United States Department of the Interior

BUREAU OF LAND MANAGEMENT
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TAKE PRIDE IN AMERICA

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APR 30 2012

Memorandum

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

From: Dayne Barron
District Manager, Medford BLM

Subject: Submission of Medford BLM, Grants Pass Resource Area, FY12 LAA BA

This Biological Assessment (BA) evaluates two projects (Poor Luck and Williams IVM) that "may affect and are likely to adversely affect" (LAA) spotted owls and one project (West Fork Cow Creek Right-of-Way Road Construction) that "may affect and is not likely to adversely affect" (NLAA) northern spotted owls. The Poor Luck project units within the 2008 designated northern spotted owl critical habitat "may affect and are not likely to adversely affect" (NLAA) critical habitat. Portions of the Poor Luck and Williams projects are within the 2012 proposed NSO critical habitat. The Poor Luck project "may affect and is likely to adversely affect" (LAA) proposed critical habitat, and the Williams project "may affect and is not likely to adversely affect" (NLAA) proposed critical habitat. Listed plants and fish are evaluated under other consultation documents. No other listed species or critical habitats are affected.

Attached is The Medford Bureau of Land Management (BLM), Grants Pass FY12 LAA Biological Assessment including Appendix A which lists Project design criteria for northern spotted owls, and Appendix B and C Proposed Action Maps. GIS project, habitat, and spotted owl site layers will be hand delivered to Cindy Donegan at the Medford Interagency Office.

We request formal consultation with the US Fish and Wildlife Service on all projects in this BA, as well as conferencing on projects within the 2012 proposed CHU (§402.14 formal consultation procedures). 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.

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

Attachment

Biological Assessment
for
The Grants Pass Resource Area FY 12 – 13 Projects

(Cite as GPRA FY12 Formal BA)

An Assessment of Effects to the Northern Spotted Owl

Medford District
Bureau of Land Management
April 2012

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1. INTRODUCTION

The Medford District Bureau of Land Management (BLM) is submitting this Biological Assessment (BA) to the US Fish and Wildlife Service (Service) pursuant to 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. Conservation measures described in this BA also meet obligations under Section 7 (a)(1) to conserve habitat.

This Biological Assessment (BA) describes and evaluates the potential effects from the two Vegetation Management projects (Poor Luck and Williams) and one Road Construction Right-of-Way project (West Fork Cow Creek) in the Grants Pass Resource Area. The vegetation management projects may be divided into smaller timber sales. BLM requests formal consultation for projects we have determined *may affect, likely to adversely affect (LAA)* the northern spotted owl and concurrence for the projects that *may affect, but is not likely to adversely affect (NLAA)* the northern spotted owl. No other listed terrestrial wildlife species are affected. Only the Poor Luck project is within the 2008 NSO CHU. The Poor Luck and Williams projects have some units within the 2012 proposed NSO CHU. No other listed species or designated critical habitat will be affected by the activities identified in this BA.

The effects on plants are evaluated in the FY 2009-2013 Programmatic Biological 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 (USDI BLM 2008). Listed fish are evaluated in separate project level consultations.

1.1 Consultation History

The Williams, Poor Luck, and West Fork Cow Creek ROW projects are new proposals. All projects in this BA were designed to conform to the 1995 Medford District Resource Management Plan (USDI 1995) and the Northwest Forest Plan (USDA USDI 1994a). The projects in this BA were presented to the Level 1 team at a briefing meeting on December 15th, 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. A field trip to the Williams Project occurred on January 10th, 2012 and a field trip to the Poor Luck project occurred on January 24th, 2012. All projects will be consistent with the project descriptions and PDC's described in this BA, or that project will be presented to Level 1 for evaluation to see if reinitiation is necessary.

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. 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 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 Williams and West Fork ROW projects and will be used in the Poor Luck project.

Projects in this BA will also meet other Recovery Actions listed in the Revised Recovery Plan, such Recovery Action 6 and Recovery Action 10. Young stand treatments in Williams and Poor Luck 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 aim to conserve and enhance known northern spotted owl sites. The BLM will incorporate other Recovery Actions to the extent possible.

1.3 Definitions

Table 1. Northern Spotted Owl Breeding Periods

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

Nesting, Roosting, and Foraging (NRF) Habitat for the northern spotted owl consists of habitat used by owls 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).

In southwest Oregon, NRF habitat varies greatly, but is typified by mixed-conifer habitat, recurrent fire history, patchy habitat components, and a higher incidence of woodrats (a high quality spotted owl prey species). It may consist of somewhat smaller tree sizes. One or more important habitat components, 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.

Dispersal Habitat is a subcategory of "all dispersal" habitat for northern spotted owls. All-dispersal is defined as dispersal plus NRF. 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 and does not provide the components found in NRF. It provides temporary shelter for owls moving through the area between NRF habitats and some opportunity for owls to find prey; but it 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.

Capable Habitat for the northern spotted owl is forestland that is currently not habitat but can become NRF or dispersal in the future, as trees mature and the canopy closes.

Non-habitat does not provide habitat for northern spotted owls and will not develop into NRF or dispersal in the future.

Treat and Maintain NRF or Dispersal Habitat is the treatment defined when an action or activity in NRF or dispersal habitat removes some trees, but does not change the conditions that would classify the stand as NRF or dispersal post-treatment, as defined by Thomas et al. (1990). The 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. Dispersal habitat will retain at least 40 percent canopy, flying space, and trees 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.

Downgrade NRF alters the condition of spotted owl NRF habitat so the habitat no longer supports nesting, roosting, and foraging behavior. Downgraded NRF habitat has enough tree cover to support spotted owl dispersal. Downgrade is defined when the canopy cover in a NRF stand drops to 40-60 percent at the stand level, and when conditions are altered such that an owl would be unlikely to continue to use that stand for nesting, roosting and foraging. Downgraded NRF continues to provide habitat for dispersal.

Remove NRF or Dispersal alters known spotted owl NRF so the habitat no longer functions as nesting, roosting, foraging or dispersal. Removal generally drops canopy cover to less than 40 percent, alters the structural diversity and dead wood in the stand or otherwise changes the stand so it no longer supports owls for nesting, roosting, foraging, or dispersal.

1.4 Spotted Owl Critical Habitat

Critical habitat for the northern spotted owl was designated in 1992 in *Federal Register* 57, and includes the primary constituent elements that support nesting, roosting, foraging, and dispersal. Designated critical habitat also includes forest land that is currently unsuitable, but has the capability of becoming NRF habitat in the future (57 FR 10:1796-1837). Critical habitat was

revised for the northern spotted owl and the final designation was published by the USFWS in the *Federal Register* and signed on August 12, 2008 (73 Federal Register 157:47326) and became effective on September 12, 2008. The 2008 USFWS's Critical Habitat delineations was challenged in court and the 2008 designation of northern spotted owl CHU was remanded and the USFWS was ordered to revise the CHU designation. On February 28, 2012, the Service released the proposed critical habitat in the form of maps and the draft form of the federal register publication. The proposed rule was published in the Federal Register on March 8, 2012 (77 Federal Register 46:14062-14165). This BA will include an analysis of the current 2008 designated CHU and the 2012 proposed CHU since there are proposed treatments in both. The final CHU rule will be published in November, 2012. The District Biologist will review and work with the Level 1 team at the time of final designation of CHU to make sure the analysis in this amendment is consistent with the final rule.

Section 4(a)(3) of the Act specifies that the Service shall designate critical habitat for endangered or threatened species and may, from time-to-time thereafter as appropriate, revise such designation. Critical habitat is defined as (1) specific areas within the geographical area occupied by the species at the time it is listed, on which are found those physical or biological features that are essential to the conservation of the listed species and which may require special management considerations or protection, and (2) specific areas outside the geographical area occupied by the species at the time it is listed that are essential for the conservation of a listed species. Regulations focus on the "primary constituent elements," or PCEs, in identifying these physical or biological features. The physical or biological features essential to the conservation of the northern spotted owl are forested lands that are used or likely to be used for nesting, roosting, foraging, or dispersing.

Primary Constituent Elements of 2008 Designated Critical Habitat

The physical and biological features of designated or proposed critical habitat essential to the conservation and recovery (amendment due to *Gifford Pinchot* lawsuit[1]) of the species, including, but not limited to the following:

- 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, rearing of offspring, germination, or seed dispersal; and
- habitats that are protected from disturbance or are representative of the historic geographic and ecological distributions of a species [50 CFR 424.12(b)].

It further defines critical habitat for listed species as: "(1) the specific areas within the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of the Act, on which are found those physical or biological features [constituent elements] (I) essential to the conservation of the species and (II) which may require special management considerations or protection ; and (2) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of the Act, upon a determination by the Secretary that such areas are essential for the conservation of the

[1] *Gifford Pinchot Task Force et al.* v *U.S. Fish and Wildlife Service et al.*, 378 F.3d 1059, 1069-71

species" [16 U.S.C. § 1532(5)(A)]. Designated 1992 critical habitats are described in 50 CFR part 17 and part 226.

The Service defined the following elements of Primary Constituent Elements (PCE), in the 2007 CHU proposed ruling (32450 Federal Register / Vol. 72, No. 112, June 12, 2007 / Proposed Rules) which were later confirmed by reference when the CHU was finalized in 2008.

Sites for habitats that are representative of the historical geographical and ecological distributions of the northern spotted owl for:

PCE-1 Forest types known to support the northern spotted owl across its geographic range.

PCE-2 Forest types as described in PCE 1 of sufficient area, quality, and configuration, or that have the ability to develop these characteristics, to meet the home range needs of territorial pairs of northern spotted owls throughout the year. A home range must provide all of the habitat components and prey needed to provide for the survival and successful reproduction of a resident breeding pair of northern spotted owls.

- *Nesting Habitat: breeding, reproduction, and rearing of offspring…*
- *Roosting Habitat: cover, or shelter…*
- *Foraging Habitat: food, or other nutritional or physiological requirements…*

PCE-3 Dispersal habitat: The dispersal of juveniles requires habitat supporting both the transience and colonization phases. Habitat supporting the transience phase of dispersal includes, at a minimum, stands with adequate tree size and canopy closure to provide protection from avian predators and at least minimal foraging opportunities. This may include younger and less diverse forest stands than foraging habitat, such as even-aged, pole-sized stands…. Habitat supporting colonization is generally equivalent to roosting and foraging habitat.

Primary Constituent Elements of Proposed Critical Habitat

Based on current research on the life history, biology, and ecology of the northern spotted owl and the requirements of the habitat to sustain its essential life history functions, as described above, the Service has identified the following PCEs for the northern spotted owl are:

1) **Forest types that may be in early-, mid-, or late-seral states and support the northern spotted owl across its geographical range**

2) **Habitat that provides for nesting and roosting.** This habitat must provide:
   a) Sufficient foraging habitat to meet the home range needs of territorial pairs of northern spotted owls throughout the year.
   b) Stands for nesting and roosting that are generally characterized by:
      (i) Moderate to high canopy closure (60 to over 80 percent),
      (ii) Multilayered, multispecies canopies with large (20- 30 in (51-76 cm) or greater dbh) overstory trees,
      (iii) High basal area (greater than 240 ft2/acre (55 m2/ha)),

(iv) High diversity of different diameters of trees,
(v) High incidence of large live trees with various deformities (e.g., large cavities, broken tops, mistletoe infections, and other evidence of decadence)
(vi) Large snags and large accumulations of fallen trees and other woody debris on the ground, and
(vii) Sufficient open space below the canopy for northern spotted owls to fly.

3) **Habitat that provides for foraging, which varies widely across the northern spotted owl's range, in accordance with ecological conditions and disturbance regimes that influence vegetation structure and prey species distributions.** (see specific description for the Klamath province below).

