timber sale products.</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Young stand treatments would also include fuel hazard reduction and (SFP).</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>Alternative 3</td>
</tr>
<tr>
<td>Commercial timber harvest would occur on approximately 137 acres. Treatment area would include acres and treatments described in Alternative 2 as well as the area identified in the Bailey 7th field drainage.</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Note: The costs associated with the yarding and transportation of forest products may limit treatments to fewer acres than shown. Biomass extraction is included in all treatments. All acre figures in the table are approximate and based on inventory records.
2.4 Project Design Features

The following Project Design Features (PDFs) are included in the design of projects in Alternatives 2 and 3. These PDFs are a set of the Best Management Practices (BMPs) identified in the Medford District RMP and resource protection measures identified by the EA interdisciplinary team.

2.4.1 Wildlife

- Between January 1 and August 31 no activities would occur that cause disturbance above ambient noise levels (hauling, chainsaws, helicopters) within ¼ mile (1/2 mile line-of-site) of occupied eagle nests.
- Seasonal restriction of activities that cause disturbance above ambient noise levels from March 1 to June 30 within ¼ mile of known spotted owl sites (within ½ mile for helicopter operations). This seasonal restriction may be waived if non-nesting is determined. If any new owls are discovered during harvest, activities will stop until mitigation options can be determined.
- Pile and underburning would not occur between March 1 and June 30 within ¼ mile of known spotted owl sites. This seasonal restriction would be waived if non-nesting is determined.
- Protect osprey nests with 5 acres no harvest buffer and seasonal restriction for activities within ¼ mile of nest site from March 1 to August 31.
- Protect additional raptor species if located and apply the appropriate buffers and seasonal restrictions.
- Maintain all snags, except those that need to be felled for safety reasons. The snags that must be felled for safety, including ROW road hazard trees, would be left on site.
- Ripped skid trails and spur roads will be planted with grasses and native shrubs of good elk forage value.

2.4.2 Stream and Riparian Habitat Protection

- Ground-based equipment within riparian reserves would be restricted to existing roads, trails, and landings.
- Ground-based equipment may cross streams on existing road or skid trail crossings. Prior to use, existing skid trail crossings would be approved by a BLM resource specialist. Approved skid trail crossings may require temporary culverts or additional stream protection measures as appropriate.
- Within riparian reserves, trees would be directionally felled toward skid roads and yarding corridors 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 restoration treatments. Site restoration treatments would be applied after yarding has been completed and would include such actions as ripping/decompaction, water barring, seeding, tree planting and/or blocking as needed.
- Previously unmapped unstable and potentially unstable areas (areas showing active movement and indications of past movement) discovered during project implementation would be assessed for the risk of future slides. These areas are considered riparian reserves (NWFP 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) vegetation would not be treated within the riparian reserve. Potentially unstable areas may be treated outside no treatment buffers (selective slashing, hand piling and slash burning) where long term root strength can be maintained or increased.

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• Full suspension would be required for yarding material over streambeds. Where possible, full suspension over trees would occur within 75 feet on either side of the stream channel.
• Ignition of underburning would occur outside the no treatment buffers but could back into the no treatment zone.

2.4.3 Cultural Resources

• Known cultural sites would be buffered with flagging prior to project implementation. No treatment would occur in the buffered areas.
• If unrecorded cultural sites are found during project implementation, activities near the site would halt until a cultural resource specialist could determine appropriate protection measures.

2.4.4 Special Status Plants

• For special status species, the size of the no treatment protection buffer would be determined on a case-by-case basis, depending on the species and its habitat requirements but would be a minimum of a 20’ radius for sensitive species. Underburns in areas containing special status plant species would follow prescriptions that would result in cool burns, which would minimize potential damage to plant populations. Prescribed fire operations would be done in a manner to reduce or eliminate burning through identified special status plant population areas depending on the adaptability of each species to fire.

If T&E listed species (*Fritillaria gentneri* and *Lomatium cookii*) are found during implementation, then the following project design criteria (PDC) provided in the FY04-08 Rogue River/South Coast Biological Opinion will be implemented.

• Buffer sizes: a minimum of 25’ radius from the population boundary. No activity within the buffer outside the dormancy period. Buffers can be treated manually during the dormancy period (September – February).
• Known sites can be treated (burning, hand brush/tree removal, seeding native species etc.) during dormancy if the net result improves habitat for the species.
• No tree falling into or yarding through buffered sites.
• Do not locate anchor trees within known sites.
• Construction of new landings would be at least 300’ from known sites.
• Populations found near proposed roads (including temporary) would be protected by a minimum 100’ radius buffer. Use of existing roads within 100’ of occurrence is allowed.
• Firewood collection would not be permitted within buffers.
• Cut material must be piled outside the buffers.
• No tree planting or mechanical scalping within 75’ of the buffer edge (100’ from occurrence) so as to maintain more open habitat.
• No heavy equipment (dozers, machine masticator, excavators, etc.) within known sites.

2.4.5 Noxious Weeds

• Noxious weeds would be treated using an integrated pest management approach (RMP p. 92). All noxious weed populations that are treated would be monitored for treatment effectiveness.
• Seed and straw used for restoration, replanting, and post treatment throughout the project area.
would be native species and weed free to prevent the further spread of noxious weeds.

- For prevention of noxious weeds, all heavy equipment would be cleaned prior to moving onto BLM lands. Equipment would also be cleaned when moving from known noxious weed areas into weed-free areas.

2.4.6 Port-Orford Cedar

Port-Orford-cedar in the project area would be managed according the May 2004 BLM POC-FSEIS/ROD. The FEIS for Management of Port-Orford-Cedar in Southwest Oregon provides a risk key for managing within the natural range of POC. The risk key outlines conditions under which disease-controlling management practices would be implemented. Mitigation measures would be implemented if uninfected POC are in, near or downstream of the activity area and those trees contribute to meeting RMP objectives, if spread is likely to other ecologically important areas, or if the activity is in an uninfested 7th field watershed (USDA-USDI 2003).

- Prior to entering the project area POC area or leaving a Phytophthora lateralis (PL) area, all heavy equipment would be washed.
- The Rum Creek drainage is an uninfested 7th field drainage. Commercial treatments are planned in stands with uninfected POC. There are also uninfected POC along the haul routes that will be used to access the project area. Prior to project implementation in these sections all equipment would be washed and inspected according to Management Guidelines in the Port-Orford Rangewide Assessment (USDA-USDI 2003). Operations would be limited to the dry season/dry conditions in these harvest units.
- Access and egress routes and parking areas would be designated by BLM.

2.4.7 Equipment Use

- A Spill Prevention, Control and Countermeasure Plan would be required prior to operation and would include, but not be limited to, hazardous substances to be used in the project area and identification of purchaser’s representatives responsible for supervising initial containment action for releases and subsequent cleanup.
- All hazardous materials and petroleum products would be stored in durable containers outside riparian reserves, and located so any accidental spill would be contained and not drain into the stream system.
- Equipment would be refueled outside riparian reserves.

2.4.8 Roads

- 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.
- All road renovation, closure, and/ or improvement work would be restricted from October 15 to May 15, or when soil moisture exceeds 25 percent.
- Seasonally restrict timber hauling and landing operations on native surface or inadequately rocked roads whenever soil moisture conditions or rain events could result in road damage or the transport of sediment to nearby stream channels, generally between October 15 - May 15.
- All roads used during the wet season, October 15 through April 15, shall be surfaced with at
least 6" of crushed aggregate. Road closures and decommissioning are intended to reduce the potential for erosion and to reduce the impacts on wildlife. Roads proposed for decommissioning that are needed to support the prescribed burning/fuel reductions would be scheduled after burning is complete. During the wet season, these roads would be treated for erosion control (water bars, seeding, mulching) or slash where needed, as mentioned above for skid roads under tractor logging. Where needed, temporary blocks would be placed to eliminate wet season use.

- All temporary spur roads would be obliterated in the dry season. Temporary spur roads would be winterized by installing water bars or water dips, seeding, and mulching the road. Roads would be re-vegetated after obliteration.
- During thinning and pruning of vegetation along roads for driver visibility, thinning would be favored over removal, and any removal of vegetation would not occur through pulling out the vegetation by the roots.
- 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.
- Dispose of loose material from ditch blading activities in a manner that prevents the materials from entering ditches or streams.
- Trees that pose a hazard to public safety along the road rights-of-way would be cut. Trees would be felled and left on site if available coarse woody debris is inadequate.

2.4.9 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 minimizes impacts on plant reproduction and active growth. Low intensity (winter/spring) under burning could occur after 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 burning would also follow all resource PDFs.
- Prescribed Fire Escape - To prevent fire from escaping control and to minimize potential damage to overstory trees, burning would occur during fall through spring when weather and fuel conditions allow the least active fire behavior. If conditions allow and risk of prescribed fire escape can be mitigated, some burning may occur during the summer and early fall to meet resource objectives.
- Fireline Construction would be used in understory burning and would be built by hand. Water barring on fire trails where slopes 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.

2.4.10 Logging systems

- The proposed cable and tractor yarding system PDFs would apply to the removal of merchantable, precommercial-sized materials, biomass, and fuelwood.
- 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 minimum 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%. Tractors would not be used when soil moisture content at a 4-6” depth exceeds 25% by weight as determined by a Speedy Moisture Meter.
- Skid roads would be water barred in a manner appropriate to the slope and soil type. Main tractor skid trails would be blocked where they intersect haul roads and would be decompacted and water barred shortly after yarding is completed to reduce the erosion potential. Skid roads would be used only 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, ripped skid roads would also be planted. Other areas would be allowed to revegetate naturally.
- In cable units, step landings would not be permitted. Cable corridors would be located away from draws and would be water barred as needed based on the slope and soil type. Corridor width would generally be 15” or less. Fan shape corridors would be avoided. Yarding systems that offer one end log suspension would be utilized for at least 80% of the turns.
- 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.
- Ground-based equipment would be confined to designated skid roads or trails. Previously compacted trails would be used before new trails are located. These designated skid roads/trails would be spaced to minimize the total old and new compacted area to no more than 12% of unit to be treated. This would require an average spacing of 75 feet or more of major skidding roads for sawlog size material.
- The operational techniques for biomass material extraction (woody, small sized trees, slash and brush) from units using tractors or other ground based equipment would be limited. The equipment and operational network of skid trails would be held to the same compaction and other standards that apply to saw log yarding. If a smaller, lighter tractor is used, a
determination (based upon equipment width, weight and number of passes that creates compaction) would be made to find the skid road spacing to keep soil compaction below 12%. In addition, ground based machines would not exceed a track width of 6 and one half feet. Woody material would not be pushed with the front blade or a rake attached to the tractor.

- The cleared or excavated size of helicopter landings would not exceed that needed for safe and efficient yarding and loading operations. Trees considered dangerous would be removed around landings to meet the safety requirements of OSHA. To the extent feasible, helicopter landings would involve the least amount of excavation and the least erosion potential. New helicopter landings would not be constructed within riparian reserves. Where feasible, helicopter landings would be located near ridges away from headwater swales in areas that would allow skidding without crossing stream channels, infringing on riparian reserves, or causing direct deposit of soil and debris into streams. Helicopter landings would be located where side-cast can be stabilized without entering drainages or affecting other sensitive areas. Helicopter landings would be located to promote safety and protect the soil from erosion. Excessive fills associated with landing construction would be avoided. Helicopter landings would be located on stable fills with appropriate compaction and adequate drainage structures to prevent erosion.

- 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.

### 3.0 Environmental Consequences

#### Introduction

Only substantive site-specific environmental changes that would result from implementing the proposed action or alternatives are discussed in this chapter. If an ecological component is not discussed, it should be assumed that the resource specialists have considered 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: areas of critical environmental concern (ACEC); Native American religious concerns; prime or unique farmlands; flood plains; and wilderness.

#### Incomplete or Unavailable Information

NEPA regulations (40 CFR 1502.22) require the BLM to acknowledge incomplete information and describe how it was addressed during the development of management alternatives. The management of large forest landscapes is a complex and developing discipline. There is less than complete information about many of the relationships and conditions of fire ecology, wildlife and plant species, forest habitats, and the economy. However, a substantial amount of credible information about project activities exists and the planning team used the best available data when studying the relationships between activities and elements of the environment to estimate the effects of the alternatives.

While additional information could add precision to this analysis, the basic data required to achieve an understanding of resource dynamics was available for the analysis. Additional information would be unlikely to alter fundamental conclusions reached in this analysis.
Scientific Uncertainty
During development of the Rum Creek project, public comments were received regarding how lands in the project area should be managed. The primary issue, active versus passive management, was supported on both sides by peer-reviewed journal articles as well as input from local scientists.

The appropriate degree of active versus passive management is seen by some as a major issue in this project and throughout the Grants Pass Resource Area. Active management encompasses a range of activities including timber harvest, young stand management, planting and other silvicultural practices, fuel hazard reduction, riparian habitat enhancement and road renovation to achieve specific ecological and social objectives. Passive management is generally characterized by the absence of such practices with an expectation that natural recovery or natural selection will achieve ecological objectives. The debate really comes down to the ecological and social objectives for these landscapes (e.g. fuel hazard reduction, habitat enhancement, or providing commercial timber products) and the degree to which these objectives should be achieved through allowing natural processes to occur compared to more active management.

The RMP identifies a variety of objectives for lands in the project area (e.g., Late Successional Reserve objectives, riparian health, fish and soils protection, big game management, and special status species management). Balancing of these sometimes competing objectives takes careful planning and weighing of all available information relevant to the project.

The planning team weighed the scientific evidence offered through public comments, as well as that gathered by each resource specialist. Environmental consequences of each alternative were analyzed utilizing the best scientific data available, knowledge of on-the-ground conditions, and professional expertise of each member of the planning team.

Cumulative Effects
Current conditions in the project area result from a multitude of natural events and human actions that have taken place over many decades. Cumulative effects are defined as the “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions” (40 CFR § 1508.7). A description of current conditions inherently includes the effects of past actions and serves as a more accurate and useful starting point for a cumulative effects analysis than by “adding up” the effects of individual past actions. “Generally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.” (CEQ Memorandum ‘Guidance on the Consideration of Past Actions in Cumulative Effects Analysis’ June 24, 2005.) Cataloguing past projects and their individual effects would not be useful in discerning the contribution of the incremental impact of the project’s action alternatives. However, cataloguing and analyzing other present and reasonably foreseeable actions relevant to the effects of the proposed action is necessary and is described below. By comparing the “no action” alternative (current condition) to the action alternatives, we can discern the “cumulative impact” resulting from adding the “incremental impact” of the proposed action to the current environmental conditions and trends.

Scoping for this project did not identify a need to exhaustively list individual past actions or analyze their environmental effects in order to fully analyze the effects, including cumulative, of this project’s action alternatives. The following overview provides a context in which to analyze the effects of the Rum Creek project. Addressing the acreage affected by timber harvest on a decadal basis provides information on the extent of the major actions that have occurred since the 1960s and the potential

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changes in stands and habitats since then. This decadal information also puts the project into the context of current conditions and allows for comparison of the action alternatives with the no action alternative (existing conditions). Additional resource-specific cumulative effects are addressed as necessary under each resource section.

**Environmental History**

The Rum Creek project is in two 7th field drainages—the Rum Creek drainage (located within the Wild Rogue 5th field watershed) and the Bailey Creek drainage (located within the Big Hog 5th field watershed). The entire project area is managed by BLM. The Wild Rogue South Watershed Analysis (2000), the Wild Rogue North Watershed Analysis (1999), and the Rogue Recreation Section Watershed Analysis (1999) describe the events that contributed to the current condition such as early hunting/gathering by aboriginal inhabitants, mining, road building, agriculture and water diversions, wildfire, and timber harvest. The names of these two 5th field watersheds were changed in 2005, but this EA uses the names used in the watershed analyses.

Table 5 summarizes past harvest activities within the Rum Creek 7th field drainage, by decade, that have contributed to current environmental conditions, and which were considered and studied by the resource specialists during their cumulative effects analysis. Table 6 provides a similar summary for the Bailey Creek drainage, and Table 7 summarizes the future foreseeable and ongoing land management activities on BLM land within the two 5th field watersheds.

**Table 5: Harvest History in Rum Creek**

<table>
<thead>
<tr>
<th>Decade</th>
<th>Harvest Method</th>
<th>*Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960s</td>
<td>Clearcut</td>
<td>449</td>
</tr>
<tr>
<td></td>
<td>Shelterwood</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Selective cut</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Mortality Salvage</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td><strong>Decade Total</strong></td>
<td>574</td>
</tr>
<tr>
<td>1970s</td>
<td>Clear cut</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Shelterwood</td>
<td>144</td>
</tr>
<tr>
<td></td>
<td>Selective cut</td>
<td>405</td>
</tr>
<tr>
<td></td>
<td>Mortality Salvage</td>
<td>381</td>
</tr>
<tr>
<td></td>
<td><strong>Decade Total</strong></td>
<td>960</td>
</tr>
<tr>
<td>1980s</td>
<td>Clear cut</td>
<td>370</td>
</tr>
<tr>
<td></td>
<td>Overstory removal</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td><strong>Decade Total</strong></td>
<td>465</td>
</tr>
<tr>
<td>1990s</td>
<td>Overstory removal</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td><strong>Decade Total</strong></td>
<td>7</td>
</tr>
<tr>
<td>2000 - 2004</td>
<td>Decade Total</td>
<td>0</td>
</tr>
</tbody>
</table>

* Some acres may have been treated more than once during that time period (fuels and/or stand maintenance treatments).

---

**Table 6: Harvest History in Bailey Creek**

<table>
<thead>
<tr>
<th>Decade</th>
<th>Harvest Method</th>
<th>*Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960s</td>
<td>Clear Cut</td>
<td>206</td>
</tr>
<tr>
<td></td>
<td>Mortality Salvage</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Selective Cut</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Shelterwood</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Decade Total</strong></td>
<td>228</td>
</tr>
<tr>
<td>1970s</td>
<td>Clear Cut</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>Mortality Salvage</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>Selective Cut</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td><strong>Decade Total</strong></td>
<td>217</td>
</tr>
<tr>
<td>1990s</td>
<td>Clear Cut</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td><strong>Decade Total</strong></td>
<td>21</td>
</tr>
<tr>
<td>2000 - 2004</td>
<td>Decade Total</td>
<td>0</td>
</tr>
</tbody>
</table>
### Table 7: Future and Ongoing Actions

<table>
<thead>
<tr>
<th>Wild Rogue 5th Field Watershed</th>
<th>Big Hog 5th Field Watershed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kelsey-Whiskey</td>
<td>Rich and Rocky</td>
</tr>
<tr>
<td>August Knob Timber Salvage</td>
<td>West Ash Gulch</td>
</tr>
<tr>
<td>Blossom Fire Rehabilitation</td>
<td>Peavine Road Reconstruction</td>
</tr>
<tr>
<td>and Stabilization</td>
<td>Centennial Quartz</td>
</tr>
<tr>
<td>Anaktuvuk Meadow Commercial</td>
<td>Pickett Charge</td>
</tr>
<tr>
<td>Thin</td>
<td>Pickett Snake</td>
</tr>
<tr>
<td>Anaktuvuk Meadow Vegetation</td>
<td>Rogue River Fuels</td>
</tr>
<tr>
<td>Management</td>
<td>Stratton Hog Fuels</td>
</tr>
<tr>
<td>Young Stand Maintenance</td>
<td>Berlin Mummer Fuels</td>
</tr>
<tr>
<td>Road Maintenance</td>
<td>Cenoak</td>
</tr>
<tr>
<td></td>
<td>Maintenance Burning</td>
</tr>
<tr>
<td></td>
<td>Young Stand Maintenance</td>
</tr>
<tr>
<td></td>
<td>Road Maintenance</td>
</tr>
</tbody>
</table>

### Figure 1: Watershed Level Summary

![Watershed Level Summary Diagram](image-url)

### 3.1 Soils and Hydrology

#### 3.1.1 Affected Environment

**Hydrology**

The 2,643 acre Rum Creek 7th field drainage is separated from other drainages in its 6th field subwatershed (Rogue River - Whiskey Creek) topographically to the East, West, and South and hydrologically to the North by the Rogue River. Rum Creek flows directly into the Rogue River at River Mile 65.2 and is augmented by East Fork Rum Creek just above the confluence with the Rogue River. Additional treatments are proposed just outside the southeastern border of the Rum Creek drainage in sections 15 and 22; these select units are within Bailey Creek 7th field drainage (1,193 total acres), which lies in the Rogue River-Lower Hellgate 6th field subwatershed and the Big Hog 5th field drainage.
watershed. Bailey Creek flows into the Rogue River above the confluence with Rum Creek. There are no stream gauges in either watershed; the closest is on the Rogue River in Grants Pass, OR.

The project area receives 52 to 60 inches of precipitation annually in the form of snow and rain. Approximately 77% of the Rum Creek 7th field drainage and 56% of the Bailey Creek drainage are in the transient snow zone (2,500-4,000 ft elevation band), the area likely to receive rain directly on snowpack due to alternating cold and warm fronts. As a result, peak stream flows occur primarily during the winter in response to rain-on-snow storms. Canopy openings in the transient snow zone (TSZ) may increase the magnitude of peak flows during rain-on-snow events due to depositional increases in snowpack (Troendle and King 1985). The Oregon Watershed Assessment Manual (OWAM) provides a graph to assist risk-assessment of forestry-related impacts during rain-on-snow events based on the percent of the watershed within the TSZ and the percent of TSZ area in an open condition, i.e. those with less than 30% crown closure (WPN 1999).

The applicability of the OWAM graph for this project is limited, as it was intended for watershed analysis at the 5th field scale; however, due to Rum Creek's hydrologically unique situation (i.e. being essentially disconnected from the rest of the watershed), it is acceptable here as an indicator of potential risk. Further, previously-harvested stands that have recovered to at least 30% canopy closure may still affect peak and annual flow response. Troendle and King (1985) found that 30 years after harvest in the TSZ, peak flows appeared to be returning to pre-harvest levels at a very slow rate. Channel stability along the main stem of Rum Creek indicates a properly functioning system that shows no evidence of damage due to elevated peak flows. Due to the lack of measurable adverse impact at the 7th field level from past harvest practices and given an indefinite amount of recovery through time, the OWAM method of assessing risk to peak flows provides sufficient analysis to assess impacts of openings in the TSZ on peak flow response.

