



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Medford District Office

3040 Biddle Road

Medford, Oregon 97504

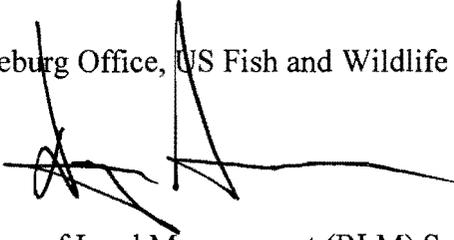


OCT 04 2011

In Reply Refer to:
6840 (ORM020)

Memorandum

To: Field Office Supervisor, Roseburg Office, US Fish and Wildlife Service

From: Dayne Barron
District Manager, Medford 

Subject: Submission of Medford Bureau of Land Management (BLM) Summer FY 2011
NLAA Biological Assessment of Effects to the Northern Spotted Owl

The Medford District of the Bureau of Land Management seeks concurrence that the projects evaluated in the attached is the Medford Bureau of Land Management (BLM) Summer FY 2011 NLAA Biological Assessment of Effects to the Northern Spotted Owl are may affect, not likely to adversely affect (NLAA) northern spotted owls or their critical habitat. This document can be cited as the Summer 2011 NLAA BA. Listed plants and fish are evaluated under other consultation documents. No other listed species or critical habitats are affected.

Enclosed are *The Medford Bureau of Land Management (BLM), Summer FY2011 NLAA Biological Assessment*; Appendix A which lists Project design criteria for northern spotted owls; and Appendix B, Project Spreadsheet, and Appendix C and D, the Proposed Action Maps.

We look forward to working with the US Fish and Wildlife Service to meet our joint obligations under the Endangered Species Act 7(a) 1 and 7(a) 2 to conserve habitat for endangered species, to avoid jeopardizing listed species and to avoid adverse modification of designated critical habitat.

For further information, please contact Robin Snider (541) 618-2496.

Attachments

***MEDFORD BLM FY 2011 SUMMER NLAA
BIOLOGICAL ASSESSMENT OF EFFECTS TO THE
NORTHERN SPOTTED OWL***

(CITE AS SUMMER 2011 NLAA BA)

***MEDFORD DISTRICT
BUREAU OF LAND MANAGEMENT
OCTOBER 2011***

Table of Contents

1. Introduction.....	4
1.1 Consultation History	4
1.2 Northern Spotted Owl Recovery Plan	5
1.3 Critical Habitat.....	5
1.4 Definitions	6
1.4.1 NW Forest Plan Land Use Allocations (USDA and USDI 1994b)	6
1.4.2 Northern Spotted Owl Occupancy Descriptions.....	7
1.4.3 Northern Spotted Owl Habitat Descriptions.....	8
1.4.4 Northern Spotted Owl Activity Periods.....	9
1.4.5 Project Treatment Descriptions	9
2. Proposed Action.....	9
2.1 Action Area	10
2.2 Project Descriptions.....	10
2.3 Detailed Descriptions	11
2.3.1 Timber Harvest	11
2.3.1.2 Detailed Timber Project Descriptions.....	14
2.3.2 Forest Health.....	16
2.3.2.2 Detailed Forest Health Project Descriptions.....	17
2.3.3 Special Forest Products.....	19
2.3.4 Hazard Tree Removal	20
2.4 Project Design Criteria	20
3. Environmental Baseline	21
3.1 Status of Northern Spotted Owl Habitat in the Action Area	21
3.2 Status of Northern Spotted Owl Sites in the Action Area	21
3.3 Barred Owls.....	22
4. Effects of the Proposed Action	22
4.1 Effects to Habitat – NRF and Dispersal	23
4.1.1 Effects to NRF	25
4.1.2 Effects to Dispersal.....	26
4.2 Effects to Northern Spotted Owls.....	26

4.3 Effects to CHU	31
4.4 Effects to LSR	33
4.5 Effects to Spotted Owl Prey	34
4.6 Cumulative Effects	37
5. Biological Assessment Conclusions	38
6. Literature Cited	39
Appendix A: Project Design Criteria (PDC).....	42
Mandatory Project Design Criteria	42
Recommended PDC.....	43
Appendix B: Summer 2011 NLAA Spreadsheet	45
Appendix C: Project Locations by Section 7 Watershed	45
Appendix D: Project Locations with LSRs and CHUs	45

List of Tables

Table 1. Northern Spotted Owl Breeding Periods	9
Table 2. Project Summary	11
Table 3. Environmental Baseline and Effects to NRF and Dispersal by Section 7	23
Table 4. Spotted Owl Sites known to be affected by projects with known boundaries	27
Table 5. Effects to 2008 CHU	31
Table 6. Effects to LSR NRF: All Habitat Maintained.....	33
Table 7. Effects to LSR Dispersal: All Habitat Maintained.....	34

1. Introduction

The Medford District Bureau of Land Management (BLM) is submitting this Biological Assessment (BA) to the US Fish and Wildlife Service (Service) to comply with section 7 (a)(2) of the Endangered Species Act (ESA). Section 7 (a)(2) requires Federal agencies to consult with the Service to ensure their actions will not jeopardize the continued existence of any listed species or adversely modify designated critical habitats. BLM also offers project design criteria and sets aside large portions of the District to comply with section 7 (a)(1) of ESA. Section 7 (a)(1) requires Federal agencies to utilize their authorities for the conservation of listed species.

The Medford BLM seeks concurrence that the proposed action analyzed in this BA may affect and will not adversely affect northern spotted owls or their federally-listed critical habitat. This BA describes and evaluates the potential effects to northern spotted owls and 2008 CHU (Critical Habitat Units) from three timber sales:

- London Peak (Glendale Resource Area)
- Williams Thin (Late Successional Reserve, Grants Pass Resource Area)
- North Trail (Butte Falls Resource Area)

and Five forest health, restoration, and hazard reduction projects:

- Brushy Battle Fuels (Butte Falls Resource Area)
- Silviculture PCT / DM (Butte Falls, Glendale and Grants Pass RA)
- Hazard Tree (Butte Falls, Glendale Resource Area)
- Miscellaneous Forest Products (Grants Pass RA)
- French Flat Meadow Restoration

(The Grants Pass RA and Glendale RA were combined as the Grants Pass RA on 9/27/2011.) No other listed terrestrial wildlife species or designated critical habitat will be affected by the activities identified in this BA. Listed fish are evaluated in separate project level consultations, as necessary. The effects on plants are evaluated in the FY 2009-2013 Programmatic Assessment for Activities that May Affect the listed endangered plant species Gentner's fritillary, Cook's lomatium, McDonald's rockcress, and large-flowered woolly meadowfoam (USDI 2008b).

These projects were presented to the Level 1 team during a briefing meeting on August 8, 2011 and a draft BA was submitted to the Level 1 team on September 8, 2011. The Level 1 team includes the Rogue River-Siskiyou National Forest Biologist, the Medford BLM District Biologist, and the Roseburg Fish and Wildlife Office Biologist. All consensus recommendations were incorporated into this final draft.

1.1 Consultation History

Williams Thin, London Peak, and the five forest health projects are new proposals. The North Trail Project has been in previous consultation packages that were withdrawn because of various

ESA litigation cases (FWS Log# 1-15-06-F-162 and District Analysis and Biological Assessment of Forest Habitat, DA BA FH). An additional unit, from the 2002 Wall Creek fire, was added and some units have been dropped from the previous North Trail Project.

1.2 Northern Spotted Owl Recovery Plan

On June 30, 2011, the US Fish and Wildlife Service (Service) released the *Revised Recovery Plan for the Northern Spotted Owl (Strix occidentalis caurina)* (USDI FWS 2011). The Notice of Final Revised Recovery Plan Availability was published in the Federal Register on 07/01/2011 (76 FR 38575 38576) for the Northern Spotted Owl (*Strix occidentalis caurina*). Recovery plans are not regulatory documents; rather, they provide guidance to bring about recovery and establish criteria to be used in evaluating when recovery has been achieved. The BLM continues to work with the Service to incorporate Recovery Goals and Actions consistent with BLM laws and regulations. The BLM is a participant in the inter-organizational spotted owl working group (Recovery Action 1) and will continue demographic monitoring to address Recovery Actions 2 and 3.

The BLM is also a collaborator in Recovery Actions that address barred owl issues, such as Recovery Action 32 (RA 32). The intent of RA 32 is to maintain substantially all of the older and more structurally complex multi-layered conifer forests on Federal lands in order not to further exacerbate the competitive interactions between spotted owls and barred owls. Within the administrative units of the Rogue River-Siskiyou National Forest and the Medford District BLM, an interagency, interdisciplinary team was created to develop a methodology for identifying Recovery Action 32/ structurally complex forest for project level planning and NSO consultation needs in SW Oregon. The most current methodology (version 1.3, January, 2010) was used to identify RA 32 stands in the proposed action area.

Projects in this BA will also meet other Recovery Actions listed in the Revised Recovery Plan, such as Recovery Action 6 and Recovery Action 10. Young stand treatments designed to accelerate the development of structural complexity and biological diversity will meet Recovery Action 6. All projects in this BA will meet Recovery Action 10 because they will not reduce nesting, roosting and foraging habitat within provincial home range of spotted owl sites. Projects in this BA will treat NRF and dispersal habitat, but will not change the habitat classification post treatment.

1.3 Critical Habitat

Critical Habitat for the spotted owl was delineated in 1992 (1796 Federal Register /Vol. 57 No 10/, January 15, 1992) and revised in 2008. Final rule for revised designation of critical habitat for the northern spotted owl was published by the Service in the Federal Register and signed on August 12, 2008 (73 Federal Register 157:47326) and became effective on September 12, 2008. Critical Habitat includes the primary constituent elements that support nesting, roosting, foraging, and dispersal. Designated critical habitat also includes forestland that is currently unsuitable, but has the capability of becoming NRF habitat in the future (57 FR 10:1796-1837).

Medford BLM provides analysis for actions in the revised 2008 CHU. Treatments are proposed in 2008 CHU 14 (Rogue Umpqua) and 2008 CHU 16 (Klamath Intra-Province).

All treatments in 2008 CHU were designed to maintain or improve the primary constituent elements of Critical Habitat:

These include, but are not limited to, space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing (or development) of offspring; and habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

The specific primary constituent elements required for the northern spotted owl are derived from the biological needs of the species:

*Space for Population Growth and for Normal Behavior...
 Sites for Breeding, Reproduction, and Rearing of Offspring (Nesting)...
 Cover or Shelter (Roosting)...
 Food or Other Nutritional or Physiological Requirements (Foraging)
 (FR 72 (112) 32456-23457)*

All projects in 2008 CHU will comply with the statement about timber management in the proposed rule for the 2008 CHU, which stated:

Timber management within critical habitat units should maintain or enhance the individual habitat components important to nesting, roosting, foraging, and dispersal, as well as provide adequate amounts and juxtapositions of nesting, roosting, foraging, and dispersal habitat. In general, timber management in critical habitat units should seek to maintain or enhance the characteristics of older forest, and provide large blocks of older forest and associated interior forest conditions. In southern portions of the range, harvest plans should carefully consider the mix of prey production habitat, interior old forest, and the edges between them (Courtney et al. 2004, p. 5–23). Any timber management intended to maintain or enhance northern spotted owl habitat must take into account regional variation in habitat use and associations across the range. (Federal Register / Vol. 72, No. 112 / Tuesday, June 12, 2007 / Proposed Rules 32459)

1.4 Definitions

1.4.1 NW Forest Plan Land Use Allocations (USDA and USDI 1994b)

AMAs (Adaptive Management Areas) generally follow Matrix guidance, but encourage adaptive management approaches to forest management.

LSRs (Late-Successional Reserves) are managed to protect and enhance habitat conditions for late-successional and old-growth related species. These reserves are designed to maintain a functional, interacting late-successional and old-growth ecosystem.

Matrix lands are Federal lands outside of reserves and special management areas that are available for timber harvest at varying levels (USDI 1995, 107). Matrix includes northern and southern General Forest Management Areas (NGFMA and SGFMA). Green tree retention ranges from 6 to 25 trees per acre following regeneration harvest in Matrix lands (USDI 1995, 38-39).

