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Fed Ex (8010-3182-3927)

JAN 09 2015

To: Field Office Supervisor, Roseburg Office, US Fish and Wildlife Service
From: District Manager, Medford
Subject: Submission of the Medford BLM South Fork Little Butte Biological Assessment

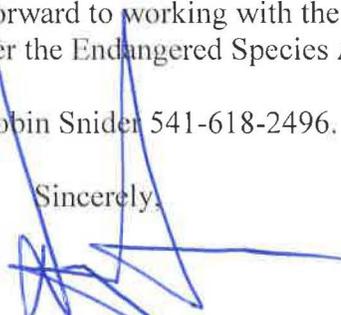
This Biological Assessment (BA) evaluates the South Fork Little Butte Project in the Ashland Resource Area that "may affect and is likely to adversely affect" (LAA) spotted owls. Treatments are proposed in the 2012 revised designated northern spotted owl (NSO) critical habitat (77 Federal Register 233:71876-72068) that "may affect and are likely to adversely affect" (LAA) critical habitat. No other listed wildlife species or critical habitats are affected. Listed plants and fish are evaluated under other consultation documents.

The Medford BLM Biological Assessment for the Ashland South Fork Little Butte Project is attached. The BA also includes Appendix A, the Project Design Criteria (PDC); Appendix B, Detailed Stand Prescriptions; Appendix C, Treatment Summary Tables; Appendix D, Site History for Northern Spotted Owl Sites within the Project Area; and Appendix E, Maps referenced in the BA. 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 the South Fork Little Butte Biological Assessment. 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.

Sincerely,


Dayne Barron
District Manager
BLM Medford District

***Biological Assessment
for the
South Fork Little Butte
Forest Management Project***
(Cite as SFLB_2015 BA)

*An Assessment of Effects to the
Northern Spotted Owl*

*Medford District
Bureau of Land Management
January 2015*

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1. INTRODUCTION

1.1 Purpose of the Assessment

The Medford District of the 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 are also intended to meet obligations under Section 7 (a)(1) to conserve listed species.

This Biological Assessment (BA) describes and evaluates the potential effects from the South Fork Little Butte (SFLB) Forest Management Project in the Ashland Resource Area (ARA) on the Medford District BLM. This project is designed to meet the BLM's need to manage Matrix lands in a manner that provides for a sustainable supply of timber, help meet the Medford BLM's annual timber volume target, and improve forest health. Forest stands selected for treatment in the SFLB planning area are overstocked or have been impacted by disease, drought, or insects. Timber products produced from the SFLB area would be sold in support of the District's Allowable Sale Quantity (ASQ) declared in the 1995 Medford District RMP (USDI 1995). The project is described in more detail in Section 2.3 below. This project will be consistent with the project descriptions and Project Design Criteria (PDC) described in this BA. If any changes to the proposed action occur after the Biological Assessment has been submitted, the new proposals will be presented to Level 1 for evaluation to see if reinitiation is necessary.

Northern Spotted Owl (Threatened)

Approximately 1,916 acres of the proposed treatments of the South Fork Little Butte Project are within the 2012 Revised Designated Northern Spotted Owl (NSO) Critical Habitat (77 Federal Register 233:71876-72068). BLM requests formal consultation for this project because we have determined the proposed action *may affect, and is likely to adversely affect (LAA)* the northern spotted owl and their designated critical habitat.

Pacific Fisher (Proposed Threatened)

The U.S. Fish and Wildlife Service issued a proposal to list the West Coast Distinct Population Segment (DPS) of fisher (*Pekania pennanti*) as a threatened species under the Endangered Species Act in the Federal Register on October 7, 2014 (USDI 2014). The South Fork Little Butte Project falls within the range of the West Coast DPS of fisher. Effects to fisher from the South Fork Little Butte Project will not be addressed in this Biological Assessment. Effects will be incorporated in a batched conference report later in 2015 that will analyze potential effects to the fisher on the Medford District.

No other listed wildlife species or designated critical habitat will be affected by the activities identified in this BA. Below is a summary of the No Effect determination for these species:

Gray Wolf (Endangered) – No Effect

- The gray wolf is a federally listed species in Oregon west of highways 395 and 78. Until 2011, gray wolves were only known to occur in Oregon east of these highways. In September 2011, one radio collared male wolf (OR-7) dispersed from the Imnaha pack in

Northeastern Oregon. Since 2011 ODFW has been tracking OR-7's dispersal, which included some time in Northern California, and ODFW has posted an area of activity map on their website.

- The South Fork Little Butte project is within the known wolf activity area of OR-7 (ODFW 2014). This area covers the southeastern portion of Douglas County, the eastern edge of Jackson County, and the western edge of Klamath County. Since March of 2013, ODFW has documented OR-7 spending the majority of his time in the southwest Cascades. USFWS and ODFW narrowed down the area of activity of OR-7 where a female wolf was detected and pups were confirmed. One den and at least two rendezvous sites were identified. The South Fork Little Butte project is outside of this new narrowed down activity area, so direct effects are not anticipated.
- If a den or rendezvous site is identified prior to or during project activities, Section 7 Consultation PDC for wolves will be followed (Appendix A). Seasonal restrictions would be put in place (March 1 to June 30) for project activities located within one mile of a den or rendezvous site. Because these sites are difficult to locate and can change from year to year, this will need to be assessed on an ongoing basis throughout the life of this project through annual updates and communication with the USFWS and ODFW.
- Effects to wolves from this project are not expected because the proposed activities would not disturb key wolf areas such as den sites and rendezvous sites, would not change prey availability, and would not increase public access in the area known to be used for denning and rendezvous sites. No effects from disturbance are expected at this time, but will need to be assessed on an ongoing basis throughout the life of the proposed project. In addition, the Level I Team is currently conducting a literature review of all wolf research in order to further determine what may affect wolves on the landscape. If the Team comes to a different conclusion than under this current consultation the BLM will reinstate consultation.

Oregon Spotted Frog (Threatened) – No Effect

- The South Fork Little Butte Project will not affect habitat and will not occur within the Upper Klamath, Upper Klamath Lake sub-basins, where Oregon Spotted frogs are known to occur.

Marbled Murrelet (Threatened) – No Effect

- The South Fork Little Butte Project will not affect habitat and will not occur within the range of the marbled murrelet.

Vernal Pool Fairy Shrimp (Threatened) – No Effect

- The South Fork Little Butte Project will not affect habitat and will not occur within the range of the vernal pool fairy shrimp.

Consultation for federally listed plants is covered in the *Biological Assessment and Letter of Concurrence for Activities that May Affect the Federally Listed Plant Species, Gentner's Fritillary, Cook's Lomatium, and Large-flowered Woolly Meadowfoam, on Bureau of Land Management, Medford District and Cascade Siskiyou National Monument (USDI 2014)*.

Federally listed fish species will be evaluated separately through consultation with the National Marine Fisheries Service (NMFS).

1.2 Consultation History

Consultation for the South Fork Little Butte Project was originally covered in a combination of four previous biological assessments. Table 1 summarizes the history of the various biological assessments that incorporated portions of this project. New consultation is necessary because the units carried forward in the previous biological assessments were never implemented, or in the case of the 2008 District Analysis and Biological Assessment of Forest Habitat (2008 DA BA FH), was never completed.

Project	BA FY 01-03	BA FY 04-08	BA FY 06-08	BA DA BA FH	Names of original project
South Fork Little Butte	X	X	X	X	Deer Lake, Lake Creek, Conde Shell

This BA will assess the effects to owls based on the new and historic owl locations, as well as the new project proposals. The project in this BA was presented to the Level 1 team at a briefing meeting and field trip on August 27, 2014. 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. Recommendations from the Level 1 team were incorporated into the preparation of the final proposal for consultation. The South Fork Little Butte Project core team met with the Level 1 team on October 28, 2014 to review the final proposal that would be submitted in this biological assessment. The draft South Fork Little Butte Project BA was submitted to the Level 1 team for review on December 9, 2014.

1.3 Definitions

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), has high canopy cover, and has sufficient snags and down wood to provide opportunities for nesting, roosting, and foraging. 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. 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.

Currently, the SW Oregon Level 1 team uses NRF habitat in the Biological Assessment to represent both NRF and Roosting/Foraging habitat. Nesting habitat is described above and the basal area ranges from approximately 180 to 240ft²/acre, but is typically greater than 240ft²/acre. Roosting and foraging habitat is different than nesting habitat because even though the stands might have large trees and high canopy, they are often single storied, lack decadent features, and usually have at least 150 ft²/acre basal area. The Medford District uses a six category system to classify spotted owl habitat (Mckelvey 1 through 6). NRF (Mckelvey 1) and Roosting/Foraging (Mckelvey 2) habitat was separated in the field by Ashland Resource Area biologists and used to inform the South Fork Little Butte project effects determinations.

Dispersal Habitat at a minimum consists of stands with adequate tree size and canopy cover to provide protection from avian predators and at least minimal foraging opportunities. Dispersal habitat may include younger and less diverse forest stands than foraging habitat, such as even-aged, pole-sized stands, but such stands should contain some roosting structures and foraging habitat to allow for temporary resting and feeding for dispersing juveniles (USDI FWS 1992). Dispersal habitat is generally forest stands with canopy cover of 40 percent or greater and an average diameter at breast height (DBH) of 11 inches or greater. 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. NRF habitat can also function as dispersal habitat. However, dispersal (or dispersal-only) 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 intended function of the habitat because the conditions that would classify the stand as NRF or dispersal would remain post-treatment. The treated stand will still function as NRF habitat because it will continue to provide 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. The treated stand will still function as dispersal habitat because it will continue to provide at least 40 percent canopy cover, flying space, and an average of trees 11 inches diameter at breast height (dbh) or greater.

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, or roosting and foraging. Downgraded NRF continues to provide habitat for dispersal.

Remove NRF or Dispersal alters known spotted owl NRF or dispersal-only habitat so the habitat no longer functions as nesting, roosting, foraging, or dispersal habitat. 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 provides nesting, roosting, foraging, or dispersal habitat for owls.

2. DESCRIPTION OF THE PROPOSED ACTION

2.1 Project Area History and Current Condition

South Fork Little Butte Area Vegetation Conditions:

Current conditions:

The South Fork Little Butte Project is located within the South Fork Little Butte Creek 5th field watershed. The project area is southeast of Eagle Point and near the community of Lake Creek. The project area ranges between 2,000 and 6,000 feet in elevation and lies within the Interior Valley, Mixed Conifer, and White Fir Zone as described by Franklin and Dyrness (1988). Moisture and temperature gradients differ between forest zones creating a unique pattern of various vegetation types throughout the project area, which are broadly correlated with elevation. The vegetation native to the watershed is a result of time, the unique geology of the area, and anthropogenic influences. Over the course of thousands of years, native inhabitants regularly used fire on the landscape for a wide variety of purposes (USDI 1997). Natural disturbance such as lightning fires, windstorms, and drought contributed to the variation. The lower elevation areas would have been dominated by grassland, oak savanna, and open oak/pine woodland. In the upper valley/canyon area, prime black oak woodland probably existed. Many mixed-conifer stands of the canyon and high plateau sections were comparatively open, with a higher proportion of mature ponderosa and sugar pine than at present (USDI 1997). Infrequent, stand-replacing natural fires on the high plateau may have played a dominant role overall. There is a natural diversity of vegetation condition classes¹ within stands and between stands whose patterns and boundaries are generally dictated by soils, aspect, past disturbance, and fire suppression. The present-day vegetation pattern across the watershed landscape results from the dynamic processes of natural and human influences over time. As a consequence, the variation and scales of landscape components are innumerable (USDI 1997). Vegetation disturbance mechanisms (abiotic and biotic) that influence the watershed's forest stand structure are logging, fire and fire

¹ Vegetation Condition Class - The BLM Medford District Watershed Analysis Committee designated 8 vegetation condition classes to describe the types of and size of vegetation present on the landscape. The condition classes are as follows: grass and herbaceous vegetation; shrub lands; Hardwood/Woodlands; early seral stage trees (0 to 5 years of age); seedlings/saplings (0 to 4.9 inches DBH); poles (5 to 11 inches DBH); mid (11 to 21 inches DBH); and mature (21 inches DBH and larger trees). (DBH=diameter at breast height)

suppression, bark beetles, pathogens, and dwarf mistletoe species associated with Douglas-fir and true fir species (USDI 1997). Forest stands selected for treatment in the SFLB planning area are overstocked or have been impacted by disease, drought, or insects. As trees compete for limited water, nutrients, and growing space they become stressed and more susceptible to mortality from insects, forest pathogens, and drought. Forest thinning treatments are needed to maintain vigorously growing forest stands, which are more fire resilient and resistant to insect and disease attacks, in accord with sustained yield forestry and to capture tree mortality in compliance with RMP guidance (USDI 1995, p. 186).

2.2 Proposed Action Overview

The South Fork Little Butte Project was designed to conform to the 1995 Medford District Resource Management Plan (USDI 1995) and the Northwest Forest Plan (NWFP) (USDA USDI 1994a). The South Fork Little Butte Project was selected for one of the FY15 projects in Ashland because it is in the Matrix Land Use Allocation, which are federal lands outside of reserves and special management areas that are available for scheduled timber harvest at varying levels (USDI 1995). Matrix lands are intended to achieve sustainable timber production and other forest commodities, providing jobs and contributing to community stability through both growth and harvest, while also promoting the development of fire-resilient forests (USDI 1995, p. 38). This area was previously reviewed for stand densities that are overstocked and need to be reduced for insect and diseases concerns and promote forest resiliency. Those stands still in need of treatment to address high stand densities or insect and disease concerns were included in the South Fork Little Butte Project. The South Fork Little Butte planning area encompasses two 6th field sub-watersheds (Lower and Middle South Fork Little Butte Creek) of the Little Butte Creek 5th field watershed. The Little Butte Creek 5th field watershed ranked as medium in the Medford District's 2012 Integrated Vegetation Management analysis of current conditions of watersheds within the Medford District. All 5th field watersheds were prioritized on the specific timber, fuels, silviculture, and owl needs. Seven categories with separate measurements were used to score and rank the watersheds: 1) percentage of BLM lands within the watershed, 2) amount of dry forest and young stands (< 80 yrs old) within the watershed, 3) The amount of 10-30" dbh class available for harvest, 4) the amount of high fuel hazard and FRCC within WUI within the watershed, 5) opportunities for enhancement or conservation of owl sites, 6) the percentages of matrix and AMA within the watershed, and the amount of existing roads within the watershed. Projects in Ashland's one high ranking 5th field watershed, Middle Applegate River, have been implemented in the past few years, so it was feasible to start looking at projects ranking in the medium category.

The BLM expects the project to be implemented soon after the Biological Opinion is received and compliance with the National Environmental Policy Act (NEPA) is completed. This project would be implemented through at least one timber sale contract, in combination with either stewardship contracting, and/or service contracts for treating understory conifers to reduce hazardous fuels and stand densities. Timber sales and contracts associated with this project are scheduled to be implemented in Fiscal Year 2015 and 2016. For consultation tracking and monitoring purposes, the Level 1 team defines implementation of timber sales as the date a project is sold or when a task order is issued for a non-timber sale action (stewardship and fuels

contracts). It is anticipated the project could take multiple years to complete. Project completion includes stand treatments for slash and reforestation post-harvest.

2.3 Detailed Project Objectives and Descriptions

Field surveys and inventories were completed early in the project planning process to determine current and desired stand conditions. The stand data was used to determine where management can occur within the project area to ensure the sustainability and resiliency of forest ecosystems now and in the future. Spotted owl habitat determinations made in the field were also incorporated into the treatment designs and prescriptions. Approximately three acres of nesting, roosting, and foraging (NRF/Mckelvey 1), 605 acres of roosting and foraging (Mckelvey 2), 1,347 acres of dispersal habitat (Mckelvey 5 and 6), and 597 acres of capable habitat (Mckelvey 3) are proposed for vegetation treatment in the South Fork Little Butte Project.

Detailed stand objectives and prescriptions are described below. The prescriptions applied to each stand would be based on existing site/stand conditions as well as current northern spotted owl habitat conditions for both commercial and non-commercial treatments.