Areas currently in an "open" condition due to management (those with less than 30% canopy closure, including roads) were delineated using GIS, aerial photo interpretation, and corresponding ground measurements. Areas that exist in a naturally open condition, such as meadows and hardwood stands, were excluded from the analysis. Based on the OWAM graph, the Rum Creek drainage reaches a threshold for potential risk to peak flow enhancement when approximately 40% of the TSZ is in an open condition, and the Bailey Creek drainage reaches this threshold when 60% of the TSZ is in an open condition. Accordingly, there is currently a low risk of detectable peak flow increases in both drainages during rain-on-snow events, as 20% of the TSZ in Rum Creek drainage and 18% of the TSZ in Bailey Creek are currently in an "open" condition.

Additionally, timber harvest (vegetation removal) has been linked to increases in water yield due to a decrease in evapotranspiration and interception (Satturlund and Adams 1992). This mechanism of increased flow volume is of specific concern in the project area as approximately 44% of the Rum Creek drainage has been harvested through even-age methods (See Tables 5 & 6). However, extensive literature regarding the relationship between timber harvest and stream flow volume conclude that as forest vegetation returns, peak flow volume decreases rapidly during the first few years, then more slowly as the system reaches full hydrologic recovery. For example, Jones and Grant (1996), documented significant hydrologic recovery 6 years following clearcutting, while Harr et al. (1979), found hydrologic recovery of vegetation in 25-30 years. The majority of the clearcuts within Rum Creek occurred in the 1960's; these areas are now fully hydrologically recovered. Most recently, in 1985 and 1988, clearcutting occurred on 345 acres, comprising 13% of the drainage; consequently, a fraction of the Rum Creek drainage remains hydrologically unrecovered. Under the current land use

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allocation, land management strategies have shifted from a focus on timber harvest to a focus on sustaining and improving late successional forest habitat. Thus, the hydrologic regime is minimally and immeasurably altered due to past management, and hydrologic recovery will continue through active or passive management.

Existing impacts in the Bailey Creek drainage are less than those calculated for Rum Creek. In the early 1990's, 21 acres (1.8 %) in the Bailey Creek drainage were clearcut. The remaining 98.2% of the drainage is fully hydrologically functional; thus, alteration of the flow regime due to removal of vegetation is immeasurable. Under the current land use allocation, land management strategies have shifted from a focus on timber harvest to a focus on sustaining and improving late successional forest habitat, so the current trend (which is essentially a fully-recovered dynamic equilibrium) will continue.

Soil compaction may also affect stream peak flows. Existing roads may modify storm flow peaks by reducing infiltration on compacted surfaces, allowing rapid surface runoff into stream channels via culverts, or by intercepting subsurface flow and channeling it more directly into streams (Wemple et al. 1996, Harr et al. 1975, Ziemer, 1981). Currently, there are approximately 18 miles of roads in the Rum Creek drainage, occupying 2% of the total area. While recovery of compacted soils varies greatly due to time since implementation, local equipment techniques, slopes, and soil types, additional compaction in the Rum Creek drainage due to past ground-based harvest methods (i.e. skid roads) is approximately 2% (see Soils below), for a total of 4.3% compacted area in the Rum Creek drainage.

Jones and Grant (1996) and Jones (2000) found no statistically significant increases in peak flows attributed to roads when roads occupied 6% of the basin. Similarly, Wright (1990) and Ziemer (1981), found no changes to the hydrograph when roads occupied 5% of the basin. Road effects on peak flows were detectable when 12% of a small watershed was roaded (Harr et al. 1975). Accordingly, elevated peak flows in the Rum Creek drainage due to compacted surfaces are very low, only observable at the local site level (due to poorly-constructed or poorly-located roads rather than total acres of roads), and are immeasurable at the 7th field level. Field observations corroborate this deduction (see Stream Channel section). Specifically, a segment of road 34-8-34 was identified through field reconnaissance as causing localized flow alteration, thus negatively impacting the adjacent stream segment by causing accelerated erosion and downcutting of the stream channel.

There are 10 miles of road in the Bailey Creek drainage, occupying 2.3% of the total area. Additional compaction from ground-based harvest methods in the Bailey Creek drainage are less than those calculated for Rum Creek, thus alteration of the flow regime due to compacted area is immeasurable in the Bailey Creek drainage.

Soils: Erosion Processes and Productivity

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Name</th>
<th>Texture (Surface/Subsoil)</th>
<th>% Slope</th>
<th>Percent of Rum Creek Drainage</th>
<th>Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>48F</td>
<td>Josephine</td>
<td>Gravelly loam/clay loam</td>
<td>35-55N</td>
<td>5</td>
<td>40-60&quot; deep, high erosion hazard (bare soil), gravelly surface, high productivity</td>
</tr>
<tr>
<td>72F</td>
<td>Speaker-Josephine</td>
<td>Gravelly loam/gravelly clay loam</td>
<td>35-55S</td>
<td>10</td>
<td>20-40&quot; deep, high erosion hazard (bare soil), gravelly surface, mod. productivity</td>
</tr>
</tbody>
</table>

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Table 8: Rum Creek Soils

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Name</th>
<th>Texture (Surface/Subsoil)</th>
<th>% Slope</th>
<th>Percent of Rum Creek Drainage</th>
<th>Key Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>80G</td>
<td>Vermissa/Beekman</td>
<td>Ex. gravelly loam/ very gravelly loam</td>
<td>60-100N</td>
<td>40</td>
<td>10-20&quot; deep, v. gravelly surface, suscept. to raveling, low productivity</td>
</tr>
<tr>
<td>81G</td>
<td>Vermissa/Rock Outcrop</td>
<td>Ex. gravelly loam/ v. gravelly loam</td>
<td>60-100S</td>
<td>40</td>
<td>10-20&quot; deep, v. gravelly surface, suscept. to raveling, low productivity</td>
</tr>
<tr>
<td>82G</td>
<td></td>
<td></td>
<td>60-100S</td>
<td>3</td>
<td>10-20&quot; deep, v. gravelly surface, suscept. to raveling, low productivity</td>
</tr>
</tbody>
</table>

Source: SCS Soils Survey of Josephine County (1983)

All of 72F and most of 48F is located on the west end of the Rum Creek drainage. Units in the Bailey Creek drainage are made up of 80G and 81G. Field observation indicates some inclusions of serpentine soils occur in the south and east part of the Rum Creek drainage. Aerial photo analysis and field observation indicate that 80G mainly on the west side of Rum Creek drainage is less productive than the 81G on the east side of the drainage. Field observations on the east side of the Rum Creek drainage at base of slope showed less surface and subsurface gravel than the Soil Survey indicates. Further, tributary streams are commonly flowing through fine textured soil mixed with coarse wood, commonly saw cut. No source area (such as an old landslide scarp) is evident.

The above information indicates that soil erosion processes in the Rum Creek drainage are intricate with surface raveling and some concentrated runoff. Stream bank failure may have been initiated/accelerated by past tractor yarding in stream channels. It appears that current plant growth rates in the project area have not been significantly diminished by erosion from past management.

Also, forest productivity appears to rely on soil microbiotic activity (Stark, J.M. 1997), specifically microbial assimilation of nitrogen in plant-available forms. This finding supports an ecosystem perspective on productivity that the process of providing basic soil nutrients to forest vegetation is dependent on beneficial soil microbial populations such as ectomychorizae. Observations of Rum Creek stands indicate that these populations are present, especially in units greater than 20 years old.

Soil compaction reduces plant growth and soil productivity. Therefore, detrimental compaction indicates loss of productivity. Based on aerial photo interpretation, some field observation, and past stand management history, 56 acres in the Rum Creek 7th field drainage show detrimental compaction. These acres are in variably recovered skid trails within past tractor-logged units. Assuming a 60-year recovery time (Froehlich and McNabb 1983) and given that ground-based equipment in the ’60’s and ’70’s was not confined to designated skid trails (while for later tractor logging, skid trail routes were designated to limit the area of compaction), total existing compacted area due to tractor logging amounts to 2% of the Rum Creek drainage. As stated under Hydrology, above, roads (assumed to be permanently compacted) occupy 2% of the drainage. Therefore, the current total level of compaction in the Rum Creek drainage is 4%. Cumulatively this is within a moderate range of compaction (considering that 12% is the maximum allowable compaction level for first entry logging according to the Medford RMP) in terms of soil productivity reduction for the Rum Creek 7th field drainage. For Bailey Creek 7th field drainage, the existing cumulative level of compaction is estimated to be less than for the Rum Creek drainage (less than 4%).

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Riparian Function

Past timber harvest practices included little to no buffers for stream channels; as a result, approximately 50% of field-surveyed riparian reserves lack the diverse vegetation size and species composition necessary to protect ecological integrity as outlined in the Aquatic Conservation Strategy (ACS). Additionally, these recovering areas are spatially disconnected due to a patchwork pattern of timber harvest, resulting in discontinuity of dispersal corridors. Removal of streamside vegetation combined with fire exclusion have resulted in a predominance of dense, brushy, slow-growing riparian stands that provide limited benefits to streams. More recent management practices under the Northwest Forest Plan (NWFP) and the Medford District Resource Management Plan (RMP) have led to an upward trend in riparian health over the past decade. Excluding the event of a catastrophic wildfire, the current upward trend in riparian health is expected to continue.

Stream Channel

High sediment loading (defined as >20 % in riffles) and/or extensive downcutting is present in many headwater tributaries to Rum Creek (41% of field-surveyed reaches). Downcutting of headwater tributaries likely occurred during large storm events within the first few years after even-aged harvest operations as a result of high flows exacerbated by large openings in the transient snow zone. Mechanisms leading to the large volume of sediment currently stored in tributary channels include: accelerated erosion of stream channels, high slump potential from even-aged harvests on steep headwater slopes, road-building, and highly ground-disturbing timber extraction methods employed in the 1960's through 1980's that included removal of mature trees from streambanks, yarding of timber through streams, and skid-road construction within riparian areas. The abundance of logging slash and other coarse woody debris in the stream channels provides structure to sort substrate, store fine particles, encourage deposition on the floodplain, and scour pools (Brown 1985, Keller et al 1995). As a result, sediment is slowly released from tributaries in pulses during high flow events. Currently, there is an improving trend throughout the Rum Creek drainage as these streams slowly work through the deposit of sediment and debris in the absence of further disturbance.

Field reconnaissance on the lower fish-bearing reaches of Rum Creek in 2005 found a substrate distribution of cobbles, boulders, sorted gravels and a low percentage of sediments. Similarly, Oregon Department of Fish and Wildlife (ODFW) habitat surveys completed in 1998 on the steep lower reaches of the drainage found 8-10% coarse sediment in the main channel and 4% coarse sediment in the East Fork. Both measurements are within the normal range for this channel type. These observations as well as channel morphology along the main stem of Rum Creek indicate that flows are capable of transporting sediment supply without persistent aggradations or changes in channel type (Montgomery and Buffington 1993). Thus, the channel is stable and functioning properly.

The Medford District RMP (p. 23) directs that watershed restoration should focus on removing and upgrading roads. Such opportunities exist within the project area. Roads are a major source and routing mechanism of sediment (Anderson 1971, Brown 1985, Luce and Black 2001), but road density correlates poorly to sediment yield; sediment usually originates from a few poorly-constructed roads (Luce and Black 1999). Field reconnaissance found road 34-8-9 routing water and eroding the road bed, thus delivering sediment to the stream network. Additionally, portions of roads 34-8-34 and 34-8-10.1 are leading to downcutting and excessive sediment deposition in adjacent streams due to their proximity to stream channels.
Water Quality

Rum Creek is an important source of cold water for the Rogue River, which is considered by Oregon Department of Environmental Quality as water quality impaired due to high summer temperature. According to thermal infrared remote sensing data (ODEQ 2004), mid-summer inflow from Rum Creek is approximately 6 °F cooler than temperatures recorded in the Rogue River at that point. No stream temperature data is available for the Bailey Creek drainage.

Solar radiation is the primary factor affecting stream temperature (USDA, USDI 2005). Removal of streamside vegetation results in decreased stream shade, thus increasing solar radiation input into surface waters. Past management practices in the Rum Creek drainage (See Tables 5 & 6) included removal of all merchantable riparian vegetation during timber harvest. According to ocular estimates recorded during stream and riparian surveys, approximately 40% of field-surveyed streams in the Rum Creek drainage are currently in a state of shade recovery. These areas will continue to recover through active or passive management due to implementation of the NWFP, which is “expected to maintain and improve water quality” (NWFP p.52).

During high flow events, stream turbidity in Rum Creek is likely elevated slightly from historic levels due to the presence of sediment from past management activities in the upper tributaries. In the absence of further disturbance, turbidity levels are expected to decrease as tributary channels recover.

3.1.2 Environmental Consequences

The following discussion describes relevant soils/hydrology characteristics for each alternative. Each factor is evaluated based on its relationship to dominant watershed processes and current trends. Concerns identified through the scoping process as potentially affecting soils/hydrology in the project area include: effect of roads, harvest, and burning on soil erosion, peak flows, sediment load, and water quality; compound hydrologic effects of roads and timber harvest within the transient snow zone; effect of soil compaction on productivity; and cumulative effects at the 5th field watershed and 6th field subwatershed scale. Due to the hydrologic and topographic separation of each drainage, effects of the project are analyzed here at the 7th field scale.

3.1.2.1 Alternative 1: No Action

Under this alternative, current trends as described above would remain unchanged. High potential for wildland fire would continue, posing a risk to the aquatic environment from delivery of sediment, loss of riparian vegetation, or expansion of large openings in the TSZ. In the event of a wildfire, erosion and compaction rates would likely increase due to the creation of fire breaks with bulldozers, reducing soil productivity. Roads with poor drainage would continue to deliver water and sediment to creeks, and lack of road maintenance would lead to eventual road failure, delivering large quantities of sediment to the stream network. Riparian zones with high tree densities and low structural diversity would continue to develop slowly into mature stands.

3.1.2.2 Alternative 2

This alternative proposes treatments only in the Rum Creek drainage.

Hydrology
All variable and incremental canopy thinning would retain a canopy closure of 40% or greater, so these stands would not be considered open according to the OWAM method of analysis. However, 29 acres of small gaps within variable and incremental canopy thinning units, 1.3 acres of re-opened roads, 0.9 acres of helicopter landings, 31 acres of skid roads, and 109 acres of cable yarding corridors would generate a total of approximately 171 acres of new openings in the TSZ. With existing openings, this would result in a total of 604 acres of open areas or 28% of the TSZ. This is below the threshold of 40%, the point at which adverse impacts to peak flows may be expected. The Rum Creek drainage would remain at low risk of measurable peak flow increases during rain-on-snow events in the short term, with an improving trend over time as treated stands move toward full canopy potential.

All vegetation and fuels treatments would maintain the current seral stage and would preserve a mix of overstory and understory vegetation. Therefore, activities occurring in hydrologically-recovering stands would not hinder the recovery process, and the current improving trend would continue. At the site level, vegetation removal would result in a slight increase in soil moisture in the short term, but adherence to project design features (Chapter 2) would prevent negative effects at the site level by limiting routing mechanisms to streams and restricting use of skid roads to the dry season. Effects to peak flows at the 7th field level would be immeasurable.

Six helicopter landings would generate 0.9 acres of compaction, and vegetation treatments (thinning and biomass utilization) via tractor on 261 acres would generate 31 acres of compaction, for a maximum added compaction of 1.2% of the Rum Creek drainage. This is a liberal estimate of added compaction, as existing skid roads would be used where feasible. Cumulatively, this represents just over 5% of the drainage, well below the threshold of 12%. At the site level, additional compaction would result in increased runoff in the short term, but adherence to project design features (Chapter 2) would prevent negative effects to streams at the site level by limiting routing mechanisms to streams and restricting use of skid roads to the dry season. Compacted surfaces are also often isolated by grasses, brush, trees and down logs, greatly reducing surface flow routing to stream channels. Additionally, road decommissioning would decompact 7.6 acres, 0.3% of the Rum Creek drainage.

Soils: Erosion Processes and Productivity

Tree thinning and gap formation with subsequent low intensity underburnings and/or biomass removal would retain a mix of hardwoods and conifers which would continue to develop organic duff layers, forest litter, and coarse woody debris. Collectively these forest components support beneficial mycorrhizae, bacteria, and fungi to maintain and provide nutrients (Stark 1997) and soil structure for long term site productivity.

Net added compaction as described above would be 1.2% of the Rum Creek drainage. PDF's call for decomaption of main skid roads and new natural surface landings; however, this was not considered when calculating the net added compaction because of the possibility of biomass yarding creating compaction. The net reduction in soil productivity would be extremely low and only measurable at the local site level.

Pile burning would leave bare soil areas on less than 10% of the treated area. Bare soils conditions would be discontinuous, with the surrounding unburned vegetation preventing concentrated runoff. Therefore, very low, immeasurable rates of erosion would occur as a result of this treatment. It is expected that one year after treatment grasses, forbes, understory plants and forest litter would return. Additionally, fuel treatments would occur over a ten year period, distributing activity over time.

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Ground-disturbance from construction and use of cable corridors, tractor skid roads, and helicopter landings would expose soil on approximately 141 acres (5% of the drainage), but PDF's (such as waterbarring skid trails and cable corridors) would disperse any surface flow and prevent erosion-causing concentrated flow energy.

**Riparian Function**

Thinning activities within riparian reserves would benefit riparian function in the long-term by restoring structural diversity to young, even-aged stands while maintaining species composition of riparian plant communities. Vegetation removal would maintain canopy closure at 50% or greater, so the riparian microclimate would not be significantly affected in the short-term (Emmingham et al 2002). Fuel hazard reduction within riparian reserves would protect these areas and adjacent stream channels from uncharacteristic wildfire that could potentially devastate the existing overstory and prolong recovery of previously-harvested stands. Fuel hazard treatments would also maintain species composition and restore structural diversity to treated stands. Project design features prohibit the creation of new skid roads and trails within riparian reserves; thus, no new compaction would occur. Skid trails used to enter riparian areas would be decompacted after use, accelerating recovery and resolving any surface flow that may be occurring on existing skid roads and trails.

**Stream Channel**

Based on the peak flow and soil erosion analyses, sedimentation of the stream channel is unlikely. While ground-disturbing activities such as burning and log yarding would minimally increase surface erosion in the short term, project design features (including no treatment buffers) would prevent stream bank disturbance and discourage routing of water and sediment to streams. Consequently, the current improving trend of stream channels would continue in both the short and long term.

Road maintenance on 36 miles of road in the project area and along the haul route would result in a short-term increase in sediment delivery. Luce et al. (2001) observed an 87% increase in erosion and sediment transport from roads in year one and two following road maintenance activities. A long term (5+ years) reduction in sedimentation and altered flow routing would be expected following road drainage improvement and decommissioning. Despite the long-term persistence of deposited sediment (see Stream Channel section), the functioning condition of the high sediment streams indicates continued recovery through passive restoration of the stream channel. Road maintenance, renovation, or decommissioning would reduce the potential for sediment reaching streams over the long term by improving drainage and preventing wash-outs during flood events.

**Water Quality**

Alternative 2 proposes 224 acres of thinning and fuel hazard reduction in the riparian reserves (Table 4). These riparian reserves have high stocking levels with consequent reduced stand resiliency and low structural diversity. In riparian areas that are over-stocked, the proposed thinning would benefit water quality and aquatic conditions over the long term by enhancing the growth of residual trees and promoting evenly-mixed age classes (USDA, USDI 2005, p.25).

Within riparian reserves, a 50-75' no treatment buffer would maintain current conditions in the primary shade zone. Outside of the no treatment buffer (secondary shade zone), canopy closure would be maintained at 50% or greater, in accordance with the Northwest Forest Plan Temperature TMDL.
Implementation Strategies (USDA, USDI 2005). Additionally, thinning in the secondary shade zone has been found to have no effect on temperature or relative humidity microclimate when stands were thinned down to 50% canopy cover (Emmingham et al 2002).

Stream turbidity in the project area would not be measurably adversely affected by proposed actions, as project design features (including no treatment buffers) would prevent stream bank disturbance and discourage routing of water and sediment to streams. Further, proposed fuel treatments would reduce fire hazard in the project area and lessen the intensity of a wildfire if one were to occur; therefore, the risk to the aquatic environment from delivery of sediment and loss of riparian vegetation would be reduced.

3.1.2.3 Alternative 3

This alternative is the same as Alternative 2 with the exception of additional treatments proposed within the adjacent Bailey Creek drainage. Effects for Rum Creek 7th field drainage would be the same as stated above for Alternative 2. Accordingly, this portion of the analysis concerns the Bailey Creek drainage only.

Hydrology

Thinning on 44 acres in the Bailey Creek drainage would result in 4 acres of canopy gaps, 3 acres of cable corridors, and less than 1 acre of skid roads for a total of approximately 8 acres of new openings in the TSZ. This represents an increase from 18% to 19% open areas within the TSZ, well below the threshold of 60%. Accordingly, the Bailey Creek drainage would remain at a low risk of measurable peak flow increases during rain-on-snow events over the short and long term.

At the site level, vegetation removal would result in a slight increase in soil moisture, and compaction due to tractor yarding would result in increased runoff in the short term. Adherence to project design features (Chapter 2) would prevent negative effects at the site level by limiting routing mechanisms to streams and restricting use of skid roads to the dry season. Effects to peak flows at the 7th field level would be immeasurable.

Soils: Erosion Processes and Productivity, Riparian Function, Stream Channel, Water Quality

This alternative would add 13 additional acres of treatment in riparian reserves (Table 4). Effects for the Bailey Creek 7th field drainage would be less than those described for the Rum Creek drainage under Alternative 2. This is because the portion of the area proposed to be treated in Bailey Creek is far less (expressed as a percentage of the drainage) than the same treatments for Rum Creek 7th field drainage. As the effects of Alternative 2 to sedimentation, soil erosion and productivity, and water quality are insignificant, the effects of the same types of treatment on a much smaller scale in the Bailey Creek drainage would be insignificant.