1.4.2 Northern Spotted Owl Occupancy Descriptions

KSOACs (Known Spotted Owl Activity Centers): 100-acre residual habitat areas are the best 100 acres around northern spotted owl activity centers that were documented as of January 1, 1994 on Matrix and AMA lands, and are managed as LSR. The criteria for mapping these areas are identified on pages C-10 and C-11 of the Northwest Forest Plan Standards and Guidelines (USDA and USDI 1994b).

Documented Spotted Owl Sites are locations with evidence of continued use by spotted owls, including breeding, repeated location of a pair or single birds during a single season or over several years, presence of young before dispersal, or some other strong indication of continued occupation. Documented spotted owl sites are tracked in the BLM northern spotted owl database. A spotted owl site may include one or more activity centers (i.e., alternate nest site).

Generated (“G”) Sites are estimated locations of spotted owl activity centers created by the use of a methodology developed by an interagency team to estimate the number of northern spotted owl home ranges that are likely to occur within the area affected by a proposed federal action. These sites are based on the amount and distribution of suitable owl habitat (on federal and non-federal land) and best available information on known owl locations and spacing patterns for that area. In particular, the methodology relies upon known spotted owl locations derived from surveys as the foundation for a “northern spotted owl occupancy” map (NSOOM) (USDI et al. 2008).

Provincial Home Range is defined, for analysis purposes in this document, by a circle located around an activity center and represents the area owls are assumed to use for nesting and foraging in any given year. For the Klamath Mountains Province the home range is a 1.3 mile radius circle (3,396 acres) and the West Cascades is a 1.2 mile radius circle (2,893 acres) (USDI et al. 2008). The home ranges of several owl sites may overlap.

Core Area is a 0.5-mile radius circle (approximately 500 acres) from the nest or center of activity to delineate the area most heavily used by spotted owls during the nesting season; it is included in the provincial home range circle. Core areas represent the areas which are defended by territorial owls and generally do not overlap the core areas of other owl pairs (USDI et al. 2008).

Nest Patch is the 300-meter radius area around a known or likely nest site; it is included in the core area (USDI et al. 2008).

1.4.3 Northern Spotted Owl Habitat Descriptions

BLM lands are classified into four categories in this BA (NRF, Dispersal Only, Capable, and Non-Habitat). These categories are not over-lapping in this BA. Only NRF and Dispersal are considered current habitat for owls.

NRF (Nesting, Roosting and Foraging). NRF also provides habitat for dispersing owls.

Nesting, Roosting, and Foraging (NRF) Habitat for the northern spotted owl consists of habitat used for nesting, roosting, and foraging. Generally, this habitat is multistoried, 80 years old or older (depending on stand type and structural condition), and has sufficient snags and down wood to provide opportunities for nesting, roosting, and foraging. The canopy closure generally exceeds 60 percent, but canopy closure or age alone does not qualify a stand as NRF. Other attributes include a high incidence of large trees with various deformities (e.g. large cavities, broken tops, mistletoe infestations, and other evidence of decadence), large snags, large accumulations of fallen trees and other woody debris on the ground, and sufficient open space below the canopy for owls to fly (Thomas et al. 1990). Mistletoe can provide nesting structure to owls in our area. NRF habitat in southwest Oregon is typified by mixed-conifer habitat, recurrent fire history, patchy habitat components, and high incidence of woodrats, the dominant spotted owl prey species in our area. NRF in southwest Oregon varies greatly. It may consist of somewhat smaller tree sizes. One or more important habitat component, such as dead down wood, snags, dense canopy, multistoried stands, or mid-canopy habitat, might be lacking or even absent in portions of southwest Oregon NRF. NRF habitat also functions as dispersal habitat. Roosting and foraging habitat, which lacks nesting structure, is included as part of NRF.

Dispersal (Dispersal is defined in this BA as habitat that is dispersal-only)

Dispersal Habitat is a subcategory of “all dispersal” habitat for northern spotted owls. Throughout this document, “dispersal” will be used to describe dispersal-only habitat. Thomas, et al. 1990, defined dispersal habitat as forested habitat more than 40 years old, with canopy closure more than 40 percent, average diameter greater than 11 inches, and flying space for owls in the understory but does not provide the components found in NRF. It provides temporary shelter for owls moving through the area between NRF habitat and some opportunity for owls to find prey, but does not provide all of the requirements to support an owl throughout its life. Dispersal will be used throughout this document to refer to habitat that does not meet the criteria to be NRF habitat, but has adequate cover to facilitate movement between blocks of NRF habitat. Owls also disperse through NRF habitat. Some of Medford BLM’s dispersal habitat is made up of widely-spaced trees that could be well over 80 years old and may be over 18 inches DBH. This type of dispersal habitat may have resulted from wild fire, or may have resulted from

previous thinning of NRF stands which left the larger trees and reduced the canopy cover to percentages from 40-60 percent.

Capable (Currently not NRF or dispersal, but is capable of developing into spotted owl habitat)

Non-Habitat Rocks, water, hardwoods and other habitat not capable of ever becoming NRF or dispersal.

1.4.4 Northern Spotted Owl Activity Periods

Entire Breeding Period	Critical Breeding Period	Extended Breeding Period
March 1-September 30	March 1-June 30	July 1-September 30

1.4.5 Project Treatment Descriptions

Treat and Maintain in NRF or Dispersal Habitat means an action or activity will not change the habitat classification post treatment. The post-project NRF stand will retain at least 60 percent canopy cover, large trees, multistoried canopy, standing and down dead wood, diverse understory adequate to support prey, and may have some mistletoe or other decay. Post-project dispersal habitat will continue to provide at least 40 percent canopy, flying space, and trees approximately 11 inches diameter at breast height (DBH) or greater, on average. The habitat classification of the stand following treatment will be the same as the pretreatment habitat classification.

2. Proposed Action

All projects that occur in spotted owl NRF or dispersal habitat meet the following conditions of treat and maintain. All projects included in this BA share the following design features:

- NRF habitat will retain at least 60 percent canopy closure post treatment.
- Dispersal habitat will retain at least 40 percent canopy closure post treatment.
- Post project NRF or dispersal will reflect pre-treatment composition and diversity. All species and age classes will be retained, but at a lower density.
- Prey habitat will be maintained in quantity and condition to support owls
- Large snags will be retained post treatment, and if felled due to safety or operational concerns, will be retained as down woody debris.
- Large down wood will be retained post treatment.
- Small openings will be similar to the size, condition and shape of natural openings in late seral forest such that the overall stand reflects the pre-project structural diversity

- Nest structures will be maintained to support spotted owls.
- All projects that occur in spotted owl critical habitat meet the treat and maintain conditions of NRF and dispersal, listed above
- All projects will follow Project Design Criteria to reduce disturbance effects to spotted owls (See Appendix A).

2.1 Action Area

The Action Area is defined as *all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action* (50 CFR 402.02). For this consultation, the action area includes all proposed timber sale harvest units, forest health, restoration, and hazard reduction units, as well as all areas subject to increased ambient noise levels caused by activities associated with the proposed action.

The Action Area includes six Section 7 Watersheds (Rogue Upper, Rogue Middle, Rogue Lower Wild, Cow Upper, Applegate, and Illinois) in the Klamath and West Cascades Physiographic Province of the Medford District BLM. Section 7 Watersheds are smaller sub-units devised for scale-appropriate consultation analysis, and closely follow HUC4 and/or HUC 5 Watershed boundaries. Projects are located in three of the Medford District's four Resource Areas: Butte Falls, Grants Pass and Glendale Resource Area (Grants Pass RA and Glendale RA were combined as the Grants Pass RA on 9/27/2011).

2.2 Project Descriptions

The Proposed Action includes 8 projects (Table 2). We expect the projects to be implemented within ten years after the Letter of Concurrence (LOC) is received. BLM defines implementation of the following projects:

Timber sales and salvage	as the Date of sale
Stewardship and forest health treatments	as the Date of task order or contract

Harvest activities could take up to five years to complete following award. Once a sale is sold and awarded, purchasers usually have three years to implement (harvest) the sale, but contracts can be extended for seasonal clearances and other reasons. Purchasers have the option to log the entire sale in one season or they may log portions of the sale in different years. Forest health treatments are expected to occur within five to ten years from the date of the task order. All timber sale, salvage and stewardship treatment units will be evaluated post harvest to determine if fuels treatments are necessary to reduce harvest-generated slash.

Table 2. Project Summary				
TIMBER SALE PROJECTS				
RA	Project ID	Treatment type	1994 RMP LUA	Total Habitat acres
BF	North Trail	TS	M	83
GP	Williams Thin	TS	M	300
GL	London Peak Thin	TS	M	95
Total of Timber Sale Acres				478
FOREST HEALTH PROJECTS/ SPECIAL FOREST PRODUCTS				
GP	Silviculture PCT/DM	FHT	Z	1,025
GP	Special Forest Products	SFP	M	60
GP	Hazard Trees	FHT	Z	45
GP	French Flat Meadow Restoration	FHT	M	310
GL	Silviculture PCT/DM	FHT	Z	1,300
GL	Hazard Trees	HAZ	Z	45
BF	Brushy Battle Fuels	FHT	M	1,600
BF	Silviculture PCT/DM	FHT	Z	500
Total Treatment Acres				4885
Total of All Project Acres				5,398

See Also Appendix B: Summer 2011 NLAA Spreadsheet

2.3 Detailed Descriptions

2.3.1 Timber Harvest

Timber harvest activities included in this proposed action include stewardship and commercial thinning activities. Harvest treatments described in this BA are designed to ensure that NRF and dispersal habitat for owls retains characteristics post-treatment. Harvest activities that meet these criteria include various levels of: commercial thinning, selective harvest, and density management. Proposed timber projects will reduce density in forest stands through thinning or individual tree selection. Some larger trees may be removed in areas of insect, root rot, mistletoe or other forest pathogen infestation, or to favor dominance of dry site or fire tolerant trees species, while also maintaining the important broken topped, defective and structurally-complex trees important to owls.

2.3.1.1 Description of the Treatment Types

Yarding and Other Activities: Timber harvest activities include the pre-project planning, surveys and marking; implementation activities such as roads, skidtrail and corridor development, anchor trees adjacent to treatment units, involve the removing and yarding of trees to facilitate the selected logging system; and the follow-up activities related to clearing slash including preparing the ground for planting or site restoration.

Commercial Thinning: This treatment is prescribed for even-aged stands with a single canopy layer. In these stands, growth rates are beginning to decline due to competition. These treatments would typically thin stands by spacing the residual trees based on the crown radius of the healthiest dominant and co-dominant trees to achieve an average relative density of 35 percent with some variation for site differences (range between 25 and 45 percent relative density).

Density Management: This treatment is prescribed for even or uneven-aged stands for the primary purpose of widening the spacing of residual trees to promote growth and structural development of the remaining stand. These treatments proportionally thin stands by spacing the residual trees based on the crown radius of the healthiest dominant and co-dominant trees to achieve an average relative density of as low as 35 percent relative density, but generally would be closer to 40-45 percent relative density to maintain NRF habitat. (Treatment to reduce inter-tree competition is recommended when a stand reaches 55 percent relative density). This treatment involves the selective thinning of some trees within a stand to reduce moisture stress on the remaining large trees, allow for reintroduction of low intensity fire in the understory, and increase growth in the remaining trees.

Density management in young stands (approximately 20-40 years old) offers the best opportunity for developing the conditions most suitable for future development of old growth characteristics. Density management in older stands is primarily driven by the need to reduce stress, increase species diversity, and increase the forest's ability to survive the inevitable exposure to large-scale wildfire, insects, and disease.

Density Management (North Trail TS): The density management prescription in North Trail is similar as described above. More specifically, basal area would be reduced to approximately 90 to 160 with canopy retention of at least 40 percent in dispersal habitat and 60 percent in NRF habitat. Tree diameters would be thinned approximately proportional to the existing occurring density of size classes of 8" through 24" dbh. The majority (99%) of trees marked for harvest are 8" through 24" diameter classes. Less than 1% of marked trees are from 28" through 36" diameter classes, favoring retention of the larger diameter classes.