2.3.1 Project Objectives and Project Development Strategies

There are two main objectives for the South Fork Little Butte Project:

- 1) *Design and implement commercial timber sales on matrix lands in the Lower South Fork Big Butte Creek fifth field watershed.*
 - The Medford District Resource Management Plan (p. 81) directs the BLM to design and implement forest management activities to produce a sustained yield of products to support local and regional economic activity.
 - The timber harvested from this project would produce revenue for the federal government which would contribute timber toward the Medford District's annual Allowable Sale Quantity during fiscal year 2015 and possibly 2016.
- 2) *Improve Forest Health by increasing landscape resiliency to environmental disturbances and accelerate the development of structural complexity and spatial heterogeneity.*
 - Reduce stand densities to natural carrying capacities and create favorable growing conditions to improve individual tree health (vigor) for desirable species.
 - Promote the growth and establishment of tree species that are well adapted or most resilient to environmental conditions and natural disturbance regimes.
 - Accelerate the development of forest stand conditions that meet long-term management objectives for northern spotted owl habitat and shift stand trajectories to encourage key habitat components for the future (See Section 2.3.2 for more detail).

The effects to spotted owls and their critical habitat were considered while planning this project. The following strategies were implemented in order to meet the project objectives and reduce effects to northern spotted owls and their critical habitat. To the extent practicable, the Relative Habitat Suitability (MaxEnt) model described in the *2011 Revised Recovery Plan for the Northern Spotted Owl* (USDI FWS 2011), the Medford District known owl site layer, recent spotted owl survey results, and spotted owl radio telemetry location data were used to determine treatment options in order to reduce effects to spotted owl sites.

- 1) The core team followed principles in the SW Oregon Recovery Action 10 Guidance Document (2013). Sites within the project area were prioritized by spotted owl pair occupancy and reproductive success, and adverse effects were minimized at high priority sites. Treatments proposed at lower priority sites may have adverse effects, but are designed to improve habitat in the long-term. See Section 4.7 Consistency with NSO Recovery Plan Recommendations below to see how the South Fork Little Butte Project is consistent with the Recovery Plan, especially Recovery Actions 10 and 32.
- 2) The 2012 Final Critical Habitat Rule and principles in the 2011 Recovery Plan were used to inform specific prescriptions when treatment units were located within the 2012 designated critical habitat. Adverse effects were avoided in occupied sites within critical habitat. Adverse effects in critical habitat located outside of the home ranges of known sites were only proposed in areas where the habitat could be improved in the long-term (i.e. proposed treatments in capable, dispersal, or roosting/foraging habitat within high habitat suitability according to the relative habitat suitability model); treatments would improve stand resiliency; or where the ecological needs of the stand outweighed the owl habitat needs (i.e. pine restoration on a ridge that is in low habitat suitability according to the relative habitat suitability model). NRF and Roosting/Foraging habitat are not proposed for removal within critical habitat.
- 3) The total acres of treat and maintain prescriptions within the 0.5 mile core area of high priority owl sites were reduced and in some cases eliminated in order to reduce the effects to spotted owls at these sites.
- 4) More intense prescriptions, that have adverse impacts to spotted owl habitat, were considered in areas outside of critical habitat and high priority owl sites.
- 5) Treatment in NRF habitat (McKelvey 1) was dropped if it occurred in high priority sites or in critical habitat. Since the stand was already functioning as NRF habitat, the team determined that treatments were not necessary to improve the habitat. Only three acres of NRF habitat is proposed for treatment in the South Fork Little Butte Project and would occur outside of known spotted owl home ranges and outside of critical habitat.
- 6) In limited cases, where road construction was necessary to access the proposed treatment and no other road was available, small amounts of roosting/foraging and dispersal removal would occur in the project area. The removal of small amounts of habitat from road and landing construction were considered in areas that would allow access to treatments that would have long-term benefits to spotted owl habitat.

2.3.2 Project Prescriptions:

The 1995 Medford District RMP adopted a set of silvicultural treatments for managing conifer forests on Matrix lands (USDI 1995, Appendix E, pp. 179). These silvicultural prescriptions, designed under the principles of sustained yield forestry, would respond to both forest and site conditions to meet the desired long-term goals for each forest stand type. The prescriptions would be used to accomplish the objectives of the South Fork Little Butte Project. The prescriptions applied to each stand were based on existing stand conditions, as well as spotted owl habitat determinations made in the field. The project prescription writer will work with the project wildlife biologist to review and adjust marked trees to ensure prescription objectives and spotted owl habitat retention levels are met in the field as described in the Biological Assessment and impending Environmental Assessment.

The prescriptions are summarized below and related to owl habitat conditions and needs. More detailed prescription descriptions are located in Appendix B.

Commercial Prescriptions

Selective Thinning

There are different types of Selective Thinning prescriptions proposed in the South Fork Little Butte Project based on the vegetation type (Douglas-fir, mixed conifer, White fir, and ponderosa pine). The general silvicultural objectives for all selective thinning prescriptions include:

- 1) Reduce stand density to increase tree growth, quality, and vigor of the remaining trees;
- 2) Create diversified stand structure (height, age, and diameter classes);
- 3) Develop spatial heterogeneity within stands (e.g. fine-scale structural mosaic);
- 4) Increase resilience/resistance of forest stands to wildfire, drought, insects, etc. by reducing stand density and ladder fuels;
- 5) Increase growing space and decrease competition for large and/or legacy pine, oak, and cedar.

Selective Thinning would be a combination of thinning with groups or openings to the extent or amount recommended by vegetation type and/or plant series that exists. There are four vegetation types and/or plant series that would be targeted: Douglas-fir, white fir, mixed conifer, and ponderosa pine. Stands would be harvested to a range of 35-55 percent canopy cover and would be thinned using guidelines to reduce basal area between 100 and 140 ft² per acre, depending on the plant series and current habitat conditions.

These stand treatments would generally target low vigor trees over healthy trees (proportional thinning and low thinning) to reduce stand density and improve stand resiliency and individual tree health. This prescription would be used to accelerate the growth of remaining trees while promoting desired species that are best adapted to site conditions. Trees would be removed singly or in groups (openings) and stands would have a wide range of basal area or tree spacing targets based on stand types or conditions. Unique stand features such as snags, coarse woody debris, large hardwoods, and trees exhibiting characteristics of older trees (large limbs, thick bark with deep fissures, non-symmetrical crowns) would remain to maintain desired structural components for wildlife. In addition to such stand features, rock outcrops, special status species sites, and seeps/wet areas would be protected according to RMP guidance.

These units are in roosting/foraging and dispersal habitat as determined in the field. See table 3 below for the stand conditions. The proposed downgrade treatments in roosting/foraging habitat follow recommendations in the 2012 NSO Final Critical Habitat Rule and the 2011 NSO Revised Recovery Plan by treating these single-story, uniform forest stands to promote the development of multistory structure and nest trees. While the treatment may result in short-term adverse impacts to the habitat's current capability, it is expected to have long-term benefits by creating higher quality habitat that would better support territorial pairs of northern spotted owls, but would still maintain dispersal function in the short term (USDI 2012, 71939). The prescription in these stands are also designed to follow recommendations in the 2011 Revised Recovery Plan by treating stands like these that have decreased age-class diversity and altered the structure of forest patches. The prescription would increase canopy and age-class diversity and increase fire resiliency by reducing short-term fuel loading and increasing tree health and species diversity, as recommended in the recovery plan. Finally, as described above, the prescriptions would restore heterogeneity within stands, including both vertical and horizontal diversity.

Mixed conifer selection thinning treatments that occur in Critical Habitat (CH) and within Northern Spotted Owl (NSO) sites would treat and maintain habitat, with the exception of three units. These three units proposed in critical habitat and in one FS site, may downgrade roosting/foraging habitat, but over the long-term would benefit owls by accelerating the stand structure development that is typically present in these mixed conifer stands. These stands are also located in high habitat suitability according to the Relative Habitat Suitability (RHS) output from the MaxEnt model. High habitat include areas on the landscape expected to provide long-term suitability and high frequency use for spotted owls, so stand structural improvement would benefit owls over the long-term. The stand conditions are declining and are at the risk of not providing habitat over the long-term without treatment.

The Ponderosa Pine Selection Thinning prescription is proposed in critical habitat and may have adverse effects to NRF habitat. However, the objective is based on restoring the unique habitat at the landscape perspective, which is also listed as a potential objective for active management in the final critical habitat rule (77 Federal Register 233:71942). In this case, the proposed prescription would restore pine habitat. The proposed treatment would follow the principles of the Recovery Plan and the Final Critical Habitat Rule by promoting spatial heterogeneity across the landscapes and restoring ecological processes to historical conditions. Pine restoration units were also selected because it is an area that would avoid conflicts between known NSO sites and ecological restoration, which follows recommendations in the final critical habitat rule (77 Federal Register 233:71942). These pine restoration units were of high restoration value, but low value to spotted owls because it occurs high up on a ridge and within low habitat suitability according to the Relative Habitat Suitability (RHS) output from the MaxEnt model. These locations are not expected to provide long-term suitability and are not in areas where spotted owls would select for nesting.

Group Selection

Group selection and modified group selection is prescribed in stands types where natural openings are less common. The principal purpose for a group selection treatment is to create structural diversity among stands that are homogenous in appearance, or have a one-layer overstory. Residual trees would have improved health, vigor, and growth from the added growing space,

water, and nutrients that they receive. Group selection would create small openings, allowing regeneration establishment and release, would preserve legacy trees within the stand, and remove trees of low vigor. There are two types of retention levels (40 percent and 60 percent canopy cover within the stand) for group selection depending on the NSO habitat conditions and unit locations within owl home ranges and critical habitat. Stands harvested to a minimum 40 percent canopy cover would maintain a basal area of 100 to 140 ft² at the stand level (includes RF downgrade and dispersal treat and maintain). Stands harvested to a minimum 60 percent canopy cover would maintain a basal area between 160 and 180 ft² at the stand level (RF treat and maintain only).

Opening size would range from 0.10-0.25 acre where fire resilient and drought tolerant species need release to reduce competition (modified group selection). Opening size would range from 0.25-0.50 acre where regeneration is encouraged (group selection) or where poor crown conditions exist (weakened and suppressed trees). In units targeted for a treat and maintain prescription, where treatment would only occur in the openings and additional thinning in the unit would not occur the openings would not exceed 20 percent of the total treatment unit area.

Group selection treatments are proposed in homogenous roosting/foraging and dispersal stands within critical habitat and would follow recommendations in the Recovery Plan and the Final Critical Habitat Rule. While treatments would have short term adverse effects to the habitat, these small openings would enhance northern spotted owl foraging opportunities in the long-term by accelerating the development of structural complexity and biological diversity. These stands are also located in high habitat suitability according to the Relative Habitat Suitability (RHS) output from the MaxEnt model. These locations are expected to provide long-term suitability and high frequency use for spotted owls, so stand structural improvement would benefit owls over the long-term.

Density Management

The primary objective of the density management prescription is to reduce stand density in order to promote the growth and structural development of the remaining stand. Density Management is prescribed in stands that are currently providing northern spotted owl roosting and foraging habitat. The objective for Density Management units would be to treat and maintain the habitat because they are located within 0.5 mile core areas. Spacing of the residual (leave) trees would involve crown spacing of the healthiest dominant and co-dominant trees to achieve a canopy cover of 60 percent or greater at the stand level. Stands would be treated to a relative density range of 0.50-0.60 as a result and would be thinned using NSO habitat guidelines in the SW Oregon Recovery Action 10 Guidance Document (2013) to maintain the basal area between 160 and 180 ft² per acre. Unique stand features such as snags, coarse woody debris, large hardwoods, and trees exhibiting characteristics of older trees (large limbs, thick bark with deep fissures, non-symmetrical crowns) would remain to maintain desired structural components for wildlife.

Smaller trees would be targeted for removal over larger trees. Trees targeted for removal would include those exhibiting crown decline, narrow crown widths, and that contribute least to the canopy layer or structural components. Trees that demonstrate these characteristics would be individually selected for removal, unless it compromises the required minimum canopy cover of 60 percent. Trees may be marked in small patches (ie. Groups of trees with poor crowns) and left in clumps (ie. Groups of old trees) to create hiding cover for wildlife species and increase spatial

heterogeneity. The size of patches or openings should be no greater than 0.20 acre and should not exceed 5 percent of the total treatment unit area.

Structural Retention

This prescription applies to stands primarily dominated by mature Douglas fir, have poor annual stand growth, and/or have limited conifer regeneration. Thinning these stands would not provide the desired growth and increase in productivity. As directed by the Medford District RMP, structural retention would retain at least 16 to 25 large green conifer trees per acre, to meet structural objectives were met. Large green conifer trees are described as those greater than 20 inches diameter at breast height (DBH). Stands would be harvested to a range of 30-40 percent canopy cover. Structural Retention harvest is proposed in spotted owl NRF (3 acres) and Roosting/Foraging (30 acres) outside of home ranges and outside of critical habitat. Dispersal-only habitat was selected for structural retention outside of critical habitat and outside of known spotted owl home ranges, except for one owl home range where dispersal-only removal would occur at the edge of the home range in low habitat suitability according to the Relative Habitat Suitability (RHS) output from the MaxEnt model. The intent is to create conditions that would encourage conifer regeneration for establishing the next forest stand for these sites.

Insect and Disease Management

This prescription applies to stands that have a high degree of dwarf mistletoe disease infection and contain susceptible tree species in the understory and overstory. Many of these stands developed in conjunction with disturbance (fire, insects, harvest, etc.) and lack desirable growth rates and vigor ratings for site conditions. These sites are exhibiting a deteriorating stand condition and are not currently providing a suitable environment to meet the long-term management objectives stated above. These stands do not currently provide NRF or dispersal habitat due to the lack of structure and canopy cover, but they are capable of developing into dispersal and/or NRF in the future. The primary objective is to reduce the long-term effects of forest disease by reducing the spread of disease to existing overstory and understory trees, not to eradicate it.

The silvicultural strategy would use the single tree selection method whereby, the most infected trees would be removed and least infected and/or uninfected trees would be retained depending on topographic positions and site conditions. These stands exhibiting a diseased condition would be harvested, leaving a residual overstory of 6-8 overstory trees per acre (TPA) greater than 20-inches DBH. Stands would be harvested to a range of 30-35 percent canopy cover. Single tree selection could be followed up with one or a combination of silvicultural activities, such as understory thinning, prescribed burning, and/or tree planting of desirable species, depending on post-harvest conditions.

Mortality Salvage

Mortality Salvage is proposed in stands or portions of stands where dead and dying trees are found. Dying trees are defined as a standing tree that has been severely damaged by forces such as fire, wind, ice, insects, or disease, such that in the judgment of an experienced forest professional or someone technically trained for the work, the tree is likely to die within a few years. The primary objective is to assist in meeting Allowable Sale Quantity (ASQ) for timber production. Mortality Salvage involves removing dead and dying trees singly or in groups for sawlogs,

specialty products, or fuelwood. A minimum of 2 snags per acre greater than 16 inches DBH would be retained, preferably in clumps or groups.

Summary of Commercial Treatment Prescriptions, Stand Conditions, and Owl Habitat

Table 3 shows the difference in stand conditions between a treatment versus no treatment (No Action), within a 30-year time period. The stand data below representing all vegetation condition classes (poles thru mature) and vegetation types (Ponderosa Pine, Douglas-fir, Mixed Conifer, White Fir) collected in the project units, were modeled to capture the differences in effects to northern spotted owl habitat. Stands were modeled in a growth and yield modeling system called ORGANON edition 9.1 (Hann 2011). Developed at Oregon State University, College of Forestry, the model predicts forest growth outputs based on scientific formulas programmed into it. This model was used to better capture the difference of effects of forest treatments vs. no forest treatments. The Southwest Oregon variant was used to model stands in the project area.

Table 3. Current and Future Stand Conditions and Effects on Habitat						
	QMD (inches)	BA (ft²)	TPA	Crown Ratio (%)	Canopy Cover (%)	Relative Density
Dispersal Maintain (1,244 acres)						
Current Conditions	11	178	353	38	65	57*
30 years No Action	14	219	263	35	67	64*
Post-Treatment	13	110	140	37	45	32
30 Years Post-Treatment	16	145	121	36	50	40
Dispersal Removal (87 acres)						
Current Conditions	12	150	378	33	59	52
30 years No Action	14	182	280	31	60	59*
Post-Treatment	13	90	122	33	38	29
30 Years Post-Treatment	16	118	107	33	43	36
Roosting and Foraging Maintain (364 acres)						
Current Conditions	11	219	410	43	74	75*
30 years No Action	13	271	330	35	76	85*
Post-Treatment	13	176	221	41	63	56*
30 Years Post-Treatment	15	223	189	34	67	66*
Roosting and Foraging Downgrade (203 acres)						
Current Conditions	13	199	238	39	67	59*
30 years No Action	16	242	189	35	69	65*
Post-Treatment	15	127	137	40	49	37
30 Years Post-Treatment	17	164	118	38	53	44

*Relative Density (Curtis 1982) indices above 0.55 = zone of occurrence of suppression mortality. Without stand treatments that reduce trees per acre, RDIs that remain above the 0.55 RDI threshold leaves stands more vulnerable to drought, insect, and disease mortality. Reducing stand density is critical in meeting the stated purpose and need of the South Fork Little Butte Creek Forest Management Project.