4) **Habitat to support the transience and colonization phases of dispersal, which in all cases would optimally be composed of nesting, roosting, or foraging habitat (PCEs (2) or (3)), but which may also be composed of other forest types that occur between larger blocks of nesting, roosting, and foraging habitat. In cases where nesting, roosting, or foraging habitats are insufficient to provide for dispersing or nonbreeding owls, the specific dispersal habitat PCEs for the northern spotted owl may be provided by the following:**

a) Habitat supporting the transience phase of dispersal, which includes:
(i) Stands with adequate tree size and canopy closure to provide protection from avian predators and minimal foraging opportunities; in general this may include, but is not limited to, trees with at least 11 in (28 cm) dbh and a minimum 40 percent canopy closure; and
(ii) Younger and less diverse forest stands than foraging habitat, such as even-aged, pole-sized stands, if such stands contain some roosting structures and foraging habitat to allow for temporary resting and feeding during the transience phase.
b) Habitat supporting the colonization phase of dispersal, which is generally equivalent to nesting, roosting, and foraging habitat as described in PCEs (2) and (3), but may be smaller in area than that needed to support nesting pairs.

Specific Klamath Province Foraging Habitat PCEs:

- Stands of nesting and roosting habitat; in addition, other forest types with mature and old-forest characteristics;
- Presence of the conifer species, incense-cedar, sugar pine, Douglas-fir, and hardwood species such as bigleaf maple, black oak, live oaks, and madrone, as well as shrubs;
- Forest patches within riparian zones of low-order streams and edges between conifer and hardwood forest stands;
- Brushy openings and dense young stands or low-density forest patches within a mosaic of mature and older forest habitat;
- High canopy cover (87 percent at frequently used sites);
- Multiple canopy layers;
- Mean stand diameter greater than 21 in (52.5 cm);

- Increasing mean stand diameter and densities of trees greater than 26 in (66 cm) increases foraging habitat quality;
- Large accumulations of fallen trees and other woody debris on the ground;
- Sufficient open space below the canopy for northern spotted owls to fly.

2. DESCRIPTION OF THE PROPOSED ACTION

Projects in this BA occur in the Matrix, Adaptive Management Area, and Adaptive Management Area with LSR, land use allocations. Matrix lands are Federal lands outside of reserves and special management areas that are available for timber harvest at varying levels (USDI BLM1995, 107).

The projects are scattered across three Section 7 watersheds (Table 3) within the Klamath Mountains physiographic province. Section 7 watersheds were developed by the Level 1 team shortly after the spotted owl was listed as a logical area for evaluation when multiple projects are proposed (USDI BLM 2004). They are similar, but not identical, to HUC 5 watersheds.

We expect the projects to be implemented soon after the BO is received and National Environmental Policy Act (NEPA) compliance is completed. Projects are scheduled to be implemented in 2012 or 2013. BLM defines implementation of timber sales as the date a project is sold. Harvest activities could take up to five years to complete. Project completion includes stand treatments for slash and reforestation. Once a sale is sold, purchasers usually have three years to complete the harvest, but contracts can be extended if seasonal clearances or other reasons delay their harvest. Purchasers have the option to log the entire sale in one season or they may log portions of the sale in different years. The Medford BLM anticipates the projects analyzed in this BA will be completed within a 10-year timeframe from the date of the BO. This timeline may be less if significant new science, litigation, or changes in effects, as determined through the Level 1/Level 2 team process, triggers reinitiation.

All projects are evaluated and analyzed with information current as of the date of this BA. Timber sales are administered by an Authorized Officer and Contract Administrator. All other contracts are administered at the local level by Contracting Officer Representatives (CORs) and Project Inspectors (PI) throughout implementation until the project work is completed, or implemented by BLM staff. Timber sales also have a contract clause (E-4) that authorizes stop work when Threatened and Endangered species are found on the timber sale or to comply with court orders. When (and if) a spotted owl or other listed species is found in the project area they are authorized to stop the work until the issue is evaluated further. If a spotted owl is found, biologists will review PDCs and the BO (or LOC) to confirm both NEPA and ESA analysis remains valid.

If a new owl site (or other listed species) is found and was not analyzed in the BA, if the project area changes from what was originally analyzed in the BA, if a site has moved, or other information is inconsistent with what is authorized, the District coordinates with project proponents, contractors, managers, local biologists and the Level 1 team to ensure the project

impacts remain consistent with the BA and the responding LOC/BO. If not, the project will remain stopped until we implement one or more of the following:

- Modify the proposed action to ensure that impacts remain as described in the consultation documents;
- Impose seasonal protection (if necessary);
- Reinitiate consultation.

2.1 Description of the 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 analysis area is described in three section 7 watersheds. The action area is defined as the area directly or indirectly affected by the proposed action, usually the home range of affected NSO sites plus any disturbance/disruption distances.

Actions common to all projects

Large standing and down wood would be retained in all project areas to meet RMP (USDI BLM1995) standards and guides or better. Generally the marking guidelines allow the retention of large hardwoods and some trees with visible nest structures, wildlife cavities, wide forks with flat nesting spots, or loose bark, which provide nesting opportunities for spotted owls.

All units will receive post-harvest fuels treatments to reduce potential increases in fuel hazard as needed. Post- harvest fuels treatments include selective slashing/hand pile burning, and under-burning within the first two years of harvest. Follow-up maintenance under-burns may occur 4-10 years post-harvest within the Wildland Urban Interface (WUI) to maintain a Fire Regime Condition Class (FRCC) of one or two.

Conservation Measures will be implemented which reduce impacts to spotted owls.

- Protection of red tree vole, mollusk, great gray owl sites, fragile soils, and sensitive plant surveys resulted in no treatment buffers allowed for untreated patches of spotted owl habitat throughout the project areas.
- Project design incorporated historical spotted owl site information to strategically prioritize treatments.
- RA 32 evaluations will be completed for all three projects prior to implementation. No harvest activities will occur in RA 32 stands, although yarding corridors or skid roads may occur if they would ensure the RA 32 characteristics would be maintained following treatment.
- No projects occur within Known Spotted Owl Activity Centers (KSOAC). KSOAC 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 Late Successional Reserves (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 USDI 1994b).
- If owls are located during surveys in previously unknown owl sites, treatments that downgrade NRF within the home range or 0.5 mile core will be modified or dropped, or

will be brought forward to Level 1 to evaluate if the activity requires reinitiation of consultation.

Table 2. Proposed Action Summary

Project	Resource Area	Physiographic Province	Total Habitat Acres* (In BA)	LUA	Treatment type	Road building miles	RA 32 Treat
Rogue-Middle Section Seven Watershed							
Poor Luck	Grants Pass	Klamath	2,472	Matrix	Timber Harvest, Forest Health	6	N/A
Cow-Upper Section Seven Watershed							
West Fork Cow Creek ROW	Grants Pass	Klamath	3	Matrix	NewRoad construct.	0.1	N/A
Applegate River Section Seven Watershed							
Williams	Grants Pass	Klamath	5,608	AMA, AMR	Timber Harvest, Forest Health	0.35	N/A

NA=Not applicable. No RA 32 stands would be treated
*Acres from 3/8/12 GIS project layer. All GIS acres are rounded to the nearest integer. Slivers less than 0.5 acres are deleted.

2.2 Detailed Project Descriptions

Poor Luck

Current conditions:
The Poor Luck Vegetation project will treat 1,982 acres of NRF habitat, 490 acres of dispersal habitat, and 119 acres of capable habitat. The stands are approximately 30 - 150 years old, with some inclusions up to 190 years old. Forest stands in the Poor Luck project area are Mixed Evergreen and Mixed Conifer. Douglas-fir is the primary conifer in the Mixed Evergreen stands, and ponderosa pine is the primary overstory conifer species in the Mixed Conifer stands with Douglas-fir comprising the majority of the conifer stems. Sugar pine and incense cedar, and madrone, chinquapin, tanoak, canyon live oak, rhododendron, and salal are common tree and shrub species. Most stands in the project area natural stands and have had frequent fire disturbance.

Project description:
The Poor Luck project combines dry and moist forest restoration treatments as described in the *Restoration of Federal Forests in the Pacific Northwest: Strategies and Management Implications* (Johnson and Franklin 2009) with Relative Habitat Suitability (MaxEnt) modeling described in the *2011 Revised Recovery Plan for the Northern Spotted Owl* (USDI FWS 2011), and maintaining habitat function with known spotted owl territories. Treatments proposed would maintain NRF and dispersal habitat, within the 0.5 mile core areas and home range of documented

spotted owl sites. NRF habitat would not be downgraded or removed within known owl home ranges. RA 32 surveys will be done prior to implementation of the Poor Luck project. No harvest activities will occur in RA 32 stands, although yarding corridors or skid roads may occur if they would ensure the RA 32 characteristics would be maintained following treatment. Approximately 363 acres of this project are within the 2008 designated Critical Habitat Unit #14 (Rogue Umpqua).

Poor Luck Treatment Descriptions

Timber

Variable Density Thinning *(Douglas-fir Series)*

The objective is to increase landscape resiliency to environmental disturbances (i.e. fire, insects, disease, and climate change). Removing smaller trees and some co-dominant trees and vegetation that compete with the dominant and other co-dominant trees for nutrients and water would reduce stand densities. Sugar pine, ponderosa pine, incense cedar, and Douglas-fir would be favored, respectively, for retention to encourage the maintenance and establishment of fire resilient species. All trees 150 years or older and all of the largest hardwoods would be retained. Leaving small un-thinned patches and creating small openings would achieve structural diversity within stands. Un-thinned patches and modified small openings would range in size from 0.25 to 1 acre while maintaining spotted owl habitat functions within treatment units that occur within spotted owl core and home range areas. In areas with dominant fire resilient trees such as pine, oak, incense cedar, selected trees would be cleared around, removing smaller trees (principally fir) around them to a distance of approximately 40 feet achieving treatment areas from 0.25 acres to approximately 1 acre, with similar untreated areas within the same treatment units, and retain $\geq$60 percent canopy at the unit treatment area. Approximately 15 percent of the project area contains dry-site vegetation characteristics and treatment areas up to 1 acre would not exceed 15 percent of a treatment unit within owl home ranges. Treatments of units outside of spotted owl home ranges may downgrade NRF habitat and maintain dispersal function at the unit and stand level.

Treatment units would average 60 percent canopy closure or greater in NRF habitat and an average 40 percent canopy closure in dispersal habitat, in active home ranges of northern spotted owls. Complex forest structure that forms NRF habitat consists of dead down wood, snags, dense canopy, and multi-storied stands would be retained in the owl home ranges. Outside of known owl home ranges, forest stands that are currently providing for northern spotted owl nesting, roosting, and foraging habitat may be thinned to 40 percent canopy and downgrade NRF habitat function. Ridge top treatment areas within the upper 1/3 of slopes, approximately 200 feet or less (one site-potential tree height) on both sides of ridge top (400 feet total or less) with roosting and foraging structure, may be thinned 50-60 percent canopy cover, depending on the density of fire resilient conifers and large hardwoods and the number of smaller adjacent competing trees removed, and retain $\geq$60 percent canopy in treated NRF habitat below the ridge tops. Existing snags and coarse woody material (CWD) would be retained. Snags that have to be felled for safety reasons would be left on site for CWD.

Density Management

The primary purpose is to widen the spacing of residual trees to promote growth and structural development of the remaining stand and is prescribed for even or uneven-aged stand. These treatments proportionally thin stands by spacing the residual trees based on the crown radius of the healthiest dominant and co-dominant trees. The healthiest dominant and co-dominant trees would be retained to meet an average 60 percent canopy cover in NRF stands (40 percent retention outside of known owl home ranges) and 40 percent canopy cover in dispersal stands. Density management in young stands (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 growth in the remaining trees, where stands structures are simple and lack complex vertical and horizontal structure.

Forest Health/ Fuels Reduction

Noncommercial Density Reduction

Stands are primarily a result of natural regeneration. Stands to be treated are generally a mix of conifers, hardwoods and shrubs. Conifer distribution is patchy and variable. The general prescription would reduce hardwood and shrub densities by slashing, handpile and burning. Patches of dense conifers would be precommercially thinned to 12'-20' spacing. Existing snags and down wood are retained. Thinning will 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.

Hazardous Fuels Reduction reduces understory vegetation density by cutting and spacing of conifers <8 inches DBH and hardwoods <12 inches DBH. Retained vegetation would be spaced 14-45 feet apart. Untreated vegetation groups ranging in size from 0.1 to 2 acres would be retained in each treatment unit, retaining 10-15 percent untreated patches.