Select Harvest (North Trail TS): This prescription is planned for a six acre unit lightly to moderately burned by the Wall Fire (2002). Fire-killed and damaged conifers will be removed to reduce the possibility of future insect damage and mortality. A range of diameters (8"- 40" dbh) will be cut. A few larger trees killed by the fire will be harvested with the select harvest. Tree diameters would be thinned approximately proportional to the existing occurring density of size classes of 8" through 24" dbh. The majority (94%) of trees marked for harvest are from 8"

through 24" diameter class, while 6% of the trees marked are from 28" through 40" diameter classes. The majority of the trees left in the unit will be healthy, large-diameter, full-crowned trees, without disease or insect problems. The select harvest will result in a fully stocked stand and would retain at least 40 percent canopy cover in the unit.

Variable Density Thinning (Williams Thin): is prescribed to accelerate tree growth, retard crown recession and introduce structural diversity through the use of gaps and leave patches. Variable spacing is accomplished by adjusting spacing by tree diameter and crown width to achieve an average canopy retention of 40%. Trees ≥ 20 " DBH would not be cut as part of prescription treatments in any units in this project. Any tree ≥ 20 " DBH cut do to safety, or logging feasibility (such as yarding corridors, spurs, anchor trees) would be left on-site as coarse woody debris. Approximately 5 to 10% of the acres of each individual stand will have all conifer trees less than 20" dbh removed to create gaps that vary in size from $\frac{1}{4}$ acre to $\frac{1}{2}$ acre. Another 5 to 10% of each stand will have leave patches which vary from $\frac{1}{4}$ acre in size to 5 acres.

Understory Reduction Treatments: primarily thin (the smallest diameter trees) from below to achieve a minimum target canopy closure of 60 percent in stands of spotted owl NRF habitat, and 40 percent in stands of spotted owl dispersal habitat. The prescription for these areas includes the retention of the most vigorous, large trees in patches, while thinning lower and intermediate tree layers in an effort to accelerate development of multi-layered tree structure.

Silviculture PCT/Density Management: removes diameters less than 8 inches to release larger trees and increase vigor and growth potential of remaining young trees. It may include removing other competing vegetation, pruning lower branches to improve wood quality, and selectively retaining tree desired species such as oaks or maples that may be limited within treatment areas.

Modified Group Selection: the removal of trees (usually Douglas-fir) that are competing with vigorous pines and non-tanoak hardwoods with greater than 30 percent live crown ratio. Typically, openings created by these treatments would be between one quarter to one half acre in size, with the occasional openings of up to one acre in size if the pines and non-tanoak hardwoods require more release.

Small Group Selection: a silvicultural treatment that harvests small groups of trees within a stand in order to create regeneration openings. Generally, openings are between 0.25 and 0.75 acre. The gaps within each unit would not exceed 20 percent of the total unit area unless disease conditions require larger areas to be regenerated (see sanitation-salvage). Small group selection is intended to introduce structural diversity in an otherwise large homogeneous stand by mimicking the effects of a variety of natural disturbance processes (fire, wind, disease, etc.) that are essential for maintaining a healthy ecosystem. Natural seeding and/or planting would occur in each opening to insure that the desired mix of species is obtained. Though the regeneration in the small groups matures under even-aged conditions, the 0.25-0.75 acre or larger openings permit establishment of shade intolerant species such as ponderosa pine, and the result is a larger uneven-aged, more species-diverse forest. Small group selection allows stands and landscapes to stay continuously forested while regeneration of each stand takes place over a long period of time.

2.3.1.2 Detailed Timber Project Descriptions

All projects may extract biomass unless specified within descriptions. The prescriptions in these thinning units will maintain 60 percent canopy in NRF habitat and 40 percent in dispersal habitat. Riparian treatment may occur and will maintain 50 percent in dispersal and at least 60 percent in NRF. Primary constituent elements present would be retained in critical habitat. Prescriptions would include retaining the largest vigorous trees with large crowns, and thinning the remaining commercial size diameters. Down wood and snags would be retained, unless snags are required to be felled for safety and operational feasibility. Thinning would retain some of the suppressed or deformed type trees if they occur. Trees with potential for future nest trees or snags would be favored for retention. Some of the vigorous midstory perching or potential roosting trees will be retained. The diversity in tree species including hardwoods would be retained. Most landings will be restricted to the road prism. The units will be yarded with a combination of ground-based tractors and skyline cable yarders. Known and potential (generated) spotted owl nest patches will not be treated unless specified in project descriptions. No RA 32 habitat will be treated with these sales. It is possible that skid trails, yarding corridors, tailhold/anchor trees, existing road renovation or improvements, temporary road construction, will be located in RA 32 habitat if the function and integrity of the RA 32 habitat is maintained.

London Peak Thin

Current conditions: The London Peak timber sale is located in the Glendale Resource Area and will treat up to 130 acres of dispersal habitat. The units are in second growth stands ranging from approximately 40 to 70 years old, on matrix land allocation, on ridgetops, middle and upper slopes. Tree diameters are heavily dominated in the 8” to 16” diameters, with commercial size tree diameters ranging from approximately 8 to 30 inches, as growth rates vary due to site conditions. Scattered remnant trees are present throughout the units. Canopy cover exceeds 60%, but lacks consistent larger diameter trees, vegetative layering, ground cover, and large coarse woody debris and snags, that would provide features to support prey, nesting habitat, or roosting and foraging habitat for spotted owls. This project does not contain RA32 habitat because the stands are less than 80 years old and lack complexity and decadence.

Project description: The project will utilize Commercial Thinning and Density Management. Cable yarding and/ or tractor yarding methods would be used. Temporary road construction on or near ridgetops may occur. Treatments would retain approximately 40% canopy closure, and retain the most vigorous and fire resilient trees, hardwoods, and down wood. Majority of trees thinned would occur within the 8” to 28” diameters, heavily dominated by the 8” to 16” diameter classes. The larger diameters selected for removal would not exhibit fire-tolerant characters such as thick furrowed bark. Larger fire-tolerant trees would be favored for retention. Clearing adjacent trees around selected remnant trees would occur. Second-growth trees up to 24” that are ingrowth on road bank and slopes since original road construction may be cleared along access roads as part of Glendale Resource Area London Peak thin. No units are within nest patches or core areas.

North Trail Timber Sale

Current conditions: The North Trail Timber Sale is in the Butte Falls Resource Area and will treat 19 acres of NRF and 64 acres of dispersal habitat. Stand ages vary from approximately 80

to 110 years old, with canopy closure exceeding 60%. Douglas-fir generally dominates the overstory of most stands with sugar pine, Ponderosa pine, and incense cedar occurring on a scattered basis. Elevations range from 2,200 to 3,300 feet. At elevations below 2,500 feet, plant communities tend toward the moderate to dry end of the Douglas-fir series. Much drier Ponderosa pine and white oak communities are common as well. At elevations above 3,000 feet, the plant communities are at the moderate to moist end of the environmental gradient for the Douglas-fir series with some sites grading into the white fir series. Pacific madrone is common throughout the analysis area and often competes with developing conifers where openings have been created. Douglas-fir and incense cedar are the primary conifer species regenerating within un-managed conifer stands. The stands being analyzed have a history of wildfire and/or logging, and generally have a single to two-storied structure with canopy closures greater than 60 percent. The 19 acres of NRF, actually meets the subset of roosting, foraging, and dispersal habitat (Mckelvey 2). Canopy cover exceeds 60%, but lacks larger diameter trees, vegetative layering, ground cover, coarse woody debris, and snags that would provide features to support prey, and nesting habitat for spotted owls. One unit (31-1) has some trees greater than 16" DBH, but has been simplified by the 2002 Wall Creek fire, and now qualifies as dispersal habitat. RA32 surveys were completed and no RA32 habitat was found.

Project description: This project will use Density Management and Select Harvest prescriptions as described above. Prescriptions ensure projects will retain NRF and dispersal function post treatment. The unit would be treated using tractor and cable logging methods. No new roads or temporary roads would be constructed. Activity slash will be lop and scattered and hand-piled and burned in denser stands.

Williams Thin

Current conditions: The Williams Thin project occurs in the East IV/ Williams Late Successional Reserve/AMR in the Grants Pass Resource Area. These stands are all less than 80 years old and the average dbh is 12" and currently function as dispersal habitat. Tree densities are extremely high in much of the project area, and canopy closure is generally greater than 80-90 percent. The overcrowding is causing density dependent mortality, crown recession, reduced individual tree vigor, shading of large hardwoods, exclusion of new regeneration, and delayed structural development. This project does not contain RA32 stands because the stands are less than 80 years old and no remnant trees are present in these units.

Project description: LSR thinning guidelines will be implemented for this project. Variable density thinning (VDT) is prescribed to accelerate tree growth, retard crown recession and introduce structural diversity through the use of gaps and leave patches. Variable spacing is accomplished by adjusting spacing by tree diameter and crown width to achieve average canopy retention of 40 percent post treatment. Trees ≥ 20 " DBH would not be cut in any treatments in this project. Approximately 5 to 10% of the acres of each individual stand will have all conifer trees less than 20" dbh removed to create gaps that vary in size from $\frac{1}{4}$ acre to $\frac{1}{2}$ acre. Another 5 to 10% of each stand will have leave patches which vary from $\frac{1}{4}$ acre in size to 5 acres. In this project area anchor trees would likely be < 20 dbh. If larger trees are used because they are a hazard to the logging operation or removed for logging feasibility (such as logging corridors or spurs), then the tree would be cut and left in the stand for coarse woody debris to meet LSR

guidelines. The exact number of anchor trees that would be cut is unknown, but likely several would be cut above each unit. The effects from the loss of these trees would be NLAA since only a few trees would be cut within the larger stand, and they would contribute to habitat function and complexity as large down wood.

2.3.2 Forest Health

Forest health projects in this BA include hazardous fuels reduction, restoration, and young stand development. Forest Health treatments described in this BA are designed to ensure that NRF and dispersal habitat for owls retains characteristics post-treatment. Forest Health projects designed to restore ecological function may have long-term beneficial effects to owls.

2.3.2.1 Description of the Treatment Types

Fuels Reduction and Young Stand Development includes manual and/or mechanical treatments using chainsaws or mechanical equipment followed up with prescribed fire (pile burning or under-burns. Broadcast burning without pre-treatment (brush fields) can also occur. Mechanical treatment is designed to reduce abnormally high amounts of shrubs and ladder fuels so that subsequent prescribed burning or wildfire won't be as severe. The material may be piled or may be left dispersed, and is usually burned once that material dries out. Biomass could be removed using low impact ground-based equipment or cable yarding systems if the biomass removal also maintains habitat. A small portion of the acres may also be burned or brushed again. These fuel treatments are generally implemented over a period of years. The acres in the proposed action are the acres of the fuels treatment "footprint", and impacts are assessed for the entire treatment period.

Prescribed Fire use is dependent upon management objectives. The primary role of prescribed fire has traditionally been for site preparation and fuels reduction. Recently, natural fuels reduction and ecological "improvement" have become end goals of prescribed fire, particularly in areas managed for owls. The effects of prescribed natural fire, when limited to the prescription, can usually be controlled or manipulated. The resultant fuel is treated in one or more of the following methods.

Hand Piling and Burning: is typically used when under-burning is not possible due to heavy fuel loads. Sticks one to seven inches in diameter and longer than two feet will be piled by hand.

Understory Burning (Under-Burning): used where the objective is to maintain greater than or equal to 80 percent of the overstory. Typically, burning occurs between fall and spring outside of the breeding season for spotted owls.

Lop and Scatter is a method of fuels reduction where accumulations of wood and brush are broken up (usually with chain saws) and dispersed away from dense locations.

Leave Tops Attached is a method, sometimes referred to as whole tree yarding or logging with tops attached, would effectively reduce fuel loading within units and would transfer most of the slash to landings, where it would be treated. This practice is just what its name indicates: a tree, or the last bucked log, is yarded to the landing without cutting off the unmerchantable top and leaving it in the forest, as is usual practice.

Biomass is referred to as the product that can be removed from a unit for off-site purposes and can occur in a timber harvest, stewardship, forest health, or salvage project. The District does not consider decadent woody material, such as large snags and pre-existing large down wood as biomass material. Large standing dead and down wood will be retained within harvest units. Biomass utilizes material that would otherwise be treated as slash or yarding debris. It is any dead or living vegetation in a unit that is less than or equal to eight (8) inches in diameter for conifers or less than or equal to 12 inches for hardwoods. On slopes less than 35 percent, mechanized low ground-pressure machinery would cut, skid, haul or chip that material. On slopes greater than 35 percent, biomass would be cable yarded.