Table 3 reveals that 30 years following treatment these stands would have less canopy cover than a “No Action” treatment; however, stand densities would be reduced and the largest trees in the stand would have more optimal growing conditions than a “No Action” 30-year projection. A treatment to reduce stand densities now would set the stand on a more desirable stand

development trajectory to create a multiple canopy, multi-age stand for the future (refer to figure 1-a). These treatments would accelerate the development of forest stand conditions that meet long-term management objectives for northern spotted owl habitat and shift stand trajectories to encourage key habitat components for the future. Leaving stands at their current condition would not reduce stand densities to their natural carrying capacities and would not improve individual tree vigor in the next 30 years. Reducing stand densities through thinning treatments would promote the growth and establishment of tree species that are well adapted or most resilient to environmental conditions and natural disturbance regimes. Stands in which treatments are not applied would maintain a higher relative density and would remain in a homogenous and uniform stand structure of less complexity for at least 30 years (refer to figure 1-b).

Figure 1 illustrates the differences in stand structure conditions in a mature Douglas-fir stand modeled with Organon and SVS over a 30 year time period. The Stand Visualization System (SVS) illustrates the prescriptions, portraying what existing forest stands look like today and after application of the proposed prescriptions (USDA and University of Washington, 1995). ORGANON plot data was entered into the SVS program for the simulations. The SVS images below simulate the two modeled scenarios. The figure(s) below show the long-term change in stand condition following a Selective Thinning treatment and a “no treatment”.

Figure 1.



a): Stand structure 30 yr. post-treatment

b): Stand structure 30 yr. no treatment

In summary, stands under the South Fork Little Butte Management Project would benefit immediately from forest management treatments. These silvicultural treatments would improve and/or maintain vigorously growing conifer forests, reduce tree mortality, and encourage a mixture of tree species that are more fire resilient and drought tolerant than its current condition. The reduction in stand densities, preference of shade intolerant species over shade intolerant (white fir), and increasing growing space for residual trees would result from such treatments.

Non-Commercial Prescriptions

Understory Reduction (UR)

The silvicultural objectives here are as follows: 1) Reduce stand density to increase tree growth, quality, and vigor of existing understory trees; 2) Reduce understory stem density in the current

stand and control the growth rates of existing understory trees for long-term survivability. Understory Reduction is used to accomplish pre-commercial thinning and fuels reduction treatments for even and uneven-aged conifer stands. Understory Reduction consists of cutting small trees (generally less than 8 inches diameter for conifer and less than 12 inches diameter for hardwood) and vegetation with chainsaws and disposing of the material by hand-piling and burning or use of a lop and scatter method in lighter fuels. Understory Reduction increases tree growth rates and promotes horizontal and vertical structural diversity in stands. Understory Reduction is also used in stands where pines and shade-intolerant hardwood species are diminishing in vigor and numbers because of overcrowded stand density conditions. This prescription may be applied to understories and/or areas of high stocking of small trees in commercial stands proposed for harvest.

Fuels Treatment Associated with Forest Management

Activity fuels created from forest management activities would be treated post-harvest. The BLM would conduct a fuels assessment within each unit following harvest activity. This assessment would determine the fuel hazard and fire risk based on surface fuel loading, aspect, slope, access, and location of each unit. Most fuels treatments would begin within 30 days after completion of harvest activities. The following methods would be used to treat activity fuels:

Hand Piling and Hand Pile Burning

Slash remaining in the units after harvest is greater than 4 tons per acre, material between 1 and 7 inches in diameter and longer than 2 feet, would be piled by hand. The piles would be a minimum of 4 feet high and 6 feet in diameter. Piles would be burned in the fall, winter, or spring.

Underburning

Underburning would remove at least 60 percent of slash less than 3 inches in diameter and a lesser amount of larger fuel size classes in timbered stands. This treatment would move the stands from a timber understory to a timber litter fuel type. Underburning would be implemented in the late fall, winter, or late spring.

Biomass Removal

Whole trees or tree tops would be yarded to log landings, the tree tops and limbs removed and piled at the landings, and the resulting piles of slash hauled away from the landings. Whole tree yarding and tree top yarding would not be required but are options for treating activity slash.

2.3.3 Proposed Action Implementation Methods

The proposed treatments described above would be implemented using a variety of manual and mechanical tools. They are described below because each method has a different impact to existing vegetation. The effects have been considered in the overall effects determinations for the project and at the unit level. Proposed landing and road construction have been analyzed as separate treatment areas and have been incorporated into the total habitat effects for the project (Table 7). Openings created from proposed yarding corridors were assessed and added to the potential treatment effects determination for each unit. Reinitiation would occur if the actual effects from these tools exceed our anticipated effects during analysis.

Ground based extraction: Generally occurs on slopes less than 35 percent, woody biomass and saw log material created from harvest operations would be cut, and skidded to landings or road sides using ground machinery. Skidding machinery would be restricted to approved skid trails, except during dry soil conditions as outlined in the Environmental Assessment. This method requires narrow skid trails, up to 12 feet in width as measured from the outer edges of the standard width dozer blade in the straight position (yarding tractor). Existing skid trails would be used where possible. Skid trail locations would be approximately 150 feet apart, but vary depending on the site-specific terrain, and would be thereby, minimizing soil disturbance. Openings from skid trails would be assessed for the overall unit effects determination.

Skyline-cable based extraction: Generally occurs on slopes greater than or equal to 35 percent, woody biomass and saw log material created from harvest operations would be yarded to landings or road sides. Cable yarding would drag trees with one end suspended and one end on the ground. Bull-lining is another cable system that yards logs short distances (usually less than 200 ft) and does not require on end suspension. Corridors would be generally less than 15 feet wide, depending on the size of trees to be removed and the terrain. Corridor locations would be pre-approved by the BLM Contract Administrator. Openings from corridors and landings will be included in the overall effects analysis for each unit. When the corridor and landings are located in a unit, the additional openings will be assessed for the overall unit effects determination.

Guyline anchor and tailhold trees are selected to match the size of the yarder. If needed to ensure the safety of logging operations, as specified under Oregon OSHA laws, these trees may be felled and removed. Trees with suitable spotted owl habitat features will be avoided when possible, and anchor trees (i.e. tailhold trees) will be left standing when appropriate with safety considerations. The Ashland Resource Area spotted owl nest tree locations were compared with the proposed cable units and no known nest trees are located near potential guy line anchor or tailhold tree estimated locations, so no known nests would be removed. NSO surveys are continuing in the project area and new nests would be identified and guyline anchor or tailhold trees would not be used near new nest trees. Trees felled for operational purposes in Riparian Reserves and RA32 stands will remain on site. These measures would help to reduce impacts to spotted owl habitat. The exact number of guyline or tailhold trees that would be cut is unknown, but likely several could be cut adjacent to each unit. However, according to Oregon OSHA Regulations, felled trees would be removed from the site if they cannot be stabilized and pose an additional threat of sliding or rolling onto the roadways (OAR 437-007-0225 and OAR 437-007-0500). As mentioned above, the effects from anchor tree removal will be considered in the overall effects analysis for the South Fork Little Butte Project.

Helicopter Logging

This is an aerial system that uses helicopters to extract logs off the landscape. A cable suspended from the underside of a helicopter would be lowered to the forest floor. The cable is then attached to logs and lifted upwards until the logs are fully suspended. The logs are then flown to the most advantageous path back to a large landing. Once at the landing the logs are lowered to the ground and released for processing. Typically log landings for helicopter based extraction are approximately one acre in size. Helicopter extraction also requires service landings. These landings must be large enough to land a helicopter and have access for a fuel truck to approach the equipment for refueling. Polygons representing possible landing locations were included in the proposed units GIS layer used to determine effects from the proposed action. This type of

yarding system is generally accepted as the least impactful method to soils and surrounding vegetation. Approximately two acres of NRF habitat would be removed from landing construction and scattered throughout the project area. The habitat effects from the proposed landing construction are analyzed as a separate treatment area and have been incorporated into the total habitat effects for the project (Table 7).

Access Road Construction

Access road construction would be needed to extract timber. The habitat effects from the road construction are analyzed as a separate treatment area and have been incorporated into the total habitat effects for the project (Table 7). The roads were buffered to create polygons to represent the effects from the road building and included in the proposed units GIS layer used to determine effects from the proposed action. Approximately six acres of roosting/foraging habitat (sub-set of NRF) and 13 acres of dispersal habitat would be removed from proposed road construction scattered throughout the project area.

Permanent Road Construction: A permanent road is an access road constructed on undisturbed terrain. These are intended for long-term use and will stay on the landscape. Construction includes clearing, grubbing, removing, and disposing of vegetation and debris from within established clearing limits. Work also includes construction of a width of approximately 40-60 foot wide area by excavation, embankment placement, leveling, grading, and outsloping. The proposed road would be designed per the *BLM Manual 9113-1 Roads Design Handbook (Rel. 9-388)*. The new permanent road will be part of the designated transportation network system.

Temporary Road Construction: A temporary road is an access road constructed to minimum standards on undisturbed terrain, or existing footprints of old roads or previously disturbed areas when feasible. These are intended for short-term use. Construction includes clearing, grubbing, removing, and disposing of vegetation and debris from within established clearing limits. Work also includes construction of a minimum width subgrade by excavating, placing embankment, leveling, grading, and outsloping. After use, roads would be ripped, scarified, or water barred (depending on rock content and site conditions) with the intent to loosen soils and revegetate the site. The area would be seeded with native grass, mulched, and blocked.

Road Maintenance: Maintenance would occur on existing road prisms that were previously blocked, closed, or decommissioned, or are overgrown, and have not received periodic road maintenance. The road would be made suitable for timber hauling by removing existing barricades, encroaching vegetation, repairing narrowed sections, and blading the road surface. The road would be made suitable for log hauling by clearing, grubbing, and disposing of vegetation along with excavating and grading operations to establish a minimum width road prism. After use, some roads would be decommissioned by ripping and/or roughing up the surface, water barring, seeding, mulching and blocking. This may involve clearing small diameter conifers within the road prism to allow for better hauling conditions. After all activities have been completed, previously blocked roads would be barricaded.

2.4 Project Design Criteria and Conservation Measures

2.4.1 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. PDC are measures applied to project activities designed to avoid the potential adverse disturbance effects to nesting birds and their young. PDC that restrict activities to outside of the critical breeding season (Table 1) and/or occur beyond recommended disturbance distance thresholds will be incorporated into the South Fork Little Butte Project. PDC involving seasonal restrictions will be implemented unless surveys, following approved protocols, indicate either non-occupancy or non-nesting of target species.

2.4.2 Conservation Measures

The following conservation measures were designed for the South Fork Little Butte Project to help reduce impacts to northern spotted owls:

- No vegetation treatments would occur in spotted owl NRF, Roosting/ Foraging, or dispersal habitat within spotted owl nest patches.
- Protection for mollusks, great gray owls, meadow buffers, and sensitive plant sites resulting in no treatment buffers, will provide untreated patches of spotted owl habitat throughout the project area.
- All but three acres of NRF (McKelvey 1) habitat as defined above were dropped from treatment in the South Fork Little Butte Project. The three acres that remained for treatment are located outside of critical habitat and outside of known spotted owl home ranges.
- RA 32 field evaluations have been completed in the project area. Approximately 110 acres have been identified in 10 patches (2 to 39 acres) in South Fork Little Butte. No harvest activities, temporary road construction, yarding corridors, or skid roads are planned to occur within RA32 stands. There is one unit where a designated skid road is planned to occur between two larger RA32 patches. The designated skid was placed in the area of an older, previously developed skid road, with young conifer trees and an open canopy cover. Some adjacent snags may need to be felled for safety or operational reasons, but they will be left on site as coarse woody debris and will not alter the function of the 39 acres of adjacent RA32 habitat.
- Large standing (snags and live trees) and down wood will be retained in all project areas to meet RMP (USDI BLM1995) guidelines. Generally the marking guidelines require the retention of large hardwoods and large (> 20" DBH), broken, forked-top, and deformed trees, which provide nesting opportunities for spotted owls. Some snags may be felled for safety reasons, but will be left on site to provide additional down woody material.
- No vegetation treatments or road/landing construction would 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 Adaptive Management Area (AMA) lands, and are managed as Late-Successional Reserves (LSR). Late-Successional Reserves (LSR) are managed to protect and enhance habitat conditions

for late-successional and old-growth related species. These reserves are designed to maintain a functional, interacting late-successional and old-growth ecosystem. 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 new spotted owl sites are located during surveys, biologists will review PDC and the BO to confirm the ESA analysis remains valid. Timber sales have a contract clause (E-4) that authorizes stop work when threatened and endangered species are found in the timber sale or to comply with court orders. If or when a spotted owl or other listed species is found in the project area the timber operators would be notified in writing by the contracting officer to stop the work until the issue is evaluated further. If the impacts to the new site is no longer consistent with the analysis, the project will remain stopped until BLM completes one or more of the following:
 - Modifies the proposed action to ensure that impacts remain as described in the consultation documents.
 - Imposes seasonal protections (if necessary);
 - Reinitiates and completes new consultation

3. ENVIRONMENTAL BASELINE

3.1 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 northern spotted owls, the Action Area is usually based on the radius of a circle that would capture the provincial home range, which is 1.2 miles for the West Cascades Province (Thomas et al. 1990 and Courtney et al. 2004). Therefore, the Action Area represents all lands within 1.2 miles of proposed treatment units and all lands within any overlapped associated provincial home ranges of known spotted sites that could be directly, indirectly or cumulatively impacted by the proposed action. See Appendix E Map 1 to see a display of the Action Area. Table 4 below in Section 3.3 provides habitat baseline data for the Action Area.

3.2 Status of Northern Spotted Owls Range-wide

ESA regulations (50 CFR 402.02) state that *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 *2011 Revised Recovery Plan for the Northern Spotted Owl* (USDI FWS 2011), the SEI 2004 Northern Spotted Owl Status Review (Courtney et al. 2004); the Interagency Scientific Committee Report (Thomas et al. 1990); Forest Service Ecosystem Management Report (USDA et al. 1993), final rule designating the spotted owl as a threatened species (USDI

1990), and several key monographs (e.g., Anthony et al. 2006 and Forsman et al. 2011). These documents are incorporated by reference.

Eleven demographic study areas have been established to represent owl status across the range of the northern spotted owl (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. The Southern Oregon Cascades Demographic Study Area, on the Rogue River Siskiyou National Forest, is also near the Medford District. The South Fork Little Butte Project is approximately 0.5 miles to the west of the Southern Oregon Cascades Demography Study Area. Metadata analysis evaluates population statistics of the owls in the demographic study areas. The last metadata analysis was completed in 2011, which found that fecundity, the number of female young produced per adult female, is declining. Forsman 2011 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.

Two years of annual monitoring reports have been published or drafted since the 2011 the metadata analysis was completed. According to the 2012 Annual Report for the Southern Oregon Cascades Demography Study Area, at least one spotted owl was detected at 71 (42 percent) of the sites. This represented a 3.5 percent increase from 2011. However, the number of pairs (44) located was the fewest recorded during the study. The average fecundity rate in 2012 was 0.24 (averaged across sites matrix, LSR, and wilderness). There were 22 juveniles detected in the Southern Oregon Cascades study in 2012 (22) (Dugger et al, 2013). Preliminary 2013 data indicates the occupancy and fecundity rates declined compared to 2012. At least one spotted owl was detected at 60 (35 percent) of the sites in 2013, which represents a decline in occupancy of 7 percent. The average fecundity rate was 0.20 in 2013 which also represents a decline from 2012. Thirteen juveniles were detected in the study area in 2013 (Dugger et al 2014). 2014 data has not been analyzed yet.