Hand piling and burning is typically used when underburning is not possible due to heavy fuel loads. Sticks 1 inches to 6 inches diameter and longer than two feet would be piled by hand. Hand piling and burning would decrease fuel loading of material 1 to 6 inches in diameter by 85 to 95 percent. Fuels greater than 6 inches in diameter would be left on the surface and would contribute to the coarse woody debris load. This treatment would move stands from a slash fuel type into a timber fuel type, which would result in a reduced rate of fire spread and average flame length.

Treated vegetation may be removed as Biomass**.** Biomass is any dead or living vegetation in a fuels unit that is ≤ 8 inches dbh for conifers and ≤ 12 inches dbh for hardwoods. For slopes < 35 percent, mechanized low ground pressure machinery would cut, skid, haul or chip biomass. On slopes > 35 percent, biomass would be cable yarded.

Understory Burning (underburning) is used where the objective is to maintain ≥80 percent of the overstory. Typically, burning occurs between fall and spring outside of Project Design

Criteria (PDC). Approximately ten percent of all treatment acres may be underburned to reduce the fuel loading and/or maintain the stands in a desired condition.

Conservation measures specific to Poor Luck

- Dry forest restoration treatments (for example, Johnson and Franklin, 2009) would reduce stand density, retain old trees (> 150 years), favor drought tolerant species, provide structural complexity (un-thinned patches and small openings), and increase average stand diameter. These characteristics would increase stand resiliency to environmental disturbances (i.e. fire, insects, disease, and climate change).
- Project development and stand treatments revolved around trying to reduce adverse effects to spotted owls. Careful attention was focused toward avoiding the downgrade and removal of habitat within the home ranges of occupied owl sites.
- Approximately 65 acres of NRF habitat was deferred from treatment. NRF habitat treatment was deferred in habitat within the home range of 3 known owl sites that occurred in high RHS (Relative Habitat Suitability) or was located adjacent to nest patches. Treatment was also deferred in known utilized foraging habitat identified from survey data within or adjacent to mapped core areas and nest patches.
- Owl surveys are being conducted to learn the occupancy status of historic sites that have little survey history. If owls are found during surveys, the associated maintenance treatment units would be dropped or modified if they occur in a new nest patch area.
- Owl surveys are being conducted in unsurveyed suitable habitat outside of the home ranges of known owl sites. If owls are located during surveys, the associated NRF downgrade units would be modified or dropped to eliminate potential harm.

Williams

Current conditions:
The Williams Vegetation Management project will treat 2,342 acres of NRF, 2,288 acres of dispersal habitat, and 978 acres of capable habitat.

Current stand conditions were assessed in the field for all units proposed in the planning area. The exclusion of fire and previous forest management has shaped the landscape structure and condition. The project area exhibits a broad spectrum of stand conditions: early seral plantations, neglected stands of advanced reproduction, natural stands of complex structure, and near-pure hardwood sites. Conditions and ages vary throughout the project area ranging from 10 to 190 years. Some stands include 250 and 300 year old inclusions. The recent lack of frequent natural disturbance and fire suppression have enabled the conifer stands to reach high stocking levels that causes suppression, mortality or loss of tree vigor (reduced radial growth and live crown ratios). Mature Douglas-fir, Sugar Pine and Ponderosa pine have been dying because of competition for water with dense understory vegetation. Many of the forest stands have a dense overstory. Ladder fuels are prevalent creating conditions for crown fires to occur that could result in large stand replacement fires.

On the North and East aspects of conifer dominated stands, Douglas-fir is the predominant tree species in both the overstory and understory. However, on the Panther Ridge area most of the Douglas-fir dominated stands tend to be on North & Northwest aspects, while the ponderosa pine

stands tend to be on South & Southwest aspects. Generally, Douglas-fir sites are in the advanced reproduction (poles) to mid seral stages. Overstory diameters range from 8-30" DBH, while averages remain mostly in the lower half of this range. There are few mature Douglas-fir stands, most of which are overstocked. In mature Douglas-fir sites, overstory trees can range from 18 to 60" DBH. Ponderosa pine, sugar pine, and incense cedar are the main secondary species. Vigor of the overstory is variable ranging from many full crowned to a few thinning crowns or dead tops. Understory stocking is variable. The predominate hardwood species are madrone and canyon live oak, tanoak, scattered big leaf maple, dogwood, willow, Prunus species, California black oak and Oregon white oak. Generally, hardwoods, particularly madrone, are overstocked. Madrone have occupied conifer sites where they are limiting growth of important species such as ponderosa pine, California black oak, Douglas-fir, sugar pine, white oak, and incense cedar. Shrub species, in addition to sprouting hardwoods, include deerbrush, buckbrush, Rubus species, hazel, manzanita, poison oak, ocean spray, whipple vine, hairy honeysuckle, sword fern and bracken fern. Within the south and west portions of the planning area, Port Orford cedar is a common tree species along drainages and more moist northerly slopes. Oregon White Oak stands usually occur on lower slope positions, predominately on South, Southwest and west aspects.

Project description:
A landscape assessment was done early in the project planning process to determine current stand conditions, stand trajectories, and to identify threats, such as fires and insects. The Williams project uses ecological forestry principles of Forest Restoration tailored to southwestern Oregon forests and local conditions, without compromising occupancy, reproduction, and survival of known northern spotted owl sites within the project area. The Relative Habitat Suitability (MaxEnt) model described in the *2011 Revised Recovery Plan for the Northern Spotted Owl* (USDI FWS 2011), a Fire Probability model layer, and the Medford District known site layer were used to strategically place units to reduce effects to spotted owl sites.

Basic Objectives:

- Utilize ecological forestry principles and plant communities to restore characteristic structure and composition, ecological conditions, and ecosystem functions
- Shift composition toward more fire and drought tolerant species(ponderosa pine, sugar pine, incense cedar) and away from less fire and drought tolerant species such as white fir
- Reduce stand density and ladder fuels to increase long term tree growth, quality, and vigor of the remaining trees and increase resistance and resilience of forest stands and landscape to wildfire, insects, and drought
- Create diversified stand structure (height, age, and diameter classes) to enhance and accelerate development of structural complexity and composition (which is the result of variability)
- Restore characteristic levels of ground fuels and understory vegetation, using prescribed fire where possible

Silvicultural actions utilize variable density thinning to reduce stand basal area to desirable target levels of retention. Retention criteria are determined by plant series, stand condition, structure, and species composition. Desirable conifers and hardwoods would be promoted as leave trees (ponderosa pine, incense cedar, sugar pine, Douglas-fir of variable genotypes, old trees, oak trees 10 inches dbh and larger, and madrone trees 16 inches dbh and larger with full live crown ratios

of 30 percent or greater). Old trees are defined as trees greater than 150 years of age. Individual trees greater than 150 years old would be retained in all prescriptions. Their survivability would be improved by eliminating ground and ladder fuels and competing trees from 2x the dripline of the tree crown. Where many old trees are present, treated areas may overlap.

The treatments are designed to remove mostly small and medium sized trees, but can include removal of some larger young trees. An additional aim of treatment is to maintain or improve the proportion of fire resilient early seral tree species and stimulate their proliferation. Prescriptions would be modified where needed to retain additional canopy cover in treat and maintain units within the home range of known owl sites.

Port-Orford-Cedar (POC) sanitation treatments are incorporated into timber harvest or fuels projects on sites at high-risk for spreading Port-Orford-Cedar (POC) root disease. POC sanitation treatments are implemented to help reduce the risk of spreading the disease, benefiting the overall forest health of infested watersheds.

Williams Treatment Descriptions

Timber

Variable Density Thinning (Douglas-fir Series)

The overall objective is to retain overall stand basal area to within a range based on plant association and site productivity of Douglas-fir sites. Generally 80-120 ft^2 basal area per acre would be retained at the stand level (some sites may require slightly lower or higher retention based on productivity e.g., 60 or 140 sq. ft.). On dry ridges and southwesterly aspects in the Douglas-fir plant association, especially where manzanita is found, trees would be thinned to retain no more than 80 ft^2 basal area per acre while promoting ponderosa pine, incense cedar, sugar pine, and Douglas-fir, respectively.

Approximately 10-15 percent of the management unit would be retained to provide habitat diversity, hiding cover, structural diversity, and reduce visual sighting distances. Gaps ranging in size from 0.25 to 2 acres would be created and comprising ± 15 percent of the stand (e.g. limiting 1 acre openings to every 6 or 7 acres and 2 acres openings to every 13 acres). The majority of the gap sizes would be from 0.25 to 0.5 acre in size. Johnson and Franklin (2009) recommend 2 acre gap size as the maximum gap size. However, the application of this size would be implemented on a limited basis in the Williams project area. The use of 2 acre gaps would be appropriate (to dry forests) where, because of the variability of stands in the project area, the site transitions into (< 5 acre) white oak woodland where Douglas-fir trees have encroached to occupy the growing space. Douglas-fir on such sites do not belong there and as indicated by their physical condition. The treatment would salvage of dead and dying Douglas-fir trees rather than a removal of healthy full-crown trees. Larger gaps sizes would be utilized in section 3 where gaps would regenerate a significant understory to develop a future multi-storied structure. Because it is a northerly aspect this unit will likely be shaded by the ridgeline, a larger gap would bring in enough sunlight to get the early seral species that we want to initiating the understory.

The proposed gaps, will follow Johnson and Franklin's (2009) Dry Forest Restoration principles, and will not remove all vegetation, but retain 1-2 large trees. Generally, gaps would be designed

to protect and promote large legacy fire resilient tree species including prominent large hardwoods and to stimulate regeneration of fire and drought tolerant tree species in the understory. If no pines or cedars are available for legacy retention, gaps may be utilized to protect and promote legacy Douglas-fir and prominent large hardwoods. Gap size and shape would be positioned to benefit establishment of early seral species. Gap edges would be separated by at least 150 ft. Low density planting of fire resilient, early seral, or drought tolerant species may occur within gaps to increase species and structural diversity. Generally, the canopy cover would be 30-40 percent; however, the prescription will be modified to retain additional canopy cover in dispersal and NRF habitat. The amount, size, and distribution of gaps would be limited in NRF and dispersal habitat to ensure habitat function is retained.

Variable Density Thinning (Pine Series)

The overall objective is to retain stand basal area commensurate with the lower site productivity of pine sites. Generally 60-80 ft^2 basal area per acre at the stand level would be retained. Where site productivity shifts to a Douglas-fir Series, 80-120 ft^2 basal area/acre would be retained and 40 sq. ft. basal area/ acre would be retained where the goal is to restore an open stand with pine and oak dominance). Trees greater than 150 years old would be retained and fuels and competing vegetation would be removed for 2x the dripline of the crown radius of such trees.

Approximately 10-15 percent of the management unit would be retained to provide habitat diversity, hiding cover, structural diversity, and reduce visual sighting distances. Gaps ranging in size from ¼ to 2 acre would be created (± 15 percent of stand). Generally, gaps would be designed to protect and promote legacy fire resilient tree species including prominent large hardwoods and to stimulate regeneration of fire and drought tolerant tree species in the understory. If no pines or cedars are available for legacy retention, gaps may be utilized to protect and promote legacy Douglas-fir and prominent large hardwoods. Low density planting of fire resilient or drought tolerant species may occur within gaps to increase species and structural diversity. Generally, the canopy cover would be 30-40 percent; however, the prescription will be modified to retain additional canopy cover in dispersal and NRF habitat.