2.3.2.2 Detailed Forest Health Project Descriptions

Brushy Battle Fuels

Approximately 400 acres of NRF, 1200 acres of dispersal, and 260 acres of non-habitat will be treated to reduce the risk of fire in the Wildland Urban Interface (WUI). Fuels management has three primary purposes: fuels reduction to reduce wildfire hazard, site preparation/slash reduction for improving conifer planting, and restoration of ecosystem function where wildfire has been excluded. Treatments consist of the removal of surface fuels, brush or small trees, and the removal of ladder fuels or crowded conifers or hardwoods and will be spread throughout the Evans Creek fifth field watershed. Less than 1 percent of the NRF and 8.5 percent of the dispersal habitat in this watershed would be treated. NRF and dispersal habitat would be retained post-treatment. The project will take up to five years to complete.

There will be no fuels reduction or roadside treatments in nest patches or in high-quality, structurally complex (RA 32) habitat. RA 32 habitat will be identified in the field and dropped from consideration for treatment. Approximately 300 acres of the total project acres are within no-treatment riparian buffers. Each proposed treatment area will have riparian buffers, providing patches and corridors of untreated dispersal and NRF habitat. No treatment or pile burning will occur within 60 feet, each side, of fish-bearing or perennial streams; no treatment will occur within 35 feet, each side, of long-duration, intermittent streams; and no treatment will occur within 60 feet from the edge of springs, seeps, wetlands, and ponds.

Fuel treatment units range from 20 acres to 240 acres in size. Conifers and hardwoods more than 1 foot tall and less than 8 inches dbh (diameter at breast height) will be cut to a 25-foot by 25-foot spacing. Conifers 6 to 14 inches dbh will be pruned up to 10 feet above ground level. Shrub species more than 1 foot tall and less than 12 inches in diameter (at 1 foot above ground level) will be cut to 45-foot by 45-foot spacing with the rest cut, piled and burned. Slashed material that measures 1 to 8 inches in diameter and more than 2 feet long will be hand piled. The size of the slash pile will normally be 6 feet by 6 feet with an average of 50 piles per acre.

Approximately 5 piles per acre, or 10 percent, on average, of the piles do not burn and remain to provide habitat for spotted owl prey. Slash pile burning will generally occur within 1 to 1.5 years after cutting, or when fuels have cured to allow for a hotter, cleaner burn. Slash piles will generally be burned between October 15 and May 1 after significant precipitation has occurred to limit the fire from creeping between piles and to minimize the potential of fire escape and damage to residual stands.

Silviculture PCT/DM- Glendale, Grants Pass, Butte Falls RAs

The project aims to move 2,825 acres (1,540 acres NRF, 1,375 acres dispersal) of dense young stands or older stands with dense understories on developmental paths toward improved vigor, greater resistance to disturbance, and desired species composition and structure. Stand management treatments would occur in young plantation stands that are generally 30 to 40 years old that may be functioning as dispersal habitat, but overstocked with small diameter (<8") trees or hardwoods. Treatments would also occur in older, natural, or previously entered stands functioning as dispersal habitat. Roosting and foraging habitat, or nesting habitat, with low density overstory or patch openings as a result of past harvesting, or natural occurrences, with dense understory trees may be non-commercially thinned. Treatments include young stand thinning, vegetation competition release, pruning, and/or treatment of created slash. Mechanized equipment would be limited to chainsaws. These young stands would be implemented on sites located throughout the Butte Falls, Glendale and Grants Pass Resource Areas on Matrix, Critical Habitat Units, and Late Successional Reserve management areas.

The primary purpose of early stand thinning and vegetation competition release is to make additional moisture, light, nutrients, and growing space available for desired conifers and hardwoods by cutting the competing vegetation (excess conifers, hardwoods, and shrubs). A secondary purpose of these treatments would be to shift stand species composition and structure to desired conditions. Pruning treatments are primarily to lessen the impact of white pine blister rust (*Cronartium ribicola*) and to enhance clear wood production and tree value. Silvicultural practices in Riparian Reserves would be proposed to reach desired vegetation characteristics needed to attain Aquatic Conservation Strategy and Riparian Reserve objectives.

Site specific treatments would be prescribed for each stand. Prescriptions include removing and spacing conifer and hardwood trees of diameters less than 8 inches, crown spacing, or variable density thinning including creating openings up to a ½ acre within the treatment area by leaving fewer trees per acre), Vegetation competition release (100 percent brushing, cutting of all non-reserved species that are over one foot tall and seven inches or less dbh in the entire treatment area, and radius brushing cutting of all non-reserve species that are over 1 ft tall and 7 inches dbh or less in a cylindrical area surrounding all leave trees extending 4 ft from the end of the lateral branch tips). Both types of competition release could prescribe tree formed hardwoods 7-10 inches dbh to be girdled where hardwood densities are high to release favored conifers. Reserved species typically include big-leaf maple and black or white oak where occurrence is very low. Treatment method would be determined based on site specific conditions. Pruning treatments to reduce mortality from white pine blister rust in sugar pine would involve removing lower live limbs to a maximum height of 8 feet. Pruning treatments in the uplands would improve wood quality and fuels hazard reduction and remove the bottom portion of the live crowns up 8-12 feet.

French Flat ACEC Restoration

Current conditions: The proposed meadow restoration project is planned in the French Flat Area of Critical Environmental Concern (ACEC). French Flat ACEC was designated for its unique natural system and abundance of cultural sites, specifically for the wide array of valley bottom ecosystems within the ACEC and the presence of the numerous sensitive serpentine plants including the now federally listed Cook's desert parsley (*Lomatium cookii*). The pattern of frequent, low intensity fire which helped form the plant communities at French Flat has been replaced with the era of fire exclusion. Fire exclusion in the French Flat area has created vegetative and fuel conditions with a high potential for large and destructive wildland fires that can be difficult to suppress. Modification of the fire regime due to prolonged fire exclusion has increased fuel loads and fuel continuity, resulting in more severe fire effects (Agee 1993). Dead and down fuel and understory vegetation are no longer periodically removed. This creates a trend of ever increasing amounts of available fuels. The project area includes 210 acres of dispersal and 100 acres NRF habitat treatment adjacent to the serpentine meadows. RA32 surveys will be completed prior to implementation and stands identified as RA 32 habitat will be dropped from consideration for treatment.

Project description: There are two objectives for this project: 1) reduce conifer encroachment along the meadows and oak woodlands and 2) create fire resilient conifer stands. The proposed treatment for the first objective would include selectively thinning conifers $\leq 12''$ dbh within 100' of the meadows and oak woodlands. The proposed treatment for the 2nd objective would include understory thinning, hand piling, and then burning of the piles. Understory vegetation would be thinned using manual and mechanical techniques (slashing, pruning) to the desired tree densities and stocking levels. Understory vegetation density would be reduced by cutting and spacing of conifers $<12''$ dbh and hardwoods $<12''$ dbh. Most hardwoods above 6 inches would be retained in order to reduce stump sprouting. Retained vegetation would be spaced 14-45' apart. Within this range, wider spacing would be used for larger leaf trees or for species such as pine or oak which thrive in less dense conditions. Vegetation diversity would be obtained by maintaining species occurring at low frequencies in the stand (i.e. Pacific yew, pine, vine maple). Untreated vegetation groups ranging in size from 0.1 to 2 acres would be retained in each treatment unit. Woody material that has been cut 1-6" in diameter and greater than two feet in length would be piled by hand. The piles would be covered with plastic to create a dry ignition point and would be burned during the wet season when the risk of fire spread (scorch or mortality) to nearby residual trees and shrubs is minimized.

2.3.3 Special Forest Products

Special Forest Products projects proposed in this BA will take place in the Grants Pass Resource Area. Projects propose treat and maintain activities in up to 60 acres of northern spotted owl dispersal habitat. Miscellaneous special forest products is a program that covers assorted projects, including commercial firewood, small pole harvest, salvage of small areas of disease or

insect damage, and other specialty wood products. These projects would be designed to “treat and maintain” existing northern spotted owl habitat.

2.3.4 Hazard Tree Removal

Hazard tree removal is difficult to anticipate, but safety concerns require them to be dealt with promptly. Hazard trees can occur along active roadways, may occur in any land allocation or habitat classification, and may result from localized wind, snow break damage, forest pathogens, environmental stress, or may be existing trees considered hazardous by OSHA guidelines for contractors working in adjacent areas or an issue of public safety. Most hazard tree removal will occur along the road prism of roads commonly used by the general public and will involve dispersed individual trees. BLM sells some merchantable hazard trees that are located on O&C lands. Hazard trees in LSRs and other reserves on O&C lands may be sold if coarse woody debris targets have already been met for the stand. When targets have not been met, hazard trees in these areas may be left on site within the adjacent stand for down wood, or be used for stream improvement projects at other locations. The amount of hazard tree removal proposed in this biological assessment is estimated at 90 acres (estimated at one hazard tree per acre) within the Grants Pass and Glendale Resource Areas. Hazard tree removal will take place in northern spotted owl habitat, northern spotted owl critical habitat, and Late Successional Reserves.

2.4 Project Design Criteria

Project Design Criteria (PDC) are conservation measures developed to reduce disturbance impacts to listed species (see Appendix A). Disturbance of listed wildlife species occurs when noise, smoke, vibration, or visual stimuli cause impairment of normal behavior. Mandatory PDC are measures applied to project activities designed to avoid the potential adverse disturbance effects to nesting birds and their young. Mandatory PDC will be incorporated into all activities as integral to the Proposed Action. PDC involving seasonal restrictions will be implemented unless surveys, following approved protocols, indicate either non-occupancy or non-nesting of target species. Recommended PDC will be incorporated during project implementation when practical. If recommended PDC cannot be incorporated, the project will still be in compliance with this BA.

All treatment units will meet Northwest Forest Plan (USDA and USDI 1994b) and District RMP (USDI 1995) snag and coarse woody material (CWD) guidelines. RA 32 stands would be identified based on the current methodology in place when the RA 32 at the time review was done for each project. No RA 32 stands would be treated, although there may be minor yarding corridors, hazard trees, guyline, tail hold, or anchor trees, or short (< 1000') temporary skid tracks or roads through into stands classified as RA 32 if essential for logistical purposes. Minor corridors or roads will be designed to maintain the conditions that qualify the stand as one meeting RA 32 criteria before and after the project.

3. Environmental Baseline

Regulations implementing Section 7 of the ESA (50 CFR 402.02) define the environmental baseline as the past and present impacts of all federal, state, or private actions and other human activities in the Action Area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the Action Area that have undergone Section 7 consultation, and the impacts of state and private actions which are contemporaneous with the consultation in progress. Such actions include, but are not limited to, previous timber harvests and other land management activities.

3.1 Status of Northern Spotted Owl Habitat in the Action Area

This Environmental Baseline for owls on the Medford BLM is current as of July 2011. The Baseline was developed using existing information, Interagency Vegetation Mapping Project (IVMP) imagery from 1996 (as corrected through 2003), and several additional steps of refinements. Much of the forested habitat in the Medford BLM is mixed-age, mixed-conifer habitat, which makes it difficult to delineate listed species habitat using traditional photo or satellite imagery or by depending solely on data from the Forest Operations Inventory (FOI), the BLM silvicultural data system. The Environmental Baseline update incorporated photos, field information, and FOI data into the IVMP environmental baseline update. Field verified information was used for effects determinations for each project and for geographic information system (GIS) shapefile attributes. The Environmental Baseline was corrected to match the field-evaluated habitat used for project shapefiles when necessary. The Environmental Baseline incorporated information on private habitat to the extent it is available.

This BA uses the Section Seven watershed scale (hydrologically defined units) for the Environmental Baseline. The ownership within these Section Seven watersheds occur in a checkerboard pattern of mixed private and Federal ownership, and not all of these lands are capable of providing spotted owl habitat. Table 3 (Section 4.1) includes the pre-treatment baseline spotted owl habitat for the affected Section Seven watersheds.