3.3 Status of Northern Spotted Owl Habitat in the Action Area

The environmental habitat baseline for spotted owls on the Medford BLM administered lands for the Action Area is current as of July, 2014. The Medford environmental baseline was initially developed in 2008 using field assessments by experienced wildlife biologists, the Interagency Vegetation Mapping Project (IVMP) imagery from 1996 (as corrected through 2003), and additional stand data. IVMP data is the source for information for non-BLM managed lands. The baseline is updated annually for each BLM project area and the South Fork Little Butte area was updated in October of 2014. Habitat updates within the units were based on field evaluations.

Table 4 summarizes baseline habitat and ownership information for the South Fork Little Butte Action Area.

	ACRES	NSO NRF HABITAT ACRES (% TOTAL)	CAPABLE ⁴ NSO HABITAT ACRES (% TOTAL)	RESERVED ACRES ¹ (% OF TOTAL)	NON-RESERVED ACRES (% OF TOTAL)	DISPERSAL ^{2,4} ACRES (% OF TOTAL)	
OWNERSHIP							
-All Ownerships	56,452	10,863 (19%)	4,475 (8%)	3,873 (13.6%)	24,680 (86.4%)	15,491 (27%)	
- Non-Federal (Private, State)	27,899	870 (3%)	N/A ⁴	N/A ⁴	N/A ⁴	876 (3%)	
-Federal (BLM, USFS)	28,553	9,994 (35%)	4,460 (16%)	3,873 (13.6%)	24,680 (86.4%)	14,615 (51%)	
LAND ALLOCATION - FEDERAL (hierarchical, no acres double-counted)							
-Late-Successional Reserves (mapped; FS)	3,123	1,115 (35.7%)	0	3,873 (100%)	0	1,115 (35.7%)	
- 100-Acre Spotted Owl Core Areas in the Matrix	780	671 (86%)	11 (1%)			709 (91%)	
-Matrix ³	23,817	8,802 (36%)	4,466 (18%)	0	23,817 (100%)	13,310 (54%)	
Spotted Owl Critical Habitat							
Critical Habitat Unit	Sub-unit	Acres ⁵	NRF Habitat Acres	Capable NSO Habitat Acres	RESERVED	NON-RESERVED	DISPERSAL
10	KLE4	2,132	805 (35%)	1 (0.05%)	800 (37.5%)	1,332 (62.5%)	805 (38%)
10	KLE5	16,540	5,937 (36%)	3,021 (18.2%)	671 (4%)	15,779 (96%)	8,997 (54%)
Notes: 1. Reserved= land allocation with no programmed timber harvest which includes Congressionally Reserved land, LSR's, Owl Cores and Wild and Scenic River Corridors. 2. Dispersal includes NRF habitat. 3. Matrix/AMA includes Riparian Reserves (no Riparian Reserved layer is available) 4. Capable (4,475) and Dispersal-Only (4,6285) acres are primarily calculated on federal lands only in this BLM layer (BLM used the same layer to be consistent with the BA data). 5. Includes CH on State Lands							

Table 5 estimates the current NSO habitat conditions within the 5th field watershed associated with the South Fork Little Butte Project. 5th field watersheds can provide a qualitative evaluation for dispersal function using the concepts of Thomas et al. as described below. This landscape level provides a general dispersal condition. Thomas et al. (1990) along with Lint et al. (2005) and Davis et al. (2011) suggested using a landscape level approach to analyze the effects to dispersal. Thomas et. al. (1990) originally recommended assessing dispersal habitat conditions on the quarter-township scale. Since then the Service has generally recommended using a fifth field or larger landscapes for assessing dispersal habitat conditions because watersheds or provinces offer a more biological meaningful way to evaluate dispersal function. For the larger 5th field Watershed scale analysis in this BA, the BLM used the updated 2014 Rogue Basin habitat layer based on GNN (Gradient Nearest Neighbor) data. This layer types habitat (NRF, dispersal, capable, and non-habitat) across the region and across all ownerships.

5 th Field Watershed	Total Watershed Acres	Total NRF Habitat Acres	Total Dispersal-Only Habitat Acres ¹	Total Dispersal Acres (NRF+ Dispersal Only)	% Watershed Dispersal Habitat (NRF +Dispersal-only)
Little Butte Creek	238,724	60,937	74,934	135,871	57%

3.4 Status of Northern Spotted Owl Sites in the Action Area

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, presence of young before dispersal, or some other strong indication of continued occupation. Spotted owl sites used in this BA are based on historic information, protocol surveys, or incidental observations. These sites can also be referred to as territories because several alternate nest locations are often associated with each individual site. Spotted owls are generally monogamous and primarily mate for life (Courtney 2004). They are also known to exhibit high site fidelity. However, owls often switch nest trees and use multiple core areas over time, possibly in response to fluctuations of prey availability, loss of a particular nest tree, or presence of barred owls. For this assessment, survey history was used to determine whether the original or alternate nest locations would be analyzed in this BA to represent the territory.

South Fork Little Butte Action Area

There are 14 NSO known site home ranges completely contained within the South Fork Little Butte Action Area. Eleven of these sites are historic sites, but have not been surveyed or monitored consistently in the past 15 years. Surveys started again in 2014 after an average six year break from surveys. New surveys also located three additional new spotted owl sites and all three were occupied by a pair of spotted owls in 2014. Twelve of the total fourteen sites within Action Area have been occupied by a pair of spotted owls at least one year in the past. See Appendix D for a summary of the survey history, as well as occupancy and reproductive status. Additional spotted owl surveys were initiated in 2014 to survey NRF habitat outside and overlapping the home range of known owls to determine occupancy status of these areas. 2014 surveys in the South Fork Little Butte Project were not done to protocol because surveys started late due to delays in hiring the survey crew. However, six visits were still conducted to attempt to determine occupancy status. Full protocol surveys will continue in 2015, 2016 and spot checks will continue in 2017 and 2018 as needed.

NSO Site Pre-Treatment Habitat Conditions

The pre-treatment NRF habitat acres for spotted owl sites in the South Fork Little Butte Action Area are displayed in Table 9. This table provides the current habitat baseline on federal lands and to help with effects determinations from the proposed actions. NRF habitat is displayed because research has indicated that the quantity and configuration of “older forest” (analogous to NRF Habitat) provides a valid inference into the likelihood of occupancy (Hunter et al 1995), survival, and reproduction (Franklin et al 2000, Zabel et al 2003, Olson et al 2004, Dugger et al, 2005, Dugger et al 2011).

NSO Site Potential Outside of Known Spotted Owl Home Ranges

There are approximately 5,229 acres of NRF habitat on federal lands within the South Fork Little Butte Action Area that occur outside of known spotted owl home ranges. The BLM is surveying the NRF habitat in this area and the Oregon State University spotted owl crew is surveying the adjacent Forest Service lands as part of South Cascades Demography Study Area.

While there are approximately 5,229 acres of NRF on federal lands outside of the home ranges, these areas are primarily smaller and scattered throughout the Action Area. There is a larger contiguous block of NRF at the southern end of the Action Area. However, the field biologist has

determined this area is unlikely to support spotted owls due to the stand conditions, elevation, and results of past surveys. This area is dominated by white fir forests characterized by a mosaic of small, grass-dominated openings throughout conifer stands which have limited complexity in their understories. Surveys for spotted owls and great gray owls over the last 20 plus years have failed to detect more than the occasional transient spotted owl, but have located many great gray owl nest sites, pairs and fledglings (See Map 3). This evidence points toward this habitat being much more suitable for use by GGO which favor more open understories and meadow habitats than for NSO which prefer conifer stands with greater structural complexity.

As mentioned above, the BLM will be surveying these areas outside of known home ranges, and if owls are found within 1.2 miles of proposed units, the BLM will modify or drop the units to reduce potential effects to spotted owls or reinitiate consultation. Based on the low likelihood of owl occupation in these areas and that the BLM will be continuing to survey, these areas will not be analyzed in the effects section below.

3.5 Spotted Owl Prey Species

The composition of the spotted owl's diet varies geographically and by forest type. Generally, flying squirrels are the most prominent prey for spotted owls in Douglas-fir and western hemlock forests in Washington and Oregon (USDI 2011). In southwest Oregon, dusky-footed woodrats are a primary prey species for spotted owls. They are typically found in high densities in early-seral or edge habitat (Sakai and Noon 1993, Bingham and Noon 1997), but are also abundant in old growth and complex forests (Carey et al 1997). Northern flying squirrels are another major source of owl prey in southwest Oregon, while red tree voles (RTVs) may comprise only approximately 2.6 percent of the diet of spotted owls in this area (Forsman 2004). Other important prey items include deer mice, red-backed voles, gophers, snowshoe hare, bushy-tailed wood rats, birds, and insects, although these species comprise a small portion of the spotted owl diet (USDI 2011).

3.6 Barred Owls

The 2011 Revised 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. Existing evidence suggest that barred owls compete with northern spotted owls for habitat and prey with near total niche overlap and that interference competition (Dugger et al. 2011, Van Lanen et al. 2011, Wiens 2014) is resulting in increased northern spotted owl site abandonment, reduced colonization rates, and likely reduction in reproduction (Olson et al. 2005, Dugger et al. 2011, Forsman et al. 2011, Wiens 2014).

Barred owls are detected opportunistically because the BLM does not conduct barred owl surveys across the District. These incidental observations are increasing within the Medford District, which matches the trend of increasing numbers of barred owls across the range of the northern spotted owl. Incidental observations across the District, as well as information from the Klamath and South Cascades Demography Study Areas indicate that barred owls are increasing in this area. Local populations of barred owls are likely to increase over time. Observational data

suggests direct competition with and aggressive displacement of spotted owls from prime nesting habitat.

The BLM did not conduct surveys specifically for barred owls in the South Fork Little Butte Project Area. However, barred owls have been detected during spotted owl surveys and recorded when detected. Barred owls have been detected at three NSO sites within the project area, including a barred owl pair at NSO sites # 4464O and #2403O in 2014. An additional barred owl pair with a juvenile was located in an area outside of known spotted owl sites within the project area when new NSO surveys were conducted in previously unsurveyed suitable habitat in 2014.

3.7 Status of Northern Spotted Owl Critical Habitat

Critical habitat for the northern spotted owl was first designated in 1992 in *Federal Register* 57 (USDI 1992), 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* (signed on August 12, 2008, 73 Federal Register 157:47326) and became effective on September 12, 2008. The 2008 USFWS's Critical Habitat delineations were challenged in court and the 2008 designation of northern spotted owl CHU was remanded. 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). The final Critical Habitat Rule was published in the *Federal Register* on December 4, 2012 (77 *Federal Register* 233:71876-72068) and became effective January 3, 2013.

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 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 which are as follows:

- 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 cover (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.

- 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 cover 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 cover; 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.

Approximately 1,378 acres of NRF and dispersal habitat proposed for treatment in the South Fork Little Butte Project are within Critical Habitat Unit (CHU) 10, sub-unit KLE-5. Even though the Action Area included land in sub-unit KLE-4, no South Fork Little Butte treatment units occur in sub-unit KLE-4. The following descriptions for CHU 10 and sub-unit KLE-5 (where SFLB treatments occur) are directly out of the final rule in the *Federal Register* (77 Federal Register 233:71931-71935).

Unit 10: Klamath East (KLE)

Unit 10 contains seven subunits and consists of the eastern 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 1994, Section M261A), and portions of the Southern Cascades Ecological Section M261D in Oregon. This region is characterized by a Mediterranean climate, greatly reduced influence of marine air, and steep, dissected terrain. Franklin and Dyrness (1988, pp. 137-149) differentiate the mixed-conifer forest occurring on the “Cascade side of the Klamath from the more mesic mixed evergreen forests on the western portion (Siskiyou Mountains),” and Kuchler (1977) separates out the eastern Klamath based on increased occurrence of ponderosa pine. The mixed-conifer/evergreen hardwood forest types typical of the Klamath region extend into the southern Cascades in the vicinity of Roseburg and the North Umpqua River, where they grade into the western hemlock forest typical of the Cascades. High summer temperatures and a mosaic of open forest conditions and Oregon white oak (*Quercus garryana*) woodlands act to influence northern spotted owl distribution in this region. Northern spotted owls occur at elevations up to 1,768 m. Dwarf mistletoe provides an important component of nesting habitat, providing additional structure and enabling northern spotted owls to occasionally nest within stands of relatively younger, small trees.

Subunit KLE-5

The KLE-5 subunit occurs in Jackson County, Oregon, and comprises lands managed by the BLM. The BLM lands are managed per the NWFP (USDA and USDI 1994, entire). Special management considerations or protection are required in this subunit to address threats to the essential physical or biological features 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 primarily for north-south connectivity between subunits, but also for demographic support.

There are approximately 40 total historic spotted owl sites on BLM lands in this entire critical habitat sub-unit. This critical habitat sub-unit is not within lands managed by the Forest Service.

Northern Spotted Owl Critical Habitat Baseline Data

Table 6 summarizes the NSO habitat baseline for the entire critical habitat sub-unit KLE-5. The habitat baseline acres were created by the USFWS by clipping the NWFP Interagency Regional Monitoring Program NSO habitat layer to the December 2012 critical habitat layer. The USFWS then created a spreadsheet on 12/19/2012 with the baseline habitat acres by CHUs and sub-units. For this BA, the BLM subtracted NSO habitat removed from habitat altering projects (from USFWS monitoring database), to come up with the current CHU habitat baseline for sub-unit KLE-5. Project specific habitat calls are based on field verification, GIS habitat layers, and photo interpretation.

Table 6. Critical Habitat Baseline (acres)						
CHU / Sub-Unit	NRF	Dispersal - Only	Dispersal (NRF + Dispersal Only)	Capable	Non-Habitat	Total (Dispersal + Unsuitable + Non-Habitat)
10-KLE-5	18,604	12,140	30,744	5,684	771	37,199

* Total Unit acres, *Source: NRF/Dispersal removal and downgrade acres from previous habitat altering projects, subtracted from the USFWS NSOCH_2012_Baseline_Summaries_Dec19_2012 Data.*

4. EFFECTS OF THE PROPOSED ACTION

4.1 Effects to Northern Spotted Owls Analyzed by Habitat

The effects to NRF and dispersal habitats are summarized in Table 7 and displayed in Map 2 in Appendix E. The entire habitat effects combined with the critical habitat effects are summarized in table C-1 of Appendix C. The project listed in this BA represents the current proposal for the South Fork Little Butte Project. It is likely that the effects to habitat described below would be reduced at the time of the NEPA Decision Record because it is anticipated that acres would be deferred for various reasons including economics or logging feasibility issues, resulting in less acres offered for sale. Consultation monitoring reports will reflect the actual implemented acres for this project.

<i>Action Area Baseline Habitat (From Table 4)</i>	<i>(10,863)</i>						<i>(15,491) (NRF and Dispersal Only)</i>		<i>56,452¹ (total AA)</i>
	NRF Removed (acres)		NRF Downgrade (acres)		NRF T&M (acres)		Dispersal- Only Removed (acres)	Dispersal- Only T&M (acres)	Total Acres Treated
	NRF²	RF³	NRF²	RF³	NRF²	RF³			
South Fork Little Butte Project (vegetation treatments)	3	30	0	203	0	364	87	1,244	1,931
SFLB (Road Construction or Helicopter landings)	0	8	0	0	0	0	16	0	24
TOTAL	3	38	0	203	0	364	103⁴	1,244	1,955
% Change to AA Baseline Habitat	-0.4%		- 1.9%		No Change		- 0.7%	No Change	3.5 % of AA treated

1- Total Action Area acres across all ownership, including 11,932 acres of non-habitat and capable habitat

2- NRF = Nesting/Roosting/Foraging (McKelvey 1)

3- RF = Roosting /Foraging (McKelvey 2)

4- Total dispersal-only acres, but only the 59 acres outside of critical habitat will be discussed below. The 44 acres in critical habitat will be discussed in the Effects to Critical Habitat Section.

The determinations below describe the general effects to the habitat from the proposed actions. They represent the total acre effects as summarized in Table 7. The determinations cover NRF removal, NRF downgrade, NRF treat and maintain, dispersal removed, and dispersal treat and maintained collectively for each treatment unit. These general effect determinations serve as a starting point for the more detailed analysis for effects to each NSO site within the Action Area and (Section 4.2) and for effects to critical habitat (Section 4.3).

In the South Fork Little Butte Project, the 41 acres of NRF removal can be divided into NRF and Roosting/Foraging Habitat. Only three acres are classified as NRF, and the rest of the treatment acres would occur in Roosting/Foraging habitat. The three acres of NRF removal would occur outside of known spotted owl home ranges and outside of spotted owl critical habitat.