Cumulative Effects to the 6th and 5th Field Watersheds

Cumulative effects (due to management actions) are identified above under each category above for 7th field drainages. To summarize:
### Table 9: Soils / Hydrology Effects Summary

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Parameter</th>
<th>Existing Effect</th>
<th>Cumulative Effect</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rum Creek Drainage</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bailey Creek Drainage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 &amp; 3</td>
<td>Peak Flow</td>
<td>None Measurable</td>
<td>None Measurable</td>
<td>Openings in TSZ are below threshold; hydrologic recovery is sufficient; compacted area is low; limited routing mechanisms to streams.</td>
</tr>
<tr>
<td></td>
<td>Sedimentation</td>
<td>None Measurable</td>
<td>None Measurable</td>
<td>Channel morphology and substrate distribution is unaffected; improving trend on upper tributaries would continue.</td>
</tr>
<tr>
<td></td>
<td>Stream Temperature</td>
<td>Low</td>
<td>None Measurable</td>
<td>Primary shade zone would be protected; improving trend would continue.</td>
</tr>
<tr>
<td></td>
<td>Stream Turbidity</td>
<td>Moderate</td>
<td>None Measurable</td>
<td>Improving trend on upper tributaries would continue.</td>
</tr>
<tr>
<td></td>
<td>Soil Productivity</td>
<td>Moderate</td>
<td>Minimal Reduction</td>
<td>A very slight increase in compaction would minimally decrease productivity at the site level.</td>
</tr>
<tr>
<td>3</td>
<td>Peak Flow</td>
<td>None Measurable</td>
<td>None Measurable</td>
<td>Openings in TSZ are below threshold; effects are less than those calculated for Rum Creek.</td>
</tr>
<tr>
<td></td>
<td>Sedimentation</td>
<td>None Measurable</td>
<td>None Measurable</td>
<td>Effects are less than those calculated for Rum Creek.</td>
</tr>
<tr>
<td></td>
<td>Stream Temperature</td>
<td>Unknown</td>
<td>None Measurable</td>
<td>Primary shade zone would be protected; improving trend would continue.</td>
</tr>
<tr>
<td></td>
<td>Stream Turbidity</td>
<td>Unknown</td>
<td>None Measurable</td>
<td>Effects are less than those calculated for Rum Creek.</td>
</tr>
<tr>
<td></td>
<td>Soil Productivity</td>
<td>Low</td>
<td>None Measurable</td>
<td>Effects are far less than those calculated for Rum Creek.</td>
</tr>
</tbody>
</table>

Both drainages in the project area are topographically and hydrologically disconnected from one another and from other drainages in the watershed. Each system contributes exclusively to the Rogue River. There are no measurable additions to hydrologic cumulative effects at the 7th field scale. Soil productivity in Rum Creek drainage would have a minimal reduction due to small additions of compaction in some sites that are not decompacted. This would only be measurable at the site level. There would be no additions to cumulative effects to the Rogue River and therefore no additions to cumulative effects at the 6th and 5th field levels.

### 3.2 Forest Condition

#### 3.2.1 Affected Environment

The Rum Creek project is located adjacent to the Rogue River corridor and within the Inland Coast Range mountains where forests are dominated by mixed evergreen, Douglas-fir and tanoak (Atzet and Wheeler 1984). The most abundant coniferous tree species include Douglas-fir, ponderosa pine and incense cedar. Tanoak is a major species frequently dominating the understory. Minor coniferous species include white fir and sugar pine. Golden chinquapin is common in the midlayer and understory. Pacific madrone is also common especially on drier sites. Slight variations in aspect, elevation, and precipitation can improve growing conditions sufficiently to influence which vegetative community will persist. Average rainfall is 52 inches and in sub drainages, as high as 60 inches. Site index is a measurement of forest productivity expressed as the height of the tallest trees in a stand at an index age. For Rum Creek, the site index measurements (Hann and Scirvanni 1987) range between 73 and 79 for a majority of stands, with a few stands reported as high as the mid eighties. Daytime
humidity remains relatively high in the eastern half of the Rum Creek project where coastal dew is captured and often remains on the upper canopy layers well into the afternoon.

Field reconnaissance of Rum Creek mature stands and stand data analysis show distinct patterns of forest types, species composition, and species richness that loosely follow soil types or depth of soil and gravel content. Major east-west delineations of the drainages of Rum Creek also show observable differences of plant associations and their reactions to fire frequency. The Rum Creek project area can further be delineated into two sides at or near the two most dominant plant series break between tanoak and Douglas-fir. The western half is typed into a Douglas-fir series and the east half is a tanoak series. One white fir transition plant series is within this break near riparian areas. A very minor presence of small acreage oak woodland is found throughout the Rum Creek project area. In all, there are ten identified plant associations with a majority of them located in the eastern half of the drainage.

The western half of Rum Creek has an open grown stand structure with little or no mid-canopy layer. The overstory is evenly mixed with pine (Jeffrey and sugar) and Douglas-fir. Incense cedar, knobcone pine, and golden chinquapin occur as scattered understory/intermediates or overstory/co-dominants. Pacific madrone and non-shrub size tanoak are relatively low in the non-riparian zones. Conifer regeneration is surprisingly high along with regenerating hardwoods where overstory canopy closure is dense in small patches or where canopy cover overall is less than 50%. Individual overstory conifers have greater than 50% crown ratios. Pine species follow ridgeline to upper mid slope ultramafic rock (serpentine and gabbro).

The eastern half of Rum Creek contains Douglas-fir dominated stands. Douglas-fir is the dominate canopy layer at least 85% of the time whether it is a single canopy stand or multi canopied stand. The dominant regeneration layer is tanoak. The mid layer understory is golden chinquapin. Pine and cedar occur as a scattered overstory dominant/predominant throughout the east side with very little occurrences as an understory component. Pine species are also found solitary and in small quarter acre patches as a minor component of the mixed conifer forest. Higher abundance of pine species occurs near ridgelines and within the forest matrix where soils exhibit quartz layered patterns. Poor vigor pine understory is present and in higher abundance where burn patterns on surrounding trees are readily present.

Nearly all the project area has been influenced by prescribed fires or wildfire suppression in the last fifty years. Today, older forest stands have areas of dense ladder fuels creating conditions favorable for crown fires which could result in large stand replacing fires. As a result fire intolerant White fir, which are relatively susceptible to fire, have become established, displacing the more fire adapted Douglas-fir and other pine reproduction.

Rock intrusions, meadows, and non-forest patches are scattered throughout the project area. Serpentine influence is evident by scattered knobcone pine as well as the vigor of natural and planted Jeffrey Pine.

Older forests were harvested to varying degrees leaving a mix of stand conditions as shown in Tables 5 and 6 above. Sections 10, 9, 15 and 16 contain the bulk of past harvest, which consisted of partial cuts and clearcuts.

The result is primarily an overstory of even aged 35 to 50 year old Douglas-fir plantations on former clearcuts. Individual tree vigor has begun to decline due to competition. Past precommercial thinning
at 12'x12' spacing with subsequent fertilization has created dense plantations with a loss of structural diversity. There is very little development of different canopy layers within the stands. Tanoak, huckleberry oak, canyon live oak, evergreen huckleberry, and rhododendron are present throughout the understory, inhibiting development of understory conifers. Due in part to a combination of site preparation, fertilization and increased growing space near roadsides, some 40 year old planted Douglas-fir trees and natural White fir have grown to 24" DBH. However, these stands are beginning to exhibit reduced tree vigor and crown depth. The amount of pine and shade intolerant hardwoods is well below the normal range for the major plant associations appropriate for the site. Tree, shrub, and forb species representative of the plant associations for these units are present but in lower abundance than in a natural stand. An appropriate range of plant species for those plant associations is still possible. Also, these stands have a few residual large trees and patches showing old-growth characteristics. The average diameter of stands previously harvested from this area was 28" DBH. The topography, change in soils, and historic disturbances may account for the wide sporadic spacing and patchiness of conifer trees (evident by the stumps) of these natural stands. Often the previous stand contained conifers in clumps or rings of 5-20 trees and then gapped by distances of 30-70'.

In addition to clearcuts, partial cuts such as shelterwood and selective harvest of the overstory also occurred in the project area. The intent was to convert the stand to a young even aged stand of conifers. Since the designation of the area to Late Successional Reserve in the mid 1990s this practice was discontinued. The stands today are two layered stands of scattered remnant overstory and dense thickets of hardwood and conifer. This practice occurred primarily on the east half of the project area in Sections 15 and 10.

Riparian canopy on both sides of the drainage is dominated by conifers. Few hardwoods are found along watercourses and big leaf maple and red alder are rare.

Older forest stands contain up to ten distinct age groups. Each age group is tied closely to fire events that range 10 to 40 years apart that caused significant regeneration. Today these older forests are exhibiting symptoms of density induced stress and mortality among the larger trees. This is most notable in the overstory pine species. Overstory tree mortality rates of all species appear to exceed their replacements.

3.2.2 Alternative 1: No Action

Overall trees in younger stands are slowly losing their vigor. Some individual trees have well developed crowns. The less dominant trees will continue dying out as they are out-competed for sunlight and nutrients. Radial growth will continue to slow as the trees compete with one another. Eventually, canopies will open up as a result of mortality in the overstory, resulting in snags, down wood, as well as some acceleration of growth of the surviving trees. The snags and down logs formed as a result of these long term processes would be small, and the surviving trees would also be smaller diameter, with small crowns and few or no large branch structures. The smaller diameter trees, with few or no large branch structures, will provide very little habitat for tree-dwelling species and cavity nesters. As the young conifers and shrubs die, they will increase fine fuel loadings to a level high enough to create a real potential for a stand-replacing fire event. Hardwoods and shrubs will be lost from the stands, as the dense and uniform conifers shade them out.

Development of a second canopy layer will be slow, developing only when openings due to mortality occur, allowing light and space for seedlings to establish. This understory development is an important
component of wildlife habitat and forage, and has an effect on nutrient cycling, both of which will be
diminished as crowded, even-aged conifers close in and compete for light and nutrients. Large (hard)
snags and large diameter conifers will not occur within the next several decades without numerous
small disturbances,(e.g. fires, wind, insect activity).

Previous management of the riparian areas has left them similar in vegetative characteristics to the
upland area. Restoration of large woody material and natural riparian processes in stream reaches will
not occur without release of existing upland riparian vegetation by slow, density-related mortality, or
by a large or stand-replacing event.

Douglas-fir and pine species might not persist in the understory on some sites as shade-tolerant species
(e.g., tanoak, huckleberry oak) begin and continue to dominate this stand layer. Tanoak, huckleberry
oak, liveoak, and evergreen huckleberry are and will remain a major competitor to conifer stocking.
Tanoak has become established and persists frequently in the shade beneath an overstory canopy, even
under very low light conditions and often beneath an understory. Tanoak and other shade tolerant
species are abundantly successful as an understory tree which may become large in “gap” openings
that occur naturally by blow downs and light ground fires. Tanoak sprouts from dormant basal buds,
following browsing and other disturbance events. A change to more favorable conditions may result in
increased growth leading to canopy status after many years in the understory. This would reflect a
change from the natural mixed-conifer mosaic that grew on the site before harvested years ago.

Older stands without disturbance will continue to lose pine overstory and upper canopy hardwoods at a
rate that exceeds their replacements.

3.2.3 Alternatives 2 and 3

The proposed silvicultural treatments manage for mixed conifer stands and will retain features of the
original stand as the late seral conifers and hardwoods will be reserved in the marking process.
Thinning will harvest and capture wood volume, redistribute growth potential to residual trees and in
many instances, release the conifer understory. Important characteristics of the existing stand structure
will be retained with an average 40% or more canopy retention, snags, down logs, and hardwood
components. The units will be marked to a residual density that, while highly variable to provide
habitat continuity over time, could include subsequent thinning in 20 years.

ORGANON growth modeling was used to simulate growth for a portion of the area that would be
variable thinned. The program removes certain diameter classes and shifts the residual stand through a
20-year cycle that maintains dispersal habitat for spotted owls and eventually reach mature and late
seral stand conditions.

Variable density and incremental thinning offer two approaches for promoting the development of
structurally diverse stands. Both increase structural heterogeneity. The distribution of all trees in
available canopy layers is intended to be non-uniform. Variability in tree spacing and density produce
a mosaic of structures within stands. Thinning intensity varies widely between no removal and gap
formation (Carey et al. 1999a, Chan et al. 2000). This promotes the development of a patchwork
where intermediate-canopy trees can be released. Variable density thinning should maintain structural
diversity in managed stands.
Table 10: Stocking and Volume Estimates

<table>
<thead>
<tr>
<th>Tree Species</th>
<th>Trees / acre</th>
<th>Basal Area (ft²/ac)</th>
<th>MBF/ac (estimated)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current</td>
<td>Proposed Leave</td>
<td>Proposed Cut</td>
</tr>
<tr>
<td>Douglas-fir</td>
<td>225*</td>
<td>155*</td>
<td>70</td>
</tr>
<tr>
<td>Pine Species</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White fir</td>
<td>15</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Incense Cedar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardwood</td>
<td>25*</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>Totals</td>
<td>265*</td>
<td>185**</td>
<td>80</td>
</tr>
</tbody>
</table>

* Includes saplings

**This is an average of the expected range of leave trees per acre. Cut/leave based on 1 1/2x crown-based spacing.

Post treatment: Mean diameter of conifers is 9.9". Relative density of all stems per acre is approx .32. Crown closure 30-90%.
Range of leave trees per acre is 80-300.
20 year change: Mean diameter is 18". Relative density is approx 0.60 (includes in-growth) Crown closure 30-100%.

Cumulative Effects: At the project scale, after the proposed treatments are implemented, the vegetative diversity would be high for both plant series and stand conditions. Overall forest health and resiliency would be greater across the project area with a decreased potential for the stand density mortality due to insects and disease. The potential for forest loss due to severe wildfire would be diminished. Species representation across the project area would be better maintained into the future be increasing forest resiliency throughout the treatment corridors. When compared to no action, the proposal would decrease the time by five to ten years for seral stage progression to occur from mid to mature seral stages primarily because a more complex structured forest will result from implementing the proposed actions.

As a proactive wildlife habitat, forest health, and fuel reduction project, the proposal would, in combination with the other planned landscaped management projects in the watershed, increase forest diversity, structure and vegetative resiliency in the watershed (See Table 10). Cumulatively, these projects would be implemented on 25% or more of the BLM administered land in the watersheds.

Alternatives 2 and 3 will improve stand and forest health and resiliency by removing density induced stress factors in previously managed stands. Although to different degrees, each alternative will result in distribution, abundance, and species composition for the different vegetation types that more closely approximates the dynamic forest ecosystem existing prior to fire suppression. Untreated areas intermixed with treated areas will maintain landscape diversity and habitats. Greater diversity of minor tree species and developing mixed stand structures break the pattern of staggered-setting harvests.

Both action alternatives will reduce wildfire hazard at the stand and at broader scales. They will reduce the potential for resource loss due to fire and insects. The amount of reduction is directly correlated to the level of forest health improvement that each of the alternatives will provide. All action alternatives will reintroduce fire into the ecosystem to some degree.
3.3 Botanical Resources

3.3.1 Affected Environment

The Rum Creek project area was surveyed for the presence of federally listed plant species, Bureau Special Status plant species, and noxious weeds during the 1997 - 2005 field seasons. No federally listed or Bureau Special Status plant species were found. Surveys did document 7 populations for 4 species of Bureau Tracking plants (Table 11). Multiple populations of two species of noxious weeds were also documented (Table 12). The project area is within the range for the federally listed species *Fritillaria gentneri* and *Lomatium cookii*; neither was found during surveys. Category A and C Survey and Manage botanical species were surveyed for in the project area, none were observed. There are no previously known sites of Survey and Manage botanical species in the project area that require management.

<table>
<thead>
<tr>
<th>Species</th>
<th>Habitat</th>
<th>Protection Status</th>
<th># of Populations in Project Area</th>
<th># of Populations on the District</th>
</tr>
</thead>
<tbody>
<tr>
<td>VASCULAR PLANTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Cypripedium californicum</em> (California lady’s slipper)</td>
<td>Moist microsites in mixed evergreen forests.</td>
<td>Bureau Tracking</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>NON-VASCULAR PLANTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Chaenotheca furfuracea</em> (Sulphur stubble lichen)</td>
<td>Soil and upturned stumps in shaded forests.</td>
<td>Bureau Tracking</td>
<td>1</td>
<td>35</td>
</tr>
<tr>
<td><em>Fissidens grandifrons</em> (Narrow-leaved Chinese phoenix moss)</td>
<td>Submerged or above the water line. Rocks and soil.</td>
<td>Bureau Tracking</td>
<td>5</td>
<td>62</td>
</tr>
<tr>
<td>FUNGI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Plectania milleri</em> (Black cup fungi)</td>
<td>Decaying sticks and other debris of conifers.</td>
<td>Bureau Tracking</td>
<td>2</td>
<td>199</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
<th>Designation</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Cirsium arvense</em></td>
<td>Canada Thistle</td>
<td>B</td>
<td>34S-08W-09, 15, 16</td>
</tr>
<tr>
<td><em>Senecio jacobaea</em></td>
<td>Tansy Ragwort</td>
<td>B</td>
<td>34S-08W-09</td>
</tr>
</tbody>
</table>

The only botanical species that will be discussed will be those depicted in the tables above.

Survey and Manage (S&M), Threatened and Endangered (T&E), State Threatened (STO), and Bureau Sensitive plants are require protection and management. Bureau Assessment species are ones currently not eligible for federal listing, but are of a conservation concern and may need protection or mitigation from BLM activities. It is Oregon State Office’s policy that the Bureau of Land Management would protect, manage, and conserve those sensitive species and their habitats such that any Bureau action would not contribute to the need to list any of these species (IM OR-91-57). Bureau Tracking species are not considered Special Status species for management purposes, but are documented to help determine future status and management needs. Protection for these species is discretionary, and based on species and treatment prescribed.

*Rum Creek EA June 16, 2006*
3.3.2 Alternative 1: No Action

The no action alternative would not result in any direct or indirect effects to S&M, STO, T&E, Bureau Sensitive, or Bureau Assessment species because this alternative proposes no habitat/ground disturbing activities and the species are not found in the project area. The no action alternative would have both negative and positive indirect effects on botanical species based on the species and habitat requirements as described below.

Fuels treatment and timber harvest
Fire has played an extremely important role in influencing the plant communities of southwestern Oregon. The mixed evergreen forests and shrublands typically found in this project area have been created and perpetuated in the past by fire. This regime has been disrupted by fire control activities (Franklin and Dyrness 1988). Without treatment, a build-up of fuels would continue to occur within the project area. This build-up would create favorable conditions for higher intensity wildfires, which could result in extensive damage to plant species habitat, as well as create large areas of bare soils and extensive canopy loss, conditions that are ideal for the establishment and spread of noxious weeds.

Road work and noxious weeds
Noxious weeds can out-compete native plants, reduce habitat for native insects and animals, and threaten biological diversity. They can alter soil fertility, dry up water supplies, poison animals, decrease agriculture production, infest rivers, and reduce recreational value. Noxious weeds find disturbed sites favorable for establishment and spread. Vehicles are a primary method for transporting noxious weeds and creating new populations of noxious weeds. The no action alternative would not create additional disturbed areas or access points that may result in new weed populations. However, existing populations would not receive priority for treatment compared to alternatives 2 and 3. As discussed above higher intensity fires may be a result of the no action alternative. These types of fires create bare soil and large openings in the canopy. Therefore, the risk of weed infestations would be higher even though disturbance is proposed in other alternatives.

3.3.3 Alternative 2 and 3

Short and Long Term Effects
Due to project design features that buffer sites and limit fuels treatments there should be no direct or indirect effects to existing listed botanical species. For some species that require higher canopy closures, buffers are expanded beyond the actual population in order to protect habitat for future population expansion. Buffers surrounding all listed plant sites would provide protection from treatment. Buffer sizes would be implemented based on species, habitat, and treatment. A 20' minimum buffer would be placed for State Threatened and Special status species. While protection of Bureau assessment species is discretionary, protection would occur for these species, dependent on habitat needs and activity. Therefore, due to buffering and habitat protection, project implementation would not contribute to the listing of vascular plants, non-vascular plants or fungi.

Fuels treatment and timber harvest
Certain plant species, such as Cypripedium californicum, requires down logs, snags, duff, and canopy cover to maintain soil moisture and mycorrhizal associates. Species that thrive in shade (Chaenotheca furfuracea, and Plectania milleri) would benefit by increased density and canopy cover. Treatments that reduce canopy cover beyond 40% may degrade occupied habitat for Cypripedium californicum if opening the canopy reduces or dries moist microsites. However, this short term reduction would only
occur on ~ 290 acres and would begin to recover within two years at which time canopy cover increases. Treatments proposed for this project, which change canopy cover, vary throughout the project area between 40-60% canopy closure. These treatments though would not lead to the listing of any botanical species, given the small scale of treatment, short duration of effects, protection buffers, and presence of habitat for these species found adjacent to the project area, within the watershed, throughout the district and the Pacific Northwest.

Underburning, burning slash and chipped material are treatments that replicate natural, low intensity burns on the landscape. These treatments would help maintain habitat for some botanical species that require open to partial canopy cover, as well as prevent catastrophic wildfires that could extripate populations. For example, during a wildfire or activity fuels treatments, a thick layer of slash (>6") creates potential for smoldering which could damage the soil and seedbed to a point where many species in the herbaceous layer would have difficulty re-establishing. This potential for high intensity smoldering and impediment of germination, would not occur in the project area due to a targeted slash layer of 0 – 1”. Slash would decrease over time as it settles and decomposes. PDF requirements for leaving untreated areas, follow up under-burns, and avoiding placing cut material in buffered areas, would minimize slash buildup across the landscape and within plant buffer areas.

Handpiling and burning activities (associated with both natural and activity fuels) would encompass 1,394 acres of the project area over a 5 year period. However, it is anticipated the number of acres treated would be less than 1,394. Igniting handpiles produces a high intensity burn exposing mineral soil. For the project, an average of 90 handpiles per acre would be burned. Based on a 7’ by 7’ handpile spacing and 90 handpiles per acres, only 5% of the acreage in the project area would be covered by the handpiles. Piles burned are not fully consumed, reducing predicted disturbed acreage. Any direct effects to unknown populations would have the opportunity to recover as adjacent populations repopulate burned areas. Observation and research from previously treated areas has found that vegetation recovers within the piles within two years.