3.2 Status of Northern Spotted Owl Sites in the Action Area

The spotted owl was listed as threatened on June 26, 1990, due to widespread loss and adverse modification of suitable habitat across the owl's entire range and the inadequacy of existing regulatory mechanisms to conserve the owl (USDI FWS 1990a). Subsequent status reviews have reconfirmed that status (USDI FWS (SEI) 2004). A detailed account of the taxonomy, ecology, and reproductive characteristics of the spotted owl can be found in the *2011 Revised Recovery Plan for the Northern Spotted Owl* (USDI FWS 2011), the SEI 2004 northern spotted owl status review (Courtney *et al.* 2004); the Interagency Scientific Committee Report (Thomas *et al.* 1990); Forest Service Ecosystem Management Report (USDA *et al.* 1993), final rule designating

the spotted owl as a threatened species (1990), and several key monographs (e.g., Anthony *et al.* 2004, 2006 and Forsman *et al.* 2004). These documents are incorporated by reference.

Spotted owl sites used in this BA are based on historic information, protocol surveys, incidental observations, or computer generated sites as discussed in the Methodology for Estimating the Number of Northern Spotted Owls Affected by Proposed Federal Actions (USDI *et al.* 2008). Table 4 (Section 4.2) includes the number of spotted owl sites (documented and generated) for the affected Section Seven watersheds.

Limited surveys have been conducted at these sites in the past decade, so history for every site within the project area is lacking. Since the existing survey coverage and effort are insufficient to produce reliable range-wide estimates of population size, demographic data are used to evaluate trends in spotted owl populations (USDI 2008). All sites affected by the proposed action are located in the Klamath Mountains and West Cascades Province

The Klamath is one of four study areas (Tyee, Klamath, Southern Cascades, and Hoopa), where populations were either stable, or the precision of the estimates was not sufficient to detect declines (Forsman *et al.* 2011), Forsman *et al.* 2011, indicates Populations of territorial owls on the TYE, KLA, CAS, and HUP study areas declined 5–15% but confidence intervals for these estimates substantially overlapped 1.0, and precision of the estimates was not sufficient to detect such small declines. Although decreases in adult apparent survival rates were an important factor contributing to decreasing population trends; Forsman *et al.* (2011) found apparent survival rates were declining on 10 of the study areas with the Klamath study area in Oregon being the exception.

3.3 Barred Owls

The 2011 Revised Recovery Plan for the Northern Spotted Owl identifies competition from the barred owl as an important threat to the spotted owl (USDI 2011). Barred owls (*Strix varia*) are native to eastern North America, but have moved west into spotted owl habitat. Since barred owls are less selective about the habitat they use and the prey they feed on, they are outcompeting northern spotted owls for habitat and food (USDI 2011). The effects of the barred owl on spotted owl survival and reproduction is unknown. Barred owls are detected opportunistically; however, there is a trend of increasing numbers of barred owls within the Medford District.

4. Effects of the Proposed Action

The projects analyzed in this BA “may affect, but are not likely to adversely affect” (NLAA) spotted owls and spotted owl critical habitat. Projects affecting NRF and dispersal habitat in this BA have been designed to maintain the pre-project conditions that constitute NRF and dispersal at all stages of the project. All effects from the proposed action have been evaluated in this

assessment, including effects from activities such as access, yarding, hauling and post-treatment slash/fuels treatments, which are interdependent or interrelated.

4.1 Effects to Habitat – NRF and Dispersal

The potential effects of habitat change are analyzed as a percent of the current environmental baseline on BLM, or all federal acres. None of the projects would remove or alter habitat such that the amount of habitat would change. Projects are designed to ensure that NRF would remain NRF post-treatment and dispersal would remain dispersal post-treatment.

<i>Table 3. Environmental Baseline and Effects to NRF and Dispersal by Section 7</i>							
Applegate				Total NRF		Total Dispersal	
				62,638 ¹	Percent treated	22,186 ¹	Percent treated
RA	Project	Section 7 Watershed	Project Type	NRF T&M		Disp T&M	
GP	Williams Thin	Applegate	TS	0	0	300	1.4
GP	Silviculture PCT/DM	Applegate	FHT	200	0.3	200	0.9
GP	Hazard Tree Removal	Applegate	HAZ	5	<0.1	10	<0.1
GP	Special Forest Products	Applegate	SFP	0	0	20	<0.1
Section 7 Watershed Total				205	0.1	530	2.3
Cow Upper							
				Total NRF		Total Dispersal	
				45,335 ²	Percent treated	9,214 ²	Percent treated
RA	Project	Section 7 Watershed	Project Type	NRF T&M		Disp T&M	
GL	Silviculture PCT/DM	Cow Upper	FHT	250	0.5	250	2.7
GL	Hazard Trees	Cow Upper	FHT	5	<0.1	10	0.1
Section 7 Watershed Total				255	0.5	260	2.8
Illinois							
				Total NRF		Total Dispersal	
				25,009 ²	Percent treated	9,460 ²	Percent treated

RA	Project	Section 7 Watershed	Project Type	NRF T&M		Disp T&M	
GP	Silv PCT/DM	Illinois	FHT	250	1.0	400	4.2
GP	French Flat	Illinois	FHT	100	0.4	210	2.2
GP	Hazard Tree Removal	Illinois	HAZ	5	<0.01	15	.1
GP	Special Forest Products	Illinois	SFP	0	0	20	.2
Section 7 Watershed Total				355	1.4	645	6.8
Rogue Middle				Total NRF		Total Dispersal	
				100,182 ²	Percent treated	43,400 ²	Percent treated
RA	Project	Section 7 Watershed	Project Type	NRF T&M		Disp T&M	
GL	London Peak	Rogue Middle	TS	0	0	130	0.3
BF	Brushy Battle	Rogue Middle	FHT	400	.4	1200	2.7
BF	Silviculture PCT	Rogue Middle	FHT	125	.1	125	0.4
GL	Silviculture PCT	Rogue Middle	FHT	200	.2	200	0.4
GP	Silviculture PCT	Rogue Middle	FHT	100	.1	100	0.2
GL	Hazard Tree Removal	Rogue Middle	HAZ	5	<0.1	10	<0.1
GP	Special Forest Products	Rogue Middle	SFP	0	0	20	<0.1
Section 7 Watershed Subtotal				830	0.8	1785	4.1
Rogue Upper				Total NRF		Total Dispersal	
				41,071 ²	Percent treated	23,234 ²	Percent treated
RA	Project	Section 7 Watershed	Project Type	NRF T&M		Disp T&M	
BF	North Trail	Rogue Upper	TS	19	<0.1	64	0.2
BF	Silviculture PCT	Rogue Upper	FHT	125	0.3	125	0.5
Section 7 Watershed Total				144	0.4	189	0.8

Rogue Lower Wild				Total NRF		Total Dispersal	
				13,761 ²	Percent treated	55,604 ²	Percent treated
RA	Project	Section 7 Watershed	Project Type	NRF T&M		Disp T&M	
GL	Hazard Tree Removal	Rogue Lower Wild	HAZ	5	0.3	10	0.01
Section 7 Watershed Total				5	.03	10	0.01

¹Baseline Acres from *AshPass LAA BA* and Effects of NRF Downgrade by Section 7 Watershed Tables 3,7,9 (USDI 2011).

²Baseline from GIS Assali 8/25/2011 BLM only

4.1.1 Effects to NRF

The BLM has determined that treating and maintaining NRF habitat associated with these projects may affect, but is not likely to adversely affect (NLAA) northern spotted owls because conditions that qualified the NRF stand as NRF prior to the project would remain post-project.

Specifically, these conditions include:

- Canopy cover in treated stands will be maintained at or above 60 percent;
- Decadent woody material, such as large snags and down wood;
- Large nesting structures, including big snags, trees with cavities, large mistletoe clumps will be retained in each treated stand;
- The proposed treatments will be distributed throughout the Section Seven watersheds to minimize the potential for adversely affecting spotted owl. Scattered untreated areas in or adjacent to treatment will provide habitat for prey or refugia for spotted owls that may be seeking cover from barred owls;
- All NRF in nest patches of historic or generated owl sites would be maintained; and
- PDC would ensure no potentially disturbing activity would occur within disturbance thresholds during the critical breeding period.

Treatment within NRF would benefit owls and prey post-project because:

- Treatments would reduce tree density to increase individual tree vigor, leading to increased stand resistance to insects, diseases, and wildfire. This would make the residual habitat healthier and more ecologically-sustainable over time. Multi-storied stands and several canopy heights would be retained; and
- Habitat would be maintained for prey because treat and maintain prescriptions in mixed conifer forests will, at the stand level, maintain the stand density and structural conditions

known to be used by flying squirrels and also open up the stand to maintain habitat for woodrats. (See Effects to Spotted Owl Prey 3.4).

4.1.2 Effects to Dispersal

The BLM has determined that the maintenance of dispersal habitat associated with these projects may affect, but is not likely to adversely affect (NLAA) northern spotted owls because:

- Canopy cover in treated stands will be maintained at 40 percent; and
- Decadent woody material, such as large snags and down wood will be retained.
- Maintenance activities within dispersal would not remove the components important to owls: trees 11 inch diameter or greater, flying space, and some prey habitat. Large standing and down dead wood would be maintained.
- Dispersal (and NRF) in riparian areas, which are effective dispersal habitats, will be maintained (Courtney et al. 2004, pg 12).
- The proposed treatments will be dispersed throughout the Section Seven watersheds to minimize the potential for adversely affecting spotted owl dispersal.
- In addition to the dispersal habitat that will be maintained (or improved in overdense young stands), all pre-project NRF (Table 3) will be maintained. NRF provides high quality habitat for dispersing owls.

Treatment within dispersal would benefit owls and prey post-project because:

- Treatments would reduce tree density to increase individual tree vigor, leading to increased stand resistance to insects, diseases, and wildfire. This would make the residual habitat healthier and more ecologically-sustainable over time. Multi-storied stands and several canopy heights would be retained
- NRF development would be accelerated in treated stands. NRF is superior habitat for dispersing owls.
- Flying space post project would be improved. Many pre-treatment stands, particularly young plantations, are so dense prior to treatment, that owls may find movement difficult. Dense stands would have improved flying space for spotted owls, may open gliding space for flying squirrels, and maintain or improved forage conditions for woodrats if ground vegetation improves, while concurrently maintaining conditions that qualify these stands as dispersal (and prey habitat).

4.2 Effects to Northern Spotted Owls

Five projects in this BA are proposed and known to occur within the Provincial Home Range (HR) or 500 acre core area of historic or generated owl sites, summarized by Section 7 watershed and project area (Table 4).

The three other projects (Silviculture PCT/DM, Special Forest Products, and Hazard Trees) have low habitat impact intensity due to small scale of site-specific impacts, or marginal impacts by treating and maintaining minor habitat components.

All projects are designed to avoid adverse impacts and to maintain the habitat of owls before and after treatment, whether or not they occur within the vicinity of owl sites, avoid treatments within nest patches (NP), and apply seasonal and disturbance distance PDFs.

Table 4. Spotted Owl Sites known to be affected by projects with known boundaries (by Section Seven Watershed and Project Area)

	Number of owl sites (centers) within Watershed boundary	Total Number of owl home ranges Associated with these projects in the Action Area	Habitat Treatment					
			DISPERSAL Treat and Maintain			NRF Treat and Maintain		
			Number of owl sites effected within each scale level			Number of owl sites effected within each scale level		
			HR	Core	NP	HR	Core	NP
<u>Applegate</u>	84*							
Williams Thin		3	2	1	0	0	0	0
<u>Illinois</u>	50**							
French Flat		1 ^a	1	0	0	1	0	0
<u>Rogue Middle</u>	145							
London Peak Thin		2	2	0	0	0	0	0
Brushy Battle Fuels	14	10 ^b	10 ^b	6 ^c	0	8	6	0
<u>Rogue Upper</u>	83**							
North Trail TS		3 ^b	2 ^c	1 ^c	0	0	0	0
TOTAL OWL SITES		19						

^a This is a generated site, surveyed for 2 years with no responses.

^b This include 2 generated sites

^c This includes 1 generated site

^d This includes 1 generated site

Williams Thin

Treat and maintain of 181 acres of dispersal will occur in the home range of up to 3 known spotted owl sites. The proposed units are spread throughout the home ranges and are not concentrated in large area. Of these acres, only 14 would occur in one 0.5 mile core area. The remaining 119 acres occur outside of owl home ranges. No treatment would occur in any nest patches.