The treatments proposed that downgrade or remove roosting/foraging habitat were only proposed in areas where the habitat could be improved in the long-term (i.e. within high habitat suitability

according to the relative habitat suitability model); treatments would improve stand resiliency; or where the ecological needs of the stand outweighed the owl habitat needs (i.e. pine restoration on a ridge that is in low habitat suitability according to the relative habitat suitability model). Treat and maintain prescriptions would only occur in roosting/foraging and dispersal-only habitat. See Table 3 above to see how the various treatments would affect the stands in the long-term.

The BLM has determined the removal of 41 acres of NRF habitat (3 acres of NRF and 38 acres of Roosting/Foraging) associated with the South Fork Little Butte Project (*structural retention, road and landing construction*) may affect and is likely to adversely affect (LAA) northern spotted owls because:

- The removal of NRF habitat through structural retention harvest would remove key habitat elements, including large-diameter trees with nesting cavities or platforms, multiple canopy layers, adequate cover, and hunting perches.
- Structural retention harvest would reduce the overall canopy near or below 40 percent and the existing multi-canopy, uneven age tree structure, and key habitat features would not remain post treatment. These treatment acres would not be expected to provide suitable NRF habitat for many years post-treatment.
- The removal of these key habitat features would reduce the nesting, roosting, foraging, and dispersal opportunities for owls in the project area, and lead to increased predation risk.
- Loss of habitat will reduce opportunities for future reproduction and survival of young.
- Removal of NRF would reduce the amount of existing NRF in the Action Area (federal, state and private) by 0.4 percent.

The BLM has determined the downgrading of 203 acres of NRF habitat associated with the South Fork Little Butte Project (*Selective Thinning and Group Selection*) may affect, and 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.
- The removal of these key habitat features would reduce NRF habitat within the Action Area by 1.9 percent.

The BLM has determined that treating and maintaining 364 acres of NRF habitat associated with the South Fork Little Butte Project (density management, group selection, and mortality salvage) may affect, but is not likely to adversely affect (NLAA) northern spotted owls because the treatment will not change the intended function of the habitat and the conditions that would classify the stand as NRF would remain post-treatment.

- Canopy cover in treated roosting/foraging stands will be retained at or above 60 percent, which would provide the minimum canopy to function as NRF habitat.
- Roosting/foraging stands (McKelvey 2) would maintain a minimum of 160 ft²/ acre total basal area (conifer and hardwoods).

- Multiple canopy layers would be retained in stands with more than one layer present prior to treatment, which would provide canopy layering necessary to function as NRF habitat.
- Decadent components important to owls such as large snags, large down wood, and large hardwoods would be retained within the stands. Snags that must be felled for OSHA guidelines would be left on site where safety allows.
- NRF (Mckelvey 1) stands would not be treated.
- Small openings (approximately 0.5 acre) in group selection units would not exceed 20 percent of the treatment area to maintain NRF quality and canopy cover.
- No spotted owl nest trees would be removed.
- Treatments would not occur in spotted owl nest patches.

The BLM has determined that the removal of 59 acres of dispersal-only habitat associated with the South Fork Little Butte Project located outside of critical habitat (selective thinning, structural retention, and road and landing construction) may affect, but is not likely to adversely affect (NLAA) northern spotted owls because:

- No dispersal habitat will be removed in nest patches.
- The 59 acres of dispersal-only habitat removal located outside of critical habitat would be spread throughout the project in eight treatment units, averaging 10 acres in size. Additional removal would occur in small proposed road and landing construction areas.
- Currently, 57 percent of the Little Butte Creek watershed is dispersal habitat (NRF + dispersal only). The removal of 59 acres of dispersal-only habitat would not preclude owls from dispersing throughout the Action Area. Removal of dispersal-only habitat would result in the reduction of 0.4 percent of the total dispersal habitat (NRF and dispersal-only) in the Action Area. When adding the 41 additional acres of NRF removal, the percent reduction would be 0.6 percent.
- The removal of 103 acres of dispersal-only habitat (including dispersal-acre removal within critical habitat) within the Little Butte Creek 5th field watershed would not preclude owls from dispersing throughout the watershed, and would result in an insignificant and discountable reduction of dispersal-only habitat in the watershed.
- Forest landscapes traversed by dispersing owls typically include fragmented mosaic of roads, clear-cuts, non-forested areas, and a variety of forest age classes ranging from fragmented forests on cutover areas to old-growth forests (Forsman et al., 2002).
- An additional 44 acres of dispersal-only habitat removal would occur within critical habitat and is a may affect, likely to adversely affect to critical habitat. See Effects to Critical Habitat section below.

The BLM has determined that treating and maintaining 1,244 acres of dispersal-only habitat associated with the South Fork Little Butte Project through density management, group selection, and mortality salvage may affect, but is not likely to adversely affect (NLAA) northern spotted owls because the treatment will not change the intended function of the habitat and the conditions that would classify the stand as dispersal would remain post-treatment.

- Canopy cover in treated stands will be maintained at 40 percent and key habitat features would be retained, which would enable the stands to continue to function as dispersal habitat.

- Decadent components important to owls such as large snags, large down wood, and large hardwoods would be retained. Snags that must be felled for OSHA guidelines would be left on site where safety allows.
- These treatment acres would be expected to continue to provide dispersal opportunities post-treatment.
- The proposed treatments will be dispersed throughout the Action Area to minimize the potential for adversely affecting spotted owl dispersal.

4.2 Effects to Spotted Owls

4.2.1 Analysis Methods

This section summarizes the analysis used for this consultation. For this particular consultation the BLM developed a set of factors based on NSO resource use across the landscape at various spatial scales (home range, core use area, and nest patch) to inform the effects analysis. The spatial scales and general factors are described below, followed by the effects to individual owl sites.

Habitat reduction from the proposed action will be analyzed at the home range, core, and nest patch scales. These scales are described in more detail below:

Home Range Circle is an approximation of the median home range size used by spotted owls in the Cascades West Province. Medford District uses the median home range estimated for southwestern Oregon of 2,895 acres or a circle with a radius of 1.2 miles. The Home Range Circle provides a coarse but useful analogue of the median home range for northern spotted owl (Lehmkuhl and Raphael, 1993, Raphael et al 1996). Although it provides an imprecise estimate of actual home ranges, the home range circle approach has been used to show that stand age/structure, patch size, and configuration within the circle influences the likelihood of occupancy. When less than 40 to 60 percent of the circle is in NRF habitat, the likelihood of spotted owl presence is lower, and survival and reproduction may be reduced (Thomas et al. 1990, Bart and Forsman 1992, Bart 1995, and Dugger et al. 2005). Therefore, the home range circle is a useful analytical scale for the purpose of quantifying habitat and the impact to owl sites from proposed habitat modification. The provincial home ranges of several owl pairs may overlap.

Core Area Circle has a radius that captures the approximate core use area, defined as the area around the nest tree that receives disproportionate use (Bingham and Noon 1997). The Medford District uses a 0.5 mile radius (~500 acre) circle to approximate the core area. Research has indicated that the quantity and configuration of “older forest” (analogous to NRF Habitat) provides a valid inference into the likelihood of occupancy (Hunter et al 1995), survival, and reproduction (Franklin et al 2000, Zabel et al 2003, Olson et al 2004, Dugger et al, 2005, Dugger et al 2011). Generally survival and reproduction are supported when there is between 40 and 60 percent older forest within the core (Dugger et al 2005), but local conditions and possibly pair experience, contribute to large variance in actual amounts for individual owls. The amount of habitat within an approximate 0.5 mile radius provides reliable predictor of occupancy, and the quantity and configuration have been shown to provide reasonable inferences into survival and

reproduction. Core areas represent the areas that are defended by territorial owls and generally do not overlap the core areas of other owl pairs (Wagner and Anthony 1998, Dugger et al. 2005, Zabel et al. 2003, Bingham and Noon 1997).

Nest Patch is the 300-meter radius (70 acres) around a known or likely nest site and is included in the core and home range area. Nest area arrangement and nest patch size have been shown to be an important attribute for site selection by spotted owls (Swindle et al. 1997, Perkins et al. 2000, Miller et al. 1989, and Meyer et al. 1998). Models developed by Swindle et al. (1997) and Perkins et al. (2000) showed that the 200-300 meter radius (and sometimes greater), encompassing approximately up to 70 acres, around a nest is important to spotted owls. The nest patch size also represents key areas used by juveniles prior to dispersal. Miller et al. (1989) found that on average, the extent of forested area used by juvenile owls prior to dispersal averaged approximately 70 acres.

Analysis Approach

Using best available habitat and spatial use information on northern spotted owls, the BLM developed a general approach, informed by local conditions, to evaluate effects determination for individual sites affected by the proposed action. Table 8 provides the general approach, while recognizing site specific conditions may provide exceptions to the factors.

Table 8. Medford BLM General Factors for NSO Site Effect Determinations	
LAA Determination Factors	NLAA Determination Factors
<ul style="list-style-type: none"> • More than one acre of NRF Removal or Downgrade in a home range with < 40% pre-treatment NRF on federal lands. • More than one acre of NRF Removal or Downgrade in a 0.5 mile core area with < 50% pre-treatment NRF on federal lands. • NRF Removal or Downgrade that would reduce the pre-treatment NRF amounts below 40% at the home range and 50% at the core scale. • NRF treatment in the nest patch. • Treatments in NRF or dispersal in the 0.5 mile core areas with low amounts of NRF habitat pre-treatment. 	<ul style="list-style-type: none"> • Protocol surveys have determined the site has been Unoccupied for at least 5 years. • NRF would not be removed within the home range, 0.5 mile core area, or nest patch • Less than one acre of NRF removal or downgrade in the home range or 0.5 mile core area.

4.2.2 Effects to Individual Owl Sites

As indicated above in the NSO Site Baseline Section, there are approximately 14 owl sites/territories affected by the proposed action. Some treatments (Section 2.3.2 and 2.3.3) are proposed in all nine home ranges. Effect determinations to NSO sites will be based on changes to habitat conditions and potential noise disturbance during the critical breeding season. The effects to the owl sites are analyzed below and summarized in Table 9. All treatments effects are summarized by site number in table C-2 of Appendix C. The sites are discussed in more detail below Table 9. Maps displaying owl sites, home ranges, 0.5 mile core areas, nest patches, and proposed units are found in Appendix E.

As indicated in Table 9, the NRF habitat amounts are low on federal lands within the home ranges of all 14 territories and 11 of the 0.5 mile core areas. As mentioned above when less than 40 to

60 percent of the home range is NRF habitat, the likelihood of spotted owl presence is lower, and survival and reproduction may be reduced (Thomas et al. 1990, Bart and Forsman 1992, Bart 1995, and Dugger et al. 2005). Additionally, adjacent private lands have removed or could remove potential NRF on their lands. Therefore, the BLM cannot assume private lands are contributing to the older forest conditions in these home range and core areas in the South Fork Little Butte Project Area.

Table 9. South Fork Little Butte NSO Sites Affected by the Proposed Action

Site	Pre-Treatment NRF Habitat ¹ acres/(%)		NRF Habitat Reduced ² (acres)			T&M in Core		T&M in the HR		Post-Treatment NRF Habitat acres/(%)		Site Activity in 2014 ³	Effects
	HR	Core	HR	Core	NP	NRF	Disp	NRF	Disp	HR	Core		
00890 ⁴	735 (25.4)	127 (25)	0	0	0	0	63	17	172	735 (25.4)	127 (25)	Resident single male w/ one female response. Did not meet pair status; nesting unknown	NLAA
0902A	668 (23.1)	5 (1)	0.4	0	0	0	17	27	260	667.6 (23.1)	5 (1)	Single male detected at the Alt site, but does not meet resident single status (barred owl detected). No Response at original	NLAA
09020 ⁴	464 (16)	222 (45)	10.4	0	0	12	2	44	82	453.6 (15.7)	222 (45)		
09310 ⁴	654 (22.6)	310 (62)	1.7	0.7	0	24	18	84	91	652.3 (22.5)	309.3 (61.8)	No Response	LAA
FS2031	462 (16)	45 (9)	44	0	0	0	0	0	28	418 (14.4)	45 (9)	No Response	LAA
24030 ⁴	361 (12.5)	171 (34.4)	0	0	0	0	127	1	277	361 (12.5)	171 (34.4)	No NSO Response; pair of barred owls detected	NLAA
32750 ⁴	886 (30.6)	268 (54)	4.5	0	0	0	7	15	175	881.5 (30.4)	268 (54)	Single Resident Status Male	LAA
32760 ⁴	1,025 (35.4)	166 (33.4)	4.5	0	0	0	3	5	21	1,020.5 (35.2)	166 (33.4)	No Response	LAA
35630 ⁴	405 (14)	22 (4.4)	0.6	0	0	0	2	77	97	404.4 (14)	22 (4.4)	Pair, nested, 2 young	NLAA
40620 ⁴	675 (23.3)	271 (54.5)	27	11	0	0	0	15	88	648 (22.4)	260 (52)	Single Resident Status Male detected	LAA
40650 ⁴	242 (8.4)	80 (16.2)	17.3	13	0	10	38	15	130	224.7 (7.8)	68 (13.6)	No Response	LAA

Site	Pre-Treatment NRF Habitat ¹ acres/(%)		NRF Habitat Reduced ² (acres)			T&M in Core		T&M in the HR		Post-Treatment NRF Habitat acres/(%)		Site Activity in 2014 ³	Effects
	HR	Core	HR	Core	NP	NRF	Disp	NRF	Disp	HR	Core		
44640 ⁴	275 (9.5)	111 (22.4)	0.1	0	0	0	20	1	69	274.9 (9.5)	111 (22.4)	Resident Single Male (also pair of barred owls with young)	NLAA
18340 ⁴	559 (19.3)	106 (21.3)	0	0	0	0	44	8	171	559 (19.3)	106 (21.3)	Pair; nested, 1 young	NLAA
21060 ⁴	482 (16.6)	100 (20)	0.6	0	0	3	33	26	193	481.4 (16.6)	100 (20)	Pair; nesting unknown	NLAA
20220 ⁴	557 (19.2)	160 (32.2)	0	0	0	0	0	0	10	557 (19.2)	160 (32.2)	Male and female present; did not meet pair status; nesting unknown	NLAA

1- NRF on federal lands

2- NRF reduced = NRF removed or downgraded from the proposed action

3- These sites have not been surveyed in several years. Surveys were resumed in 2014. More historical data in Appendix D

4 - Site centers are within Critical Habitat

Owl Site Descriptions

The South Fork Little Butte Project is within the home ranges of fourteen owl sites/territories. All sites in Table 9 above are described below and are grouped by sites that are not likely to be adversely affected (NLAA) by the proposed action and sites that are likely to be adversely affected (LAA) by the proposed action.

Summary of Sites Not Likely to be Adversely Affected from Habitat Modification:

Site # 00890

- This site is one of the high priority sites based on historically high pair occupancy and reproductive success. 2003 was the last year a pair was observed at this site, and the last year it was surveyed since surveys resumed in 2014. A resident single male was detected and a female was detected once in 2014. The pair was not observed enough times together to confirm as a pair according to the protocol.
- Vegetation treatments would not remove or downgrade NRF within the home range, 0.5 mile core area, or nest patch of this site. Only treatments that would maintain NRF (roosting/foraging) (17 acres) and dispersal (172 acres) function post-treatment are proposed in this home range. No NRF would be treated in the 0.5 mile core area. Approximately 63 acres of dispersal would be treated within the 0.5 mile core area.
- Proposed road construction would remove 1.7 acres of dispersal habitat within the home range of this site and remove 0.7 acres of dispersal habitat within the 0.5 mile core area.

- The proposed action **may affect, and is not likely to adversely affect (NLAA)** spotted owls because the NRF levels at the home range and 0.5 mile core scales would not change, and NRF in the 0.5 mile core area would not be treated. The proposed action is not expected to adversely impact essential habitat for nesting or foraging, which could affect reproduction and survival of the owls associated with this site. The Ashland Resource Area wildlife survey crew will continue to survey this site to protocol in 2015 and subsequent years. If owls are located in a new area that would increase the effects analyzed for this site, the BLM will drop units or modify proposed prescriptions in an effort to reduce adverse effects to the spotted owls, or reinitiate consultation.