Commercial Thin (CT)

Treatment goals are to utilize ecological forestry principles of dry forests to restore more characteristic and sustainable ecological conditions and functions while retaining key habitat features for northern spotted owl habitat so that its function would be maintained. Commercial thinning would remove trees that function as ladder fuels, reduce risks to older trees from wildfire and competition, favor more fire and drought tolerant tree species, control stand density, increase stand vigor and place or maintain stands on developmental paths so that desired stand characteristics of dry forests result in the future and primary elements for northern spotted owl habitat are maintained. Over time, crowns of remaining trees would become fuller. Dry forest restoration principles as well as growth and yield considerations would be applied to commercial thinning treatments. Thinning to improve growth of residual trees, restoring spatial heterogeneity in a non-uniform distribution of forest structural elements of dry forests would be incorporated such that homogenous conditions are avoided and key habitat features that support spotted owl habitat are maintained. Treatment would not change the conditions that would classify the stand as NRF or dispersal post-treatment. The NRF stand would 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. Dispersal habitat would retain at least 40 percent canopy, flying space, and trees 11 inches diameter at breast height (dbh) or greater, on average. The habitat classification of the stand following treatment would be the same as the pretreatment habitat classification.

Forest Health/ Fuels Reduction

Density Management

These are units with a generally predominant pole size component mostly in the stem exclusion stage of forest development. Many also exhibit a dense understory and/or hardwood composition. The Silvicultural Design and Variable Density Thinning prescriptions, as outlined above, would be utilized. However, fewer older trees exist in these units which implies the potential for fewer gaps and a retention guideline using basal area as specified for Douglas-fir or ponderosa pine plant series. Generally, the canopy cover would be 35-50 percent; however, the prescription will be modified to retain additional canopy cover in dispersal and NRF habitat.

Density Management / Hazardous Fuels Reduction

These treatments involve the above Density Management commercial activities as well as understory reduction to vegetation described in Hazardous Fuels Reduction below. This prescription treats the entire stand (excluding skips) to reduce densities throughout. The Silvicultural Design and Variable Density Thinning prescriptions, as outlined above, would be utilized. Generally, the canopy cover would be 35-50 percent; however, the prescription will be modified to retain additional canopy cover in dispersal and NRF habitat.

Port-Orford-Cedar Sanitation

The POC Sanitation treatment is a buffer of up to 50 feet on each side of the road. This distance will vary based on terrain and likelihood of disease spread. This treatment will cut all POC trees within this buffer. The amount of POC along the roads is highly variable and is usually more concentrated in the drainages. The majority of the POC trees along the road are composed of seedlings/saplings to pole size trees with some trees greater than 8 inches DBH. No POC greater than 150 years old would be cut. Live POC trees beyond 50 feet from roadways would be reserved from cutting. Canopy reduction would be minimal and unlikely to reduce canopy covers below 40 percent.

Hazardous Fuels - Biomass Removal

Biomass is any dead or living vegetation in a fuels unit that is ≤ 8 inches dbh for conifers and ≤ 12 inches dbh for hardwoods. For slopes < 35 percent, mechanized low ground pressure machinery would cut, skid, haul or chip biomass. On slopes > 35 percent, biomass would be cable yarded.

Hazardous Fuels - Selective Slashing

Understory vegetation density would be reduced by cutting and spacing of conifers <8 inches dbh and hardwoods <12 inches dbh. Retained vegetation would be spaced 14-45 feet apart. Approximately 10-15 percent of the project area will be left untreated.

Hazardous Fuels - Hand Piling and Burning is typically used when underburning is not possible due to heavy fuel loads. All slash less than 7 inches diameter and longer than 2 feet would be piled by hand.

Hazardous Fuels - Understory Burning (underburning) is used where the objective is to maintain ≥80 percent of the overstory. Typically, burning occurs between fall and spring outside of project design criteria.

Conservation measures specific to Williams

- Dry forest restoration treatments (for example, Johnson and Franklin, 2009) would reduce stand density, retain old trees (> 150 years), favor drought tolerant species, provide structural complexity (un-thinned patches and small openings), and increase average stand diameter. These characteristics would increase stand resiliency to environmental disturbances (i.e. fire, insects, disease, and climate change).
- No downgrading or removal of habitat would occur. Only Treat and Maintain prescriptions are proposed in NRF and dispersal habitat.
- No treatment will occur in known site nest patches
- Approximately 12,167 acres of NRF within the planning area (all ownerships) will be left untreated.
- Generated owl site "areas" are being surveyed according to the 2011 protocol and if nesting owls are located, units would be modified to reduce effects to owls. 2012 will be the third year of protocol surveys.

West Fork Cow Creek Road Right-of-Way Construction

Current conditions:
The West Fork Cow Creek road has failed continuously for the past 20 years at approximately mile post 8.00 (T31S-R9W-Section 36, SE SE). The road is not passable during several months out of the year and requires extensive repair once or twice per year.

Project description:
The project will obliterate and relocate a portion of the West Fork Cow creek road 32-8-1.1 in order to provide a safe and reliable transportation system reducing long term maintenance costs associated with the high use public road. The proposed action will include obliterating (re-contouring) approximately 800' of existing road (located on BLM lands), placing topsoil and planting vegetation for soil/slope stabilization, constructing approximately 600' of new road (relocation) located on private timber lands in spotted owl dispersal habitat. The total clearing width on will be approximately 100' on private land and a total of 3 acres of dispersal habitat removed (2.7 acres on private and 0.3 acres on BLM) for construction and to provide a safe visual field to see merging traffic at the intersections of the 31-8-31 road and the intersection of the existing 32-8-1.1 road. The new road running surface will be approximately 20 feet wide with a 3 foot wide one foot deep ditch. The surfacing will be paved (BST). The new road will cross one intermittent draw and tie back into the existing 32-8-1.1 road off of the 32-8-31 road. Conifers removed in the clearing width range from 6" diameter at breast height (dbh) to 24" dbh. Project implementation will occur between May 1, 2013 and November 1, 2013.

2.3 Project Design Criteria

Project Design Criteria (PDC) are conservation measures developed to reduce disturbance impacts to listed species (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.

3. ENVIRONMENTAL BASELINE

3.1 Status of Owls Range-wide

ESA regulations (50 CFR 402.02) states *the environmental baseline includes the past and present impacts of all Federal, state, or private actions and other human activities in the Action Area. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early 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*.

A detailed account of the taxonomy, ecology, and reproductive characteristics of the spotted owl can be found in the *2011Revised 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.

Lint et al 1994, identified 14 sample demographic study areas to represent owl status across the range of the northern spotted owl. Three of these have been dropped and 11 demography areas remain (Forsman et al 2011). Owl sites and productivity are annually monitored within these areas to:

- *Assess changes in population trend and demographic performance of spotted owls on federally administered forest lands within the range of the owl and*
- *Assess changes in the amount and distribution of nesting, roosting, and foraging habitat and dispersal habitat for spotted owls on federally administered forest lands.*

Medford shares one demographic study area, the Klamath, with Roseburg BLM and the Rogue River Siskiyou National Forest. The Southern Cascades demographic study area is the other nearby demographic area.

Metadata analysis evaluates population statistics of the owls in the demographic study areas. The last metadata analysis was completed in 2011:

Estimates of the annual finite rate of population change (λ) were below 1.0 for all study areas, and there was strong evidence that populations on 7 of the 11 study areas declined during the study. For four study areas, the 95 percent confidence intervals for λ overlapped 1.0, so we could not conclude that those populations were declining. (Forsman et al 2011) Two of those four study areas are the Klamath and Southern Cascades study area, indicating that finite rate of population change remains statistically stable, but that relationship is weaker than Anthony et al reported in 2006. Although the statistics have many assumptions, and the data on owls is complex, basic lambda can be interpreted as follows.

- $\lambda = 1$, the size of the population will not change
- $\lambda > 1$, the population will grow
- $l < 1$, the population will decline

Fecundity, the number of females born to females known to have bred, is declining in the Klamath and Southern Cascades demographic study areas. *We concluded that fecundity, apparent survival, and/or populations were declining on most study areas, and that increasing numbers of Barred Owls and loss of habitat were partly responsible for these declines. However, fecundity and survival showed considerable annual variation at all study areas, little of which was explained by the covariates that we used.* Forsman et al (2011) supports the combined conservation strategies of the NWFP and the 2011 Revised Recovery Plan.

Causes of these patterns are difficult to ascertain given the methods used in the demographic studies and the number of influences known to affect spotted owls in certain areas: prey, weather, diurnal breeding patterns, amount of suitable habitat, age of birds, differences in numbers of birds from year to year, lag-effect and the presence of barred owls among other things. These parameters were evaluated as associations of the population parameters, but the associations were not consistent in all areas (Forsman et al 2011).

3.2 Status of Northern Spotted Owl Habitat in the Action Area

The environmental baseline for owls on the Medford BLM administered lands for the Action Area is current as of March, 2012. The environmental baseline was developed using existing information, field assessments by experienced wildlife biologists, Interagency Vegetation Mapping Project (IVMP) imagery from 1996 (as corrected through 2003), and several additional steps of refinements during project lay-out and evaluation. IVMP data is the source for information for non-BLM lands. 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) BLM timber classification system or Microstorms, the silviculture data system. The environmental baseline used information from photos, field information, and FOI data to update 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. Modifications were incorporated in this BA as a result of field verifications during the planning process and corrections in the database unit boundaries.

The proposed projects are within the Klamath Mountains physiographic province. Harvest history and wildfire have influenced habitat conditions in both physiographic provinces and has played an important role in influencing successional processes and creating diverse forest conditions. Atzet and Wheeler (1982) discuss fire as a key natural disturbance in the Klamath Province in southwestern Oregon.

Spotted owl habitat patterns in these drier portions of its range are not continuous, but occurred naturally in a mosaic pattern (USDI USFWS 2008). Agee (1993, 2003) and Hessburg and Agee (2003) characterized the historical wildfire regime as low- to mixed-severity with fire return intervals of less than 10 to 50 or more years, depending on local conditions.

Tables 3 summarize Federal and private ownership, as well as spotted owl habitat for the affected watersheds.

Table 3. Environmental Baseline for the Action Area (Section 7 Watershed)

Applegate Section Seven Watershed*	**Acres**
Total acres all ownership	492,884
Total acres Non-Medford BLM ownership	344,477
BLM Non-habitat	13513
BLM Capable	48,323
BLM Dispersal	27,979
BLM NRF	**58,592**
Total acres Medford BLM	148,407
Other Federal NRF	84,308
Non-Federal NRF	28163
Total NRF on Non-Medford BLM ownership	**112,471**
Cow-Upper Section Seven Watershed	**Acres**
Total acres all ownership	216,386
Total acres Non-Medford BLM ownership	133,765
BLM Non-habitat	2,917
BLM Capable	23,603

BLM Dispersal	9,445
BLM NRF	**46,656**
Total acres Medford BLM	82,621
Other Federal NRF	19178
Non-Federal NRF	36,459
Total NRF on Non-Medford BLM ownership	**55,637**
Rogue-Middle Section Seven Watershed	**Acres**
Total acres all ownership	600,357
Total acres Non-Medford BLM ownership	386,096
BLM Non-habitat	10,041
BLM Capable	60,367
BLM Dispersal	44,057
BLM NRF	**99,796**
Total acres Medford BLM	214,261
Other Federal NRF	15,191
Non-Federal NRF	68,429
Total NRF on Non-Medford BLM ownership	**83,620**

Other Federal = US Forest Service, Corps of Engineers, Bureau of Reclamation
Non-Federal = State, private, county, local government
* The habitat layer within the Applegate Section 7 watershed was updated based on field and photo identification since the Medford Fall FY12 LAA BA.

3.3 Status of Northern Spotted Owl Sites in the Action Area

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). The number of spotted owl sites (documented and generated) are summarized in Table 4 by Section Seven watershed and associated with the Action area.

With the exception of the sites north of Grave Creek in the Poor Luck project, most of the sites thin the Action Area have not been surveyed recently. The sites north of Grave Creek are within the Klamath Demography Study area and have received extensive protocol surveys since the late 1990's. Limited surveys have been conducted at the remaining sites within the Action Area in the past decade, so history for most sites 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 2008c). See Section 3.1 for information regarding population trends in the Klamath Mountains province.