French Flat

Approximately sixty acres of NRF treat and maintain and 30 acres of dispersal treat and maintain would occur within one generated owl site home range. Approximately 220 additional acres (40

acres NRF and 180 acres dispersal) in the project occur outside of any NSO home ranges. No treatment would occur in any core areas or nest patches. As of August 2011, all of the NRF within this home range has been surveyed to protocol for 2 years and no northern spotted owls have been detected. Third year protocol spot-check surveys are scheduled for 2012.

London Peak Thin

Ninety-five acres of dispersal treat and maintain would occur within the home range of two historical sites. No treatment would occur in the core areas or nest patches of these two sites.

Brushy Battle Fuels

Fuel treatments will occur within the home ranges of eight known spotted owl sites and two generated sites. Of those 10 home ranges, treatments are proposed in the half-mile cores of five known sites and in one generated site. No more than 20 percent of any half-mile (500 acre) core will be treated. Approximately 400 acres of NRF will be treated and maintained and approximately 1,200 acres of dispersal will be treated and maintained.

North Trail Timber Sale

Forty-three acres of dispersal treat and maintain and 19 acres of NRF treat and maintain will occur in two home ranges of generated spotted owl sites. Of these two generated sites, all 19 acres of the NRF habitat also occur within the core area of one generated site, but do not occur in the nest patch. Additionally, 21 acres of dispersal treat and maintain will occur within the home range only, of one historical site.

North Trail – Site #22G

Treatments are proposed within the home range, core, and nest patch of generated site #22. As stated in the Owl Estimation Methodology, “generated points are based on a computer simulation that may not reflect actual spotted owl locations on the landscape.” Based on field assessments, the project wildlife biologist has determined this generated nest patch contains 56 acres of dispersal habitat, 14 acres of capable habitat, and no NRF habitat. Since this nest patch is lacking NRF habitat, it is not a valid selection area for a generated nest patch. There is a low possibility spotted owls would choose this area for nesting based on the low amount of trees greater than 21 inches in diameter and the absence of large snags, broken top trees, and large coarse woody material on the ground. The 14 acres of capable habitat is located on private timber land and is a result of timber harvested in the last three years. Currently there is very little NRF habitat at the core scale. Based on field and aerial photo review of the core area, approximately 20% of the core is NRF habitat, which is well below the threshold.

Even with proposed treatment in a generated site nest patch, adverse effects aren’t expected to affect this site because there’s a low probability this site would support an owl pair at the nest patch, core, or home range scales. Additionally, potential harm is not expected because these treatments would maintain and not remove dispersal habitat. The proposed action would minimize impacts to prey species, retain suitable amounts of thermal and hiding cover, and retain potential nest and roost trees would be available post treatment. One of the OEM guidelines to make a LAA determination is whether or not the treatment covers a large portion of the area (pg. 14). The proposed treatments would treat and maintain 4 acres of dispersal habitat within this nest patch, which is only 5.6% of the nest patch and not considered to be a large portion of the

nest patch. The BLM conducted six protocol survey visits in the nest patch, surrounding habitat, and adjacent units in 2011. No spotted owls or barred owls were observed during the six visits.

Silviculture PCT/DM- *Glendale, Grants Pass, Butte Falls RA*

The number of home range or core areas that treatment units occur within is unknown. The pre-commercial treatment of 1,540 acres of NRF and 1,375 acres of dispersal habitat would be spread over 3 Resource Areas and six Section 7 watersheds. Within each Section 7 watershed, treatments would be dispersed among land allocations and critical habitat. No more than 1% of NRF or 4.2% dispersal habitat in any of the watersheds would be treated and maintained (Table 3). No treatment would occur within designated nest patches. Treatment within NRF targets stands with low overstory due to disease, past harvesting, low site productivity, or past fire, and habitat most likely functions as roosting and foraging habitat with dense understory. The density of known owl sites and generated owl sites within these resource areas indicate the high likelihood that these actions are likely to occur with home ranges or core areas of known or generated owl sites. Treated units are typically 5 to 40 acres in size, resemble the distribution pattern of past harvest units, and therefore tend to occur proportionally in spotted owl core, home range, and outside known spotted owl sites. Only spotted owl maintenance treatments would occur. No high quality spotted owl habitat (RA32) habitat would be treated. With the application of seasonal and disturbance distance PDFs (Appendix 1), the dispersed occurrence over the action area, and the low impact of the nature of the treatment, the intensity level of effects to spotted owl sites is negligible. No measureable changes to prey levels or habitat function would occur, as key components to habitat including snags, down wood, midstory and overstory layering, ground herbaceous growth, large diameter trees, decadence, and canopy cover levels would be retained. Reduced understory density of conifers or small diameter hardwoods is not expected to reduce unit level or stand level habitat suitability.

Special Forest Products

It is unknown how many spotted owl core area or home range territories that potential Special Forest Products projects proposed in this BA will take place within, in the Grants Pass Resource Area. Permits and small sales are a result of public requests for forest products. Projects may treat and maintain activities up to 60 acres of northern spotted owl dispersal habitat within three Section 7 watersheds. Miscellaneous special forest products is a program that covers assorted projects, including commercial firewood, small pole harvest, salvage of small areas of disease or insect damage, and other specialty wood products. These projects would be designed to “treat and maintain” existing northern spotted owl habitat, and would apply PDFs (Appendix 1) and would not occur within nest patches. The small scale of projects, small amount of dispersal acres maintained across the Grants Pass RA, is not expected to have any stand level measureable or significant effects on spotted owl dispersal.

Hazard Tree Removal

It is unknown how many spotted owl nest patch, core area, or home range territories that up to 90 hazard trees removed or felled will be occurring within. The actions would be spread over the Glendale and Grants Pass resource areas and five Section 7 watersheds. The actions are likely to occur within home ranges or core areas of known owl sites or within unsurveyed suitable habitat of undetected owl sites, however, the dispersed occurrence over the action area reduces the intensity level of effects to negligible levels. The time and location hazard tree removal is

difficult to anticipate, but safety concerns require them to be dealt with promptly. Hazard trees usually occur along active roadways or private property where public safety is a concern. They may occur in any land allocation or habitat classification, and may result from localized wind, snow break damage, forest pathogens, environmental stress, or may be existing trees considered hazardous by OSHA guidelines for contractors working in adjacent areas or an issue of public safety. Trees are expected to be dispersed individual trees. The period of disturbance above ambient noise levels is expected to be brief and would not cause significant interruption of feeding, breeding, sheltering, or dispersing activities. Hazard tree removal for safety concerns that would occur within disturbance distances of known nesting spotted owls would initiate Emergency Consultation with the Fish and Wildlife Service. Changes in habitat function to provide nesting, roosting, foraging, or dispersal at the stand level would not be measurable or significant, with the proposed action for 90 trees (90 acres) spread across the Glendale and Grants Pass RA, within dispersal and NRF habitat.

The BLM has determined that the maintenance of NRF and dispersal habitat associated with these projects may affect, but is not likely to adversely affect (NLAA) northern spotted owls because:

- The local field biologists have determined the proposed treatments are designed to maintain the pre-treatment habitat classification of the stand within the home range, core and nest patch. As stated in the OEM guidelines (USDI, 2008 pg. 14), these types of treatments would be considered NLAA.
- According to the OEM guidelines, light thinning treatments of dispersal habitat within the nest patch that maintain a similar stand function pre- and post- thinning, would likely warrant a NLAA determination.
- Treatments will ensure that NRF will retain the components important to owls: 60% canopy, large standing and down dead wood, multi-storied canopies and retention of many of the larger trees.
- Overall prey habitat will be maintained because of the low percent area treated and maintained, no removal treatment, retention of most of the prey habitat characteristics important to flying squirrels and some short term improvement of food plants for wood rats and other small rodents (see Prey Effects, section 3.4).
- Treatments in dispersal habitat will maintain or improve dispersal qualities including 40% canopy, retention of large trees and dead, and removal of some of the trees and brush will improve flying space for owls. Overall prey habitat will be maintained. (See prey analysis 3.4).
- No known or historic site nest patches will be treated. One generated nest patch was field verified to not contain nesting habitat, and has been supplemented with surveys yielding no responses.
- No disturbance related effects to nesting owls or their young are expected from project related noise or activities because mandatory PDC will be incorporated into all proposed action activities to reduce the chance of adverse effects. Activities would be restricted within disturbance distance thresholds or would occur outside of the breeding season (Appendix A).

- Prescribed treatments of within NRF habitat or disturbance to NRF habitat outside known owl home ranges will apply PDFs (Appendix A) to avoid disturbance to owl during nesting season and, would apply “treat and maintain” treatments, avoid nest patches and treatment within RA32 habitat.

4.3 Effects to CHU

Effects to the 2008 CHU are summarized in Table 5. Treatment acres are compared to Medford BLM CHU baseline acres. All Federal NRF within CHU and within Medford District Boundaries are noted where present. Dispersal acres on non-BLM Federal lands are not available.

CHU 14 Rogue Umpqua						
RA	Project ID	Treatment type	NRF Treat and Maintain	Percent Treated	Dispersal Treat and Maintain	Percent Treated
BLM Acres			59,515 ¹		13,278 ¹	
GL	Silviculture PCT/DM	FHT	500	0.8	500	3.7
GL	Hazard Trees	HAZ	15	<0.1	30	0.2
GP	Silviculture PCT/DM	FHT	20	<0.1	20	0.1
GP	Hazard Trees	HAZ	5	<0.1	10	<0.1
Total			540	0.9	560	4.2
CHU 16 Klamath Intra-Province						
RA	Project ID	Treatment type	NRF Treat and Maintain	Percent Treated	Dispersal Treat and Maintain	Percent Treated
BLM Acres <i>(All Oregon Federal Acres incl. USFS)</i>			17,326 ¹ (35,535)		6,264 ¹	
GP	Williams Thin	TS	0	0	72	1.1
GP	Hazard Trees	HAZ	10	<0.1	20	0.3
GP	Special Forest Products	SFP	0	0	20	0.3
Klamath Intra-Province Total			10	< 0.1	112	1.8

¹Baseline from GIS, Assali 7/2/2010; July 2010 NLAA BA -Table 4

The BLM has determined the proposed treatments may affect, but are not likely to adversely affect (NLAA) northern spotted owl critical habitat because:

- No primary constituent elements will be reduced in quantity or quality.
- There will be no change in the amount of spotted owl NRF or dispersal habitat in the three affected 2008 CHUs.
- Canopy cover within treated stands of spotted owl NRF habitat will be retained at 60 percent or greater, allowing for the continued nesting, roosting and foraging of spotted owls within treated stands.
- Canopy cover within treated stands of spotted owl dispersal will be retained at 40 percent or greater, allowing birds to disperse through the area, and occasionally feed.
- Very dense stands will be opened by thinning, improving conditions for dispersing spotted owls.
- Decadent woody material in the treatment areas, such as large snags and down wood, will remain post-treatment, providing habitat for spotted owl prey species.
- Multi-canopy, uneven-aged tree structure present prior to treatments will remain post-treatment, providing important habitat features of spotted owl NRF habitat.
- Post treatment structural conditions will maintain habitat conditions for spotted owl prey species, particularly woodrats, in treatment areas.
- Spacing treatments among reserved areas and leaving multiple canopies, assorted tree sizes and horizontal/vertical canopies within the treatment area will reduce potential adverse effects to flying squirrels, a secondary prey species in the area.
- No spotted owl nest trees will be removed; no nest patches would be treated.
- Mistletoe will be removed in areas where it threatens the survival of affected trees.
- Treatments will be distributed both spatially and temporally within the affected CHUs .

Anticipated beneficial effects which may result from the implementation of thinning and fuels reduction treatments include:

- Improved ecological condition of treated stands;
- Residual trees will be more resilient to loss from suppression mortality;
- Residual trees will gain girth, height and thicker bark, improving resistance to fire ;
- Reduced risk of stand loss due to wild land fires;
- Post-treatment stands would retain components important to spotted owls and would rapidly continue towards improved late seral development over time;
- Increase in the amount of forage plants important to spotted owl prey species;
- Improve growth (height and girth) over time post harvest to create better flying squirrel habitat, an important prey species, while concurrently reducing potential adverse affects to prey species; and
- Very dense stands will be opened by thinning, improving conditions for dispersing spotted owls.