Site # 0902A/O

- This site is one of the high priority sites based on historically high pair occupancy and reproductive success. 2007 was the last year a pair was observed at this site, and 2006 was the last time the site successfully nested. This site was last surveyed in 2009 since surveys resumed in 2014. Only a male was detected in 2014 (one auditory response), but not enough times to meet the protocol requirements for resident single status. A single unknown sex barred owl was also detected at the site in 2014.
- The male NSO was detected at the alternate site in 2014, which is actually on private land. In the past history, the previous pairs that occupied this territory used both the original and alternate locations. Since the most recent activity was at the alternate location, the treatment strategy at this territory was to avoid NRF downgrade or removal within the home range of the alternate site location. Vegetation treatments would not remove or downgrade NRF within the home range, 0.5 mile core area, or nest patch of the alternate site (A). Only treatments that would maintain roosting/foraging habitat (sub-set of NRF) (27 acres) and dispersal (260 acres) function post-treatment are proposed in this home range of this alternate site. No NRF would be treated in the 0.5 mile core area and approximately 17 acres of dispersal would be treated within the 0.5 mile core area of this alternate site.
- Approximately 10 acres of roosting/foraging habitat (sub-set of NRF) would be downgraded at the edge of the home range of the original site (O). Even though roosting/foraging habitat (sub-set of NRF) would be downgraded to dispersal habitat that could lead to an adverse effect at the home range scale, telemetry data from 2001-2003 showed the owls did not use this area. This area provides a lower value to spotted owls because it occurs high up on a ridge and is within low habitat suitability according to the Relative Habitat Suitability (RHS) output from the MaxEnt model. Areas in low habitat suitability are not expected to provide long-term suitability and high frequency use for spotted owl nesting/reproduction. The prescription in this unit is for group selection without additional thinning and would aim to release ponderosa pines and restore the pine stand conditions.
- Approximately 44 acres of roosting/foraging habitat (sub-set of NRF) and 82 acres of dispersal habitat would be treated and maintained within the home range of the original site. Of these acres, 12 acres of roosting/foraging (5.4 percent of existing NRF) and two acres of dispersal habitat would be treated within the 0.5 mile core area of the original site.
- Road construction would remove 0.4 acres of roosting/foraging within the home range, but outside of the core area of the original site (O). The proposed landing construction would occur in an area of low habitat suitability according to the Relative Habitat Suitability (RHS) output from the MaxEnt model. Proposed road and landing construction

would remove 2.7 acres of dispersal habitat within the home range of the alternate site and 1.5 acres of dispersal habitat within the original site location. These road and landing construction areas would occur outside of the core area and would be scattered throughout the combined home ranges in a total of five segments.

- The proposed action **may affect, and is not likely to adversely affect (NLAA)** spotted owls because the NRF levels at the home range and 0.5 mile core scale would not change, and NRF in the 0.5 mile core area will not be treated at the alternate site where the owls have been most recently been using. Even though NRF downgrading and removal is proposed within the territory, it would occur well beyond the most recently active home range. Additionally, the unit is located high on a ridge and in an area where previous telemetry points did not show use by owls. The proposed action is not expected to adversely impact essential habitat for nesting or foraging, which could affect reproduction and survival of the owls associated with this territory. The Ashland Resource Area wildlife survey crew will continue to survey this site to protocol in 2015 and subsequent years. If owls are located in a new area closer to the units and would adversely affect the owls, BLM will drop units or modify proposed prescriptions in an effort to reduce adverse effects to the spotted owls, or reinitiate consultation.

Site # 24030

- This site is one of the high priority sites based on historically high pair occupancy and reproductive success. 2007 was the last year a pair was observed at this site and 1992 was the last year the site successfully nested. The site was last surveyed in 2008 until surveys resumed in 2014. No northern spotted owls were detected in the six visits conducted in 2014. However a pair of barred owls was detected during one survey visit.
- Vegetation treatments would not remove or downgrade NRF within the home range, 0.5 mile core area, or nest patch of this site. Only treatments that would maintain NRF (one acre) and dispersal (277 acres) function post-treatment are proposed in this home range. No NRF would be treated in the 0.5 mile core area.
- Proposed landing construction would remove 2 acres of dispersal habitat within the home range of this site and 0.5 acres of dispersal habitat within the 0.5 mile core area.
- The proposed action **may affect, and is not likely to adversely affect (NLAA)** spotted owls because the NRF levels at the home range and 0.5 mile core scales would not change, and NRF in the 0.5 mile core area will not be treated. The proposed action is not expected to adversely impact the essential behavioral patterns for nesting or foraging, which could affect reproduction and survival of the owls associated with this territory. The Ashland Resource Area wildlife survey crew will continue to survey this site to protocol in 2015 and subsequent years. If owls are located in a new area that would increase the effects analyzed for this site, the BLM will drop units or modify proposed prescriptions in an effort to reduce adverse effects to the spotted owls, or reinitiate consultation.

Site # 35630

- This site is one of the high priority sites based on historically high pair occupancy and reproductive success, as well as recent nesting activity. 2010 was the last year a pair was observed at this site and was also the last year the site successfully nested. The site was last surveyed in 2010 until surveys resumed in 2014. A nesting pair was located at this site in 2014 and two young successfully fledged.

- Vegetation treatments would not remove or downgrade roosting/foraging habitat within the home range, 0.5 mile core area, or nest patch of this site. However, one acre of roosting/foraging habitat would be removed at the edge of the home range from road and landing construction. Vegetation treatments in this home range are only designed to maintain NRF (77 acres) and dispersal (97 acres) function post-treatment in this home range. No NRF would be treated in the 0.5 mile core area.
- Proposed road construction would remove 0.1 acres of dispersal habitat within the home range of this site.
- The proposed action **may affect, and is not likely to adversely affect (NLAA)** spotted owls. Even though one acre of NRF would be removed within the home range of this high priority owl site the removal is not expected to be significant because it is small in scope and on the extreme edge of the home range and likely does not serve an important function for the owls at this site. The proposed action is not expected to adversely impact the essential behavioral patterns for nesting or foraging, which could affect reproduction and survival of the owls associated with this territory. The Ashland Resource Area wildlife survey crew will continue to survey this site to protocol in 2015 and subsequent years. If owls are located in a new area that would increase the effects analyzed for this site, the BLM will drop units or modify proposed prescriptions in an effort to reduce adverse effects to the spotted owls, or reinitiate consultation.

Site # 44640

- This site is one of the high priority sites based on historically high pair occupancy and reproductive success. 2000 was the last year a pair was observed at this site and the last year young were successfully produced. This site was last surveyed in 2004 since surveys resumed in 2014. Only a male was detected in 2014. The responses met protocol resident single status, but only auditory detections occurred and the owl was never seen. A barred owl pair was observed at this site in 2014.
- Vegetation treatments would not remove or downgrade NRF habitat within the home range, 0.5 mile core area, or nest patch of this site. Approximately one acre of NRF would be treated and maintained within the home range. No NRF would be treated in the 0.5 mile core area. Approximately, 0.1 acres of roosting/foraging habitat would be removed within the home range from road construction, but is located on the extreme edge of the home range.
- Approximately 24.1 acres of dispersal habitat would be removed in the home range, but outside of the core area, from road and landing construction and vegetation treatments. Approximately 69 acres of dispersal habitat would be treated and maintained within the home range and 20 of these acres would occur within the 0.5 mile core area.
- The proposed action **may affect, and is not likely to adversely affect (NLAA)** spotted owls. Even though 0.1 acres of NRF would be removed within the home range of this high priority owl site the removal is not expected to be significant because it is small in scope and on the extreme edge of the home range and likely does not serve an important function for the owls at this site. The proposed action is not expected to adversely impact the essential behavioral patterns for nesting or foraging, which could affect reproduction and survival of the owls associated with this territory. The Ashland Resource Area wildlife survey crew will continue to survey this site to protocol in 2015 and subsequent years. If owls are located in a new area that would increase the effects analyzed for this

site, the BLM will drop units or modify proposed prescriptions in an effort to reduce adverse effects to the spotted owls, or reinitiate consultation.

Site # 1834O

- This is a new site that was discovered during surveys in 2014. This site is one of the high priority sites because it is currently occupied by a pair. This pair nested in 2014 and one fledgling was confirmed. A goshawk was also observed earlier in the season at this site and attacked the male spotted owl. However, one NSO young still successfully fledged.
- Vegetation treatments would not remove or downgrade NRF within the home range, 0.5 mile core area, or nest patch of this site. Only treatments that would maintain roosting/foraging habitat (8 acres) and dispersal (171 acres) function post-treatment are proposed in this home range. No NRF would be treated in the 0.5 mile core area.
- Proposed road construction would remove 1 acre of dispersal habitat within the home range of this site.
- The proposed action **may affect, and is not likely to adversely affect (NLAA)** spotted owls because the NRF levels at the home range and 0.5 mile core scales would not change, and NRF in the 0.5 mile core area will not be treated. The proposed action is not expected to adversely impact the essential behavioral patterns for nesting or foraging, which could affect reproduction and survival of the owls associated with this territory. The Ashland Resource Area wildlife survey crew will continue to survey this site to protocol in 2015 and subsequent years. If owls are located in a new area that would increase the effects analyzed for this site, the BLM will drop units or modify proposed prescriptions in an effort to reduce adverse effects to the spotted owls, or reinitiate consultation.

Site # 2106O

- This is a new site that was discovered during surveys in 2014. This site is one of the high priority sites because it is currently occupied by a pair. These owls were not located until June, which was too late to determine nesting status. No juveniles were detected.
- Vegetation treatments would not remove or downgrade NRF within the home range, 0.5 mile core area, or nest patch of this site. However, 0.6 acres of roosting/foraging habitat would be removed within the home range from road construction. Vegetation prescriptions in this home range are only designed to treat and maintain roosting/foraging habitat function post-treatment are proposed in this home range. Three acres of roosting/foraging habitat would be treated and maintained within the 0.5 mile core area, which represents three percent of the existing NRF on federal lands within the core area of this site.
- Approximately 5.6 acres of dispersal habitat would be removed from road construction within the home range, but outside of the 0.5 mile core area. Vegetation treatments would treat and maintain 193 acres of dispersal habitat within the home range of this site. Of these acres, 33 acres of dispersal habitat would be treated and maintained within the 0.5 mile core area.
- Proposed road construction would remove 5.6 acres of dispersal habitat within the home range of this site.
- The proposed action **may affect, and is not likely to adversely affect (NLAA)** spotted owls. Even though 0.6 acres of NRF would be removed within the home range of this high priority owl site the removal is not expected to be significant because it is small in scope and on the outer edge of the home range “circle” and where it likely does not serve

an important function for the owls at this site. Contiguous foraging habitat exists within the core area and closer to the site center. The available habitat would provide easier foraging opportunities for the owl pair and it would not be necessary for the pair to use the habitat in the proposed road construction area. As mentioned above, the home range circle approach has been used describe the likelihood of occupancy and determine potential effects based on stand age/structure, patch size, and configuration within the circle. The circle provides an imprecise estimate of actual home ranges because establishing the exact spatial extent of a spotted owl's home range based on relative use within a home range typically requires use of radio-telemetry.

- The proposed action is not expected to adversely impact the essential behavioral patterns for nesting or foraging, which could affect reproduction and survival of the owls associated with this territory. The Ashland Resource Area wildlife survey crew will continue to survey this site to protocol in 2015 and subsequent years. If owls are located in a new area that would increase the effects analyzed for this site, the BLM will drop units or modify proposed prescriptions in an effort to reduce adverse effects to the spotted owls, or reinitiate consultation.

Site # 2022O

- This is a new site that was discovered during surveys in 2014. This site is one of the high priority sites because it is currently occupied by a male and female, but they were not observed enough times according to protocol to confirm pair status. These owls were not located until June, which is too late to determine nesting status. No juveniles were detected.
- NRF habitat would not be treated within the home range of this owl site. Ten acres of dispersal treat and maintain are the only treatments proposed in this home range and they occur on the outer edge of the home range.
- The proposed action **may affect, and is not likely to adversely affect (NLAA)** spotted owls because the NRF levels at the home range and 0.5 mile core scales would not change, and NRF in the 0.5 mile core area will not be treated. The proposed action is not expected to adversely impact the essential behavioral patterns for nesting or foraging, which could affect reproduction and survival of the owls associated with this territory. The Ashland Resource Area wildlife survey crew will continue to survey this site to protocol in 2015 and subsequent years. If owls are located in a new area that would increase the effects analyzed for this site, the BLM will drop units or modify proposed prescriptions in an effort to reduce adverse effects to the spotted owls, or reinitiate consultation.

Summary of Sites Likely to be Adversely Affected from Habitat Modification:

Site # 0931O

- This site is one of the high priority sites based on historically high pair occupancy and reproductive success. 2000 was the last year a pair was observed at this site and the last year the site successfully nested. The site was last surveyed in 2006 until surveys resumed in 2014. No owls were detected in the six visits conducted in 2014.
- Vegetation treatments would not remove or downgrade NRF within the home range, 0.5 mile core area, or nest patch of this site. However, 1.7 acres of roosting/foraging habitat

would be removed within the home range and 0.7 acres of roosting/foraging habitat would be removed within the 0.5 mile core area from road and landing construction.

- Approximately 84 acres of roosting/foraging habitat and 91 acres of dispersal habitat would be treated and maintained within the home range of this site. Of these acres, 24 acres of roosting/foraging habitat) and 18 acres of dispersal habitat would be treated and maintained within the 0.5 mile core area. The 24 acres of NRF treated in the core area would represent 8 percent of the existing NRF on federal lands.
- Proposed road construction would remove 3.1 acres of dispersal habitat within the home range of this site and 0.1 acres of dispersal habitat within the 0.5 mile core area.
- The proposed action **may affect, and is likely to adversely affect (LAA)** spotted owls because NRF would be removed at the home range that already has low amounts of NRF habitat (22.6 percent). However, it is unlikely this site is occupied due to habitat conditions at the home range and results from recent surveys. The Ashland Resource Area wildlife survey crew will continue to survey this site to protocol in 2015 and in the future as the protocol dictates. If owls are located at the site during future surveys, the BLM will drop units or modify proposed prescriptions in an effort to reduce effects to the spotted owls, or reinitiate consultation.

Site # FS2031

- This site is one of the low priority sites based on the low pair occupancy and reproductive success, and recent surveys with no responses. This site is surveyed annually as part of the South Cascades Demography Study area. No owls were detected in 2014 and it has been two years since a single male owl was last detected at the site. The last confirmed pair and nest at this site occurred more than 20 years ago. Barred owls have not been detected at this site.
- The RA10 objective at this site is to enhance the long-term habitat conditions within the home range within this owl site. Approximately 44 acres of roosting/foraging (sub-set of NRF above) would be downgraded within the home range. These treatments are primarily located in high habitat suitability according to the Relative Habitat Suitability (RHS) output from the MaxEnt model. The prescription in this unit is a Selective Thinning for a mixed conifer stand. These stand treatments would generally target low vigor trees over healthy trees (proportional thinning and low thinning) to reduce stand density and improve stand resiliency and individual tree health. This prescription would be used to accelerate the growth of remaining trees while promoting desired species that are best adapted to site conditions.
- Approximately 28 acres of dispersal habitat would be treated and maintained at the outer edge of this home range.
- The proposed action **may affect, and is likely to adversely affect (LAA)** spotted owls because NRF would be downgraded at the home range in a site that already has low amounts of NRF habitat within the home range (16 percent) and core area (9 percent). However, it is unlikely this site is occupied due to habitat conditions at the home range and recent surveys. Oregon State University (OSU) will continue to survey this site to protocol as part of the South Cascades Demography Study Area in 2015 and in the future as funding allows. If owls are located at the site during future surveys, the BLM will drop units or modify proposed prescriptions in an effort to reduce effects to the spotted owls, or reinitiate consultation.