Some thinning or fuel reduction treatments would occur in the fall, or during plant dormancy periods, this would reduce competition from encroachment from other plant species and improve the habitat conditions. Also, fuel hazard reduction treatments reducing understory would help to return forests to healthier conditions simulating a more natural fire regime. This, in turn, would reduce the risk of high intensity fire, protecting botanical species.

**Biomass Utilization**

All treatments identified in the project area (1,394 acres) have been identified for potential biomass removal in the project area. Prescribed treatments are intended to reduce hazardous fuels while utilizing the biomass to benefit the local economy.

Small machinery will most likely be used to remove biomass. Existing skid roads and skid roads developed for commercial prescriptions will be used in designated areas. Additional skid roads may be identified in matrix lands. To eliminate any effects to botanical species or the spread of noxious weeds, PDF’s will be followed that require buffering of special status species sites, washing of machinery prior to entering BLM lands and after working in known noxious weeds population. Effects are similar to fuel reduction activities described above.

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Road work, skid trails, and noxious weeds

Road maintenance and temporary construction, tractor harvest, trails and landing construction represent opportunities for seed dispersal of noxious weeds from outside the project area as well as the spread of existing seed present in the project area (Table 12). If left un-checked, noxious weeds would occupy habitat for botanical and native species. Adverse effects to botanical species from the encroachment of noxious weeds could impact populations due to competition for light, water, and nutrients. These effects may reduce populations of native botanical species and potential habitat over time. Project activities could cause noxious weeds to spread or become established in the project area through seed or plant transport by vehicles and through soil disturbance which provides an opportunity for weeds to outcompete many native species in recolonizing bare soil. However, due to PDF’s designed to reduce the risk of weed spread (equipment washing to remove dirt containing weed seeds or plants, seeding/mulching with native species to help native plants become established more quickly than and thus outcompete noxious weeds due to project activities) is not anticipated to be distinguishable above current levels and mechanisms (vehicles, wind, animals, etc.) of weed establishment and spread. Because straw used for mulch would be native species and certified weed free, the use of straw is not anticipated to increase the spread of noxious weeds. The PDF’s for reducing or eliminating noxious weed impacts are “widely accepted and utilized as best management practices in noxious weed control across the nation” (USDI, 2006).

Although the long term potential for weed spread would be greater with no action compared to the proposed actions, the potential for the spread of existing noxious weeds and the introduction of new infestations is similar for both alternatives. This is because of PDFs (discussed above) and the fact that under the no action alternative, populations would continue to establish and spread due to seed transport by existing vectors such as vehicles, wildlife, wind, and water. Given the unpredictability of weed spread through these existing vectors, it is not possible to quantify with any degree of certainty the rate of weed spread in the future or even the degree by which that potential would be affected (increased or decreased) by the proposed action.

Cumulative Effects

Land ownership within the project area includes a checkerboard of government and privately owned land. This project area is relatively small, encompassing 2,809 acres.

As human populations increase in this region, available habitat for botanical species will decrease. Management would continue on private and BLM lands. Plant species on federal lands would continue to be protected and conserved following policy and management guidelines. Populations on non-federal lands would most likely remain undetected and unprotected because no laws governing rare plants on non-federal lands exist. Because habitat and populations for the botanical species found in the project area are abundant on the federal land throughout the resource area, district, and southern Oregon, impacts associated with the Rum Creek project would not lead to the listing of any plant species, when considered in conjunction with habitat or plant impacting activities on non-federal land.

Noxious weeds have started to impact plant communities, especially in drainages and along roadsides in the Rum Creek project area. In order to address the cumulative effects of the proposed actions on the spread of noxious weed encroachment, the conditions of non-federal lands must by considered. However, there is no available or existing data regarding noxious weed occurrences on local non-federal lands. Therefore, for purposes of this analysis, BLM assumes that 1) there is a perpetual source of noxious/invasive weeds on non-federal lands that can spread to federal lands, especially when the land ownership is checkerboard, as within the Planning Area, and 2) conversely that noxious weeds are

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· not established in these lands, and therefore there is a need to reduce the risk of spread of noxious weeds from the federal lands to the adjoining non-federal lands. Seeds are spread by the wind, by animal/avian vectors, natural events, and by human activities. Additional human disturbance and traffic would increase the potential for spreading noxious weed establishment, but regardless of human activity, spread of these weeds will continue through natural forces. Thus, the BLM cannot stop the spread of noxious weeds, it might only reduce the risk or rate of spread.

Given the unpredictable vectors for weed spread, such as the vehicle usage by private parties, wildlife behavior, and wind currents, it is not possible to quantify with any degree of confidence the rate of weed spread in the future, or even the degree by which that potential would be increased by the proposed actions.

Foreseeable activities within the Planning Area are expected to be similar to past and current activities: motor vehicle traffic, recreations use, timber harvest, and road construction. These types of activities could result in new disturbed sites available for colonization by existing noxious weed populations, and they do offer the possibility of introduction of new noxious weed species to the Planning Area under any alternative, including the No Action Alternative. As stated above, there is no available or existing data concerning the rate of weed spread occurring on either federal or non-federal lands as a consequence of these types of activities. Also, as discussed above, there is no information on what, if any, increase in the rate of weed spread the proposed actions would cause, and hence, it is not possible to quantify with any degree of confidence what the incremental effect of the proposed actions on the spread of noxious weeds would be when added to the existing rate of weed spread caused by past, present, and future actions.

3.4 Fisheries / Aquatic

3.4.1 Affected Environment

The Rum Creek Landscape Management Plan proposes treatments primarily within the Rum Creek drainage, which lies in the Rogue-Whiskey subwatershed and Wild Rogue 5th field watershed. Additional treatments are proposed just outside the southeastern border of the Rum Creek drainage in section 15; these select units are within Bailey Creek drainage, which lies in the Rogue River-Lower Hellgate subwatershed and the Big Hog 5th field watershed. Road maintenance activities would occur within the lower portions of the Rogue River - Galice Creek subwatershed in the Big Hog watershed.

Rum Creek is the only fish-bearing stream in the Rum Creek drainage. Rum Creek has perennial flows with a high gradient and flows into the Rogue River. The channel is constrained by hillslopes in a moderate v-shaped valley and is characterized by cascades dominated with boulders.

Summer and winter steelhead were found in Rum Creek in 1970. Cutthroat and rainbow trout are likely in Rum Creek as well. Surveys conducted in of 2005 determined the upstream extent of fish presence. Fish presence ended at a 10 meter high waterfall approximately 0.75 miles up Rum Creek, upstream of the confluence with East Fork Rum Creek. Fish were not found in East Fork Rum Creek or any other tributaries to Rum Creek.

According to the BLM Wild Rogue – South Watershed Analysis 2000, it is believed Pacific lamprey distribution overlaps that of steelhead; and both reticulate sculpin and speckled dace distributions
overlap that of resident trout. The high gradient in Rum Creek excludes coho use. Pacific lamprey are listed on the BLM Special Status Species list as Bureau Tracking.

ODFW conducted an Aquatic Habitat Inventory Survey in 1998 in East Fork Rum Creek, beginning at the confluence of Rum and extending 485 meters ending at an 11 meter high falls. The average unit gradient was found to be 53 percent. The total number of conifers in the riparian zone greater than 20” dbh was deemed undesirable according to ODFW habitat benchmarks. Percent shade of riparian vegetation, however, was found to be desirable. Key pieces of LWD are important components of aquatic habitat. Large woody debris (LWD) volume and number of key pieces (> 60cm in diameter and 10m in length) was found to be adequate. Smaller pieces of LWD have important functions in aquatic habitat as well. The total number of LWD pieces found in Rum Creek was considered undesirable.

ODFW conducted an Aquatic Habitat Inventory Survey in Rum Creek in 1998 containing two reaches which extended upstream to a ten meter high waterfall. The average gradient for reach 1 was found to be 11.1 percent and for unit 2 was 22.9 percent. Stream shade was found to be desirable. Potential and existing LWD rated low in the ODFW benchmarks. In both reaches the total number of conifers in the riparian zone (>20”dbh) were regarded as undesirable. LWD quality and quantity (volume and number of pieces) were found to be undesirable for reach 1. Volume and number of key pieces of LWD for reach 2 was found to be adequate, and total number of pieces was found to be undesirable.

Benefits from the cool water in Rum Creek are realized by juvenile and adult fish use in the lower reaches of Rum Creek. The cool water input is also beneficial to adult chinook during the summer months seeking thermal refuge from the warm Rogue River (Quinn et al. 1987). Likely adults migrating upstream would seek cool water refuge at the confluence of Rum Creek and the Rogue River. However, information is lacking on the extent of juvenile salmonid utilization of this cool water outflow. The Rogue River is DEQ 303(d) listed for rearing temperature for juvenile salmonids during the summer for the section that encompasses the confluence with Rum Creek. Maintenance of this cool water outflow is critical to migrating salmon, likely both adults and juveniles, in the summer months to reduce the physiological effects experienced from warm water such as increased metabolic rate (Barton and Schreck 1987 as quoted in Reid 2002) and lowered resistance to disease (Berman and Quinn 1991 as quoted in Reid 2002).

Some roads in the Rum Creek drainage contribute sediment to stream channels. These roads have poor drainage causing erosion to occur on the surface of the road. Some roads have not been maintained and have been left to decommission “naturally”. In most cases culverts and cross drains were not removed and these roads were not left in an erosion resistant condition. These culverts and roads are at risk of washing out and contributing even more sediment to streams.

The proposed actions in section 15 are located in the Bailey Creek drainage. Bailey Creek is a perennial, high gradient non-fish bearing stream which flows into the Rogue River. There is a 37’ high waterfall one-quarter mile upstream from the mouth of the Rogue River. The stream channel is constrained by bedrock with a steep, narrow valley (BLM, Medford District 1999).

Road maintenance activities would occur within the lower portions of the Rogue River - Galice Creek subwatershed which is located in the Big Hog 5th field watershed. Galice Creek contains fall chinook, coho, summer and winter steelhead and cutthroat. Quartz Creek, which is the fish bearing tributary to Galice Creek near the road maintenance, contains summer steelhead and cutthroat.

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3.4.2 Alternative 1: No Action

Current condition and trends of fish habitat would continue. Road maintenance and renovation would not occur under this alternative, hence some roads would continue in a state of poor condition with inadequate and failing drainage. This condition results in roads contributing sediment to stream channels.

Under the no action alternative vegetation treatments, such as young stand thinning and incremental and variable management thinning would not occur. Existing riparian condition would continue to slowly improve and reach properly functioning condition over time. However, riparian improvements, such as density reduction, would not occur and some stands would remain or become stagnant. Increased stagnation results in reduced growth and increased stress. This could increase the chance of a catastrophic event, such as, a stand replacing fire or increased risk of insect damage.

High fuel loads and dense stocking make these areas prone to disease and fire. The loss of future large woody debris (LWD) recruitment potential from a high severity wildfire in the riparian would result in decreasing pool frequency and depth, decreasing stream complexity, and a decrease in salmonid growth and survival through reduced rearing habitat quality. The increased risk of a high severity wildfire in the riparian zone could affect stream temperatures by substantially reducing stream shade.

Under Alternative 1, roads 34-8-34, 34-8-10.1, and 10.5 would not be decommissioned. A high potential exists for the culvert over the mainstem of Rum Creek on road 34-8-34 to wash out. This culvert is undersized and is currently eroding at the inlet, posing a high risk of washing out. In the event of a culvert failure, the entire road prism fill would enter Rum Creek and eventually into fish habitat in the lower reach of Rum Creek. Other culverts and cross drains on roads 34-8-34 and 34-8-10.1 have the potential to plug and wash out, causing sediment to reach stream channels, if left to decommission “naturally.” In other words, these culverts and cross drains would not be removed before the road is left in an unmaintained status. The failure of stream crossings can be a major source of sediment, resulting in extensive local scour and deposition and additional erosion downstream (Meehan 1991).

3.4.3 Alternatives 2 and 3

The proposed actions are evaluated on how they would change fish habitat, and for this reason, the fisheries analysis is linked closely to the soil and water effects analysis. The effects anticipated in the soil and water section can be used to determine effects to fish habitat and thus determine the expected impacts to fish populations through analyzing the anticipated effects to the habitat elements needed to carry out their life cycles.

Steelhead trout, rainbow trout, and cutthroat trout, have similar habitat and temperature requirements. Therefore, these species will be grouped together when discussing the effects of the proposed actions on fish habitat.

The effects on habitat can be used to evaluate the potential of the proposed actions to affect fish populations. Populations can be affected by decreasing production and survival.
Effects from Variable and Incremental Canopy Thinning The 75’ no treatment buffers and PDFs would minimize or prevent sediment from reaching stream channels. Fish and fish habitat are more than 1.2 miles from any incremental or variable thinning units. With the smallest chance of sediment entering stream channels, and at this distance to fish, sediment would settle out before reaching fish habitat and would be immeasurable. Therefore, the proposed actions are not anticipated to affect these fish habitat elements thus no decrease in fish production and survival are expected.

The proposed action is not anticipated to cause a decrease in shade or an increase in water temperature because the 75’ no treatment buffer would maintain the primary shade zone. Therefore, this habitat element would not be affected, thus no decrease in fish production or survival are expected. Treating vegetation within the secondary shade zone can reduce the risk of crown fire, thus reducing the risk of vegetation loss in the primary shade zone in the event of a high intensity fire.

The proposed action is not anticipated to cause a decrease in LWD recruitment in the short or long term due to the 75’ no treatment buffer. Buffers will also ensure riparian canopy cover is maintained for nutrient input via leaf litter and insects dropping from the trees. Vegetation treatments prescribed in the riparian reserves would lead to acceleration of late-successional forest conditions such as increased structural diversity, larger trees in the riparian, and large woody debris recruitment.

The risk of increasing peak flows within the project area would remain low, thus measurable effects to this fish habitat element are not expected. Decommissioning unrecovered skid roads in the riparian reserves would reduce areas of compaction and thus peak flows.

Young Stand Thinning A 50’ no treatment buffer would prevent sediment from reaching the stream, maintain the primary shade zone and thus stream temperatures. There is no anticipated change to peak flows as a result of this project element due to the limited amount of vegetation removal and maximum added compaction of 1.2% of the Rum Creek drainage from all proposed actions combined.

Young stand thinning is not anticipated to cause a decrease in LWD recruitment in the short or long term. The 50’ no treatment buffer will ensure future LWD recruitment is met. Buffers will also ensure riparian canopy cover is maintained for nutrient input via leaf litter and insects dropping from the trees. Treating vegetation in the secondary shade zone can reduce the risk of crown fire, thus reducing the risk of vegetation loss in the primary shade zone in the event of a high intensity fire. Vegetation treatments prescribed in the riparian reserves also lead to acceleration of late-successional forest conditions such as increased structural diversity, larger trees in the riparian and large woody debris recruitment.

Fuels Reduction Fuels treatments would not cause an increase in water temperature due to the 50’ no-treatment buffer that would maintain the primary shade zone. Low intensity prescribed burning would in most cases not consume the vegetation in the no treatment buffer nor result in tree mortality. Reducing the risk of a crown fire would ensure the presence of an overstory providing shade to stream channels.

A 50’ no treatment buffer would minimize or prevent sediment from reaching stream channels from fuels reduction treatments. In most instances, low intensity fire would not result in the exposure of
bare soil. Potential for sediment and ash transport to fish habitat is low because of the unburned strip
of vegetation and organics along streams and the mosaic pattern of unburned vegetation outside the no
treatment zone. Therefore no sediment routing mechanisms would be created. The closest proximity
of fish in Rum Creek to a fuels unit is 1.2 mile. On the small chance that minimal amounts of
sediment would be created on-site, at a distance greater than 1.2 miles from fish habitat, sediment
would settle out before reaching fish habitat. Therefore, sediment input would be immeasurable within
fish habitat reaches and no effects to these fish habitat elements are expected. In addition, reducing
fuel hazard would reduce the potential of a high intensity and severity wildfire and therefore reduce the
risk of sediment input to stream channels from a wildfire.

The proposed fuels treatment is not anticipated to cause a decrease in LWD recruitment in the short or
long term. The 50’ no treatment buffer will ensure future LWD recruitment is met. Buffers will also
ensure riparian canopy cover is maintained for nutrient input via leaf litter and insects dropping from
the trees. PDFs would ensure the prescribed burns match the objectives and tree mortality is prevented
or minimized. There is minimal risk in the low intensity fires causing tree mortality or the
consumption of snags. Reducing the fuel loading would lead to a lower intensity ground wildfire, not
likely to reach into the overstory, thus minimizing the risk of tree mortality and future recruitment of
LWD.

Fuels reduction would not reduce mid or late seral stages and would maintain overstory and understory
vegetation. Therefore, activities would not hinder the process of hydrologic recovery in these units,
but would likely hasten recovery. In addition, there would be no increase in soil compaction due to
fuels reduction. Therefore, there would be no effect of fuels reduction on peak flows.

Road Renovation/ Maintenance Road renovation and maintenance are not anticipated to affect fish
habitat elements because sediment input would be immeasurable within fish habitat reaches. The
PDFs would reduce sediment input to streams. At a distance of more than 1.9 miles from road
activities to fish in Rum Creek, sediment would settle out before reaching fish habitat. There are no
mechanisms for sediment delivery from the spur road renovation because there are no stream
crossings. Therefore, there would be no effect of sediment input on fish or fish habitat in Rum Creek.

Maintenance of the Peavine Road (35-8-2) and the Galice Road (34-8-36) have potential to deliver
sediment to fish habitat due to the proximity of fish in Galice Creek to the roads. There is a stream
crossing on the Peavine Road which flows 0.09 miles or 475’ until it reaches fish in Galice Creek.
This crossing is an intermittent stream which flows into Galice Creek. The Peavine Road is
paved so the road surface would not be bladed. The ditch along the road, culverts and cross drains
may be cleaned as needed. This would result in exposed soil and short term inputs of sediment routing
down the ditch line. Due to this limited action, the amount of sediment delivery which could reach
Galice Creek would be very small and would not cause an increase in stream bed embeddedness, an
increase of fines in the gravel, or turbid water in fish habitat. Furthermore measures to control erosion
and sedimentation during road work will further reduce the possibility of sediment reaching fish
habitat (see PDFs). Long term beneficial effects include overall improved water drainage. No effects
to fish habitat in Galice Creek are expected.

Another stream crossing is an intermittent stream on the Peavine Road approximately 1.0 mile from
fish in Galice Creek. The Peavine Road crosses ephemeral streams which lead into Quartz Creek.
There are no intermittent or perennial crossings which flow into Quartz Creek. Therefore no sediment
routing mechanisms exist from the Peavine road to fish in Quartz Creek.

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The portion of the Galice Road to have road maintenance parallels Galice Creek, less than 100 feet from the channel. This section of road is flat and paved. Therefore, maintenance will not likely cause sediment that could reach Galice Creek and no effects to fish habitat is expected.

Beneficial effects from road renovation/maintenance include improved road drainage. This will lead to decreases in erosion and sediment reaching stream channels immediately and in the long term. There would be a decreased potential for culvert washouts and road surface erosion.

Road renovation and maintenance would not affect LWD or temperature because only hazard trees may be removed and there would be no significant change in riparian areas. There would no effect on peak flows because there would be no additional amount of compaction from the action.

**Biomass Extraction** A 75’ no treatment buffer would maintain the primary shade zone and thus stream temperatures. There would be no effect on LWD from this method of vegetation removal.

Biomass extraction is not expected to affect sediment. Sediment input would be immeasurable within fish habitat reaches. A 75’ no treatment buffer would minimize if not prevent sediment from reaching stream channels. On the small chance of sediment input to stream channels in Rum Creek, sediment would settle out before reaching fish habitat, more than 0.95 miles downstream.

The risk of increasing peak flows within the project area would remain low, thus effects are not expected. PDFs are designed to minimize the amount of area compacted within the unit and thus limiting any additional peak flow effects. There is no anticipated change to peak flows as a result of this project element due to the limited amount of vegetation removal and maximum added compaction of 1.2% of the Rum Creek drainage from all proposed actions combined.

**Helicopter Landings** Landings would be located away from streams. Therefore, the building, use or decommissioning of helicopter landings is not anticipated to affect LWD, temperature, or sediment.

The risk of increasing peak flows within the project area would remain low, thus effects to this fish habitat element are not expected. The landings would be located along roads, already compacted. Expansion outside of the road prism may occur but would be minimal.

**Road Decommissioning** Decommissioning would have no negative effect on LWD, stream temperature or peak flows and is not anticipated to affect sediment. Sediment input would be immeasurable within fish habitat reaches. PDFs would minimize/reduce the amount of sediment from the decommissioning by leaving the road in an erosion resistant condition following the decommissioning. The closest proximity to fish from any road decommissioning is 1.8 miles to fish in Rum Creek. Road decommissioning would be beneficial in the long term by decreasing the potential for culvert washouts, road surface erosion and compaction, and a return of riparian vegetation.

**Pump Chance Restoration** The proposed actions are not anticipated to affect the fish habitat elements. Sediment input would be immeasurable within fish habitat reaches due to PDFs designed to reduce the
amount of sediment released downstream during these activities. Proximity to fish is 1.5 miles in Rum Creek. No other fish habitat elements would be affected.

**Log Hauling** Timber hauling would occur on 4.4 miles of natural, 24.7 miles of gravel and 8.2 miles of paved road surfaces. The haul routes that cross tributaries of fish habitat, the Peavine and Galice Roads are paved and therefore log hauling would have no effect to fish habitat in Quartz or Galice Creeks. Aggregate roads are further than 1.0 mile from fish habitat. Timber hauling would be seasonally restricted on native surface or inadequately rocked roads whenever soil moisture conditions or rain events could result in road damage or the transport of sediment to nearby stream channels. No direct or indirect affect to fish or fish habitat is expected from log hauling.