Table 4. Spotted Owl Sites (by Section Seven Watershed and Project Area)		
	Number of owl sites (centers) within Watershed boundary *	**Number of owl home ranges Associated with the Action Area**
Applegate	**69 Historic/15 Generated**	
Williams		**13**
Cow-Upper	**76 Historic/ 15 Generated**	
West Fork ROW		**2**
Rogue- Middle	**115 Historic/29 Generated**	
Poor Luck		**12**

* Only sites associated with the Medford District Boundary and adjacent Forest Service sites. Doesn't include all FS sites within the larger watersheds.

3.4 Barred Owls

The 2011Revised Recovery Plan for the Northern Spotted Owl identifies competition from the barred owl as a threat to the spotted owl (USDI FWS 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 may be out-competing northern spotted owls for habitat and food. The effects of the barred owl on spotted owl survival and reproduction is unknown. Barred owls are detected opportunistically since we haven't conducted protocol surveys across the District. There is a trend of increasing numbers of barred owls across the range and also within the Medford District.

Incidental observations across the District and information from the demographic study area indicate that barred owls are increasing here as well as other places, but they may currently be at lower densities than other areas. Populations of barred owls are likely to increase over time. Impacts to spotted owls cannot be statistically evaluated to date, but observational data suggests direct competition with and aggressive displacement of spotted owls from prime nesting habitat.

Barred owls have been observed in three of the 10 historic spotted owl sites associated with the Poor Luck project. Barred owls have been observed in three of the 12 historic spotted owl sites associated with the Williams Project area. In 2010, a nesting pair of barred owls was observed in the Williams Project Area.

3.5 Status of Spotted Owl Critical Habitat

Spotted Owl Designated Critical Habitat (Current – 2008)

There are approximately 363 acres of the Poor Luck project in the 2008 designated CHU #14. The CHU-14-*Rogue/Umpqua unit* consists of approximately 183,800 ac (74,400 ha) in Douglas and Josephine Counties, Oregon, and is comprised of lands managed by the Umpqua National Forest (23,400 ac (9,500 ha)) and Roseburg and Medford BLM Districts (160,500 ac (65,000 ha)). This unit includes one area that, with approximately 4,100 ac (1,700 ha) of habitat or habitat-capable areas in the adjacent Wilderness, meets the size requirement of a large habitat block, and

three areas wholly within critical habitat that meet the size requirement of small habitat blocks**.** These areas provide for habitat connectivity and northern spotted owl movement via the inter-provincial connection from the western Cascades to the Oregon Coast Ranges across the Rogue–Umpqua divide.

Table 5. Spotted Owl Habitat on Medford BLM Land within CHU-14 (2008)

CHU	Total BLM Acres	Dispersal		NRF		All-Dispersal	
		Acres	Percent	Acres	Percent	Acres	Percent
Rogue/Umpqua 14	95,615	13,278	14%	59,515	62%	72,793	76%

*As calculated by GIS (D. Assali). Full integers noted on table to account for GIS rounding issues. From 2008 DA BA FH

<u>Spotted Owl Proposed Critical Habitat (Proposed – 2012)</u>

The projects proposed in this BA are located within proposed Critical Habitat unit 9 (Klamath West – KLW). The Poor Luck and West Fork ROW projects are in the KLW-1 subunit and the Williams Project is in the KLW-4 subunit.

Unit 9: Klamath East (KLW)

Unit 9 contains 1,290,687 ac (522,322 ha) and nine subunits. This unit consists of the western portion of the Klamath Mountains Ecological Section M261A, based on section descriptions of forest types from Ecological Subregions of the United States (McNab and Avers 1994c, Section M261A). A long north-south trending system of mountains (particularly South Fork Mountain) creates a rainshadow effect that separates this region from more mesic conditions to the west. This region is characterized by very high climatic and vegetative diversity resulting from steep gradients of elevation, dissected topography, and the influence of marine air (relatively high potential precipitation). These conditions support a highly diverse mix of mesic forest communities such as Pacific Douglas-fir, Douglas-fir tanoak, and mixed evergreen forest interspersed with more xeric forest types. Overall, the distribution of tanoak is a dominant factor distinguishing the Western Klamath Region. Douglas-fir dwarf mistletoe is uncommon and seldom used for nesting platforms by spotted owls. The prey base of spotted owls within the Western Klamath is diverse, but dominated by woodrats and flying squirrels.

<u>KLW- 1</u>

The KLW-1 subunit consists of approximately 156,075 ac (63,161 ha) in Douglas, Josephine, Curry, and Coos Counties, Oregon, and comprises lands managed by the State of Oregon and the BLM. Of this subunit 7,236 ac (2,928 ha) are managed by the State of Oregon for multiple uses including timber revenue production, recreation, and wildlife habitat according to the Southwest Oregon State Forests Management Plan (ODF 2010, entire) and may be considered for exclusion in the final critical habitat designation. Federal lands comprise 148,837 ac (60,233 ha) and are managed as directed by the NWFP (USDA and USDI 1994, entire). Special management considerations or protection are required in this subunit to address threats from current and past timber harvest, losses due to wildfire and the effects on vegetation from fire exclusion, and competition with barred owls. This subunit is expected to function for demographic support to the overall population and for north-south and east-west connectivity between subunits and CHUs. This subunit sits at the western edge of an important connectivity corridor between coastal Oregon and the western Cascades.

The Service's evaluation of sites known to be occupied at the time of listing indicate that approximately 96 percent of the area of KLW-1was covered by verified spotted owl home ranges at the time of listing. When combined with likely occupancy of suitable habitat and occupancy by non-territorial owls and dispersing subadults, we consider this subunit to have been largely occupied at the time of listing. In addition, there may be some smaller areas of younger forest within the habitat mosaic of this subunit that were unoccupied at the time of listing. We have determined that all of the unoccupied and likely occupied areas in this subunit are essential for the conservation of the species to meet the recovery criterion that calls for the continued maintenance and recruitment of spotted owl habitat (USFWS 2011, p. ix). The increase and enhancement of spotted owl habitat is necessary to provide for viable populations of spotted owls over the long term by providing for population expansion, successful dispersal, and buffering from competition with the barred owl.

KLW- 4

The KLW-4 subunit consists of approximately 155,811 ac (63,055 ha) in Josephine and Jackson Counties, Oregon, and Del Norte and Siskiyou Counties, California, and comprises lands managed by the Forest Service, the BLM, and the NPS that are managed as directed by the NWFP (USDA and USDI 1994, entire). Congressionally reserved natural areas in Federal ownership are proposed for exclusion in the final critical habitat designation. Special management considerations or protection are required in this subunit to address threats from current and past timber harvest, losses due to wildfire and the effects on vegetation from fire exclusion, and competition with barred owls. This subunit is expected to function for demographic support to the overall population and for north-south and east-west connectivity between subunits and CHUs.

The Service's evaluation of sites known to be occupied at the time of listing indicate that approximately 95 percent of the area of KLW-4 was covered by verified spotted owl home ranges at the time of listing. When combined with likely occupancy of suitable habitat and occupancy by non-territorial owls and dispersing subadults, we consider this subunit to have been largely occupied at the time of listing. In addition, there may be some smaller areas of younger forest within the habitat mosaic of this subunit that were unoccupied at the time of listing. We have determined that all of the unoccupied and likely occupied areas in this subunit are essential for the conservation of the species to meet the recovery criterion that calls for the continued maintenance and recruitment of spotted owl habitat (USDI 2011, p. ix). The increase and enhancement of spotted owl habitat is necessary to provide for viable populations of spotted owls over the long term by providing for population expansion, successful dispersal, and buffering from competition with the barred owl.

The proposed CHU baseline for this BA will be analyzed at the Section 7 Watershed scale because this is what we used as the BA Analysis Area and for the habitat baseline. Additionally, a habitat baseline for the proposed CHU hasn't been created yet for SW Oregon. The current BLM habitat layer (3/7/12) was used for this BA.

Table 6. Proposed CHU Environmental Baseline for the Analysis Area (Section 7 Watershed) *

Rogue-Middle Section Seven Watershed	Acres
Total acres all ownership	600,357

Table 6. Proposed CHU Environmental Baseline for the Analysis Area (Section 7 Watershed) *	
Total acres CHU KLE-1	5,104
Total acres CHU KLE-2	16,079
Total acres CHU KLE-3	72,346
Total acres CHU KLW-1	35,141
Total acres CHU KLW-2	***41,984***
Total CHU acres	**170,655**
NRF ACRES	
Total NRF acres CHU KLE-1	2,788
Total NRF acres CHU KLE-2	9,340
Total NRF acres CHU KLE-3	32,612
Total NRF acres CHU KLW-1	20,681
Total NRF acres CHU KLW-2	***23,002***
Total NRF acres	**88,423**
DISPERSAL ACRES (NRF + Dispersal Only)	
Total DISPERSAL acres CHU KLE-1	3,660
Total DISPERSAL acres CHU KLE-2	11,479
Total DISPERSAL acres CHU KLE-3	50,353
Total DISPERSAL acres CHU KLW-1	26,654
Total DISPERSAL acres CHU KLW-2	***25,177***
Total Dispersal Acres	**117,324**
Cow Upper Section Seven Watershed	**Acres**
Total acres all ownership	216,386
Total acres CHU KLE-1	23,434
Total acres CHU KLE-2	26,957
Total acres CHU KLE-3	***6***
Total acres CHU KLW-1	***51,300***
Total CHU acres	**101,697**
NRF ACRES	
Total NRF acres CHU KLE-1	16,303
Total NRF acres CHU KLE-2	15,849
Total NRF acres CHU KLE-3	***0***
Total NRF acres CHU KLW-1	***29,203***
Total NRF Acres	**61,355**
DISPERSAL ACRES (NRF + Dispersal Only)	
Total DISPERSAL acres CHU KLE-1	16,510
Total DISPERSAL acres CHU KLE-2	18,971

Table 6. Proposed CHU Environmental Baseline for the Analysis Area (Section 7 Watershed) *	
Total DISPERSAL acres CHU KLE-3	***0***
Total DISPERSAL acres CHU KLW-1	***34,008***
Total Dispersal Acres	**69,489**
Applegate Section Seven Watershed	**Acres**
Total acres all ownership	**492,884**
Total acres CHU KLE-3	12,606
Total acres CHU KLE-6	***91,163***
Total acres CHU KLW-2	9,671
Total acres CHU KLW-4	105,748
Total CHU Acres	**219,188**
NRF ACRES	
Total NRF acres CHU KLE-3	3,724
Total NRF acres CHU KLE-6	***48,094***
Total NRF acres CHU KLW-2	2,681
Total NRF acres CHU KLW-4	52,561
Total NRF Acres	**107,060**
DISPERSAL ACRES (NRF + Dispersal Only)	
Total DISPERSAL acres CHU KLE-3	7,044
Total DISPERSAL acres CHU KLE-6	***50,783***
Total DISPERSAL acres CHU KLW-2	2,684
Total DISPERSAL acres CHU KLW-4	61,781
	122,291

** NRF and Dispersal acres were derived from the BLM BA habitat data for the original BA. The dispersal only acres only account for BLM ownership.*

4. EFFECTS OF THE PROPOSED ACTION

4.1 Effects Analyzed By Spotted Owl Sites

Project design criteria (Appendix A) will be applied to all sites within or adjacent to project units to reduce or eliminate the impacts from potentially disturbing noise or activity near owl sites. Harvest activities within owl sites would occur outside the critical nesting period (Appendix A, Table A) to avoid adverse impacts to nesting birds due to noise and activity.

Owl sites are analyzed at the nest patch, core area, and provincial home range scales. Northern spotted owl site occupancy is defined as 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 alternate nest sites. Historic site activity has been evaluated in the design of projects and in this BA analysis, but not all habitat has been surveyed to protocol.

This BA uses the interagency Northern Spotted Owl Estimation Methodology for Incidental Take (USDI et al 2008) to estimate if habitat outside of known/historic sites could support additional spotted owl activity centers. The methodology relies upon known spotted owl locations derived from surveys as the foundation for a "northern spotted owl occupancy" map (NSOOM). Generated 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. The NSOOM is liberal in determining "suitable" habitat. Field evaluations indicate that some of the "suitable" habitat used to generate a site is very low quality NRF, or may better meet dispersal definitions.