4.4 Effects to LSR

Effects to LSRs are summarized in Table 6 and 7. Project effects would not be concentrated in a small area or LSR. All LSR projects are designed to maintain or improve late seral conditions and improve spotted owl and prey habitat over the long term.

Table 6. Effects to LSR NRF: All Habitat Maintained				
Galesville South Umpqua, RO223		NRF		
Pre Project		BLM 15,307 ¹		
RA	Project Name	Project Type	Treat and maintain	Percent affected
GL	Silviculture PCT/DM	FHT	50	0.3
GL	Hazard Trees	HAZ	5	<0.1
Total Treatment within RO223			55	0.3
East IV/Williams Deer, RO249		NRF		
Pre Project		BLM Total 23,247 (14,672 AMR plus 8,575 LSR)		
RA	Project Name	Project Type	Treat and maintain	Percent affected
GP	Silviculture PCT/DM	FHT	25	0.1
Total Treatment within RO249			25	0.1
Fishhook Galice, RO 258		NRF		
Pre Project		BLM Total 47,177 ¹		
RA	Project Name	Project Type	Treat and maintain	Percent affected
GL	Silviculture PCT/DM	FHT	50	0.1
GL	Hazard Trees	HAZ	5	<0.1
Total Treatment within RO248			55	0.1

¹Baseline from DA BA FH (USDI, 2008). LSR NRF habitat on Medford BLM.

Table 7. Effects to LSR Dispersal: All Habitat Maintained				
Galesville South Umpqua, RO223		Dispersal		
Pre Project		BLM 3,019 ²		
RA	Project Name	Project Type	Treat and maintain	Percent affected
GL	Silviculture PCT/DM	FHT	50	1.6
GL	Hazard Trees	HAZ	5	0.1
Total Treatment within RO223			55	1.8
East IV/Williams Deer, RO249		Dispersal		
Pre Project		BLM Total 2,793 ²		
RA	Project Name	Project Type	Treat and maintain	Percent affected
GP	Silviculture PCT/DM	FHT	50	1.8
GP	Hazard Trees	HAZ	10	0.3
GP	Special Forest Products	SFP	20	.7
GP	Williams Thin	TS	300	10.7
Total Treatment within RO249			380	13.6
Fishhook Galice, RO 258		Dispersal		
Pre Project		BLM Total 10,827 ²		
RA	Project Name	Project Type	Treat and maintain	Percent affected
GL	Silviculture PCT/DM	FHT	50	0.4
GP	Special Forest Products	SFP	10	<0.1
GP	Hazard Trees	HAZ	5	<0.1
GL	Hazard Trees	HAZ	5	<0.1
Total Treatment within RO248			75	0.7

²Fall 09 FY 10-11 NLAA BA

4.5 Effects to Spotted Owl Prey

Forsman et. al.(2004, pg 218) evaluated over 24,000 prey items from spotted owl pellets and found that birds in the proposed action (identified as the Interior Southwest geographic region in their paper), used approximately 28 percent each of flying squirrels and woodrats. Other prey

items included western red-backed vole, birds, other small mammals (red tree voles, gophers, deer mice, shrews and moles, rabbits/hares) and insects, and bats. The larger-bodied woodrats contributed nearly 50 percent of the biomass in diets of owls in the Interior Southwest geographic region, followed by flying squirrels, rabbits, and other miscellaneous prey species (Forsman et. al.2004, pg 219).

Prey studies cited by Forsman et. al.2004 (Forsman et al. 1984, Ward 1990, Carey et. al.1992, Ward and Block 1995, Ward et. al.1998) document wide variability in prey populations. Predator behavior may cause spotted owls to switch to alternate prey when one prey species becomes more difficult to capture. Ward (1998) suggested that spotted owls sought out woodrats for their greater energetic reward, although to date, this theory hasn't been tested empirically.

Treatments that reduce tree density, reduce canopy cover, reduce shrubs and understory vegetation and open the stand to more light and nutrients will affect different prey species in various ways, depending on the condition of the prey habitat prior to treatment, the prey habitat post treatment and complex interactions among the prey/predator community. Suzuki and Hayes (2003) evaluated the response of ground-dwelling mammals to Oregon Coast Range forest thinning and found that thinning appeared to increase the abundance of small mammals, and maintains or enhances habitat quality in the long or short term. All species except Western red backed voles exhibited increases over a three year period following heavy and moderate thinning as compared to controls, presumably because these species were responding to the increased forage caused by the additional light in the stand. Habitat for western red backed voles was expected to improve in treated stands over the long term (Suzuki and Hayes 2003).

Arboreal prey species may respond to thinning differently than small ground mammals. Flying squirrels are largely arboreal, moving from tree-to-tree in the canopy. Gomez et. al.(2005) found that thinning in young (35-45 year old Douglas fir stands in the northern coast range did not have measureable short term effects on density, survival or body mass of flying squirrels. (Note: a 35-45- year old Douglas fir tree in the Coast range would be equivalent in diameter to a much older tree in the Action Area). Many of the stands treated in the proposed action are multi-aged, and mixed-conifer stands, which would leave more favorable structural conditions for flying squirrels after density management treatments than those evaluated by Gomez et. al.(2005). Wilson (2008), studying flying squirrels in Washington, found that forests with high squirrel abundances generally exhibited high amounts of multi-dimensional structure in the midstory and overstory layers, low to moderate amounts of understory, and few canopy gaps, conditions expected to occur post-project for projects in this BA. Wilson (2008) evaluated food, (fungi, lichens, catkins, and samaras in Washington), and presence of cavities as limiting factors for flying squirrels (Wilson 2008), Predation by owls and other predators (mustelids, other raptors etc) have been postulated as a limiting factor for some populations of flying squirrels. *The following conditions appear to be good for flying squirrels—(1) forest with a relatively even-aged dominant layer of trees (especially larger, older trees) and little understory where structural occlusion is high due to a closed canopy and high bole density, and (2) complex, multi-aged forest that provides crown-to-ground cover both vertically and horizontally through forested space. However, only the latter condition provides high-quality spotted owl habitat (Thomas et al. 1990) (Wilson, 2008, pg 140).*

Mistletoe is an important nest structure for red squirrels and northern flying squirrels. Bull et al. (2004) noted that over half of the flying squirrel and red squirrel structures in a pre-treatment stand in NE Oregon occurred in mistletoe. After a heavy thinning treatment (much greater harvest than proposed in this BA: similar to a NRF downgrade or removal project in our terminology), numbers of squirrels decreased, and their activity area increased. Patches of untreated mistletoe “islands” or leave patches were recommended to mitigate effects of mistletoe treatments on squirrels (Bull et al. 2004, McComb et al. 2009).

Timber harvest and fuels reduction or forest health projects may impact foraging by changing habitat conditions for prey. Sakai and Noon (1993) stated that dusky-footed woodrats, the primary prey of owls in our area, may benefit from some thinning or harvest which would increase shrub and pole stands. Bushy-tailed woodrat presence is more dependent on cover and food availability than on seral stage and often use areas previously disturbed by fire (Carey 1991).

Residual trees, snags, and down wood that are retained in the thinned stands will provide some cover for prey species over time, and will help minimize harvest impacts to some prey species. Lemkuhl et al. (2006) found that fuels projects in eastern Washington could have impacts on bushy-tailed woodrats, but confirmed the importance of maintaining snags, down wood, and mistletoe.

Reducing tree canopy, provided it is not too extreme, will bring more light and resources into the stand, stimulating forbs, shrubs and other prey food. Once the initial impact of disturbance recovers (6 months to 2 years), the understory habitat conditions for prey food would increase over the next few years, until shrubs and residual trees respond to again close in the stand.

Small patches, such as those that might be created in small group selection or pine release, can be areas of good prey availability and potentially increased vulnerability (i.e., better hunting for owls) (Zabel 1995). Prey animals may be more exposed in the disturbed area or may move away from the disturbed area for the short-term. Some minor changes in prey availability may occur as cover is disturbed and animals move around in the understory. They may become more vulnerable and exposed. The disturbance might attract other predators such as hawks, other owls, and mammalian predators. This may increase competition for owls in the treatment area, but the exposure of prey may also improve prey availability for northern spotted owls.

Bingham and Noon (1997) reported that a spotted owl core area is the area that provides the important habitat elements of nest sites, roost sites, and access to prey, benefiting spotted owl survival and reproduction. Rosenberg and McKelvey (1999) reported that spotted owls are “central place” animals with the core area (the area closest to the nest) being the focal area. Several studies (Wagner and Anthony 1998, Dugger et al. 2005, Zabel et al. 2003, Bingham and Noon 1997; USDI et al 2008) indicate the core area size for the Klamath and West Cascades province is 0.5 miles (or 500 acres) within the nest site. Therefore, effects to prey species are most critical at the nest patch and core areas. For all projects, treatment implementation would be spread out temporally and spatially within the project area, which would provide areas for spotted owl foraging during project implementation and reduce the impact of these short term effects at the project level. Woodrats and other prey species would respond favorably to light

thinning in areas where flying squirrel numbers might decline slightly in mistletoe treatment areas. No measurable decrease in total prey availability would be expected in any of these treatments areas, and thinning is likely to maintain habitat for overall prey habitat post treatment.

4.6 Cumulative Effects

Cumulative effects under ESA are “those effects of future State or private activities, not involving Federal activities, that are reasonable certain to occur within the action area of the Federal action subject to consultation” (50 CFR 402.02). The effects of future federal actions will be evaluated during future Section 7 consultations and are not included in cumulative effects under ESA. Cumulative effects analysis of foreseeable state and private actions provide the Service and the Medford BLM an accurate environmental baseline to assess impacts of federal actions.

The land base in the action area has a checker board pattern of ownership of private land interspersed with BLM lands. A range of management practices occur on private lands from residential home site development to intensive industrial timber management. In the Biological Opinion for the NWFP (USDA and USDI 1994b, Appendix G, 44-45), the Service concluded, “Non-federal landowner compliance with the take prohibition of the [Endangered Species] Act does not assure the maintenance of spotted owl dispersal habitat within Areas of Concern and checkerboard ownership nor provide for improvement of existing populations. Consequently, it is likely that a reduction in dispersal habitat would occur on non-federal lands in certain areas.”

The majority of state and private forests in Washington, Oregon, and Northern California are managed for timber production. Non-Federal lands are not expected to provide demographic support for spotted owls across and between physiographic provinces (Thomas et al. 1990; USDA and USDI 1994a). Historically, non-Federal landowners practiced even-aged management (clear-cutting) of timber over extensive acreages. Private industrial forest lands are managed for timber production and will typically be harvested between 40 and 60 years of age, in accordance with State Forest Practices Act standards. In 2008, during the development of the DA BA FH (USDI 2008a) data was requested from Oregon Department of Forestry and the Pacific Northwest Inventory and Analysis team to help determine harvest rates in the past decade on private lands within the District. These records indicated private harvest rates in Jackson and Josephine Counties have never exceeded 1.08 percent of the total private lands per year since 1998. These records did not provide information of pre-treatment habitat conditions. We anticipate some loss of owl habitat on private lands, but cannot predict the rate of loss, or the specific location of harvest.

The Medford BLM assumes these past management practices will continue and reduce the amount of NRF habitat for spotted owl on non-Federal lands over time. Harvest activities on state and private lands can be expected to impact spotted owls located within adjacent Federal lands by removing and fragmenting habitat and through disturbance activities adjacent to occupied sites during sensitive periods. Under Oregon Forest Practice Rules (629-665-0210), owl nest sites (70-acre core areas) are protected for at least three years following the last year of occupation.

5. Biological Assessment Conclusions

We request concurrence with the determination of this biological assessment that the proposed actions described in this BA “*may affect and is not likely to adversely affect the northern spotted owl or northern spotted owl critical habitat*” (NLAA).