**Cumulative Effects**
The potential effects described above are immeasurable or negligible in this alternative because of the efforts to eliminate 1) sediment delivery, 2) increases in stream temperature, 3) reduction of LWD, and 4) an increase in peak flows. These efforts are included in the design of the proposed actions and the PDFs. Riparian functions of stream shade and large wood recruitment would be maintained and in many cases improved. The risk of an increase in peak flows is low, therefore no increase in peak flows are expected. Therefore, there would be no measurable or detectable adverse changes to aquatic habitat.

Foreseeable actions anticipated on federal lands would not result in the degradation of aquatic and riparian habitat. Private lands are assumed to continue to harvest on a rotation schedule in accordance with ODF guidelines. The harvest management of riparian forests stands on a short (approximately 40-60 year) rotation on private timber land is not likely to accelerate watershed recovery. However, if the proposed actions are taken on federal lands, currently degraded riparian areas would have the opportunity to move more quickly toward recovery.

The proposed actions would not result in changes stream temperatures, sediment levels, peak flows, or LWD recruitment. No cumulative effects to fish habitat would be expected to result from the proposed action.

No cumulative adverse effects from the proposed road work are anticipated because no new roads would be added and existing roads which are current sources of sediment would have road maintenance, renovation or be decommissioned. A result would be a reduction in the short and long term of erosion occurring on roads and thus a reduced amount of sediment reaching stream channels.

**Wild and Scenic River Act**
The Rogue River was designated as a Wild and Scenic River. Rum Creek flows into the Rogue River in the wild portion of the river. Fisheries were listed as an Outstanding and Remarkable Value (ORV) in the Rogue River under the Wild and Scenic River designation. Alternatives 2 or 3 are not anticipated to have any effect on the Fisheries ORV in the Rogue River.

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3.5 Wildlife

3.5.1 Affected Environment

Several wildlife related issues associated with the Rum Creek Project area have been identified and key issues will be addressed this document. These key issues are:

1) A high percentage of young stands occur in the project area, including high-density plantations with little diversity.
2) Late-successional habitat is spatially fragmented throughout the project area.
3) Fire exclusion and high fuel loading has led to a high potential for a large, uncharacteristic fire within the watershed which could reduce the quality and quantity of current late-successional habitat.
4) The project is within a designated spotted owl critical habitat (CHU OR-65) which provides two interprovincial links. Another concern is that 1,642 acres of suitable spotted owl habitat was lost in the portion of the 2002 Biscuit Fire occurred in the SW corner of this CHU.
5) The project area is within a Medford RMP designated Big Game Management Emphasis Area (deer and elk).

Impacts to these issues will be measured by changes in acres and stand structure to these habitat types (younger stands and late-successional forest habitat). Additionally, effects to key species associated with these habitats would be linked by the changes in acres and stand structures.

Habitats within the project area include riparian, early seral forest, mid-seral forest, late-successional forest, rock outcrops/ talus, snags, and down wood. Chappell and Kagan (2001) describe upland habitats within southern Oregon as Southwest Oregon Mixed Conifer-Hardwood Forest; the stands in the project area fit within this description and are in various stages of stand development. The current conditions of the stands in the Rum Creek project area are discussed below and are related to different wildlife species associated with these various stages of stand development. Only federally listed Bureau Sensitive, or Bureau Assessment species with habitat within the project area are addressed in this EA. Additional species groups such as land birds and big game are also addressed because they are present within the project area. The Bureau Special Status Species list has been updated since completion of the Wild Rogue-South and Big Hog Watershed Analyses. See tables in Appendix D for an updated list of special status species known or suspected to occur within the Grants Pass Resource Area.

The Rum Creek project is in compliance with the 2001 S&M ROD (see S&M species listed below). Consultation with the USFWS regarding any T&E listed species potentially impacted by the project has been completed as required by Endangered Species Act (Biological Opinion log #1-15-03-F-511, October, 2003). At the USFWS' request, the Medford BLM and RR/Siskiyou National Forest are in the process of reinitiating consultation on actions within spotted owl critical habitat units, as well as other remaining proposed actions scheduled for 2006 to 2008. This would include the Rum Creek EA. When we receive a new BO on those actions, it will replace the existing 2004-2008 BA/BO.
Late-Successional Habitat and Closely Associated Species:
The entire Rum Creek project area is within the Fish Hook/Galice LSR, which contains a mixture of Forest Service and BLM lands. Ninety-three percent of this LSR is capable of growing spotted owl habitat (late-successional forest habitat) because of the plant and soil series. However, due to past harvest, fire suppression, and fires, not all of these lands are currently late-successional forest habitat. After the 2002 Biscuit fire, only 42% of these capable lands are currently older forests (Biological Opinion log #1-15-03-F-511, October, 2003).

Habitat within the project area was typed utilizing the McKelvey rating system (see Appendix D for description). This habitat typing system was designed specifically for spotted owls, but can be used to assess habitat availability for other late successional forest habitat dependent species because the habitat typing accounts for important late-successional forest habitat conditions and structures. Suitable spotted owl nesting, roosting and foraging habitat (NRF) is classified as McKelvey rating #1 and #2 and represents the best way to classify late-successional forest habitat. NRF habitat is identified as forests with older forest structure, multiple canopies, canopy closure of 60 percent or greater, and having conifers at least 21 inches diameter.

Approximately 1,165 acres of core habitat have been identified in the Rum Creek project that will not receive treatment because they are either existing late-successional habitat or unentered stands. According to the McKelvey rating system, approximately 355 of these 1,165 acres are currently late-successional forest habitat (meeting McKelvey #1 and #2 rating). The remaining 698 acres of the core area is classified as spotted owl dispersal habitat due to plant series, soil types, and previous partial harvest activities or other past disturbances. However, these acres could eventually develop into late-successional habitat. Approximately 112 acres within the core habitat area are currently not spotted owl habitat and will never develop into suitable late-successional forest habitat due to their rocky conditions. 1,036 acres of the identified core habitat is in the center of the project area. An additional 129 acres are distributed in smaller patches fragmented within treatment units. These outlying patches provide connectivity for late-successional species to adjacent watersheds and contribute to the role of the Fish Hook / Galice LSR by providing a corridor of older forest habitat between the Kalmiopsis and Wild Rogue Wilderness (USDI, 1995).
There are a number of species or small groups of species that are strongly linked to features found in late-successional forests, commonly referred to as late-successional associated species. Four major structural attributes of late-successional Douglas-fir forests are: large live trees, standing dead trees (snags), fallen trees or logs on the forest floor and logs in streams. Additional important elements typically include multiple canopy layers, smaller understory trees, canopy gaps and patchy understory (USDA and USDI 1994a).

These core areas provide suitable habitat for the following late successional special status species:

**Bald Eagle (Federally Threatened)**
In southwest Oregon, the majority of bald eagle nests are in large trees near lakes, rivers, and ponds. Eagles build their nests in large dominant overstory trees, often at the edge of a stand or on a ridge. Nest trees have broken or deformed tops and/or large branches to support the nest. Suitable bald eagle nesting habitat is in the northern portion of the Rum Creek drainage along the ridges closest to the Rogue River. There are no known bald eagle nests within the project area. The closest known nest is approximately 1 mile north of the project, north of the Rogue River.

**Northern Spotted Owl (Federally Threatened)**
Spotted owls are closely associated with old forests for nesting, foraging, and roosting throughout most of their range (Forsman, et al. 1984, Carey et al. 1990, Solis and Gutierrez 1990). Suitable spotted owl nesting, roosting and foraging habitat (NRF) is classified as McKelvey rating #1 and #2 and represents the best way to classify late-successional forest habitat. NRF habitat is identified as forest with older forest structure, multiple canopies, canopy closure of 60 percent or greater, and having conifers at least 21 inches diameter. Dispersal habitat for spotted owls (McKelvey #5) is defined as stands that have a canopy closure of 40% or greater, and are open enough for flight and predator avoidance. The Rum Creek project area currently contains 355 acres (13%) of suitable nesting, roosting, and foraging spotted owl habitat, 1,536 acres (55%) of dispersal only habitat and 918 acres (33%) of non-suitable habitat (Figure 3).

![Figure 3: Owl Habitat within the Rum Creek Project Area](image)

There is one known historic spotted owl site in the project area. The Rum Creek project area falls within the home range of three additional known historic spotted owl sites outside of the project area. See Appendix D for site history summaries.
The entire Rum Creek project area is in a designated spotted owl Critical Habitat Unit (CHU), OR-65. This CHU provides 2 inter-provincial links: from the Klamath Mountains Province to the Western Cascades Province, and from the Klamath Mountains Province north to the Coast Ranges Province (USDI USFWS 2003).

**Spotted Owl Prey**

Dusky-footed woodrats, the primary prey species for spotted owls in Southwest Oregon, are found in high densities in early seral or edge (Sakai and Noon 1993, 1997). Habitat surveys in the project area indicated high abundance of woodrat nests in stands proposed for treatment. Additionally, northern flying squirrels are another major source of owl prey in southwest Oregon, while Red Tree Voles (RTV) comprises only 2.6% of the diet of spotted owls in this area (Forsman 2004). Down wood is an important habitat feature for these major prey species in southwest Oregon. Dusky-footed woodrats build stick nests, sometimes incorporating logs as part of the structure. They also may fortify hollow logs with sticks to use for dens. Other prey species, such as the western red-backed vole use sound logs for travel lanes and rotting logs for foraging, nesting, or internal travel routes. Moisture in and under rotting logs is involved in production of fungi, which is the main food for northern flying squirrel and the western red-backed vole.

**Fisher (Federal Candidate)**

In the western United States, fishers are associated with extensive mature conifer forests and elements such as old live trees, snags and large logs are required (Buck et al. 1994, Harris et al. 1982, Rosenberg and Raphael 1986, Weir and Harestad 2003, Zielinski et al. [in press], Zielinski et al. 2004). Fishers are associated with low to mid-elevation forests with a coniferous component, large snags or decadent live trees and logs for denning and resting, and complex physical structure near the forest floor to support adequate prey populations (Aubry and Lewis 2003). There are approximately 355 acres of denning and resting habitat, and 2,342 acres of foraging habitat for fishers in the project area. The denning and resting habitat is in the identified core habitat areas. Fishers in southern Oregon have been documented using a variety of habitats such as early seral open habitats, oak woodlands and previously harvested areas for foraging (pers. comm. Jeff VonKienast, 2005). Previous managed stands and portions of the core habitat area provide foraging habitat.

Fishers are restricted to two small, disjunct and genetically isolated populations in southwestern Oregon: an introduced population in the southern Cascades and an extant, historic population in the Siskiyou Mountains (Wisely et al. 2004, Aubry et al. 2004). Forest carnivore surveys using bait stations with motion and infrared detection cameras have been conducted throughout the Grants Pass Resource Area and the nearest observation was near Galice Creek. Surveys were conducted in the Rum Creek drainage in the fall of 2005, but no fishers were detected. Even though fishers weren’t detected, they likely use the area because of the habitat conditions existing within the drainage, especially within the large interior identified core habitat with contiguous habitat.

**Red Tree Vole (Survey and Manage)**

Suitable red tree vole (RTV) habitat exists within the project area, primarily in the core areas classified as McKelvey 1 & 2 habitat (355 acres). RTV surveys were not conducted within the project area because the young stands proposed for treatment (Variable Canopy, Incremental Canopy, and Young Stand Thinning) do not provide general RTV habitat characteristics and do not meet the criteria requiring surveys outlined in the current RTV protocol (USDA, USDI 2002). Specifically, these stands are not mature or old-growth conifer forests with multi-layered canopies; do not have large trees with large branches capable of supporting nests and providing travel routes for red tree voles; and
remnant trees are not present in these stands. Surveys in proposed fuels treatments in previous partial harvest units were not necessary because the treatments would not be habitat disturbing. Only understory clearing of smaller diameter materials would occur and prescribed fire is not expected to negatively affect the overstory canopy in these fuels units due to the height of the lowest branches in and potential nest platforms in the remnant trees (USDA, USDI 2002). Additionally, no treatments would occur in the core habitat areas.

**Great Gray Owl (Survey and Manage)**
There is no suitable Great gray owl (GGO) nesting or foraging habitat within the project area. There are no meadows and the conifer stands lack open understories. Therefore, no GGO surveys have been conducted.

**Northern Goshawks (Bureau Sensitive)**
The Northern goshawk is found in a variety of mature, deciduous and coniferous forest types. However, goshawks are rarely found in the Grants Pass Resource Area (GPRA), likely due to the brush and small tree component found in the understory of most stands that has likely resulted in part from fire exclusion. Suitable habitat is in the project area, but is limited to core habitat areas with open understories. Additionally, there are no historic incidental observations of goshawks or nests within the project area. The only known historic goshawk nest in the GPRA is near Grave Creek, approximately 4 miles from the Rum Creek project area, east of the Rogue River. No surveys were conducted in the Rum Creek project because treatment would not occur in the core habitat areas where potential habitat exists.

**Peregrine falcon (Bureau Sensitive)**
Habitat for peregrine falcon is primarily tall cliffs (Henny and Pagel 2003). Forested lands provide habitat for prey species for falcons. Peregrines prey almost entirely on birds. There are no suitable cliffs within the Rum Creek project area, so no surveys are necessary. The nearest known nest is approximately 2 miles away from the Rum Creek project area, and they likely forage within the Rum Creek drainage.

**Bats**
One Bureau Assessment bat species associated with late-successional habitat is suspected to occur within the project area (fringed myotis). Four additional bat species (the silver-haired bat, long-eared myotis, long-legged myotis, and pallid bat) are listed in the NWFP as protection buffer species (USDA and USDI 1994a,b) and are also associated with older stands. Older forest stands receive greater use by bats due to the availability of roosts, a complex vertical structure and less clutter. Bats use live tree and snag cavities as well as rock crevices, mines, caves, stumps, loose bark, bridges, buildings, and other protected sites (Verts and Carraway 1998). Townsend’s big-eared bats (Bureau Sensitive) hibernate in caves and mines during winter (Sherwin 1998). There are no known caves or abandoned mines, wooden bridges or buildings in the project area that would warrant management as an occupied bat site. The nearest surveys have occurred approximately 0.5 miles away using mist nets over pump chances. None of the species listed above were observed. However, due to the presence of suitable habitat, these species are likely found in stands adjacent to this survey site, as well as in the Rum Creek drainage.

**Previously Managed Stands and Closely Associated Species**
A mix of stand conditions exist within the Rum Creek drainage as a result area as a result of the harvesting of older forests to varying degrees in the past 46 years (Table 5). 1,644 acres within the
project area have had some form of harvest in the past 46 years (59%). Past forest management activities within the Rum Creek drainage have been concentrated in sections 9, 10, 15 and 16 and consist of two types of management practices, clear cuts and partial cuts. These previously managed stands are currently young to mid-seral stands.

**Old Clear Cuts**
The old clear cuts have resulted in approximately 1,195 acres of even aged stands approximately 45 years or less within the project area (43%). These stands currently do not exhibit late successional characteristics because they are lacking multiple canopy layers, large live trees, large snags, and gaps. Down woody material is present on the forest floor from previous harvests. These stands are overstocked, uniform, and do not currently provide habitat for late-successional species. However, most 40 year old stands within the project area provide dispersal habitat for northern spotted owls. Additionally some of these stands have high numbers of woodrat nests and spotted owls likely forage in these open areas on the edges of the young stands that are within their home range.

**Old Partial Cuts (Shelterwood, overstory removal, selective cuts)**
These old partial cuts have resulted in approximately 449 acres of two storied stands, with a dense tanoak understory within the project area (16%). These stands currently do not exhibit late successional characteristics because they are lacking more than 2 canopy layers, patchy understories, and gaps. Down wood from previous harvest activities, is present on the forest floor. Habitat evaluation surveys indicated that on an average < 1 snag per acre were present in these stands. Mean snag (> 15” DBH) levels for unentered stands within Josephine County are 3.6 per acre (RMP-EIS, 4-29). These stands are primarily dense young to mid-seral stands with large remnant trees and they do not currently provide habitat for late-successional species. However, they do provide dispersal habitat for northern spotted owls. Early seral stage habitat is preferred by species like the western bluebird, brush rabbit, and western fence lizard. Additional wildlife species associated with young seral stages can be found in the Medford RMP EIS (RMP-EIS, 3-39,40).

**Generalist Species – common to both young and older stands**

**Land Birds (Neotropical migrants and year round residents)**
Land birds use a wide variety of habitats, including late-successional forests, riparian areas, brush in recovering clearcuts, and small trees in developing stands. Some birds, such as the Olive-sided Flycatcher, will perch on residual canopy trees and forage over clear cuts. Some of the 20 year old recovering clear cuts in Rum Creek with lower tree and shrub heights would provide these optimal foraging conditions. Many land birds are associated with deciduous shrubs and trees in early successional habitats (i.e. Orange Crowned Warblers and Rufous Hummingbirds).

All neotropical migrants go to Central or South America each year. They are addressed here due to widespread concern regarding downward population trends, habitat declines, and the BLM’s efforts to comply with Executive Order 13186, the Migratory Bird Treaty Act. No migrants found on the Medford District BLM are listed as endangered or threatened but some are USFWS identified species of conservation concern (Federal Register July 10, 2003 Vol. 68, No. 25, 6179). Six of the birds on this list (Table 13) are known to occur on the Medford District BLM (USDI USFWS 2002). Neotropical birds, as a group, are not special status species.
Table 13: Birds of Conservation Concern for Medford District BLM

<table>
<thead>
<tr>
<th>Species</th>
<th>Presence in the Rum Creek Project Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peregrine Falcon</td>
<td>None known – may forage</td>
</tr>
<tr>
<td>Flammulated Owl</td>
<td>No Habitat</td>
</tr>
<tr>
<td>Olive-sided Flycatcher</td>
<td>Present</td>
</tr>
<tr>
<td>Rufous Hummingbird</td>
<td>Present</td>
</tr>
<tr>
<td>Lewis’ Woodpecker</td>
<td>Seen in adjacent watersheds in the Fall</td>
</tr>
<tr>
<td>White-headed Woodpecker</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

Resident birds remain in the same general area (e.g., the Pileated Woodpecker) or migrate to lower elevations in the winter (e.g., the Dark-eyed Junco). Total numbers of late-successional dependent migratory or resident birds within the Rum Creek project area are unknown. Breeding bird surveys in the Southern Pacific Rainforest Physiographic Region (which includes western Oregon) indicate that songbirds are declining. However, the cause of these declines is still unclear, but is suspected to be an issue associated with their winter grounds (Sauer et al. 2004, Alexander et al. 2005).

**Big Game**

The entire project area lies within an RMP designated elk management area. Management objectives within this area include enhancing elk habitat in a manner consistent with objectives of other allocations, such as timber, old-growth, as well as enhancing connectivity (RMP, p. 48). Optimal elk hiding and thermal cover exists within the Rum Creek drainage. Thermal cover is defined as a stand of conifer trees that are 40 feet or more tall with an average crown closure of 70% or more. Hiding cover is any vegetation capable of providing concealment and hides at least 90% of the animal (USDI, 1995). Foraging conditions are declining within the project area due to the dense young stand conditions, decadent brush, and few grassy openings. Elk are present in the project area, but current population numbers are unknown (pers comm. Mark Vargus, ODFW, 2006). Elk are historically known in the drainage. Twenty-nine elk were transplanted within this elk management area in 1966 and 1967. In 1977 a heard of 48 elk was observed at the Peavine lookout at the top of the Rum Creek drainage. However, in the early 1980’s the population numbers began to decline likely because of new timber sales and additional miles of new roads in the area. An additional 23 elk were released at Mt. Peavine in 1991 and 5 were radio collared to monitor the population. The herd was monitored with radio telemetry from 1991 to 1993 and several detections occurred within the Rum Creek drainage and near the top of the drainage at the Peavine lookout. This monitoring effort led to the discovery that poaching in this area was occurring, and subsequently the road closure policy was implemented through the federal register. Even though roads within the management area are closed with gates, poaching is still a concern in this area because of vandalism to the gates and locks. Other game species, such as deer, cougar, and bear are known or suspected to occur within the project area.

3.5.2 Alternative 1: No Action

Under Alternative 1, no proposed activities would occur. Wildfire would remain the most immediate hazard to spotted owl habitat and late-successional habitat (Courtney et al., 2004). Current stand conditions reflect past fire suppression efforts. Fuel loading and ladder fuel conditions make the existing late-successional habitat susceptible to higher fire severity potential, the results of which would remove or downgrade habitat randomly across the landscape, setting back succession and development, and likely resulting in the loss of large tree structure critical to late-successional forest habitat dependent species. Additionally, fire severity may be higher than historical levels due to current stand conditions, resulting in more severe impacts to soils which may prolong the recovery and...
- colonization of mycorizal processes, and macroinvertebrate and small mammalian prey food webs important to suitable foraging areas for spotted owls.

The current successional development trend of stands toward late-successional habitat under Alternative 1 is uncertain. In southwest Oregon the reduction in fire frequency, from historic frequencies, has reduced the role of fire as an ecological factor influencing stand development, and altering historic forest structures, processes and functions. As a result, young stands are on a developmental pathway different than old growth stands. Therefore, the currently abundant young forest stands would likely develop stand structures and species compositions very different than that of old growth stands. Young stands are increasing in density, placing them at an increasing risk of accelerated density related mortality and increased fire severity (Sensenig 2002). The development of large tree structure comparable to that of remnant trees used by late-successional dependent species is not likely to occur. This is because current stand conditions are too dense, and trees are not developing the diameter to height ratio required to develop this structure. This ratio was historically created through frequent fire events that reduced stem densities and competition that created open grown conditions. Other disturbances such as insect infestations, diseases, and windthrow would have historically thinned out stands, created gaps, and created more complex stand structure. Current stand conditions would likely develop into less complex stand structures and species compositions than that of old growth stands (Sensenig 2002). Most wildlife species would be negatively affected with the no action alternative because of the increased chance of the loss of suitable habitat through stand replacing fires or the development of less complex stands, which would not increase the amount of older forests over time within the drainage. However, some neotropical birds that favor dense conditions may benefit from the no action alternative because the dense understories would continue to build within the project area. The increased chance stand replacing fires as a result of no action, could also lead to the loss and decline of these favored dense habitat conditions.