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. Provincial home range radii (provincial radius) vary based on the physiographic province in which they are located: Klamath Mountains Province = 1.3 miles (3,400 acres). The provincial home ranges of several owl pairs 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 that 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 (70 acres) around a known or likely nest site. Nest patch is included in the core and home range area (USDI et al. 2008).

4.1.1 Effects to Individual Owl Sites

Table 7 summarized the habitat effects for each owl site within the nest patch, core area, and provincial home range scales. No NRF downgrading or removal will occur within the home range of any of the owl sites associated with the Poor Luck, Williams, and West Fork Cow Creek ROW projects. The NRF thresholds at these three analysis scales will not be reduced, so harm is not expected from the proposed actions of these projects. NRF downgrading will occur outside of the home ranges in the Poor Luck project and the effects to habitat are described in detail in Section 4.2 (Effects to Habitat).

Table 7. Site Effects at the Home Range, Core, and Nest Patch Scales

Site Number	**Analysis Scale**	**# Acres NRF Treat and Maintain**	**# Acres Dispersal Removed**	**# Acres Dispersal Treat and Maintain**	**Effects Determination**
Poor Luck					
0911O	**Home Range**	41	0	1	NLAA
	0.5 mile Core	0	0	0	

Table 7. Site Effects at the Home Range, Core, and Nest Patch Scales					
Site Number	**Analysis Scale**	**# Acres NRF Treat and Maintain**	**# Acres Dispersal Removed**	**# Acres Dispersal Treat and Maintain**	**Effects Determination**
	Nest Patch	0	0	0	
0916B	**Home Range**	364	0	47	NLAA
	0.5 mile Core	112	0	0	
	Nest Patch	0	0	0	
0923A	**Home Range**	416	0	30	NLAA
	0.5 mile Core	27	0	12	
	Nest Patch	0	0	0	
0951A	**Home Range**	206	0	2	NLAA
	0.5 mile Core	36	0	0	
	Nest Patch	0	0	0	
0970O	**Home Range**	102	0	59	NLAA
	0.5 mile Core	77	0	0	
	Nest Patch	0	0	0	
1308A	**Home Range**	184	0	65	NLAA
	0.5 mile Core	47	0	0	
	Nest Patch	4	0	0	
1309O	**Home Range**	224	0	123	NLAA
	0.5 mile Core	2	0	5	
	Nest Patch	0	0	0	
2624O	**Home Range**	21	0	0	NLAA
	0.5 mile Core	0	0	0	
	Nest Patch	0	0	0	
3387O	**Home Range**	27	0	0	NLAA
	0.5 mile Core	0	0	0	
	Nest Patch	0	0	0	
3945O	**Home Range**	100	0	0	NLAA
	0.5 mile Core	26	0	0	
	Nest Patch	0	0	0	
40G	**Home Range**	35	0	123	NLAA
	0.5 mile Core	7	0	38	
	Nest Patch	0	0	10	
41G	**Home Range**	7	0	4	NLAA
	0.5 mile Core	0	0	0	
	Nest Patch	0	0	0	
4407O	**Home Range**	161	0	43	NLAA
	0.5 mile Core	5	0	0	
	Nest Patch	0	0	0	
4515O	**Home Range**	22	0	0	NLAA
	0.5 mile Core	0	0	0	
	Nest Patch	0	0	0	

Table 7. Site Effects at the Home Range, Core, and Nest Patch Scales					
Site Number	**Analysis Scale**	**# Acres NRF Treat and Maintain**	**# Acres Dispersal Removed**	**# Acres Dispersal Treat and Maintain**	**Effects Determination**
4624O	**Home Range**	96	0	106	NLAA
	0.5 mile Core	88	0	34	
	Nest Patch	0	0	0	
49G	**Home Range**	135	0	7	NLAA
	0.5 mile Core	0	0	0	
	Nest Patch	0	0	0	
West Fork Cow Creek ROW					
2236O	**Home Range**	0	3	0	NLAA
	0.5 mile Core	0	0	0	
	Nest Patch	0	0	0	
2663O	**Home Range**	0	3	0	NLAA
	0.5 mile Core	0	2	0	
	Nest Patch	0	0	0	
Williams					
0127O	**Home Range**	388	0	541	NLAA
	0.5 mile Core	2	0	40	
	Nest Patch	0	0	0	
0890A	**Home Range**	264	0	261	NLAA
	0.5 mile Core	70	0	50	
	Nest Patch	0	0	0	
0959O	**Home Range**	44	0	330	NLAA
	0.5 mile Core	37	0	0	
	Nest Patch	0	0	0	
111G	**Home Range**	167	0	659	NLAA
	0.5 mile Core	10	0	219	
	Nest Patch	0	0	36	
127G	**Home Range**	379	0	154	NLAA
	0.5 mile Core	48	0	28	
	Nest Patch	15	0	0	
2018O	**Home Range**	512	0	7	NLAA
	0.5 mile Core	25	0	0	
	Nest Patch	0	0	0	
2019O	**Home Range**	578	0	380	NLAA
	0.5 mile Core	47	0	7	
	Nest Patch	0	0	0	
2066A	**Home Range**	182	0	40	NLAA
	0.5 mile Core	12	0	0	
	Nest Patch	0	0	0	
2066O	**Home Range**	201	0	60	NLAA
	0.5 mile Core	30	0	0	

Table 7. Site Effects at the Home Range, Core, and Nest Patch Scales					
Site Number	**Analysis Scale**	**# Acres NRF Treat and Maintain**	**# Acres Dispersal Removed**	**# Acres Dispersal Treat and Maintain**	**Effects Determination**
	Nest Patch	0	0	0	
2402O	**Home Range**	239	0	55	NLAA
	0.5 mile Core	24	0	0	
	Nest Patch	0	0	0	
2633O	**Home Range**	72	0	66	NLAA
	0.5 mile Core	0	0	0	
	Nest Patch	0	0	0	
3286O	**Home Range**	897	0	473	LAA
	0.5 mile Core	147	0	106	
	Nest Patch	0	0	0	
3558O	**Home Range**	34	0	50	NLAA
	0.5 mile Core	0	0	0	
	Nest Patch	0	0	0	
4481O	**Home Range**	65	0	63	NLAA
	0.5 mile Core	0	0	0	
	Nest Patch	0	0	0	

4.1.2 Project Specific Owl Site Effects

Poor Luck:
The Poor Luck project is within the home ranges of 13 historic owl sites and 3 generated sites. Treatments would maintain habitat at the home range and core scales.

 # 1308A **-** Approximately 4 acres of foraging habitat (sub-set of the NRF habitat described above) maintain treatments on the upper 1/3 of a slope would occur within the nest patch, which would impact 5.7 percent of the nest patch. Even with the proposed treatments in the nest patch, potential harm is not expected because:

- The proposed action would retain suitable amounts of thermal and hiding cover and retain foraging habitat post treatment. Nesting habitat and habitat within riparian areas and main drainages within the nest patch would not be treated. The local field biologist has determined the proposed treatments are designed to maintain the current condition of the stand within the nest patch. As stated in the OEM guidelines (pg. 14), light thinning treatments of NRF habitat within the nest patch that maintain a similar stand function pre- and post- thinning, would likely warrant a NLAA determination.
- Fifty-three acres of the total 57 NRF within the nest patch would not be treated as a result of the proposed action.
- Records indicate nesting/occupation occurred once in the nest patch (1994). Barred owls were detected in the area 1998-2000 with only one spotted owl response in 1998. Surveys in 2006 detected no barred or spotted owls.

- Protocol surveys will be done in the next two to five years, depending on the harvest schedule, to determine occupancy. If owls are found during surveys, the associated unit affecting the nest patch site would be dropped to reduce the amount of potential harm as a result of the proposed action.

 # 40G - Approximately 10 acres of dispersal maintain treatments from light-thinning prescriptions would occur within the nest patch of this generated owl site. Even with the proposed treatments in these nest patches, potential harm is not expected because:

- No NRF or dispersal habitat would be removed or downgraded within the nest patch.
- 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). There are 42 acres of NRF within this nest patch and it would not be treated. Only 14 percent of the nest patch would be impacted from dispersal maintenance treatments.
- Protocol surveys will be done in the next two to five years, depending on the harvest schedule, to determine occupancy. If owls are found during surveys, the associated unit affecting this generated site would be dropped to reduce the amount of potential harm as a result of the proposed action.

Poor Luck Surveys in unsurveyed suitable habitat

BLM proposes approximately 394 acres of NRF downgrade outside of known or generated spotted owl home ranges. It is unlikely enough habitat is available to support additional spotted owls because of the close proximity of historical sites with overlapping home ranges. Expanded surveys from the adjacent Klamath Demographic owl sites often cover portions of the 394 acres. When no owl responses are detected at historical demographic sites, surveys extend to cover other alternate owl locations or to follow up on responses attributed to late-season floaters However, the BLM plans to conduct protocol surveys in this unsurveyed NRF habitat in the next two to five years, depending on the harvest schedule, to determine occupancy. If owls are found during surveys, the associated units affecting the new site would be dropped or modified to reduce the amount of potential harm as a result of the proposed action.

Williams:
The Williams project is within the home ranges of 12 historic owl sites and 2 generated sites. NRF habitat would not be removed or downgraded and dispersal would not be removed within the home ranges or core areas of these 14 sites.

 # 127G - Approximately 15 acres of NRF maintain treatments would occur within the nest patch, which would impact 21 percent of the nest patch. Even with the proposed treatments in these nest patches, potential harm is not expected because these treatments because:

- No NRF or dispersal habitat would be removed or downgraded within the nest patch.
- These 15 acres of NRF maintenance treatments are planned on an area that falls within lower habitat quality on the USFWS Relative Habitat Suitability model, which is an

indicator that owls are unlikely to nest there due to abiotic factors such as slope, aspect, and elevation.

- Approximately 65 percent of the available NRF in the nest patch would remain post-harvest.
- 2012 will be the third year of protocol surveys to determine occupancy. If owls are found during surveys, the associated unit affecting this generated site would be dropped to reduce the amount of potential harm as a result of the proposed action.

 # 111G - Approximately 36 acres of dispersal maintain treatments from light-thinning prescriptions would occur within the nest patch of this generated owl site. Approximately, 10 acres of NRF and 219 acres of dispersal habitat would be treated within the core, which is 62 percent of the NRF and Dispersal habitat within the core. Even with the proposed treatments in the nest patch and the high percentage of treatment within the core area, potential harm is not expected as a result of these treatments because:

- Site 111G is actually on private land and no NRF is present on private or BLM lands within the nest patch.
- This site was generated using a liberal interpretation of habitat values; on the ground site specific habitat evaluations indicate insufficient amounts of suitable habitat at this location to support nesting owls. It is unlikely that there is enough exiting NRF at the home range to support nesting owls because based on updated habitat information, only 13 percent of the home range is currently NRF. Surveys are not planned in this home range because not enough NRF was present to conduct protocol surveys.
- The home range of this generated site does show potential long term viability since over half of the home range is in high habitat quality in the USFWS Relative Habitat Suitability model. However, the long term habitat contribution would likely only occur on federal lands within the home range. Maintenance treatments in these young dispersal stands will provide long term benefits by opening the stands to provide the development of horizontal and vertical structural diversity.

 # 3286O - Approximately 147 acres of NRF and 106 acres of dispersal maintain treatments from light-thinning prescriptions would occur within the core area of this site. Even though these would not remove NRF or dispersal habitat, the proposed treatments are Likely to adversely affect (LAA) spotted owls and potentially cause harm because:

- Treatments would simplify 253 acres (84 percent) of existing NRF and dispersal stands within the 0.5 mile core scale and would reduce the quality and amount of prey habitat within the core area. The large percentage of NRF and dispersal treatment within the core area would negatively affect prey availability, thus negatively impacting spotted owl survival and reproduction.
- Surveys have been limited at this site in the past several years, but historically this site has had a pair and has successfully reproduced. The amount of habitat within the home range has not significantly changed since the last surveys and without recent survey data, this site is assumed to be occupied.
- Effects would be minimized because treatments would be spread out temporally and spatially within core area.