Site # 32750

- This site is one of the high priority sites based on the high pair occupancy and reproductive success in the past. 2004 was the last year a pair was observed at this site and was also the last year the site successfully nested. The site was last surveyed in 2004 until surveys resumed in 2014. Only a resident single male was observed in 2014. Visual detections occurred and this was a previously banded male. No female or young were observed.
- Approximately 4.4 acres of roosting/foraging habitat would be downgraded within the home range from a Ponderosa Pine Selective Thinning prescription. This unit is a pine site, located high on a ridge and in low habitat suitability according to the Relative Habitat Suitability (RHS) output from the MaxEnt model. Additionally, the unit is in a location that only received a few NSO detections during the 2001-2003 telemetry surveys and added with the RHS information, the unit is in an area that would avoid conflicts with NSOs. The nest area for this site is actually located at the bottom of a steep canyon and the unit is at the top of this canyon. The contiguous nesting habitat is primarily located in the core below where the terrain increases in steepness. Additionally rocky, bluff meadows are located between the unit and the nest area. Even though there are some stringers of NRF habitat on federal land in the riparian areas between the unit and the nest area, it is unlikely the owls would spend energy to forage in this 4.4 acre unit while there is suitable habitat closer to the nest area within easier access.
- Approximately 15 acres of roosting/foraging and 175 acres of dispersal habitat would be treated and maintained within the home range of this site. Of these acres, seven acres of dispersal habitat would be treated and maintained within the 0.5 mile core area. No roosting/foraging (or NRF) would be treated in the 0.5 mile core area.
- Proposed road construction would remove 0.7 acres of dispersal habitat within the home range of this site.
- The proposed action **may affect, and is likely to adversely affect (LAA)** spotted owls because NRF would be downgraded at the home range in a site that already has low amounts of NRF habitat within the home range (30.6 percent). However, based on the unit location and the past telemetry data results, it is unlikely the downgrading of 4.4 acres at the outer edge of the home range would adversely impact the essential behavioral patterns for nesting or foraging, which could affect reproduction and survival of the owls associated with this territory. The Ashland Resource Area wildlife survey crew will continue to survey this site to protocol in 2015 and subsequent years. If owls are located in a new area that would increase the effects analyzed for this site, the BLM will drop units or modify proposed prescriptions in an effort to reduce adverse effects to the spotted owls, or reinitiate consultation.

Site # 32760

- This site is one of the high priority sites based on historically high pair occupancy and reproductive success. 2003 was the last year a pair was observed at this site and was also the last year the site successfully nested. The site was last surveyed in 2003 until surveys resumed in 2014. No owls were detected in the six visits conducted in 2014.
- Approximately 4.4 acres of roosting/foraging habitat would be downgraded within the home range from a Ponderosa Pine Selective Thinning prescription (same unit as described above in Site #32750). This unit is a pine site, located high on a ridge and in low habitat suitability according to the Relative Habitat Suitability (RHS) output from the

MaxEnt model. Additionally, the unit is in a location that only received a few NSO detections during the 2001-2003 telemetry surveys and added with the RHS information, the unit is in an area that would avoid conflicts with NSOs. The nest area for this site is actually located at the bottom of a steep canyon and the unit is at the top of this canyon. The contiguous nesting habitat is primarily located in the core below where the terrain increases in steepness. Additionally rocky, bluff meadows are located between the unit and the nest area. Even though there are some stringers of NRF habitat on federal land in the riparian areas between the unit and the nest area, it is unlikely the owls would spend energy to forage in this 4.4 acre unit while there is suitable habitat closer to the nest area within easier access.

- Approximately five acres of roosting/foraging habitat and 21 acres of dispersal habitat would be treated and maintained within the home range of this site. Of these acres, 3 acres of dispersal habitat would be treated and maintained within the 0.5 mile core area. No NRF would be treated in the 0.5 mile core area.
- The proposed action **may affect, and is likely to adversely affect (LAA)** spotted owls because NRF would be downgraded at the home range in a site that already has low amounts of NRF habitat within the home range (35.4 percent). However, based on the unit location and the past telemetry data results, it is unlikely the downgrading of 4.4 acres at the outer edge of the home range would adversely impact the essential behavioral patterns for nesting or foraging, which could affect reproduction and survival of the owls associated with this territory. The Ashland Resource Area wildlife survey crew will continue to survey this site to protocol in 2015 and subsequent years. If owls are located in a new area that would increase the effects analyzed for this site, the BLM will drop units or modify proposed prescriptions in an effort to reduce adverse effects to the spotted owls, or reinitiate consultation.

Site # 40620

- This site is one of the low priority sites based on historically low pair occupancy rates and the fact the site has never produced young. 1998 was the last year a pair was observed at this site and 2004 was the last year the site was surveyed until surveys resumed in 2014. Only a resident single male was observed in 2014, with both audio and visual responses. The responses occurred in late August. No female or young were detected.
- The RA10 objective at this site is to enhance the long-term habitat conditions within the home range within this owl site. Approximately 26.8 acres of roosting/foraging (sub-set of NRF above) would be downgraded within the home range and 11 of these acres would occur in the 0.5 mile core area. Approximately 0.2 acres of NRF would be removed from proposed road construction in the home range, but outside of the core area.
- One treatment unit located in the home range, but outside of the core area would downgrade approximately 10 of the 26.8 acres of the roosting/foraging acres is located in an area where the 2001-2003 telemetry data from showed the owls did not use. This area of a lower value to spotted owls because it occurs high up on a ridge and within low habitat suitability according to the Relative Habitat Suitability (RHS) output from the MaxEnt model. This owl site is located in a steep sided canyon. The treatment units with proposed downgrade of roosting/foraging are located at higher elevation outside this canyon. It is unlikely that owls resident to this site make use of this habitat during the breeding season. Areas in low habitat suitability are not expected to provide long-term suitability and high frequency use for spotted owls. The prescription in this unit is for

group selection without additional thinning and would aim to release ponderosa pines and restore the pine stand conditions.

- The other roosting/foraging downgrade unit proposed in this home range is a 16.8 acre unit, with 11 acres occurring in the 0.5 mile core area. Currently this is a simple stand that lacks structure. Selective Thinning has been prescribed to promote structural diversity in this stand that is located in high habitat suitability according to the Relative Habitat Suitability (RHS) output from the MaxEnt model.
- Approximately 15 acres of NRF and 88 acres of dispersal habitat would be treated and maintained within the home range of this site. No NRF or dispersal treat and maintain prescriptions would occur in the 0.5 mile core area.
- Proposed road construction would remove 0.4 acres of dispersal habitat within the home range of this site.
- The proposed action **may affect, and is likely to adversely affect (LAA)** spotted owls because NRF would be downgraded at the home range in a site that already has low amounts of NRF habitat within the home range (23.3 percent). NRF would be downgraded within the core area, but more than 50 percent NRF habitat would remain on federal lands post treatment. The Ashland Resource Area wildlife survey crew would continue to survey this site to protocol in 2015 and subsequent years. If owls are located in a new area that would increase the effects analyzed for this site, the BLM will drop units or modify proposed prescriptions in an effort to reduce adverse effects to the spotted owls, or reinitiate consultation.

Site # 40650

- This site is one of the low priority sites because it has never been occupied by a pair and has never successfully produced young. 2004 was the last year a pair was observed at this site and 2004 was the last year the site was surveyed until surveys resumed in 2014. No owls were detected in the six visits conducted in 2014.
- The RA10 objective at this site is to enhance the long-term habitat conditions within the home range within this owl site. Approximately 15.1 acres of roosting/foraging (sub-set of NRF above) would be downgraded within the home range and 12 of these acres would occur in the 0.5 mile core area. These treatments are located in low habitat suitability according to the Relative Habitat Suitability (RHS) output from the MaxEnt model. The prescription in this unit is a Selective Thinning for a Douglas-fir stand. These stand treatments would generally target low vigor trees over healthy trees to reduce stand density and improve stand resiliency and individual tree health. This prescription would be used to accelerate the growth of remaining trees and create diversified stand structure.
- Approximately 2.2 acres of roosting/foraging habitat would be removed within the home range from road and landing construction. 0.9 of these 2.2 acres would occur within the 0.5 mile core area in an area of low habitat suitability according to the Relative Habitat Suitability (RHS) output from the MaxEnt model.
- Approximately 15 acres of roosting/foraging habitat and 130 acres of dispersal habitat would be treated and maintained within the home range of this site. Of these acres, 10 acres of roosting/foraging habitat and 38 acres of dispersal habitat would be treated and maintained within the 0.5 mile core area. The 10 acres of roosting/foraging habitat treatment with the core area represents 12.5 percent of the existing NRF on federal lands.

- Proposed road construction would remove five acres of dispersal habitat within the home range of this site. Two of the five acres of dispersal habitat removal would occur within the 0.5 mile home range.
- The proposed action **may affect, and is likely to adversely affect (LAA)** spotted owls because NRF would be downgraded and removed at the home range and 0.5 mile core in a site that already has low amounts of NRF habitat within the home range (8.4 percent) and core area (16.2 percent). However, it is unlikely this site is occupied due to habitat conditions at the home range and core area the lack of responses during recent surveys. However, the Ashland Resource Area wildlife survey crew will continue to survey this site to protocol in 2015 and subsequent years. If owls are located during future surveys, the BLM will drop units or modify proposed prescriptions in an effort to reduce adverse effects to the spotted owls, or reinitiate consultation.

Effects from Disturbance

Mandatory PDC that restrict activities to outside of the breeding season and/or occur beyond recommended disturbance distance thresholds will be incorporated into the South Fork Little Butte Forest Management Project (Appendix A). Applying the Mandatory PDC should avoid noise or activity which would adversely affect nesting owls and their young. 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 adverse effects.

4.2.3 Proposed Treatments Outside of Known Home Ranges

The BLM is proposing to treat three acres of NRF, 301 acres of roosting/foraging, and 494 acres of dispersal habitat outside of the home ranges of the historic spotted owl sites within the South Fork Little Butte Action Area. The BLM started spotted owl surveys in 2014 in NRF habitat (including roosting/foraging habitat) outside of known home ranges to determine occupancy status of these areas. However, protocol surveys started later in the season. Even with surveys starting later in the season, three new sites were located in 2014 and incorporated into the site analysis above. As mentioned in the baseline section above, the remaining NRF habitat outside of all 14 known home ranges (including the three new sites) are in an area that likely does not support nesting NSOs, so effects to these areas outside of known home ranges will not be addressed. As discussed above and displayed on Map 3, the field biologist has determined this area is unlikely to support spotted owls due to the stand conditions, elevation, and results of past surveys. This area is dominated by white fir forests characterized by a mosaic of small, grass-dominated openings throughout conifer stands which have limited complexity in their understories and is more suitable for great gray owls. However, spotted owl protocol surveys will continue in 2015 in habitat outside of known spotted owl home ranges within the Action Area. If new spotted owl sites are found from surveys Ashland plans to drop units or modify proposed prescriptions to avoid effects to newly detected spotted owls, or reinitiate consultation.

4.3 Effects to Northern Spotted Owl Critical Habitat

Portions of the South Fork Little Butte Project are in the 2012 designated critical habitat and the effects to critical habitat are addressed below. Table 10 summarizes effects to the primary constituent elements (Forest Habitat, Nesting Roosting, Foraging, and Dispersal Habitat) from the proposed action.

The consultation process evaluates how a proposed action is likely to affect the capability of the critical habitat to support northern spotted owl nesting, roosting, foraging, or dispersal (primary constituent elements) by considering the scales at which the life-history requirements of the northern spotted owl are based regardless of the species' presence or absence (USDI 2012).

<i>Critical Habitat Baseline (From Table 6)</i>	18,604						30,744 <i>(NRF and Dispersal Only)</i>		37,199
	NRF Removed (acres)		NRF Downgrade (acres)		NRF T&M (acres)		Dispersal- Only Removed (acres)	Dispersal- Only T&M (acres)	Total Acres Treated
	NRF ¹	RF ²	NRF ¹	RF ²	NRF ¹	RF ²			
South Fork Little Butte Project	0	0	0	78	0	240	34	1,017	1,369
Road and landing construction	0	3	0	0	0	0	10	0	13
TOTAL	0	3	0	78	0	240	44	1,017	1,382
% Change to KLE-5 Baseline Habitat	- 0.02%		- 0.4%		No Change		- 0.14%	No Change	3.7 % of KLE-5 treated

1- NRF = Nesting/Roosting/Foraging (McKelvey 1) - PCE #2

2- RF = Roosting /Foraging (McKelvey 2) - PCE #3

Effects from NRF Removal and NRF Downgrade

The proposed South Fork Little Butte Project would remove three acres of roosting/ foraging habitat (from road and landing construction) and downgrade 78 acres of roosting/foraging habitat (Primary Constituent Element #3) in critical habitat sub-unit KLE-5. No NRF (Primary Constituent Element #2) would be removed or downgraded within critical habitat. As mentioned in Table 10 above, all of these NRF acres are actually in roosting/foraging habitat, but the proposed actions would contribute to a reduction of 0.4 percent of the suitable baseline NRF habitat that combines NRF and roosting/foraging habitat. Treatments proposed to downgrade roosting/foraging habitat (Primary Constituent Element #3) in designated critical habitat would be designed to improve habitat in the long-term (within high habitat suitability according to the relative habitat suitability model), improve stand resiliency, or improve ecological needs of the stand that are not in conflict with the habitat needs (i.e. pine restoration on a ridge that is in low habitat suitability according to the relative habitat suitability model and in areas not expected to provide long-term suitability and high frequency use for spotted owls). See Table 11 for a summary of the rationale for each downgrade unit within critical habitat.

Unit #	Habitat Type	Treatment Effect	Rationale
20-4	Roosting/Foraging	Downgrade	Pine restoration, on a ridge, low habitat quality according to RHS
31-2A	Roosting/Foraging	Downgrade	Selective Thinning with groups to promote stand diversity, high habitat quality according to RHS
31-2B	Roosting/Foraging	Downgrade	Selective Thinning with groups to promote stand diversity, high habitat quality according to RHS

Unit #	Habitat Type	Treatment Effect	Rationale
31-4	Roosting/Foraging	Downgrade	Pine restoration, on a ridge, low habitat quality according to RHS
35-1A	Roosting/Foraging	Downgrade	Currently a simple stand, Selective Thinning to promote structural diversity, high habitat quality according to RHS
35-4	Roosting/Foraging	Downgrade	Selective Thinning with groups to promote stand diversity, high habitat quality according to RHS
6-1	Roosting/Foraging	Downgrade	Selective Thinning to promote long-term structural development, high habitat quality according to RHS

According to the 2012 Final CHU rule (77 *Federal Register* 46:14062-14165), Section 7 consultations need to consider the temporal and spatial scale of impacts a proposed action may have on the PCEs. The USFWS recommends using a scale that is relevant to the needs and biology of the spotted owl and believes the 500 acre core area scale is a reasonable metric for land managers to use as a screen when assessing effects on critical habitat. This 500 acre analysis approach was recommended in the proposed critical habitat rule, and to be consistent with recent critical habitat effects analyses, the 500 acre analysis will be used in this BA. To conduct this recommended analysis, the BLM delineated 500 acre (0.5 mile radius) circles around centroids of proposed treatment units that would remove or downgrade NRF habitat in critical habitat. These units represent the areas of critical habitat that would be most impacted by the proposed action and were used to determine potential localized effects to the critical habitat. Pre-and post-treatment NRF (PCE2 and 3) habitat amounts in the 500 acre analysis areas were compared to determine effects to primary constituent elements and primary biological features of critical habitat (Table 12).

Project	CHU Sub-unit	Unit ID (acres)	NRF Acres Pre-Treatment	NRF Acres Post-Treatment ¹	Percent Changed	Effects to CH
South Fork Little Butte Project	KLE5	31-4 (31 acres)	90	56	38%	LAA

¹ = Includes NRF Downgrade from unit 31-4 and portions of other NRF downgrade units that are within the 500 acre circle.

Based on the 500 acre analyses the Medford District has determined the NRF downgrading associated with the South Fork Little Butte Project in the KLE5 sub-unit **may affect and would likely adversely affect (LAA)** spotted owl critical habitat because the amount of NRF treatment relative to the existing NRF at the 500 acre scale would be measureable. The downgrading of NRF habitat in the 500 acre landscape surrounding the treatment area could reduce spotted owl foraging opportunities (see Section 4.4, Effects to Spotted Owl Prey below). The proposed treatments are likely to decrease flying squirrel abundance by removing mid-story and overstory structure from those acres (Wilson 2010, Manning et al. 2011), which could reduce spotted owl foraging opportunities. However, dusky-footed woodrats, the primary prey of owls in this area,

might benefit from some removal, or downgrading of forest stand through thinning that would result in increased shrub and pole stands (Sakai and Noon 1993).

These impacts to critical habitat primary constituent elements and principle biological features important to the conservation of spotted owls are measurable and likely to occur. Even with the adverse effects, there could be some beneficial effects anticipated from the project to critical habitat (See below).