Under the No Action Alternative, the one pump chance within the drainage (T34S-R8W-Section 10) would not be repaired. Under current conditions, this pump chance would continue to fill with soil and vegetation and it would be difficult for wildlife to access for an additional water source. Additionally, the proposed road decommissioning and road blocking would not occur which would lead to greater disturbance and increased poaching to elk within the drainage.

3.5.3 Alternatives 2 & 3

Effects from Vegetation Treatments

GENERAL HABITAT EFFECTS

Previously Managed Stands
Vegetation treatments proposed on approximately 1,477 acres in alternative 2 and 1,533 acres in alternative 3 would contribute to moving previously managed stands in the project area towards late-successional forest habitat and would have long term beneficial effects to late-successional associated species. Long term beneficial effects include accelerated development of large tree structure, creation of gaps to promote stand diversity, and accelerated development of multiple canopy layers. The proposed underplanting would provide long term beneficial effects by promote structurally complex stands with multiple stories and vertical structure (Tappenier et al. 1992, McComb et al. 1993, Carey et al. 1999a). Additionally, proposed treatments would reduce fuel loads built up within the drainage and
help protect the existing late-successional forest habitat within the project area by creating more fire resilient stands adjacent to the core habitat areas.

Short term negative effects are expected to previously managed stands due to thinning of the vegetation (see species sections below for more detail). However, the long term benefits to late-successional forest associated species outweigh these short term impacts and would not lessen the short term functionality of the Fish Hook / Galice LSR as a whole (REO memo, 1996).

**Riparian Areas**
Riparian treatments in previously managed stands could have short term negative effects to connectivity by reducing canopy cover. However, these areas do not currently provide the best quality areas for connectivity because they lack late-successional forest habitat characteristics, so the effects would be minimal. Additionally, the untreated areas scattered throughout the project area would provide connectivity post treatment which would also minimize the effects. Over the long term, these riparian treatments in previously managed stands would provide more late-successional forest habitat connectivity by producing large tree structure and higher canopy cover. Treatments would improve riparian corridor connectivity between the interior core habitat areas to the core habitat along the edge of the project area.

**Late-Successional Forest Habitat**
No adverse effects to late-successional habitat are anticipated as a result of the proposed action because no treatments would occur within the existing late-successional habitat. In the long term the late-successional forest habitat would increase and fragmentation would decrease within the project area. The effects from the action alternatives would be common to late-successional dependent species, such as the red tree vole, northern goshawks, bats, and pileated woodpeckers. As mentioned in Section 3.5.1 Affected Environment, there is no nesting habitat for peregrine falcons or great gray owls within the project area, so no negative effects are anticipated. While peregrine falcons may forage within the drainage, the activities would not affect prey species availability for falcons.

**SPECIES EFFECTS**

**Northern Spotted Owl**
No treatments would occur in suitable spotted owl NRF habitat in either of the action alternatives. Variable canopy, incremental canopy and fuels treatments proposed in alternatives 2 and 3 would degrade 703 acres and 759 acres of suitable Dispersal Only habitat respectively (Table 14). Treatments that degrade dispersal habitat would reduce the canopy cover within the stand, but would still function as dispersal habitat post treatment (USDI 2006). In the Variable Canopy and Incremental thinning treatments at least 40% canopy cover would be retained. Fuels treatments in suitable Dispersal Only habitat would only treat the understory and the overstory would be retained to allow suitable canopy cover for dispersal. These treatments would have long term benefits to spotted owl nesting, roosting, and foraging habitat by providing more late-successional forest habitat in the future.
The entire Rum Creek project area is in CHU-OR 65, so the same changes to dispersal only habitat would also apply to critical habitat. The proposed action would degrade up to 759 acres of suitable Dispersal Only Habitat, a primary constituent element of critical habitat. The proposed action would affect only 1 percent of the 74,664 acre CHU (USDI 2003) and CHU OR-65 would continue to provide habitat for owls and continue to provide the important intra-provincial connectivity for which this CHU was established (USDI 2003). At the USFWS' request, the Medford BLM and RR/Siskiyou National Forest are reinitiating consultation on the CHU portion of our remaining actions, including the Rum Creek EA. When we receive a new BO on those actions, it will replace the existing 2004-2008 BA/BO.

There would be no disturbance effects to spotted owls from project activities because of seasonal restrictions identified as Project Design Features in Chapter 2. This protection would prohibit disturbance during the breeding season and would avoid any negative effects to reproduction from disturbance.

Effects to Spotted Owl Prey Species
Treatments may cause short term impacts to spotted owl prey species due to the disturbance to understory plants and below ground fungi through tree removal and surface disturbance. There may be short term impacts on truffle production, flying squirrel abundance, and owl foraging, but habitat and prey populations recover more quickly with these prescriptions compared to more aggressive treatments (clear cutting, regeneration harvest). Additionally, not all of the project would be treated at once, which would provide untreated areas available for spotted owl foraging, making these short term effects more acceptable. Over the long term, these density reduction treatments would increase tree growth, crown differentiation, understory development, and understory plants’ flowering and fruiting (Buermeyer and Harrington 2002, Wender et al. 2004), which provide ancillary foods to spotted owl prey. Leave patches in treatment areas would be targeted around large woodrat nest locations to minimize the decline of this important prey species within the drainage.

Bald Eagle
Suitable bald eagle nesting habitat is in the northern portion of the project area along the ridges closest to the Rogue River. However, only fuels treatments are located on the ridges and the project would not remove suitable nesting trees on the ridges. Alternative 2 would have no negative effects to the bald eagle and its habitat because it would not result in changes to existing roosting, nesting or perching trees and to foraging areas. There would be potential benefit for speeding up tree growth to provide future alternate nest trees for the nearby historic sites. The additional treatment units in alternative 3 would not adversely affect bald eagles or their habitat because the treatments are not in suitable habitat and they are more than 1 mile from the Rogue River.
**Fisher**

The project would not impact fisher denning and resting habitat because treatments are not proposed in late-successional forest habitat. The proposed thinning and fuels treatments would have short term negative effects to fisher prey species (squirrels, rabbits, mice, voles, etc.) by reducing prey forage due to removal of understory plants and the loss of below ground fungi. These effects are relatively short term; under stories typically re-vegetate within 5 years and the over story canopy often regains 60% closure within 10-15 years. These short term effects to fisher prey species would be minimal because untreated areas would continue to provide forage habitat while canopy cover in the treated stands increases.

Project activity disturbance effects to fishers are not well known. Fishers may avoid roaded areas (Harris and Ogan 1997) and humans (Douglas and Strickland 1987; Powell 1993). Disturbance from project activities would be temporally and geographically limited and would occupy a geographic area smaller than the average fisher home range. Seasonal restrictions listed as Project Design Features for soil or other resources would also benefit fishers by restricting project activities until young are approximately six weeks old. Fishers have large home ranges and would be able to move away from the action area while the disturbance is occurring without impacting their ability to forage and disperse within their home range.

**Land Birds (Neotropical migrants and year round residents)**

Alternatives 2 and 3 would treat a variety of songbird habitats. Any action that changes or removes vegetation used by one species may benefit another. Some species that have been adversely affected by fire suppression and dense understory conditions would benefit from the reduction of stem densities and canopy cover. Species such as the Rufous Hummingbird which use nectar producing plants would benefit from the increase in forbs and flowering shrubs which would occur post treatment. This increase would continue until the tree canopy recovers and shades out these plants. Species that have benefited from lack of fire and dense understories could be adversely affected by these treatments (Janes, 2003; Hagar et al., 2001; Siegel et al., 2003; USGS, 2003). Short term negative effects to forested stands for both action alternatives include reduced stem densities, ladder fuels and canopy closure. However, untreated areas within and adjacent to the treatment areas would provide refuge and nesting habitat which would help minimize seasonal disturbance and short term loss of habitat. Existing large diameter snags and down wood would be retained in the project area which would reduce the potential impacts to species dependent on these habitat structures for nesting, roosting, or foraging. Long term beneficial effects include accelerated development of large tree structure for interior forest species.

Some individuals may be lost or displaced during project activities, and there will be a shift in species because of habitat modifications. Adequate untreated areas in and adjacent to the project area would maintain habitat for displaced individuals. Overall, populations in the region would be unaffected due to this small amount of loss that would not be measurable at the regional scale. Partners in Flight supports the ecoregional scale as appropriate for analyzing bird populations (http://www.partnersinflight.org/description.cfm).

**Big Game**

Thinning young stands would accelerate the successional pattern toward more optimal thermal cover. Short term effects include an increase in understory forage due to an increase in resources such as light. In the long term, the stands would begin providing optimal thermal cover; however, as these young stands develop and canopy cover increases, forage would be limited to decommissioned skid
roads, yarding landing sites, road sides, small gaps created in treatment units, as well as areas affected by future disturbances. Disturbed areas that are re-seeded with native forbs would provide permanent forage locations for deer and elk in a forest dominated drainage

**Effects from Road Work and Pump Chance Restoration**

Activity in the area associated with the proposed project would have an adverse short term effect on elk due to disturbance. However, this potential disturbance would not be year round, but would only last during project activities. Elk would be able to move away from the noise because there are adequate amounts of hiding cover throughout the project area. Roads open to the public year round create the biggest disturbance concern to elk. However, blocking and fully decommissioning 2.6 miles of road in this project area would reduce long term disturbance effects to deer and elk and would help to prevent poaching in the area. Additionally, this entire project area is closed to motorized uses in the Federal Register. Gates and signing are a part of that closure and gate/sign management would continue to occur as a separate action from this project which would continue to minimize year round disturbance effects to elk.

Pump chance restoration would provide long term benefits for wildlife by maintaining an additional water source for elk and other wildlife, improving storage capacity, and reducing the encroaching vegetation would allow for better access to the water source. Additionally, clearing the vegetation would provide suitable open water habitat for foraging bats.

No new road construction would occur in either of the action alternatives, only existing temporary spur roads would be opened to allow operator access. Additionally, 2.6 miles of road would be decommissioned which would reduce the average road density within the project area. Therefore, the potential for future road related disturbance wildlife affected by roads, such as elk and fishers, would decrease within the project area.

**Summary of Effects**

In summary, no treatments would occur in late-successional forest habitat. Therefore, no spotted owl NRF habitat, fisher denning and resting habitat, or bald eagle nesting habitat would be removed. The proposed vegetation treatments would have long term beneficial effects to late-successional forest habitat by speeding the developmental trajectory of the previously managed stands within the project area. These long term benefits to late-successional forest associated species would outweigh the potential short term disturbance effects or impacts to prey species because more acres of late-successional forest habitat would be available within the project area in the future. Treatments would help meet the purpose and need of this project which is to enhance and maintain late-successional forest habitat within the project area. Additionally, treatments would help reduce level of late-successional forest habitat fragmentation and would enhance connectivity between watersheds in the future. The vegetation treatments proposed in either action alternatives would not contribute to the need to federally list the Bureau Sensitive or Assessment species as threatened or endangered.

Disturbance due to project activities (thinning, burning, etc.) would be of short duration and could be spread throughout the year. This disturbance could cause temporary displacement and modified wildlife behavior during project implementation. However, the disturbance would be short term spatially because the entire project area would not be treated at once. The disturbance would be short term temporally because operation restrictions and weather conditions would reduce the time period of the activities.

*Rum Creek EA June 16, 2006*
Cumulative Effects
Cumulative effects for wildlife species and habitat are discussed at the 7th field drainage and 5th field watershed level in order to capture the varying habitats, species home ranges, and varying degrees of species mobility. Cumulative effects in the project area result from the incremental impact of the alternatives, added to other past, present and reasonably foreseeable actions. Fire suppression, road building, and timber harvest throughout the project area have altered historic conditions. These past activities have resulted in habitat loss and fragmentation, and have changed the distribution and abundance of many wildlife species in the Wild Rogue and Big Hog 5th field Watersheds.

The most immediate cumulative effects to wildlife are found at the 7th field drainage scale due to the proximity of the past actions to the proposed action. These past actions have also directly impacted the wildlife species and habitat within the Rum Creek project area. Approximately 2,006 acres have been harvested from BLM lands in the Rum Creek 7th field drainage since 1950 (Table 5) and 672 acres in the Bailey Creek 7th field drainage (Table 6). This is likely an overestimate of the acreage impacted by timber harvest since some of these acres may have been treated more than once during that time period. The precise impact of this harvest on spotted late-successional dependent species is unknown, but is reflected in the affected environment sections with respect to the amount of suitable habitat available within the project area. Species associated with younger forested conditions have benefited from these changes. Commercial harvesting of late-successional forest habitat has not occurred on federal lands within these two 7th field drainages since the implementation of the NWFP.

Ongoing and foreseeable actions on federal lands within the two 5th field watersheds are listed in Table 7. While some of these projects listed would remove late-successional forest habitat, the Rum Creek project would not add negative cumulative effects to late-successional forest habitat associated species because the action alternatives would not treat late-successional forest habitat. Harvest methods of the past, such as clear cutting would not be used in this project. Habitat modification and removal with fewer protection measures would continue on private or county lands, which would negatively affect late-successional dependent wildlife species on these lands largely by reducing stand seral stage. However, only 1% of the combined two 5th field watersheds are private lands.

Northern Spotted Owl
A more detailed cumulative effects analysis will be done for spotted owls because of critical habitat and range wide population concerns. Fires have reduced the amount of habitat for spotted owls and other late-successional dependent species within the Fish Hook / Galice LSR and designated spotted owl critical habitat. Most recently, the 2002 Biscuit fire resulted in the loss of 24,872 acres of suitable spotted owl habitat within the Fish Hook / Galice LSR; 1,642 of these acres were in CHU OR-65. However, it has been determined that impacts from the Biscuit Fire would not be likely to preclude movement of spotted owls between the Coast and Cascades Provinces (BO, log #15-03-F-511, 2003). The Blossom Fire (2005) was not in CHU OR-65. However, the fire degraded 1,146 acres of NRF habitat, removed 12 acres of dispersal habitat, and degraded 179 acres of dispersal habitat within the Rogue Wild 5th field watershed.

Range-wide, northern spotted owl populations declined 3.7% annually from 1985-2003 (USFWS 2004). However, in the Tyee, Klamath, and South Cascades study areas in southwestern Oregon, spotted owl populations appeared stable from 1985-2003 (USFWS 2004). Habitat loss due to timber harvest was identified as the paramount threat in 1990 (USFWS 2004). The rate of suitable habitat loss due to timber harvest on private, state, and federal forest lands declined in the late 1980s and early 1990s (USFWS 2004). It is estimated that in the NWFP area, late-successional forest habitat

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development through in-growth (tree growth) is occurring at approximately 8% (600,000 acres) per decade over the baseline condition established in the NWFP (USFWS, 2004). This development is 2.5 times the rate of loss through stand replacement fire and harvest, and would result in a 2.7 million acre net increase in late-successional forest over 3-4 decades (USDA, USDI, 2004). The emergence of barred owls as invasive competitors, West Nile virus, and sudden oak death as new threats to spotted owls suggests an increase in risk to the species since 1990. These newly identified threats are poorly understood, are likely to be pervasive, and would be difficult to alleviate. However, this risk was not sufficient to change the status of the spotted owl (USFWS, 2004).

In summary, the Rum Creek project does not propose any harvesting in late-successional forest habitat, which is substantially different than the historic patterns within the watershed. Its purpose is to alter current stand successional trajectories of early and mid-seral stage stands to accelerate the creation of this type of habitat in the long term. This will positively contribute to accomplishing the LSR management goals for the Fish Hook / Galice LSR. Cumulatively, this project combined with other actions in the Wild Rogue and Big Hog 5th field watersheds would not contribute to the need to federally list any Bureau sensitive or assessment wildlife species.

3.6 Fire and Fuels

3.6.1 Affected Environment

Throughout the project area, vegetation is uncharacteristically dense due in part to fire exclusion (McKelvey et al. 1996). Crown fire particularly in mixed conifer forests has been of paramount concern in southwest Oregon due to the threat to life, property and wildlife habitat from large-scale unpredictable wildfires. Hardwood and brush species along with a litter of ground fuels have provided a ladder for wildfires to consume the conifer overstory. As evident from the adjacent Biscuit fire (2002), the biggest threat to Rum Creek LSR characteristics is a crown fire entering the area and destroying the large conifers that provide late successional habitat for a variety of species.

There are also extensive areas of young stands with varying ages due to logging activity from 1960 through 1990. Many of these plantations would react to a wildfire much like a brushfield.

Almost the entire project area consists of shrub or timber group fire behavior fuel models (Anderson 1982). The timber fuels types that are mostly represented in the Rum Creek project resemble fuel models 8, 9 and 10. The shrub and brush groups closely resemble fuel models 4 and 6. A description of the shrub and timber fuel models follow:

Fire Behavior Fuel Models

Shrub Group

Fire Behavior Fuel Model 4 - Intense, fast spreading fires involve the foliage and live and dead fine woody material in the crowns of a nearly continuous secondary overstory. Stands of mature shrubs, six feet tall or more are typical candidates. Besides flammable foliage, dead woody material in the stands contributes significantly to fire intensity. A deep litter layer may also hamper suppression efforts.

Fire Behavior Fuel Model 6 – Fuels are shorter and less dense than in fuel model 4, and therefore require moderate winds, greater than eight miles per hour to carry fire.
Timber Group

Fire Behavior Fuel Model 8 - Slow burning ground fuels with low flame lengths are generally the case, although the fire may encounter small "jackpots" of heavier concentrations of fuels that can flare up. Only under severe weather conditions do the fuels pose a threat. Closed canopy stands of short-needled conifers or hardwoods that have leafed out support fire in the compact litter layer. This layer is mostly twigs, needles, and leaves.

Fire Behavior Fuel Model 9 - Fires run through the surface faster than in fuel model 8 and have a longer flame length. Both long-needle pine and hardwood stands are typical. Concentrations of dead, down woody material will cause possible torching, spotting, and crowning of trees.

Fire Behavior Fuel Model 10 - Fires burn in the surface and ground fuels with greater intensity than the other timber litter types. A result of over-maturing and natural events creates a large load of heavy down, dead material on the forest floor. Crowning out, spotting, and torching of individual trees is more likely to occur, leading to potential fire control difficulties.

Fire Hazard

Fire Hazard - Fire hazard ratings help prioritize fuel treatments. These ratings are based on vegetation type, fuel arrangement and volume, condition of fuels and location which are determinants of the potential for spread of a fire and the difficulty of fire control.

The lowest portion of a tree crown and its relationship to the surface fuels is known as crown base height. When considered at the stand level, the lowest portion of the canopy and its relationship to the surface fuels is known as canopy base height (CBH) and is critical in the initiation phase or “torching” of crown fire events. The fuel volume in the upper strata of the vertical fuel layer is canopy bulk density (CBD).

Based on the fire hazard rating, canopy base height, and canopy bulk density, the potential for a large fire to occur is moderate to high for the project area. The hazard condition (Table 15) in the project area reflects the history of fire exclusion and the resultant build up surface and ladder fuels.

**Table 15: Fire Hazard Ratings**

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<tr>
<th>Fire Hazard Rating</th>
<th>BLM Acres</th>
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<tr>
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Data from Farout (1999) and Big Hog (1998) watershed analyses.

Fire Risk

Fire risk reflects the probability of ignition in the project area due to lightning or humans. Wildfires in the watershed have occurred predominately from mid July through much of October.

Large fires have burned in recent years in close proximity to the Rum Creek LSR. In 1987, the 15,200-acre Galice Fire burned with high intensity right to the western boundary of the project area. Also in 1987, the 99,000-acre Silver Fire burned within 4 miles of the project. In 2002, the 500,000 acre
Biscuit Fire burned to within 4 miles of the Rum Creek project. Most recently in 2005, the Blossom Fire burned almost 15,000 acres on the north side of the Rogue River, and was contained approximately 9 miles from the project boundary.

3.6.2 Alternative 1: No Action

In 2005, seven plots were assessed in the Rum Creek LSR using the FMA+ fuels management program. The plots collected surface fuels and stand information. From this information, canopy base height (CBH) and canopy bulk density (CBD) were determined for the stand. Low limbs from many smaller trees will tend to lower the CBH when considered throughout the canopy. Current canopy and surface fuels information is then combined with historic weather and environmental conditions to estimate crown fire potential. From this assessment, then, the change in fire behavior is modeled with the effects of the activities proposed in the alternatives from the EA. Existing fire behavior is then compared to potential post treatment fire behavior (Martin 2005).

The no action alternative would allow the continuing trend of unnaturally dense vegetation, heavy ground fuels and over stocked stands, (McKelvey et al. 1996) which would increase fire hazard. Surface fuels would continue to increase due to tree mortality in dense stands as higher levels of insect and disease mortality are expected. CBH would continue to decrease due to understory density increases, increasing the potential for crown fire initiation. CBD would continue to rise, increasing the potential for active crown fire events. The shift to more shade tolerant species would continue within dense overstocked stands.

The findings of the FMA+ program runs show that with no treatment and with a moderate 5 mph wind during a 100 day fire season there would potentially be: a 9% chance (9 days out of 100) of active crown fires, a 64% chance of passive crown fires, an 18% of surface fires, and 9% chance of no fire activity. There are on average 9 days of the fire season when fuels are too wet to burn in a wildfire situation. Wind speed data was taken at the Merlin OR Remote Area Weather Station (RAWS) during a 3 year period from 2002-2004. The highest wind speed of the day was recorded during the 100 day fire season (July 15 to October 20) and averaged over the 3 year period. The Merlin RAWS was used because it is the closest one to the Rum Creek project area.

3.6.3 Alternatives 2 & 3

Alternative 2 would treat a total of 1,347 acres of which 875 would be hazardous fuels reduction and 226 acres would be young stand thinning. Alternative 3 would treat additional 42 acres for a total of 1,389 acres.

Proposed treatments and maintenance under-burning would change areas of vegetation fuel model 10 to fuel models 8 and 9. Using the same weather data, post EA treatment FMA+ program runs were done. Potential active crown fire days was reduced to 0.4%, passive crown fire days to 23.6%, surface fires changed to 67% of the fire season, and no fire days remained at 9%.