6. Literature Cited

- Agee, J.K. 1993. *Fire Ecology of Pacific Northwest Forests*. Island Press, Washington, DC.
- Bingham, B. and B.R. Noon. 1997. Mitigation of Habitat Take: Application to Habitat Conservation Planning. *Conservation Biology* 11(1):127-139.
- Bull, E.L., Heater, T.W., Youngblood, A. 2004. Arboreal response to silvicultural treatments for dwarf mistletoe control in Northeastern Oregon. *Western Journal of Applied Forestry* 19(2):133-141.
- Carey, A.B. 1991. "The biology of arboreal rodents in Douglas-fir forests." General Technical Report PNW-276, USDA Forest Service, Pacific Northwest Research Station, Portland, OR.
- Carey, A.B. , Kershner, j., Biswell, B., de Toledo, L.D., 1999. Ecological scale and forest development: squirrels, dietary fungi, and vascular plants in managed and unmanaged forest. *Wildlife Monographs*. 142.
- Courtney, S.P., J.A. Blakesley, R.E. Bigley, M.L. Cody, J.P. Dumbacher, R.C. Fleischer, A.B. Franklin, J.F. Franklin, R.J. Gutiérrez, J.M. Marzluff, and L. Sztukowski. 2004. Scientific evaluation of the status of the northern spotted owl. Sustainable Ecosystems Institute. Portland, Oregon. September 2004.
- Dugger, K.M., F. Wagner, R.G. Anthony, and G.S. Olson. 2005. "The relationship between habitat characteristics and demographic performance of northern spotted owls in southern Oregon." *Condor* 107:863-878.
- Forsman, E.D., E.C. Meslow, and H.M. Wight. 1984. Distribution and biology of the spotted owl in Oregon. *Wildlife Monographs* 87:0084-0173.
- Forsman, E.D., R.G. Anthony, E.C. Meslow, and C.J. Zabel. 2004. Diets and Foraging Behavior of Northern Spotted Owls in Oregon. *J. of Raptor Res.* 38(3):214-230.
- Forsman, Eric D., Robert G. Anthony, Katie M. Dugger, Elizabeth M. Glenn, Alan B. Franklin, Gary C. White, Carl J. Schwarz, Kenneth P. Burnham, David R. Anderson, James D. Nichols, James E. Hines, Joseph B. Lint, Raymond J. Davis, Steven H. Ackers, Lawrence S. Andrews, Brian L. Biswell, Peter C. Carlson, Lowell V. Diller, Scott A. Gremel, Dale R. Herter, J. Mark Higley, Robert B. Horn, Janice A. Reid, Jeremy Rockweit, Jim Schaberel, Thomas J. Snetsinger, and Stan G. Sovern. 2011. Population demography of northern spotted owls: 1985–2008.
- Gomez, D. M., R. G. Anthony, and J. P. Hayes. 2005. Influence of thinning of Douglas-fir forests on population parameters and diet of northern flying squirrels. *Journal of Wildlife Management* 69:1670–1682.
- Hessburg, P.F., and J.K. Agee. 2003. An environmental narrative of Inland Northwest United States forests, 1800–2000. *Forest Ecology and Management* 178:23–59.

Lemkuhl, J., K.D. Kistler and J.S. Begley. 2006. "Bushy-tailed woodrat abundance in dry forests of eastern Washington." *Journal of Mammalogy* 87(2):371-379.

Rosenberg, D.K. and K.S. McKelvey. 1999. Estimation of habitat selection for central-place foraging animals. *J. Wildlife Management* 63(3):1028-1038.

Sakai, H.F. and B.R. Noon. 1993. "Dusky-footed woodrat abundance in different-aged forests in northwestern California." *Journal of Wildlife Management* 57:373-382.

Suzuki, N. and J. P. Hayes. 2003. Effects of thinning on small mammals in Oregon Coastal Forests. *Journal of Wildlife Management* 67(2):352-371.

Thomas, J.W., E.D., Forsman, J.B. Lint, E.C. Meslow, B.R. Noon, and J. Verner. 1990. "A conservation strategy for the northern spotted owl: report of the Interagency Scientific Committee to address the conservation of the northern spotted owl." USDA Forest Service, USDI Bureau of Land Management, USDI Fish and Wildlife Service, and USDI National Park Service. Portland, OR. 427 pp.

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

USDA Forest Service and USDI Bureau of Land Management. 1994b. Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl Includes Standards and Guidelines for Management of Late-Successional and Old-Growth Dependent Species Within the Range of the Northern Spotted Owl US Government Printing Office, Portland, OR.

USDA Forest Service, USDC National Marine Fisheries Services, USDI Bureau of Land Management, and USDI Fish and Wildlife Service. 1999. "Streamlined Consultation Procedures for Section 7 of the Endangered Species Act (ESA) July 1999." BLM Information Bulletin Number OR-99-276.

USDI Bureau of Land Management. 1995. Record of Decision and Resource Management Plan. Medford, OR.

USDI Bureau of Land Management. 2008a. Medford BLM District Analysis and Biological Assessment of Forest Habitat (DA BA FH). October 2008. Medford District Bureau of Land Management, Medford, OR.

USDI Bureau of Land Management, 2008b. FY 2009-2013 Programmatic Assessment For Activities that May Affect the listed endangered plant species Gentner's Fritillary, Cook's Lomatium, McDonald's rockcress, and large-flowered wooly meadowfoam. Medford BLM.

USDI Bureau of Land Management, 2010. July 2010 Not Likely to Adversely Affect Biological Assessment. Medford BLM.

USDI Bureau of Land Management, 2010b. Summer Likely to Adversely Affect Biological Assessment. Medford BLM.

USDI Fish and Wildlife Service. 1992. Final Draft Recovery Plan for the northern spotted owl in Washington, Oregon and California. USDI Fish and Wildlife Service, Portland, Oregon. USDI Fish and Wildlife Service. 2008c. Final Recovery Plan for the Northern Spotted Owl (*Strix occidentalis caurina*) US Fish and Wildlife Service, Portland, Oregon xii + 142 pp.

USDI Fish and Wildlife Service. 2011. "Revised Recovery Plan for the Northern Spotted Owl (*Strix occidentalis caurina*)."

USDI Fish and Wildlife Service, USDI Bureau of Land Management and USDA Forest Service. 2008. Methodology for estimating the number of northern spotted owls affected by proposed federal actions. Version 2.0. Oregon Fish and Wildlife Office, Fish and Wildlife Service, Portland, OR.

Wagner, F.F. and R.G. Anthony. 1998. Reanalysis of northern spotted owl habitat use on the Miller Mountain study area. A report for the Research Project: Identification and evaluation of northern spotted owl habitat in managed forests of southwest Oregon and the development of silvicultural systems for managing such habitat. Oregon Cooperative Wildlife Research Unit, Department of Fisheries and Wildlife, Oregon State Univ. Corvallis, OR.

Ward, J.P. Jr. and W.M. Block. 1995. Mexican spotted owl prey ecology. *In* USDI Fish and Wildlife Service, Recovery Plan for the Mexican Spotted owl Volume 2. USDI Fish and Wildlife Service, Albuquerque, NM.

Ward, J. P. Jr. , R.J. Gutierrez and Noon, B. 1998. Habitat selection by northern spotted owls: the consequences of prey selection and distribution. *Condor* 100:79-92.

Wilson, T. M. 2008. Limiting factors for northern flying squirrels (*Glaucomys sabrinus*) in the Pacific Northwest: a spatio-temporal analysis. PHD Dissertation. Union Institute and University, Cincinnati Ohio.

Zabel, C.J., K. McKelvey, and J.P. Ward. 1995. Influence of primary prey on home range size and habitat use patterns of northern spotted owls (*Strix occidentalis caurina*). *Canadian Journal of Zoology* 73:433-439.

Zabel, C.J., J.R. Dunk, H.B. Stauffer, L.M. Roberts, B.S. Mulder, and A. Wright. 2003. Northern spotted owl habitat models for research and management application in California (USA). *Ecological Applications* 13(4):1027-1040.

Appendix A: Project Design Criteria (PDC)

Project design criteria (PDC) are measures applied to project activities designed to minimize potential detrimental effects to proposed or listed species. PDC usually include seasonal restrictions and may also include clumping of retention trees around nest trees, establishment of buffers, dropping the unit(s)/portions, or dropping the entire project. Use of project design criteria may result in a determination of no effect for a project which would have otherwise been not likely to adversely affect. In other cases, project design criteria have resulted in a determination of not likely to adversely affect for a project which might have otherwise been determined to be likely to adversely affect. The goal of project design criteria is to reduce adverse effects to listed or proposed threatened or endangered species.

Physical impacts to habitat and disturbances to spotted owls will be reduced or avoided with PDC. Listed are project design criteria designed for the programmatic impacts discussed in the Effects of the Action section.

Medford BLM retains discretion to halt and modify all projects, anywhere in the process, should new information regarding proposed and listed threatened or endangered species arise. Minimization of impacts will then, at the least, include an appropriate seasonal restriction; and could include clumping of retention trees around the nest trees, establishment of buffers, dropping the unit(s)/portions, or dropping the entire project.

The seasonal or daily restrictions listed below may be waived at the discretion of the decision maker if necessary to protect public safety (as in the case of emergency road repairs or hazard tree removal). Emergency consultation with the Service will then be initiated in such cases, where appropriate.

PDC for disturbance are intended to reduce disturbance to nesting spotted owls. For this consultation, potential disturbance could occur near either documented owl sites or projected owl sites. To estimate likely occupied habitat outside of known home ranges, nearest-neighbor distances and known spotted owl density estimates were utilized to “place” potential spotted owl occupied sites in suitable habitat

Any of the following Mandatory PDC may be waived in a particular year if nesting or reproductive success surveys conducted according to the USFWS endorsed survey guidelines reveal that spotted owls are non-nesting or that no young are present that year. Waivers are only valid until March 1 of the following year. Previously known sites/ activity centers are assumed occupied until protocol surveys indicate otherwise.

Mandatory Project Design Criteria

A. Activities (such as tree felling, yarding, road construction, hauling on roads not generally used by the public, prescribed fire, muffled blasting) that produce loud noises above ambient levels will not occur within specified distances (Appendix B-1) of any documented or projected owl site between March 1 and June 30 (or until two weeks after the fledging period) – unless

protocol surveys have determined the activity center is non-nesting or failed in their nesting attempt. The distances may be shortened if significant topographical breaks or blast blankets (or other devices) muffle sound traveling between the work location and nest sites.

B. The action agency has the option to extend the restricted season until September 30 during the year of harvest, based on site-specific knowledge (such as a late or recycle nesting attempt) if project would cause a nesting spotted owl to flush. (See disturbance distance).

C. Burning will not take place within 0.25 miles of spotted owl sites (documented or projected) between 1 March and 30 June (or until two weeks after the fledging period) unless substantial smoke will not drift into the nest stand.

D. To minimize the number of potential spotted owl nest trees used for used for instream structures, only the following sources will be used:

- (I) Trees already on the ground in areas where large woody material is adequate;
- (II) Trees that lack structural conditions (snags, cavities) suitable for spotted owls.

Appendix A-1. Mandatory Restriction Distances to Avoid Disturbance to Spotted Owl Sites

Activity	Buffer Distance Around Owl Site
Heavy Equipment (including non-blasting quarry operations)	105 feet
Chain saws	195 feet
Impact pile driver, jackhammer, rock drill	195 feet
Small helicopter or plane	360 feet*
Type 1 or Type 2 helicopter	0.25 mile*
Blasting; 2 lbs of explosive or less	360 feet
Blasting; more than 2 lbs of explosives	1 mile

* If below 1,500 feet above ground level

Above-ambient noises further than these Table A-1 distances from spotted owls are expected to have either negligible effects or no effect to spotted owls. The types of reactions that spotted owls could have to noise that the Service considers to have a negligible impact, include flapping of wings, the turning of a head towards the noise, hiding, assuming a defensive stance, etc. (USFWS 2003).

Recommended PDC

A. No NRF habitat removal will occur within 0.25 miles of any documented or generated owl site from March 1 through September 30, or until two (2) weeks after the fledging period,

unless protocol surveys have determined owls are not present, are non-nesting, or nesting has failed.

B. Minimize the use of fire line explosives within one (1) air mile of occupied stands from March 1 through June 30, or until two (2) weeks after the fledging period, unless protocol surveys have determined owls are not present, are non-nesting , or nesting has failed.

Appendix B: Summer 2011 NLAA Spreadsheet

Appendix C: Project Locations by Section 7 Watershed

Appendix D: Project Locations with LSRs and CHUs