West Fork Cow Creek ROW
The West Fork Cow Creek ROW project is within the home ranges of 2 historic owl sites and within the core area of one of these historic sites. Treatments would remove 2.7 acres of dispersal on private lands and 0.3 acres of dispersal habitat on BLM lands. The removal of 3 acres of dispersal habitat as a result of this Road construction would not prevent owls from nesting and dispersing within this home range. The road location is surrounded by dispersal habitat and is 550' away from the nearest NRF habitat. This amount of removal is small in scope compared to the amount of habitat available at the core area of this site. Additionally, this would have minimal effects to the site because at the 0.5 mile core scale there are 324 acres of NRF habitat, which is approximately 15 percent above the 50 percent threshold recommended as necessary to maintain spotted owl life history functions (USFWS 2008).

4.2 Effects Analyzed by Habitat

We describe potential effects of habitat change as compared to the current environmental baseline. The effects to NRF and dispersal habitat are summarized in Tables 8, 9, and 10. The proposed action may adversely impact northern spotted owls by downgrading 394 acres of NRF habitat to dispersal in association with the Poor Luck project (Table 8).

The proposed projects listed in this BA are still in planning. It's likely that the effects to habitat described in the following tables would be reduced at the time of the NEPA Decision Record or Timber Sale because it's anticipated that acres will be dropped for various reasons including logging feasibility issues.

Table 8. Effects of NRF Downgrade by Section 7 Watershed (BLM Ownership)

	Pre-Project	Downgraded	Post-Project	% Changed
Rogue-Middle Section 7 Watershed				
Poor Luck	183,416	394	183,022	0.2%

The BLM has determined the downgrading of 394 acres of NRF habitat associated with the Poor Luck project is likely to adversely affect (LAA) northern spotted owls because:

- Thinning that downgrades suitable NRF habitat to dispersal habitat would remove key habitat elements (high percent of canopy cover, multiple canopy layers, and hunting perches.
- The removal of these key habitat features would reduce the nesting, roosting, and foraging opportunities for owls within the Action Area, and may lead to increased predation risk by exposing owls to other raptors.
- Downgrading of NRF to dispersal would result in a 0.2 percent reduction in the amount of existing NRF in the Rouge-Middle Section 7 Watershed.

The 394 acres of NRF downgrading can be divided into NRF and Foraging Habitat. Approximately 204 acres are classified as foraging habitat, while 190 acres are classified as

NRF. The treatments proposed in foraging habitat will provide long term habitat benefits by providing more resilience to drought, insects, disease and fire, with more structural complexity to these simple stands from variable density thinning of dense conifer stands, and retaining tree species diversity, fire resilient species, and large hardwoods. All downgrade would occur outside the home ranges of known owl sites.

Table 9. Effects to NRF from Treat and Maintain Treatment by Section 7 Watershed (BLM Ownership)

Project	Pre-Project	Treated and Maintained	% Treated
Rogue-Middle Section 7 Watershed			
Poor Luck	183,416	1,588	0.9%
Applegate Section 7 Watershed			
Williams IVM	171,063	2,342	1.4%

The BLM has determined the maintenance of 3,930 acres of NRF habitat associated with these projects is not likely to adversely affect (NLAA) northern spotted owls because:

- The conditions that characterize a stand as NRF would be retained following treatment.
- Removal of suppressed and dying trees and providing additional space to residual trees will aid their diameter and height, which should make the stand conditions better for owls as the stand recovers, vs. the overly dense pre-treatment condition.
- Treated stands would be more suited to the water and light available to the site.
- Components important to owls such as large standing and down wood and large hardwoods would be retained. The percent of NRF treated in the action area is low.

Table 10. Effects of Removal or Maintenance Treatments to Dispersal-Only by Section 7 Watershed (BLM Ownership)

Project	Dispersal					
	Pre-Project	Removed	Maintained	Added*	Post-Project	% Changed
Rogue-Middle Section 7 Watershed						
Poor Luck	44,057	0	490	394	44,451	+0.9%
Cow-Upper Section 7 Watershed						
West Fork Cow Creek ROW	9,445	3	0	0	9,442	- 0.01%
Applegate Section 7 Watershed						
Williams IVM	27,979	0	2,288	0	27,979	0 %

* NRF downgrade increases dispersal-only acres.

The BLM has determined that the maintenance of 2,778 acres 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 would continue to function as dispersal habitat.
- These treatment acres would be expected to continue to provide dispersal opportunities post-treatment and may improve the flying space of the post-treatment dispersal.
- The proposed treatments will be dispersed throughout the watersheds to minimize the potential for adversely affecting spotted owl dispersal.
- Maintenance activities within dispersal would not remove the large standing and down wood and large hardwood components important to the dispersal of owls, and would make the residual habitat healthier and more ecologically sustainable over time.

The BLM has determined that the removal of 3 acres (private – 2.7 acres/ BLM 0.3 acres) of dispersal habitat associated with the West Fork Cow Creek Road ROW may affect, and is not likely to adversely affect (NLAA) northern spotted owls because:

- Removal of dispersal habitat would not occur within a known site nest patch, but will occur in the 0.5 mile core of one known owl site.
- The removal of dispersal habitat would be less than 0.001 percent of the total 111,738 acres of dispersal habitat (NRF and dispersal only) within the Upper Cow Section 7 watershed.

4.3 Effects to Critical Habitat

This BA includes an analysis of the current 2008 designated CHU and the 2012 proposed CHU since there are proposed treatments in both. The final CHU rule will be published in November, 2012. The District Biologist will review and work with the Level 1 team at the time of final designation of CHU to make sure the analysis in this amendment is consistent with the final rule.

Spotted Owl Designated Critical Habitat (Current – 2008)

The proposed action is located within Critical Habitat Unit #14. All treatments in 2008 designated CHU are designed to maintain the primary constituent elements and are summarized in Table 11. The proposed action will not change the function of CHU #14, which is to provide for habitat connectivity and northern spotted owl movement via the inter-provincial connection from the western Cascades to the Oregon Coast Ranges across the Rogue–Umpqua divide.

Table 11. Effects to 2008 CHU

RA	Project	2008 CHU #	Total CHU acres	NRF	NRF T&M	% NRF treated	Acres of all Disp	Disp T&M	% Dispersal treated	% CHU unit treated
GP	Poor Luck	14	183,840	59,515	254	0.4%	72,793	109	0.2%	0.2%

Baseline habitat acres are from 2008 DA BA FH, Table 15, pg 42. (USDI, 2008b). All Federal NRF within CHU and within Medford District Boundaries are noted where present. Dispersal acres on non-BLM Federal lands are not available.

Three hundred sixty-three acres on BLM matrix lands will be treated and maintained through thinning projects in CHU #14. One hundred nine dispersal and 254 acres NRF will be treated. The Proposed Action will not remove or downgrade NRF or remove dispersal habitat in CHU lands and will not adversely affect the primary constituent elements. There will be no change in the NRF and Dispersal baseline within CHU #14. The function of CHU #14, which is to provide for habitat connectivity and northern spotted owl movement via the inter-provincial connection from the western Cascades to the Oregon Coast Ranges across the Rogue–Umpqua divide, will remain post treatment.

Effects to NRF

Units within NRF are designed to ensure that none of the criteria used to define primary constituent elements of critical habitat will change (high, multi-storied canopy with large overstory trees, accumulations of wood on the ground, snags, and flying space). Components important to spotted owls such as nest trees, multilayered canopy and dead and down wood that support prey species habitat will remain within the Action Area post-harvest, retaining the ability of the habitat to provide nesting, roosting, foraging and dispersal of owls. The Action Area includes all proposed harvest units as well as all areas subject to increased ambient noise levels caused by activities associated with the proposed action.

Effects to PCE 2 (NRF) as a result of the implementation of the project will be insignificant for the following reasons:

- There will be no change to the amount of NRF in the 2008 CHU in the Action Area.
- The primary constituent elements of critical habitat that make up NRF will be maintained, and improved over the long term. Treated stands will be more ecologically sustainable and fire resilient.
- Canopy cover within treated stands will be retained at or above 60 percent in NRF.
- Decadent woody material in the treatment area, such as large snags and down wood will remain post-treatment.
- Any multi-canopy, uneven aged tree structure that was present prior to treatment will remain post-treatment.
- No nest trees will be removed.
- PDC will avoid adverse disturbance.

Although in the short term, there may be some change in habitat, post-project habitat will retain the values that qualified it as NRF prior to the action. Treatments will improve ecological health of the stands by stimulating forage plants important to spotted owl prey, reducing the chance of tree loss in overstocked stands due to suppression mortality, and reducing the intensity and risk of wildfire by removing excess fuels.

Effects to Dispersal

Units within dispersal habitat in the 2008 CHU are designed to ensure that the treatment will not adversely affect the dispersal primary constituent elements in these areas because dispersal habitat will retain at least 40 percent canopy cover and large trees, snags, large down wood. Structural diversity important to northern spotted owls will be retained. Light to moderate thinning will

reduce the average canopy cover of the stand to no less than 40 percent. Selective harvest may affect dispersal habitat by removing some horizontal and vertical structure.

Effects to PCE 3 (Dispersal) as a result of the implementation of the project will be insignificant for the following reasons:

- Post-project habitat will retain the values that qualified it as dispersal prior to the action.
- Canopy cover within treated stands will be retained at or above 40 percent.
- Decadent woody material in the treatment area, such as large snags and down wood will be maintained during treatment.
- Any multi-canopy, uneven aged tree structure that was present prior to treatment will remain post-treatment.
- Treated stands will be more ecologically sustainable and fire resilient.
- Thinned stands will develop structural diversity more rapidly than a dense unthinned stand because residual trees will grow faster in more ecologically-sustainable conditions.
- Dense stands will be opened by thinning, improving conditions for dispersing spotted owls.
- Thinning dispersal habitat could reduce the rate of spread and intensity of wildland fires.
- PDC will avoid adverse disturbance impacts.

In the long-term, treatments will improve ecological health of the stands by stimulating forage plants important to spotted owl prey, reducing the chance of tree loss in overstocked stands due to suppression mortality, and reducing the intensity and risk of wildfire by removing excess fuels.

Spotted Owl Proposed Critical Habitat (Proposed – 2012)

The proposed action is located within two proposed Critical Habitat sub-units (KLW-1 and KLW-4) within three section 7 watersheds (Rogue-Middle, Cow Upper, and Applegate). The effects to the primary constituent elements (Forest Habitat, Nesting Roosting, Foraging, and Dispersal) are addressed in tables 12 and 13. The proposed actions will not alter the CHU sub-units' ability to provide demographic support for northern spotted owls because treatments within the 0.5 mile core area would treat, but maintain NRF and dispersal habitat. No removal of NRF or dispersal habitat would occur within the home range, core, and nest patch scales.

Effects to NRF in Proposed CHU

Table 12: Summary of NRF Effects in Proposed CHU (PCE 1,2,3)

Proposed CHU Sub Unit (watersheds)	Project	Baseline	NRF Removed	NRF Downgrade	NRF T&M	% change
KLW-1		66,929				
(Cow-Upper, Rogue-Middle)	**Poor Luck**		0	316	1,024	-0.5%
KLW-4		52,561				
(Applegate)	**Williams IVM**		0	0	1,466	**0 %**

The District has determined that the downgrading of 316 of NRF habitat within proposed critical habitat will contribute to a reduction of suitable NRF habitat within proposed CHU sub unit KLW-1, and is **likely to adversely affect (LAA)** spotted owl critical habitat. However, the proposed action will not affect the intended conservation function of this unit because the proposed action would result in a reduction of 0.5 percent at the Section 7 Watershed scale of existing NRF within KLW-1. This subunit is expected to still provide demographic support and north-south and east-west connectivity between subunits and CHUs post treatment. Additionally, when compared to the total CHU acres (272,352) and NRF acres in CHU (149,779) within these two Section 7 watersheds, the change is significantly less. For consultation purposes, Nesting, Roosting, Foraging and Foraging habitat have been combined within the NRF effects determination. Approximately 204 acres of the 316 acres of the Poor Luck NRF downgrade units within the 2012 proposed CHU, are actually foraging habitat (PCE3). The short term adverse effects of treating these acres of foraging habitat within the Poor luck Project will have long term benefits because reducing stand tree densities and increasing tree diameters will increase stand resiliency to drought, insects, disease and fire, and produce a more ecologically sustainable stand of larger diameter trees. Even though the proposed action will remove a small amount of NRF habitat (PCE 2,3) within the KLW-1 CHU sub-unit, the overall objectives of these projects are to restore ecological processes or long-term forest health to forested landscapes, which is consistent with the 2011 Revised Recovery Plan and the 2012 Proposed CHU.