Maintenance underburns would be scheduled to retain desired fire behavior fuel models as vegetation grows back and timber litter accumulates.
Cumulative Effects

Fuel Reduction and Fire Behavior
The four major fires that occurred in the general area during the past 19 years demonstrate the uncharacteristic fuels condition in the Wild Rogue-South and Big Hog 5th field watersheds where the Rum Creek drainage is located. The proposed fire hazard reduction treatments of alternatives 2 and 3 would reduce fuel loadings, increase CBH and reduce CBD. This would result in a substantial reduction to fire hazard, and associated loss to values at risk within the project area and two fifth field watersheds.

3.7 Roads

3.7.1 Affected Environment
Road density and types of roads are extremely variable across the Wild Rogue - South Watershed. The average road density in this 5th field watershed is 2.94 miles per square mile. The average road density on BLM lands in the Wild Rogue – South Watershed is 2.37 mi/mi². The average road density within the project boundary is 4.64 mi/mi².

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 some road maintenance activities to be deferred. Road conditions vary depending on surface, use, location, weather, maintenance cycle, and soil.

3.7.2 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. Risk of pulse events may increase due to culvert failures.

3.7.3 Alternatives 2 and 3
The use of temporary spurs that would be decommissioned or obliterated upon conclusion of the project and the decommissioning of 2.6 miles of existing BLM system roads would reduce existing road densities. The average road density within the project boundary would be reduced to 4.04 miles per square mile.

Approximately 36 miles of road would be maintained thus reducing deferred road maintenance and also improving driver site distance. Road renovation, 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.

Cumulative Effects
Cumulatively, this project combined with other actions in the Wild Rogue 5th field watersheds would not contribute substantial negative effects to the road systems. The average road density in the Wild

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Rogue watershed would be reduced to 2.91 miles per square mile. Decommissioning roads and road maintenance would provide beneficial effects to the watersheds.

3.8 Recreation/Cultural/Visual Resources

3.8.1 Affected Environment

Recreation
Recreational use of the area is minimal. Most of the users would access the project area from the Rogue River, via boat, or by those who hike down from Rainie Falls on an informal, user-created trail along the south side of the river to fish at the mouth of Rum Creek. Both user groups may also hike up Rum Creek to sight see. An historic trail from Rum Creek to Mt. Peavine was constructed in the early 1900s. This trail runs along the ridge on the west edge of the project area, but the extent of the trail that remains intact is unknown.

Off-highway vehicle (OHV) use is moderate to low in the vicinity of the project area, due to the remoteness of the site. The entire project area is closed to motorized uses in the Federal Register. Gates and signing are a part of that closure and gate/sign management would occur as a separate action from this project. The closest development is Galice, approximately 7 miles from the project area. Merlin is 18 miles away and Grants Pass 24 miles from the project area. Other uses of the area include driving for boat shuttle access to Foster Bar and the coast via the Peavine/Serpentine Springs Road, and sight seeing. Deer and Elk hunting also occur in the project area.

Cultural
The Rum Creek project area was likely utilized by different Native American groups, with overlapping territorial boundaries. The various groups who lived in close proximity to the project area were the Takelmas (Penutian speakers), Chasta Costa (Athapascan), and Tal-tuc-tun-te-de (Athapascan). At the time of white contact, the Native Americans living in the Rogue Valley spoke different languages, but were culturally very alike and practiced similar lifeways (Tveskov et al. 2002; Jones 2001; Pullen 1996). Each group occupied a nuclear territory along their respective river drainages, but utilized the surrounding uplands to gather a wide variety of plant foods, hunt deer and elk, and to gather material for making baskets and tools. Primary food resources included the acorn, camas, fish, seeds, nuts, deer, and berries (Jones 2001; Pullen 1996; Gray 1987). The stretch of the river between Grave Creek and Marial did not have large terraces above the flood zone and would not have been suitable for winter village sites (Jones 2001).

The lifeways of the Takelma and Athapascan Indians changed drastically between 1851 and 1856 when gold was discovered in southwestern Oregon. Those that survived the onslaught of hostile miners were removed by the U.S. Army to the Siletz and Grand Ronde reservations in northwest Oregon.

Gold mining began in the Rum Creek area in the late 1800s. Rum Creek is in the Galice mining area of Josephine County, Oregon. The majority of the mining appears to have been placer mining along the gravel bars of the Rogue River; however, several lode mines are known to exist in the area. Very few people lived in the steep, rugged canyons of the lower Rogue River. In the 1860s and 1870s, after the Indians were removed from the canyon, there were only a few settlers in the canyon. The small terraces were just wide enough to hold a shelter and equipment. Currently, there are 3 claims within the Rum Creek drainage.
In 1907, what is now known as the Rogue River/Siskiyou National Forest was created. From 1907-1913 considerable work was done by the forest rangers constructing miles of trail and laying telephone line to the lookouts. A trail was constructed from Rum Creek to Peavine Mountain Lookout by 1915 (Cooper 1939).

Cultural resource surveys in the project area were conducted in 1981 and 2005. Two new historic sites were recorded in 2005, including one isolate.

**Visual Resources**

The project area ranges from VRM Class I to VRM Class III. The existing character of the landscape is a mixture of greens with medium to dense vertical, conical conifers that create a thick, continuous canopy with slight openings across the overall landscape.

**3.8.2 Alternative 1: No Action**

**Recreation**

In the no action alternative, river and hiking access into the area would continue to be light. Signing and gate maintenance/installation would occur as part of the area closure to OHVs.

**Cultural**

Fuels build-up would continue to increase and could result in a catastrophic fire which could threaten or destroy cultural resources. Vegetation would continue to encroach on cultural resources and could result in the damage and/or destruction of those resources through increased fire hazard, and artifacts being uprooted.

**Visual Resources**

There would be no change to the existing character of the landscape in the short and long term, unless a catastrophic stand-replacing fire occurs, which would alter the existing character of the landscape beyond VRM I, II and III standards.

**3.8.3 Alternative 2 and 3**

**Recreation**

River and hiking access into the area would continue at the current rate. The area would continue to be closed to OHVs. Obliteration (versus just closure) of temporary road spurs and old jeep roads would make roads inaccessible to OHVs. Although treatments may open up the understory, the area would be monitored for unauthorized use and the closure would be enforced with law enforcement.

**Cultural**

The sites would be buffered and no activities will occur within the buffered area. Therefore there would be no effect on cultural resources.

No impacts are anticipated to the sites during the proposed activities, with the implementation of the project design features.
Visual Resources
The first quarter mile of the Rogue National Wild and Scenic River is a VRM Class I. There will be no treatment in the first quarter mile of the river; therefore, there is no visual concern.

Most of the project area is classified as VRM Class II and III. The level of treatments/project activity throughout these areas will not change the overall character of the landscape. The medium to dense canopy will remain intact. Slight openings may be created that mimic existing variations in the landscape, matching the existing continuous forested pattern. The level of change to the characteristic landscape will be low and should not attract attention of the casual observer.

3.8.4 Cumulative Effects

Recreation
There would be no cumulative impacts to recreation, as the area is not highly used for recreation, and no recreation actions are proposed.

Cultural
Because cultural sites will be protected from disturbance, there will be no effect to cultural resources at the local level. Therefore cumulative impacts at a larger scale are not expected.

Visual Resources
There would be no cumulative effects of projects in the Rogue Wild and Big Hog Watershed on visual resources. The project meets VRM objectives at the site specific scale due the type of prescriptions proposed (variable and incremental thinning, young stand thinning), and the human-altered and vegetative variability of the characteristic landscape. Changes to the landscape would not dominate the view of the casual observer because the medium to dense canopy would remain intact, and small openings created would mimic the characteristic landscape. Therefore, there would be no cumulative effect on visual resources.

3.9 Socioeconomic

3.9.1 Affected Environment

Current human use of the watershed includes, but is not limited to small scale mining and dispersed recreation. There is no rural interface in this watershed because the majority of the land in the watershed is federally owned. There are no private residences in the project area.

The Medford District RMP (p. 80, 81) states two major objectives for contributing to socioeconomics: 1) Contribute to local, state, national, and international economies through sustainable use of BLM-managed lands and resources and use of innovative contracting and other implementation strategies; and 2) Provide amenities (e.g., recreation facilities, protected special areas and high quality fisheries) that enhance communities as places to live, work, and visit.

Although there are no specific land use allocations related to socioeconomic conditions, management direction supports assisting in development of economic opportunities for rural, resource-based communities, increasing emphasis on management of special forest products, and "...other activities identified by BLM and the involved communities as benefiting identified economic strategies" (RMP p. 81). It concludes by stating that the Medford District should:

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Design and implement forest management activities to produce a sustained yield of products to support local and regional economic activity. A diversity of forest products (timber and nontimber) will be offered to support large and small commercial operations and provide for personal use. Service contracts will include opportunities for both large and small contractors.

3.9.2 Alternative 1: No Action

Under the no action alternative, the objectives stated in the RMP would not be met. Contributions to local, state, national, and international economies would not occur and economic opportunities to the local and regional economies would not be made. There would be no opportunities for local contractors to create jobs from forest activities.

Fuel hazards would not be addressed and forest resources would continue to be threatened by risk of wildfire and would continue to degrade because of dense stand conditions.

3.9.3 Alternatives 2 and 3

Proposed actions would assist in development of economic opportunities for rural, resource-based communities by providing opportunities for local contractors in fuel hazard reduction and stewardship contracts for special forest products. Stewardship contracts would enhance forest resources and provide economic opportunities, as well as produce a sustained yield of products to support local and regional economic activity.

In order to minimize new road construction, helicopter yarding is proposed for some areas of the project. Helicopter logging proposed under alternatives 2 and 3 would have minimal noise/visual impacts to people on the Rogue River due to the distances and terrain. Proposed helicopter logging units are located over one mile from the Rogue River corridor. The greatest amount of noise disturbance occurs when the helicopter is within 500 feet of where it is operating. The number of passes to and from the log landing could vary from two to more than 150 passes per day. Because no private residences are in or adjacent to the project area no noise impacts will occur.

Increased log truck activity on the Peavine/Serpentine Springs Road could cause safety concerns with shuttle traffic. Signing/informing the public when logging occurs would reduce the potential hazard. Log truck traffic on publicly owned roads would follow all laws, regulations, and speed limits.

In summary, there are no effects of increased noise from helicopters, logging trucks, and dust and traffic from project activities. Due to the short periods of operation there are no cumulative effects as the disturbance ceases when the project is completed.

4.0 Agencies and Persons Consulted

4.1 Public Involvement

Scoping for the Rum Creek project began in February 2005 with a letter to residents and landowners near or adjacent to the planning area; to federal, state, and county agencies; and to private organizations and individuals that requested information concerning projects of this type. Letter received from the public during initial scoping solicited the following issues or concerns. The section

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of the EA where those issues are addressed follows the issue description.

- Yarding Systems (e.g., impact to soils and forest canopy; influence on late successional habitat characteristics) Section 2.2.4.1; 2.4.2; 2.4.10; 3.1.1; 3.1.2; 3.1.3
- Roadless Areas (e.g., road building, mining, and commercial logging within the roadless boundaries) Section 2.2.1.8; 3.7.3
- Unroded Forest Values (e.g., unique values and characteristics of unroded interior forest habitat) Section 2.1; 3.5.1
- Late Successional Reserves (e.g., project should be consistent with management direction) Section 1.1
- Riparian Reserves (e.g., project should be consistent with management direction) Section 2.2.3; 2.4.2; 3.1
- Cumulative effects (e.g., cumulative impacts to LSR from the Biscuit Fire, Kelsey-Whiskey project and the proposed Silver Hawk timber sale) Section 3.4.3; 3.4.4; 3.5.3
- Old Growth (e.g., avoid commercial timber harvest, roads, and mining in LRS's; impacts on old-growth species and snag habitat) Section 3.5.3
- Northern Spotted Owl (e.g., impacts of thinning projects on NSO forage, prey base, canopy closure, and dispersal; impacts to critical habitat) Section 3.5.3
- New Road Construction (e.g., effect on late-successional habitat characteristics) Section 2.2.1.7; 3.5.3
- Existing Logging Spurs in the LSR (e.g., reduce the density) Section 2.2.1.7; 3.5.3
- Water Quality (e.g., impacts of roads and yarding activities including corridors; activities in key or municipal watersheds; use Aquatic Conservation Strategy objectives to analyze the project; impacts to Rum Creek) Section 3.1.1; 3.1.3
- Thinning Treatments (e.g., treatments should only occur in previously managed stands; variable density thinning should be used; prescriptions should be designed for wildlife needs and ecological restoration) Section 2.2.1; 2.2.1.1; 2.2.1.2; 3.2.3; 3.5.1
- Rogue River Wild Section (e.g., impacts on the values of this section) Section 3.4.3; 3.4.4; 3.8.1; 3.8.3; 3.8.4
- Bureau Sensitive Species (e.g., completion of surveys; avoid site specific impacts) Section 3.3.1; 3.4.1; 3.4.3; 3.5.3

The following agencies were consulted during the planning process: US Fish and Wildlife Service and National Marine Fisheries Service.

4.2 Availability of Document and Comment Procedures

Copies of the EA will be available for public review in the Grants Pass Interagency Office. Copies can also be mailed upon request. 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 2164 NE Spalding Avenue, Grants Pass, OR 97526. E-mailed comments may be sent to or/10mb@or.blm.gov.
Rum Creek Landscape Management Project
Proposed Treatment Map

General Location

Legend
- Helicopter Landing
- BLM Road
- Existing Blocked Spar Road
- Would Be Blocked and Bladed and Then Decommissioned After Use
- Decommission Road
- Core Habitat: No Treatment
- Variable Canopy Thinning
- Incremental Canopy Thinning
- Young Stand Thinning
- Fuels Treatment
- Pump Chance Water Source
- Crane Wood Addition
- Peavine Lookout Tower
- Watershed Boundary
- Riparian Area: No Treatment Treatment

Note: Alternative 3 includes units 1, 5, 9, 14 as well as the proposal described in Alternative 2.

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet national map accuracy standards. This product was developed through digital means and may be modified or updated without notification.

United States Department of the Interior
Bureau of Land Management
Medford District
Grants Pass Resource Area
2114 NE Spalding Avenue
Grants Pass, Oregon 97526
5/31/2006
## Appendix B: Unit Treatments

### Rum Creek Landscape Management Project - Proposed Treatment Table

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<tr>
<th>TRSU</th>
<th>Total Unit Acres</th>
<th>Non Riparian Treatment Acres</th>
<th>Riparian Treatments</th>
<th>Vegetation Treatment Prescription</th>
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*Rum Creek EA June 16, 2006*
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Rum Creek EA June 16, 2006

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1. TRSU: Total Unit Reserve
2. Total Unit Acres: Total area of the unit
3. Non Riparian Treatment Acres: Area of non-riparian treatment
4. Portion of the Riparian Reserve That Would Be Treated: Percentage of riparian reserve treated
5. Portion of the Riparian Reserve That Would Be Buffered From Treatment: Percentage of riparian reserve buffered
6. Vegetation Treatment Prescription: Treatment type and prescription
7. Fuels Treatment Prescription: Specific fuels treatment prescription
8. Tractor/ Yarding System: Type of machinery used
9. Priority: Priority level for the treatment
10. Priority: Priority level for the treatment
### Rum Creek Landscape Management Project - Proposed Treatment Table

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*Rum Creek EA June 16, 2006*
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³Rum Creek EA June 16, 2006 76
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### Rum Creek Landscape Management Project - Proposed Treatment Table

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**FOI Units Described as Core Habitat within the Rum Creek Drainage HUC 7 (No Treatment Prescribed)**

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<td>33S-08W-33-301</td>
</tr>
<tr>
<td>33S-08W-33-306</td>
</tr>
<tr>
<td>33S-08W-34-301</td>
</tr>
<tr>
<td>33S-08W-34-303</td>
</tr>
<tr>
<td>34S-08W-03-004</td>
</tr>
</tbody>
</table>

**Other Units with No Treatment but shown on map within the Bailey Drainage HUC 7**

<table>
<thead>
<tr>
<th>Other Units with No Treatment but shown on map within the Bailey Drainage HUC 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>34S-08W-15-09(portion)</td>
</tr>
</tbody>
</table>

**Footnotes:**

¹Unit identifier that originated from the BLM Forest Operational Inventory.

²Total unit acres.

³Acres that are part of the Riparian Reserve Land Use Allocation.

⁴Acres within the Riparian Reserve that would receive treatment.

⁵Acres within the Riparian Reserve that would not receive treatment. They are located along the center of the stream channel.

⁶Proposed action that would treat the vegetation.

⁷This would include methods to lower the fuel hazard.

SFP - Special Forest Products

### All acre figures in the table are approximate and based on inventory records. Some rounding differences may occur in the summations.

---

*Rum Creek EA June 16, 2006*
### Appendix C: Road Information

#### Rum Creek EA Road Information

<table>
<thead>
<tr>
<th>Road Number</th>
<th>Road Name</th>
<th>Miles</th>
<th>Control</th>
<th>Surface Type</th>
<th>Maint Level</th>
<th>Maint Miles</th>
<th>Const Miles</th>
<th>Renov Miles</th>
<th>Decom Miles</th>
<th>Road Closure Type</th>
<th>POC</th>
<th>PL</th>
<th>Agreement Number</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>34 S 08 W 08.00</td>
<td>W Rum Sp</td>
<td>0.1</td>
<td>BLM</td>
<td>ABC</td>
<td>3</td>
<td>0.1</td>
<td></td>
<td></td>
<td></td>
<td>GT (34-8-34A)</td>
<td>Y</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34 S 08 W 09.00</td>
<td>Montgomery Crk</td>
<td>0.9</td>
<td>BLM</td>
<td>PRR</td>
<td>3</td>
<td>0.9</td>
<td>0.32</td>
<td></td>
<td></td>
<td>GT (34-8-34A)</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34 S 08 W 10.00A</td>
<td>Smith Crk</td>
<td>1</td>
<td>BLM</td>
<td>ABC</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>GT (34-8-34A&amp;B)</td>
<td>Y</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34 S 08 W 10.00B</td>
<td>Smith Crk</td>
<td>0.45</td>
<td>BLM</td>
<td>NAT</td>
<td>2</td>
<td>0.45</td>
<td></td>
<td></td>
<td></td>
<td>GT (34-8-34A&amp;B)</td>
<td>Y</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34 S 08 W 10.01A</td>
<td>Smith Crk</td>
<td>0.63</td>
<td>BLM</td>
<td>PRR</td>
<td>3</td>
<td>0.63</td>
<td></td>
<td></td>
<td></td>
<td>GT (34-8-34A&amp;B)</td>
<td>Y</td>
<td>N</td>
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</tr>
<tr>
<td>34 S 08 W 10.01B</td>
<td>Smith Crk</td>
<td>0.59</td>
<td>BLM</td>
<td>ABC</td>
<td>3</td>
<td>0.59</td>
<td></td>
<td></td>
<td></td>
<td>GT (34-8-34A&amp;B)</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34 S 08 W 10.01C</td>
<td>Smith Crk</td>
<td>0.83</td>
<td>BLM</td>
<td>NAT</td>
<td>2</td>
<td>0</td>
<td>0.83</td>
<td></td>
<td></td>
<td>Inaccessible</td>
<td>Y</td>
<td>N</td>
<td></td>
<td>Decommission from the pump chance to the end of the road.</td>
</tr>
<tr>
<td>34 S 08 W 10.03</td>
<td>Zadie Sp</td>
<td>0.47</td>
<td>BLM</td>
<td>ABC</td>
<td>3</td>
<td>0.47</td>
<td></td>
<td></td>
<td></td>
<td>GT (34-8-34A&amp;B)</td>
<td>Y</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34 S 08 W 10.04</td>
<td>Maka Sp</td>
<td>0.33</td>
<td>BLM</td>
<td>ABC</td>
<td>3</td>
<td>0.33</td>
<td></td>
<td></td>
<td></td>
<td>GT (34-8-34A&amp;B)</td>
<td>Y</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>34 S 08 W 10.05A</td>
<td>Daisy Sp</td>
<td>0.54</td>
<td>BLM</td>
<td>ABC</td>
<td>2</td>
<td>0.54</td>
<td></td>
<td></td>
<td></td>
<td>GT (34-8-34A&amp;B)</td>
<td>Y</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34 S 08 W 10.05B</td>
<td>Daisy Sp</td>
<td>0.63</td>
<td>BLM</td>
<td>NAT</td>
<td>2</td>
<td>0</td>
<td>0.63</td>
<td></td>
<td></td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td>Decommission</td>
</tr>
<tr>
<td>34 S 08 W 10.06</td>
<td>Boomer</td>
<td>0.41</td>
<td>BLM</td>
<td>ABC</td>
<td>2</td>
<td>0.41</td>
<td></td>
<td></td>
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<td>GT (34-8-34A&amp;B)</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34 S 08 W 15.00A</td>
<td>W Rum Ck</td>
<td>2.9</td>
<td>BLM</td>
<td>ABC</td>
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<td>2.9</td>
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<td></td>
<td></td>
<td>GT (34-8-34A)</td>
<td>Y</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34 S 08 W 15.00B</td>
<td>W Rum Ck</td>
<td>2</td>
<td>BLM</td>
<td>ABC</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>GT (34-8-34A)</td>
<td>Y</td>
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<td></td>
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</tr>
<tr>
<td>34 S 08 W 16.00</td>
<td>W Rum Ck Sp</td>
<td>1.23</td>
<td>BLM</td>
<td>ABC</td>
<td>3</td>
<td>1.23</td>
<td></td>
<td></td>
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<td>GT (34-8-34A)</td>
<td>Y</td>
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<td></td>
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</tr>
<tr>
<td>34 S 08 W 22.00</td>
<td>Jonas Cabin</td>
<td>0.3</td>
<td>BLM</td>
<td>ABC</td>
<td>3</td>
<td>0.3</td>
<td>0.3</td>
<td></td>
<td></td>
<td>N</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34 S 08 W 22.01B</td>
<td>North Ridge</td>
<td>0.79</td>
<td>BLM</td>
<td>ABC</td>
<td>3</td>
<td>0.79</td>
<td></td>
<td></td>
<td></td>
<td>GT (34-8-28A)</td>
<td>Y</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>34 S 08 W 22.01C</td>
<td>North Ridge</td>
<td>0.3</td>
<td>BLM</td>
<td>NAT</td>
<td>3</td>
<td>0.3</td>
<td>0.3</td>
<td></td>
<td></td>
<td>GT (34-8-28A)</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Rum Creek EA June 16, 2006*  
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| Road Number | Road Name     | Miles | Control | Surface Type | Maint Level | Maint Miles | Const Miles | Renov Miles | Decom Miles | Road Closure Type | POC | PL | Agreement Number | Comments                                                                 |
|-------------|---------------|-------|---------|--------------|-------------|-------------|-------------|-------------|-------------|---------------|------------------|-----|----|------------------|---------------------------------------------------------------------------|
| 34 S 08 W 22.02 | Bailey Ck     | 2.55  | BLM     | PRR          | 3           | 2.55        |             |             |             |               | GT (34-8-28A)    | N   | N  |                  | Maintenance will be performed by BLM crews as part of the routine road    |
| 34 S 08 W 27.00A | Peggler Butte | 1     | BLM     | BST          | 4           | 1           |             |             |             |               | N               | N   | N  |                  | maintenance operating plan.                                                |
| 34 S 08 W 28.00 | Mt Peavine    | 1.58  | BLM     | ABC          | 3           | 1.58        |             |             |             |               | N               | Y   | N  |                  |                                                                           |
| 34 S 08 W 34.00A | Rum Ck        | 4.16  | BLM     | ABC          | 3           | 4.16        |             |             |             |               | GT               | Y   | N  |                  |                                                                           |
| 34 S 08 W 34.00B | Rum Ck        | 1.7   | BLM     | ABC          | 3           | 1.7         |             |             |             |               | GT               | Y   | N  |                  |                                                                           |
| 34 S 08 W 34.00C | Rum Ck        | 2.5   | BLM     | PRR          | 3           | 1.36        | 1.14        |             |             |               | GT (34-8-34B)    | Y   | N  |                  | Decomm from last canopy treatment unit in Sec 10 to end of road.             |
| 34 S 08 W 36.00A1 | Galice Access A | 0.72 | BLM     | BST          | 4           | 0.72        |             |             |             |               | N               | N   | N  |                  | Maintenance will be performed by BLM crews as part of the routine road    |
| 35 S 08 W 02.00A1 | Peavine       | 1.63  | BLM     | BST          | 4           | 1.63        |             |             |             |               | N               | N   | N  |                  | maintenance operating plan.                                                |
| 35 S 08 W 02.00A2 | Peavine       | 1.27  | BLM     | BST          | 4           | 1.27        |             |             |             |               | N               | N   | N  |                  | Maintenance will be performed by BLM crews as part of the routine road    |
| 35 S 08 W 02.00B | Peavine       | 1.2   | BLM     | BST          | 4           | 1.2         |             |             |             |               | N               | N   | N  |                  | maintenance operating plan.                                                |
| 35 S 08 W 02.00C | Peavine       | 2.4   | BLM     | BST          | 4           | 2.4         |             |             |             |               | N               | N   | N  |                  | Maintenance will be performed by BLM crews as part of the routine road    |
| 35 S 08 W 02.00D | Peavine       | 1.1   | BLM     | NAT          | 3           | 1.1         | 1.1         |             |             |               | N               | N   | N  |                  | maintenance operating plan.                                                |
| 35 S 08 W 02.00E | Peavine       | 1.1   | BLM     | NAT          | 2           | 1.1         | 1.1         |             |             |               | N               | N   | N  |                  |                                                                           |

Rum Creek EA June 16, 2006

Total Maintenance 33.71
Total Construction 3.12
Total Renovation 2.6
Total Decommissioning 2.6
Maintenance may include surface grading, roadside brushing, for safety, spot rocking and maintaining existing drainage structures. Maintenance of natural surface roads may also include correcting drainage and erosion problems (e.g., improving or installing drainage dips, installing other drainage structures where needed, eliminating outside road edge berms or other features that are obstructing drainage where they exist). BST roads will be maintained by BLM crews as part of the routine road maintenance operating plan.

Full Decommissioning consists of subsoil ripping of the roadbed to promote the establishment of vegetation and promote drainage consistent with the surrounding undisturbed areas. Existing culverts may be removed. Grass seeding of the road prism, fill slope and cutbank, and mulching of the Road prism may be included to minimize initial erosion potential prior to natural revegetation. An earth berm/tank trap barricade may be constructed at the beginning of each road to prevent use of the road prism following decommissioning. Road Renovation consists of reconditioning and preparing the subgrade for heavy truck use, cleaning and shaping drainage ditches and structures, and trimming or removing vegetation from cut and fill slopes.
Appendix D: Wildlife Information – Species and Habitats

Northern Spotted Owl Information

<table>
<thead>
<tr>
<th>Site</th>
<th>Year site first located</th>
<th>Previous history</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montgomery Creek (0880)</td>
<td>1986</td>
<td>1996 – male present. Limited surveys in the late 80’s and early 90’s.</td>
<td>Not surveyed</td>
<td>Not surveyed</td>
<td>Not surveyed</td>
<td>Not surveyed</td>
</tr>
<tr>
<td>Rum Creek (3386)</td>
<td>1992</td>
<td>1992 – male and female present; pair status unconfirmed</td>
<td>Not surveyed</td>
<td>Male detected</td>
<td>Not surveyed</td>
<td>Pair confirmed; non nesting confirmed</td>
</tr>
</tbody>
</table>

Spotted Owl Habitat McKelvey Rating System

Spotted owl habitat within the project area was evaluated based on the McKelvey model. Operations Inventory polygons were given an owl habitat suitability rating from 1 to 6 using aerial photo interpretation, ground truthing and roadside reconnaissance.

The McKelvey Rating System is based on a model that predicts spotted owl population based on habitat availability. Stands were examined for criteria such as canopy layering, canopy closure, snags, woody material and other features. Biological potential of a stand to acquire desired conditions is also taken in consideration. The McKelvey Rating System uses the following six classes:

The McKelvey Classification System is described below:

**Class 1** - Meets all life requirements (optimal). Nesting, foraging, roosting and dispersal. Canopy closure greater than 60 percent with overstory trees greater than 21” in diameter. Canopy structure usually multi-layered and diverse and includes snags, mixed species and large wolf trees. Large down wood present on the forest floor.

**Class 2** - Meets foraging, dispersal, and roosting. Canopy closure greater than 60 percent and overstory trees are generally greater than 16” in diameter. Open enough below canopy to permit flight. Canopies can be single layered. Class 1 & 2 together are considered suitable owl habitat nesting, roosting and foraging (NRF).

**Class 3** - Meets no known requirements for spotted owls. Does not provide nesting, foraging, roosting, or dispersal. Canopy closure 40 percent or less. Does not meet requirements due to some kind of
disturbance but has the biological potential to develop into class 1 or 2. This class includes clearcuts, plantations, thinned timber that could grow into suitable habitat given enough time.

**Class 4** - Meets no known requirements for spotted owls. Does not provide nesting, foraging, roosting or dispersal. Canopy closure 40 percent or less. Does not meet requirements due to site limitations and would not likely have the potential to develop into class 1 or 2. Examples could include oak woodlands, serpentine areas, etc. Other examples include roads, rockpits, brush fields, non forest, or very low stocking. To enable quantification and display of dispersal habitat, Class 5 was created as a subset of Class 3, and Class 6 was created as a subset of Class 4. These stands feature scattered clumps of cover that could offer short-term roosting cover to owls as they disperse across the landscape.

**Class 5** - Provides for spotted owl dispersal habitat only. Canopy closure between 40 and 60 percent. Needs to be open enough below canopy to allow for flight and avoidance of predators. Has the biological potential to develop into nesting, foraging or roosting habitat.

**Class 6** - Provides for spotted owl dispersal habitat only. Canopy closure between 40 and 60 percent. Needs to be open enough below canopy to allow for flight and avoidance of predators. Not currently meeting nesting, roosting or foraging requirements due to site limitations and would not likely have the potential to develop into class 1 or 2. Examples could include low site lands, woodlands, serpentine areas, etc.
The following contains the USDI Bureau of Land Management OR/WA Special Status Species List (March 14, 2005). Each of these species was considered and evaluated for this project. The method(s) used to assess and review the potential effects to these species followed the techniques described in the OR/WA Special Status Species Policy (IM OR-2003-054). The following documents the basic conclusions of this assessment by species.

A description of the table’s headings and letter codes are located at the bottom of the table.

<table>
<thead>
<tr>
<th>SPECIAL STATUS SPECIES IN GRANTS PASS RA</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECIES</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Birds – BS &amp; BA</td>
</tr>
<tr>
<td>American peregrine falcon</td>
</tr>
<tr>
<td>Arctic peregrine falcon</td>
</tr>
<tr>
<td>Bald eagle</td>
</tr>
<tr>
<td>Black-backed woodpecker</td>
</tr>
<tr>
<td>Ferruginous hawk</td>
</tr>
<tr>
<td>Flammulated owl</td>
</tr>
<tr>
<td>Lewis’ woodpecker</td>
</tr>
<tr>
<td>Northern goshawk</td>
</tr>
<tr>
<td>Northern spotted owl</td>
</tr>
<tr>
<td>Marbled murrelet</td>
</tr>
<tr>
<td>Purple martin</td>
</tr>
<tr>
<td>SPECIES</td>
</tr>
<tr>
<td>-------------------------------</td>
</tr>
<tr>
<td>Three-toed woodpecker</td>
</tr>
<tr>
<td>White-headed woodpecker</td>
</tr>
<tr>
<td>White-tailed kite</td>
</tr>
<tr>
<td>Amphibian – BS &amp; BA</td>
</tr>
<tr>
<td>Black salamander</td>
</tr>
<tr>
<td>Foothill yellow-legged Frog</td>
</tr>
<tr>
<td>Oregon Spotted frog</td>
</tr>
<tr>
<td>Siskiyou M. salamander</td>
</tr>
<tr>
<td>Reptiles – BS &amp; BA</td>
</tr>
<tr>
<td>Northwestern pond turtle</td>
</tr>
<tr>
<td>Mammals – BS &amp; BA</td>
</tr>
<tr>
<td>Fisher</td>
</tr>
<tr>
<td>Fringed myotis</td>
</tr>
<tr>
<td>Pacific pallid bat</td>
</tr>
<tr>
<td>Townsend's big-eared bat</td>
</tr>
<tr>
<td>Invertebrates – BS &amp; BA</td>
</tr>
<tr>
<td>Chase sideband snail</td>
</tr>
<tr>
<td>Evening fieldslug</td>
</tr>
<tr>
<td>Mardon skipper butterfly</td>
</tr>
<tr>
<td>Oregon shoulderband snail</td>
</tr>
<tr>
<td>Scale lanx snail</td>
</tr>
<tr>
<td>Siskiyou hesperian snail</td>
</tr>
<tr>
<td>SPECIES</td>
</tr>
<tr>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Siskiyou short-horned grasshopper</td>
</tr>
<tr>
<td>Travelling sideband snail</td>
</tr>
<tr>
<td>Vernal pool fairy shrimp</td>
</tr>
</tbody>
</table>

Table Headings and Letter Code Definitions

Species: are listed by taxon. Bureau Sensitive and Bureau Assessment are combined, and then Bureau Tracking are listed.

Status: lists the Oregon BLM, Oregon state and then Oregon Natural Heritage Program codes in that order.

Oregon BLM Codes:
- FE - USFW Endangered - in danger of extinction throughout a significant portion of its range
- FT - USFW Threatened - likely to become endangered species within the foreseeable future
- FC - USFW Candidate - proposed and being reviewed for listing as threatened or endangered
- SM - Survey & Manage - Forest plan ROD directs protection of known sites and/or survey for new sites
- BS - Bureau Sensitive (BLM) - eligible for addition to Federal Notice of Review, and known in advance of official publication. Generally these species are restricted in range and have natural or human caused threats to their survival.
- BA - Bureau Assessment Species (BLM) - not presently eligible for official federal or state status, but of concern which may at a minimum need protection or mitigation in BLM activities.
- BT - Bureau tracking (BLM) - not considered as a special status species for management purposes. Tracking will enable early warning for species which may become of concern in the future. Districts are encouraged to collect occurrence data on species for which more information is needed to determine status.

Oregon State Codes:
- SE - State Endangered - in danger of extinction in the state of Oregon
- ST - State Threatened - listed as likely to become endangered by the state of Oregon
- CR - State Critical - listing is pending, or appropriate, if immediate conservation action not taken
- V - State Vulnerable - listing not imminent, and can be avoided through continued or expanded use of adequate protective measures and monitoring
- P - State Peripheral or naturally rare - populations at the edge of their geographic range, or historically low numbers due to limiting factors
- U - State Unknown - status unclear, insufficient information to document decline or vulnerability

ONHP Codes:
- 1 - Oregon Natural Heritage Rank, threatened with extinction throughout its range
- 2 - Oregon Natural Heritage Rank, threatened with extinction in the state of Oregon
- 3 - Oregon Natural Heritage Rank, more information is needed before status can be determined, but may be threatened or endangered in Oregon or throughout range
- 4 - Oregon Natural Heritage Rank, of conservation concern. May be rare, but are currently secure. May be declining in numbers or habitat but still too common to be considered as threatened or endangered. May need monitoring.

Range: indicates yes or no, if the breeding range overlaps with the Grants Pass Resource Area. If not within the range, both presence and basic conclusion on not applicable (N/A). For invertebrates in which there is inadequate data to determine ranges, 'U' is used for unknown.
**Presence:** indicates 'P' if a species is known to occur in the project area, 'S' suspected to occur based on known sites adjacent to the project area, or suitable breeding habitat exists, 'U' uncertain that the species occurs within the project area based on insufficient data, 'A' absent from the project area based on no known sites and/or no suitable breeding habitat within the project area, and 'T' possibly transitory species utilizing habitats within the project area during migration.

**Basic Conclusion:** describes the facts, context and intensity to provide the rationale for the conclusion of the proposed action(s) on the species and its habitat.
The following contains a list of Northern Pacific Forest Bird Conservation Region migratory birds that occur within the Grants Pass Resource Area (USFWS, 2002). Each of these species was considered and evaluated for this project. The following documents the basic conclusions of this assessment by species, and complies with the Migratory Bird Treaty Act and Executive Order 13186 to protect migratory birds. Two key principles of these are 1) focus on bird populations and their habitats rather than on species, and 2) focus conservation efforts on USFWS Birds of Conservation Concern.

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>PRESENCE</th>
<th>BASIC CONCLUSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lewis's woodpecker</td>
<td>T</td>
<td>No nesting habitat present in the project area. Incidental fall observations in adjacent watersheds. All snags &gt;16&quot; dbh would be retained (EA, PDFs - Section 2.4.1).</td>
</tr>
<tr>
<td>Olive-sided flycatcher</td>
<td>P</td>
<td>All snags &gt;16&quot; dbh would be reserved (EA, PDFs - Section 2.4.1) adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to species and/or habitat at the watershed scale.</td>
</tr>
<tr>
<td>Rufous hummingbird</td>
<td>S</td>
<td>In all treatment areas, at least 10% of each unit would be left untreated (EA, Proposed Treatments – Section 2.2). Ground disturbance from treatment activities and prescribed fire will stimulate growth of shrubs and herbaceous plants. Adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to species and/or habitat at the watershed scale.</td>
</tr>
<tr>
<td>Peregrine falcon</td>
<td>T</td>
<td>No nesting habitat within the project area. May forage in the project area.</td>
</tr>
<tr>
<td>Flammulated owl</td>
<td>U</td>
<td>No nesting habitat present in the project area. All snags &gt;16&quot; dbh will be reserved (EA, PDFs - Section 2.4.1) adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to species and/or habitat at the watershed scale.</td>
</tr>
<tr>
<td>White-headed woodpecker</td>
<td>U</td>
<td>Marginal nesting habitat within the project area. All snags &gt;16&quot; dbh would be reserved (EA, PDFs - Section 2.4.1) adequate potential habitat exists within and adjacent to the project area. Proposed activities impacts are inconsequential to species and/or habitat at the watershed scale.</td>
</tr>
</tbody>
</table>

1 USFWS Birds of Conservation Concern 2002 that breed within the Grants Pass Resource Area.


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### Summary of Habitat Relationships and Biological Objectives

<table>
<thead>
<tr>
<th>Focal Species</th>
<th>Conservation Focus (^3)</th>
<th>Vegetative Composition</th>
<th>Vegetation Structure</th>
<th>Landscape/ Patch Size</th>
<th>Special Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lewis’s woodpecker</td>
<td>large snags</td>
<td>Cottonwood</td>
<td>&gt;0.8 snags/acre &gt;16 in dbh; &gt;0.8 trees/acre &gt;21 dbh; canopy cover 10-40%; shrub cover 30-80%</td>
<td></td>
<td>dependent on insect food supply; competition from starlings detrimental</td>
</tr>
<tr>
<td></td>
<td>large conifer trees</td>
<td>Herbaceous, shrubs, ponderosa pine</td>
<td>trees &gt;20 dbh; 2.5 snags/ha &gt;12 dbh; tree canopy cover 10-40%</td>
<td></td>
<td>pine-oak sites may be most suitable</td>
</tr>
<tr>
<td>Olive-sided Flycatcher</td>
<td>Early seral, mature and old growth forest edges with snags</td>
<td>Mt. &amp; Western Hemlock; Noble &amp; Silver fir</td>
<td>Retain &gt;3.25 acre areas with 4-12 trees/acre &gt;40 ft. tall; rest avg. 1-2 trees/acre &gt;40 ft. tall</td>
<td></td>
<td>Harvest units &gt;50 acres; retain understory hemlocks &amp; true firs, &amp; large snags</td>
</tr>
<tr>
<td>Rufous Hummingbird</td>
<td>Early seral habitats; Nectar producing plants</td>
<td>Salmonberry, currant, penstemon, paintbrush</td>
<td>Diverse vegetative structure</td>
<td></td>
<td>Open space for aerial courtship display</td>
</tr>
<tr>
<td>Peregrine Falcon</td>
<td>Cliffs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flammulated Owl</td>
<td>Large snags</td>
<td>Ponderosa pine and Jeffery pine; mixed conifer</td>
<td>Large diameter snags (min 12 dbh); mature forests; open canopy</td>
<td></td>
<td>Dependent on large primary cavity excavators (Pileated’s, flicker’s &amp; sapsuckers)</td>
</tr>
<tr>
<td>White-headed woodpecker</td>
<td>Mix of mature cone producing pine species</td>
<td>Ponderosa Pine mix</td>
<td>50-70% canopy closure, &gt;21” dbh snags &amp; stumps for nesting cavities; &gt;10 trees/acre &gt;21” dbh</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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\(^2\) Habitat specifications from Partner’s in Flight Conservation Plans for Western Coniferous Forests, Westside Lowlands and Valleys and the Columbia Plateau.

\(^3\) Habitat requirements of focal species highly associated with important attributes or conditions within each habitat type (PIF Westside Lowlands and Valleys and the Columbia Plateau, p. 3).
Appendix E: Issues Outside the Scope of this Project

Issues from both internal and external scoping that were not considered to be within the scope of the project or were not considered to be drivers of the alternatives are summarized below:

- Rum Creek is an important source of cold water for the Rogue River. Water quality would be protected or enhanced, regardless of the current condition, through adherence to ACS objectives. Therefore, this issue does not deserve special consideration.

- Port-Orford cedar is present in the project area, as well as along the road systems leading to it. However, project design features would mitigate risks.

- Ravelly slopes and erosion exists within the project area. However, the types of treatments proposed to meet the LSR objectives would result in discontinuous mosaic patterns with very little exposure of mineral soil.

- There is not a clear funding source for all necessary habitat improvement projects. Funding from potential harvest activities would not meet this need, and the probability of implementation is lower because the commercial product would only be a byproduct of this project.
Appendix F: Alternatives Considered but Not Analyzed in Detail

1. Treatments in Old-growth or Unentered Stands/ No Harvest in Core areas

Alternatives that would propose treatment or harvest of old-growth stands, unentered stands, or core habitat areas were considered but eliminated because they did not meet the Late-Successional Reserve (LSR) guidelines identified in the Northwest Forest Plan. According to the NWFP Standards and Guidelines, silviculture activities in LSRs should be aimed at reducing risk (insect infestations and large scale fires) and should focus on younger. The objective is to accelerate the development of late-successional conditions while making the future stand less susceptible to natural disturbances. Additionally, the Regional Ecosystem Office (REO), identifies stand attributes where certain commercial thinning would be allowed in LSRs (Exemption Letter, 7/9/1996). The old-growth, unentered, or core habitat stands would not meet the criteria for exemption because 1) the stands are currently complex, diverse stands that would soon meet and retain late-successional conditions without treatment and 2) individual trees exceeding 80 years or exceeding 20” DBH cannot be harvested.

2. No Treatments in Riparian Areas

An alternative that fully excludes Riparian Reserves from treatment was not considered in detail because it would not meet the purpose and need for the proposal (to accelerate the development of late-successional forest conditions within younger previously managed stands, while protecting, maintaining, and enhancing current late-successional stands within the project area). Prior to the NWFP and Medford RMP, riparian reserves in Rum Creek were treated in the same way as the uplands; therefore, young, dense, even-aged stands now exist that would benefit from treatments similar to those proposed in the uplands to improve forest conditions. The exclusion of all riparian reserves from potential treatment would ignore the current condition of riparian areas impacted by previous timber harvest activities.
Appendix G: Literature Cited and References


Hagar, Joan and Shay Howlin. 2001. Songbird Community Response to Thinning of Young Douglas-fir Stands in the Oregon Cascades - Third Year Post-treatment Results for the Willamette National Forest, Young Stand Thinning and Diversity Study. Department of Forest Science, OSU.


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Tveskov, Mark, Nicole Norris, and Amy Sobiech. 2002. The Windom Site: A Persistent Place in the Western Cascades of Southwest Oregon. Ashland:SOULA


USDI 2006. Rogue River/South Coast Biological Assessment FY06-08 for Activities that may affect listed species in the Rogue River/South Coast Province of Medford District, Bureau of Land Management, Rogue River and Siskiyou National Forests.