The District has determined that the proposed maintenance of 2,490 acres of NRF habitat within proposed critical habitat sub units KLW-1 and KLW-4 will have an insignificant effect to spotted owl critical habitat (PCE 1,2, and 3) and is **not likely to adversely affect (NLAA)** critical habitat because NRF habitat would not be removed or downgraded within the sub units. NRF function would still be retained at the stand level because:

- Canopy cover within treated NRF stands will be retained at or above 60 percent.
- Decadent woody material in the treatment area, such as large snags and down wood, will remain post-treatment.
- Any multi-canopy, uneven-aged tree structure that was present prior to treatment will remain post-treatment.
- No spotted owl nest trees will be removed.

Effects to Dispersal in Proposed CHU

Table 13: Summary of Dispersal Effects in Proposed CHU (PCE 1,4)

Proposed CHU Sub Unit (watersheds)	Project	Dispersal Baseline	Dispersal-only Removed	Dispersal T&M	% change
KLW-1		60,662			
(Cow-Upper, Rogue-Middle)	**Poor Luck**		0	340	
	West Fork Cow Creek ROW		0.3	0	
	Total		**0.3**	**340**	- < 0.001%
KLW-4		61,781			
(Applegate)	**Williams IVM**		0	1,197	**0 %**

The District has determined that the removal of 0.3 acres of dispersal-only habitat within proposed critical habitat will contribute to a reduction of suitable dispersal habitat within CHU sub-unit KLW-1, and is not **likely to adversely affect (NLAA)** spotted owl critical habitat. The proposed action is so small in scope and will not affect the intended conservation function of this unit because the proposed action would result in a reduction of less than 0.001% at the Section 7 Watershed scale of existing dispersal within KLW-1. This subunit is expected to still provide demographic support and north-south and east-west connectivity between subunits and CHUs post treatment.

The District has determined that the proposed maintenance of 1,537 acres of dispersal habitat within critical habitat will have an insignificant effect to spotted owl critical habitat (PCE 1 and 4) and is **not likely to adversely affect (NLAA)** critical habitat because treatments would not remove dispersal habitat within the sub units. Dispersal function would still be retained at the stand level because:

- Canopy cover within affected stands will be maintained at 40 percent or greater post-treatment.
- Decadent woody material, such as large snags and down wood, will be retained in the same condition as prior to the treatment.
- The proposed treatments will be dispersed in relatively small patches within the CHU to further minimize the potential for adversely affecting stand characteristics for dispersal habitat.

Beneficial Effects to Proposed CHU

The following beneficial effects may be realized as a result of implementation of the proposed action:

- Treated stands are likely to be more ecologically sustainable because residual stands will be less susceptible to suppression mortality.
- Fuels/vegetation management treatments are designed to reduce the intensity and rate of spread of large, stand replacement fires common to the action area.
- Very dense stands will be opened by thinning, thereby improving the ability for spotted owls to disperse within these stands. Thinning stands that currently provide poor quality dispersal habitat will improve the dispersal function for spotted owls by providing more “flying space,” and encouraging residual trees to develop more size and structural diversity.
- The quality of spotted owl foraging habitat in treated stands may improve in response to the relatively more open structure of the treated stands.
- Thinning treatments are likely to contribute to reducing the rate of spread and intensity of wildland fires common to the action area.

- Thinning in young stands that do not currently provide dispersal or NRF habitat, will accelerate the development of spotted owl habitat.

4.4 Effects to Spotted Owl Prey

The northern flying squirrel, red tree vole, dusky-footed woodrat, and bushy-tailed woodrat are important prey of the northern spotted owl in this action area. Spotted owl prey relationships are complex and prey-switching may be important (Courtney et al 2004). Timber harvest and fuels reduction projects may impact foraging by changing habitat conditions for different species of prey.

The results of treatment on owl habitat depends on the current stand condition (and how close it approximates old-growth characteristics considered important to owls), how many trees are removed, the residual overstory, the aerial extent of the treatment, the residual decadence of standing and down wood, the canopy complexity, the time of year the treatment occurs, and the type of tree removal. PDC and normal operating procedures applied by the Medford BLM reduce the impacts to the extent possible, while still facilitating tree harvest and other projects. Opening a stand through tree harvest can also provide more light to the ground and increase understory trees and shrubs.

Treatment sizes are relatively small (averaging less than 30 acres, many less than 20) and are dispersed throughout the project areas. Untreated patches will be retained within the project areas for special status species, riparian vegetation, and other constraints. We anticipate that overall impacts of the proposed action on prey will not adversely affect spotted owls in the area. Flying squirrel habitat may be reduced in quality in some places, but those same places are likely to maintain or improve woodrats and other small mammals (Courtney et al 2004). BLM maintains large standing and down wood in all treatments, which is important to flying squirrels (Carey et al 1999), and maintains hardwoods and multi-layered canopies as a design feature in projects. Maintaining a multi-layered canopy will somewhat ameliorate the adverse effects of thinning flying squirrel habitat (Carey et al 1999).

Sakai and Noon (1993) stated that dusky-footed woodrats, the primary prey of owls in our area, might benefit from some thinning or harvest that would increase shrub and pole stands. Bushy-tailed woodrat presence is more dependent on cover and food availability than on seral stage. They often use areas previously disturbed by fire (Carey 1991). Bushy-tailed woodrats are most abundant along streams, and riparian areas may serve as the principal avenue for woodrat recolonization (Carey et al 1992). 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. These components will be retained as part of our proposed action.

Flying squirrel densities are correlated with high cavity density, large amounts of hypogenus fungi, and crown class differentiation (Carey et al 1999, Carey et al 2000). Gomez et al. (2005) noted that commercial thinning in young stands of Coastal Oregon Douglas-fir (35 to 45 years old) did not have a measurable short-term effect on density, survival, or body mass of northern

flying squirrels. Similarly, Waters and Zabel (1995) compared squirrel densities and body mass in shelterwoods and in old and young stands in the northern Sierras (old = 3.29/Ha, shelterwood = 0.31/ha, young = 2.28/Ha) and found no difference in body mass or recapture rates between young and old stands in northern more mesic forest habitats, although they concluded that heavy logging and site preparation (burning) in the shelterwoods negatively affected flying squirrels. More recent studies have indicated negative impacts of thinning on flying squirrels (Wilson 2010, Holloway and Smith 2011), Additionally, Ritchie et al (2009) found negative landscape effects on flying squirrels when harvested areas opened the stand to create open conditions.

Based on this research, we predict the treat and maintain projects in this BA would retain cover that would be used by flying squirrels. Some of the downgrade treatments may reduce flying squirrel densities. While flying squirrels may inhabit some of the young stands in the Action Area, it is not likely that they will be significantly affected by the proposed actions because large dead wood would be retained, some canopy diversity will be maintained, and treatment areas make up a small proportion of available habitat.

A dispersal stand that resulted from the downgrade of NRF habitat would begin to develop the pretreatment habitat within 25 to 40 years, depending on treatment type, plant association, and location. 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. Martin and McComb (2002) noted that small mammal diversity in the Coast Range matched the intermediate disturbance hypothesis (IDH): a combination of both early- and late-successional conditions produced highest small mammal diversity. The proposed treatments in this BA would result in similar habitat conditions at the landscape scale.

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. The retained trees may respond favorably to more light and resources and gain height and canopy over time. 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.

Some disturbance of habitat may improve forage conditions, provided that understory structure and cover are retained. Removal of some 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 and once again close in the stand.

Edges created from harvest 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) indicate the core area size for the Klamath and Western Cascades provinces is 0.5 miles (or 500 acres) of the nest site. Therefore, effects to prey species are most critical at the nest patch and core areas. Effects to spotted owl sites at the nest patch and core areas are analyzed in Section 4.1 above and the indirect effects to prey species can be derived from this data. Minimal effects are anticipated to spotted owl prey because only small amounts of treat and maintain treatments are proposed within the nest patch and core areas of the majority of the owl sites associated with the proposed action. However, greater prey impacts are anticipated at site 3286O (Williams Project) because 84% of the available NRF and dispersal habitat would be treated within the core area. The large percentage of treatment within NRF and dispersal within the core would likely to adversely (LAA) affect owls at this site. For all projects, treatment implementation would be spread out temporally and spatially within the Action 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.

4.5 Effects of Disturbance to Northern Spotted Owls

Mandatory PDC will be incorporated into all proposed action activities (Appendix A). Applying the Mandatory PDC should avoid noise or activity adversely affecting nesting owls and their young, but may not reduce the adverse effects of habitat changes. Nesting owls are confined to an area close to the nest, but once the young fledge, they can move away from noise and activities that might cause them harm. All projects will follow mandatory PDCs that restrict activities to outside of the breeding season and/or occur beyond recommended disturbance distance thresholds (Appendix A).

4.6 Interrelated and Interdependent Effects

Interrelated actions are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that might occur independently of the larger action, but have no independent utility apart from the action under consideration. Interdependent actions depend on the Federal action and would make no sense without it.

All proposed timber harvest projects in this BA have interrelated and interdependent effects. such as noise, road construction or timber hauling on existing system roads, and post-harvest brush disposal. Brush disposal activities vary according to conditions post-treatment, fuels management

objectives, requirements for retention of down woody material, and other resource management goals. Post project fuels reduction includes biomass removal, pile burning; underburning; and rearranging fuels by crushing, mulching, and lopping and scattering.

4.7 Cumulative Effects

Cumulative effects under ESA are "those effects of future State or private activities, not involving Federal activities, that are reasonably 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.

The Action Area has a checkerboard pattern of ownership of private land interspersed with BLM and US Forest Service lands. Management practices occurring on private lands range from residential home site development to intensive industrial timber management.

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 forestlands 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, data from Oregon Department of Forestry and the Pacific Northwest Inventory and Analysis team was used to estimate harvest rates in the past decade on private lands within the Medford District. Records indicate 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, types of spotted owl habitat affected, or the specific location of harvest. BLM does not track private land harvest activity.

The Medford BLM assumes 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. The Oregon Forest Practice Rules (629-665-0210), protects spotted owl nest sites (70-acre core areas) for at least three years after the last year of occupation.

5. BIOLOGICAL ASSESSMENT CONCLUSIONS

The Poor Luck project "may affect and is likely to adversely affect" (LAA) spotted owls because of NRF habitat downgrade. Within the project area, there are some activities that may affect, but are not likely to adversely affect spotted owls for the reasons explained in this BA (NLAA): NRF maintained, Dispersal maintained and dispersal removed. The Williams IVM Project may affect, but is not likely to adversely affect spotted owls because activities would only treat and maintain

No removal or downgrading of habitat would occur. The West Fork Cow Creek Road ROW is NLAA because of the small amount of dispersal removal and the dispersal removal would occur outside of designated CHU.

Table 14. Effects Determination by Project

Project	Effects to Spotted Owls	Effects to 2008 CHU	Effects to 2012 proposed CHU
Poor Luck	LAA	NLAA	LAA
Williams IVM	LAA	N/A	NLAA
West Fork Cow Creek ROW	NLAA	N/A	NLAA

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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 that 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 that 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 SERVICE 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 A-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 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 B-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 toward the noise, hiding, assuming a defensive stance, etc. (SERVICE 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: Proposed Action Maps without NRF Displayed

Map 1: Poor Luck

Map 2: Williams

Map 3: West Fork Cow Creek ROW

Appendix C: Proposed Action Maps with NRF Displayed

Map 1: Poor Luck

Map 2: Williams

Map 3: West Fork Cow Creek ROW