Effects from NRF Treat and Maintain

The BLM has determined that treating and maintaining 240 acres of NRF habitat in critical habitat will have an insignificant effect to spotted owl critical habitat and is **not likely to adversely affect (NLAA)** critical habitat because the treatment will not change the intended function of the habitat and the conditions that would classify the stand as NRF would remain post-treatment. As mentioned in Table 10 above, all of these NRF acres are actually in roosting/foraging habitat (PCE #3) and treatment would not occur in NRF (PCE#2).

- Canopy cover within treated stands will be maintained at 60 percent or greater post-treatment.
- Roosting/foraging stands (McKelvey 2) would maintain a minimum of 160 ft²/ acre total basal area (conifer and hardwoods).
- Decadent components important to owls such as old growth trees, large snags, large down wood, and large hardwoods would 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 would be removed.

Effects from Dispersal Habitat Removal

The South Fork Little Butte Project would remove 44 acres of dispersal-only habitat critical habitat sub-unit (KLE-5). The removal of three acres of NRF habitat described above also serves as dispersal habitat and when combined with the removal of dispersal-only habitat will contribute to a reduction of suitable dispersal habitat (Primary Constituent #4) in critical habitat. The BLM has determined the removal of 44 acres of dispersal habitat **may affect, and would likely adversely affect (LAA)** spotted owl critical habitat because it would result a measurable removal of removal of a primary constituent element. However, the removal of dispersal habitat will not affect the intended north-south and east-west connectivity conservation function of this sub-unit because the proposed removal of dispersal habitat would result in a reduction of 0.1 percent of the dispersal habitat within sub-unit KLE-5. Additionally, the road/landing construction and treatment areas are small in size and spread throughout the project area and would not preclude owls from dispersing through the adjacent landscape because it is small in scope. Forest landscapes traversed by dispersing owls typically include fragmented mosaic of roads, clear-cuts, non-forested areas, and a variety of forest age classes ranging from fragmented forests on cutover areas, to old-growth forests (Forsman et al., 2002). The removal of 44 acres of dispersal-only habitat in critical habitat would be a reduction of 0.03 percent in the Little Big Butte 5th field watershed. As mentioned above, in Table 5, over 50 percent of this watershed provides dispersal habitat for spotted owls.

Effects from Dispersal Treat and Maintain

The District has determined that treating and maintaining 1,017 acres of dispersal-only habitat within critical habitat will have an insignificant effect to spotted owl critical habitat and is **not likely to adversely affect (NLAA)** critical habitat because the treatment will not change the intended function of the habitat and the conditions that would classify the stand as dispersal would remain post-treatment.

- Canopy cover within affected stands will be maintained at 40 percent or greater post-treatment.
- Decadent components important to owls such as large snags, large down wood, and large hardwoods would be retained.
- 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.

Effects to the Sub-unit KLE-5

Even with the proposed removal and downgrading of NRF and removal of dispersal habitat within the critical habitat, sub-unit KLE-5 is still expected to maintain the intended function of providing demographic support for spotted owls because only six of the 40 total historic spotted owl sites in this critical habitat sub-unit would be adversely affected by the proposed action (see footnote in Table 9 for sites located in critical habitat). Additionally, four of the six sites adversely affected are likely unoccupied, so owls will not be directly affected. The remaining 38 sites (95 percent) of the sites in the entire sub-unit would not be adversely affected by the proposed action and would continue to provide demographic support in the sub-unit.

Even with the removal of roosting/foraging habitat, the downgrading of roosting/foraging habitat, and the removal of dispersal-only habitat, the proposed action will not affect the intended conservation function of north-south and east-west connectivity between subunits and critical habitat units. The proposed action would result in a reduction of 0.4 percent of the dispersal habitat (NRF plus dispersal-only habitat) within sub-unit KLE-5. Habitat supporting the transience phase of dispersal contains stands with adequate tree size and canopy cover to provide protection from avian predators and minimal foraging opportunities. This may include younger and less diverse forest stands than foraging habitat, such as even-aged, pole-sized stands, but such stands should contain some roosting structures and foraging habitat to allow for temporary resting and feeding during the movement phase (USDI 2011). Spotted owls are able to move successfully through highly fragmented landscapes typical of the mountain ranges in western Washington and Oregon (Forsman et al. 2002).

Beneficial Effects to Critical Habitat

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

- Thinning in roosting/foraging and dispersal-only habitat would accelerate growth, improve future foraging conditions for spotted owls, and promote the development of structurally complex forest conditions. See Table 3 above for a description of stand improvement that would occur over time.
- 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 in young stands that do not currently provide dispersal or NRF habitat, would accelerate the development of spotted owl habitat.
- Very dense stands would 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 would improve the dispersal function for spotted owls by providing more “flying space,” and encouraging residual trees to develop more size and structural diversity.
- Treated stands are likely to be more ecologically sustainable because residual stands would be less susceptible to suppression mortality.
- Treatments would increase survivability and vigor of more drought or fire tolerant species (pines, cedars, hardwoods) on ridgetops, and in areas where site conditions are not favoring Douglas-fir, or Douglas-fir is suppressing the declining occurrence of pines.

4.4 Effects to Northern Spotted Owl Prey

The northern flying squirrel, dusky-footed woodrat, and bushy-tailed woodrat are important prey of the northern spotted owl in this Action Area (Forsman et al 2004). Spotted owl prey relationships are complex and prey-switching may be important (Courtney et al 2004). Vegetation treatment projects may impact spotted owl foraging by changing habitat conditions for different prey species.

Sakai and Noon (1993) stated that dusky-footed woodrats, the primary prey of owls in the project 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 the proposed action.

Some disturbance of habitat may improve forage conditions, provided the understory structure and cover are retained. Removal of some tree canopy, provided it is not too extreme, would bring more light and resources into the stand, stimulating forbs, shrubs and other prey food. Once the initial impact of disturbance recovers (six months to two 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. 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 would provide some cover for prey species over time, and would 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.

Flying squirrel densities are correlated with high cavity density, large amounts of hypogeous 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. Flying squirrels predation pressure increases and their survival and reproduction decrease in stands with too many gaps, large gaps, lacking a mid-story canopy layer, and low overall stem densities (Wilson and Forsman 2013).

Based on the flying squirrel research, the BLM predicts the treat and maintain projects in this BA would retain cover that would be used by flying squirrels. Removal and downgrade treatments may reduce flying squirrel densities. Residual trees, snags, and down wood that are retained in the units would provide some cover for prey species over time, and would help minimize long-term harvest impacts to some prey species. Approximately 244 acres of NRF habitat would be removed or downgraded from the proposed South Fork Little Butte Project. These proposed actions would remove flying squirrel habitat, which could decrease flying squirrel abundance (Wilson 2010, Manning et al. 2011) and reduce spotted owl foraging opportunities in these areas. However, it is not likely that they would be significantly affected by the proposed actions because large dead wood would be retained, some canopy diversity would be maintained, and treatment areas make up a small proportion of available habitat.

Edges created from harvest can be areas of good prey availability and potentially increased vulnerability (i.e., better hunting for owls) (Zabel et al. 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 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 4.2.2 above and the effects to prey species can also be derived from this data.

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. Untreated patches will be retained within

the project areas for special status species, riparian vegetation, and other constraints. Residual trees, snags, and down wood that are retained in the thinned stands would provide some cover for prey species over time, and would help minimize harvest impacts to some prey species. Flying squirrel habitat may be reduced in quality in some places, but those same places are likely to maintain or improve habitat for woodrats and other small mammals (Courtney et al 2004).

4.5 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 otherwise not take place.

The South Fork Little Butte Project has interrelated and interdependent effects, such as noise, road construction or timber hauling on existing system roads, and post-harvest brush disposal. Brush disposal activities can include chipping and slashing, but vary according to conditions post-treatment, fuels management objectives, requirements for retention of coarse woody debris, and other resource management goals. Post project fuels reduction of the activity fuels may include biomass removal and pile burning.

4.6 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 South Fork Little Butte Action Area has a checkerboard pattern of ownership of private land interspersed with BLM. 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.

The Medford BLM assumes past management practices on private lands will continue. The BLM anticipates 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. 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.

4.7 Consistency with NSO Recovery Plan Recommendations

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 South Fork Little Butte Project also follows the intent of other Recovery Actions listed in the Revised Recovery Plan, such as Recovery Action 10 and 32.

Recovery Action 10

The BLM worked to meet the intent of Recovery Action 10 because the projects were planned to minimize effects to spotted owl sites. BLM incorporated RA10 to the extent it was compatible with the primary purpose and need of the project: provide for a sustainable supply of timber and help meet the Medford BLM’s annual timber volume target and improve forest health. To the extent practicable, the Ashland RA biologist and core team followed principles in the SW Oregon Recovery Action 10 Guidance Document (USDA USDI 2013) to reduce impacts to sites with recent pair and/or reproduction activity within the project area. NSO sites within the project area were prioritized in high and low categories based on occupancy and reproductive success data.

Eleven of the fourteen sites within the project area rated as high in the RA10 prioritization because of their recent occupation and reproductive status or their history of extensive pair occupation and reproduction. The objective at these sites was to avoid adverse effects by not removing or downgrading NRF habitat within the home range. While some adverse effects are anticipated at three sites, the proposed action is not likely to impact the reproduction or survival of the owls at these sites because the vegetation treatments are in areas where owls were not located in previous telemetry studies or only small amounts of NRF habitat would be removed from road/landing construction. The core team also focused on reducing the amount of treat and maintain treatments within the 0.5 mile core area because it is the area that provides the important habitat elements of nest sites, roost sites, and access to prey, benefiting spotted owl survival and reproduction (Bingham and Noon1997).

The remaining three sites within the project area are rated as low in the RA10 prioritization because of the poor NSO occupation history. The objectives at these sites were to accelerate the growth of spotted owl habitat or treat stands for ecological benefits as described in the Recovery Plan and the 2012 designated critical habitat rule. These objectives would result in short term adverse effects, for long-term benefits.

Site	RA 10 Priority	Effects Determination	RA 10 Treatment Strategy/Rationale
0089O	HIGH	NLAA	No NRF Downgrade or removal within the home range and no NRF treated within the 0.5 mile core area

Table 13. RA 10 Site Summary			
Site	RA 10 Priority	Effects Determination	RA 10 Treatment Strategy/Rationale
0902 A/O	HIGH	NLAA	10.4 acres of NRF downgrade at the home range and 12 acres of treat and maintain at the original site. However, only 0.4 acres of NRF removal at the home range, but outside of the 0.5 mile core area and no NRF treated within the core area of the alternate and most recent site.
0931O	HIGH	LAA	Vegetation treatments avoided NRF downgrade and removal within the home range. Only 1.7 acres of NRF removal at the edge of the home range from road construction.
FS20131	LOW	LAA	44 acres of NRF downgrade in an area of high habitat suitability according to RHS in order to promote structural diversity.
2403O	HIGH	NLAA	No NRF Downgrade or removal within the home range and no NRF treated within the 0.5 mile core area
3275O	HIGH	LAA	4.4 acres of NRF downgrade in the home range, on a ridge, in low habitat suitability (RHS), and in an area with few telemetry points.
3276O	HIGH	LAA	Same as site 3275O
3563O	HIGH	NLAA	Only 0.6 acres of NRF removal at the home range, but outside of the 0.5 mile core area and no NRF treated within the core area
4062O	LOW	LAA	16.8 acres of NRF downgrade in high habitat suitability according to RHS in order to promote structural diversity. 10 acres of NRF downgrade in low habitat suitability according to RHS for pine restoration in an area with low owl conflicts.
4065O	LOW	LAA	15.1 acres of NRF downgrade in high habitat suitability according to RHS in order to promote structural diversity.
4464O	HIGH	NLAA	Only 0.1 acres of NRF removal at the home range, but outside of the 0.5 mile core area and no NRF treated within the core area
Temp 14a	HIGH	NLAA	No NRF Downgrade or removal within the home range and no NRF treated within the 0.5 mile core area
Temp 14b	HIGH	NLAA	Only 0.1 acres of NRF removal at the home range, but outside of the 0.5 mile core area and only 3 percent of the existing NRF treated and maintained within the core area
Temp 14c	HIGH	NLAA	No NRF Downgrade or removal within the home range and no NRF treated within the 0.5 mile core area

Recovery Action 32

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 (USDA USDI 2010).

RA 32 surveys have been completed in the South Fork Little Butte Project. Approximately 110 acres have been identified in 10 patches (2 to 39 acres) in South Fork Little Butte. No harvest activities, fuels reduction treatments, road construction, yarding corridors, or skid roads are planned to occur within RA32 stands. There is one unit where a designated skid road is planned to occur between two larger RA32 patches and the RA32 function would still remain post treatment. Therefore, no effects to RA32 stands are anticipated.

5. BIOLOGICAL ASSESSMENT CONCLUSIONS

It is the conclusion of this biological assessment that proposed actions may affect the spotted owl species as documented above. Formal consultation is requested for the South Fork Little Butte Project.

Project	Effects to NSO	Effects to NSO CHU	Comments
South Fork Little Butte Project	LAA	LAA	NRF removal and NRF downgrade in deficit home ranges and core areas. NRF downgrade and dispersal removal within critical habitat.

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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.

Northern Spotted Owl

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, modifying units, 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 U.S. Fish and Wildlife 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 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 March 1 and June 30 (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.

Table 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

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.

- No NRF habitat removal will occur within 0.25 miles of any spotted 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.

Gray Wolf

The Level 1 team is currently developing PDFs and will be finalized by the 2015 breeding season. These PDFs would be followed if a den or rendezvous site is identified in the within the South Fork Little Butte Project area. At a minimum, these PDFs would include:

- No activities within 1 mile of a denning or rendezvous sites from March 1 to June 30 to avoid disturbance to wolves during the breeding season.

Appendix B: Detailed Stand Prescription Information

The 1995 Medford District RMP adopted a set of silvicultural treatments for managing conifer forests on Matrix lands (USDI 1995, Appendix E, pp. 179-196). These silvicultural prescriptions, designed under the principles of sustained yield forestry, will respond to both forest and site conditions to meet the desired long-term goals for each forest stand type. The prescriptions described below would be used to accomplish the objectives of the South Fork Little Butte project. The prescriptions applied to each stand were based on existing stand conditions, as well as spotted owl habitat determinations made in the field. The project prescription writer will work with the project wildlife biologist to review and adjust marked trees to ensure prescription objectives and spotted owl habitat retention levels are met in the field as described below.

Commercial Prescriptions

Selective Thinning

There are four types of Selective Thinning prescriptions proposed in the South Fork Little Butte Project based on the vegetation type. The general silvicultural objectives for all selective thinning prescriptions include:

- 1) Reduce stand density to increase tree growth, quality, and vigor of the remaining trees;
- 2) Create diversified stand structure (height, age, and diameter classes);
- 3) Develop spatial heterogeneity within stands (e.g. fine-scale structural mosaic);
- 4) Increase resilience/resistance of forest stands to wildfire, drought, insects, etc. by reducing stand density and ladder fuels;
- 5) Increase growing space and decrease competition for large and/or legacy pine, oak, and cedar.

Selective Thinning would be a combination of thinning with groups or openings to the extent or amount recommended by vegetation type and/or plant series that exists. These stand treatments would generally target low vigor trees over healthy trees (proportional thinning and low thinning) to reduce stand density and improve stand resiliency and individual tree health. This prescription would be used to accelerate the growth of remaining trees while promoting desired species that are best adapted to site conditions. Spatial distribution of leave trees should be based on tree condition (live crown ratio and crown form), as opposed to leaving trees based on a distance grid. Trees would be removed singly or in groups (openings) and stands would have a wide range of basal area or tree spacing targets based on stand types or conditions. The amount and size of openings created would depend on vegetation types (PP,DF,MC,WF) and current stand development stages. Opening size would range from 0.10-0.25 acre where fire resilient and drought tolerant species need release to reduce competition. Opening size would range from 0.25-0.50 acre where regeneration is encouraged or where poor crown conditions exist (weakened and suppressed trees). The extent or amount of openings permitted would range from 5-15 percent of the total treatment unit area. Openings should be no closer than 100 feet to the next opening. Trees may be marked in patches (e.g. Groups of trees with poor crowns) and left in clumps (e.g. Groups of old trees) where necessary. Unique stand features such as snags, coarse woody debris, large hardwoods, and trees exhibiting characteristics typical of older trees would remain to maintain desired structural components for wildlife. In addition to such stand features, rock outcrops, special status species sites, and seeps/wet areas would be protected.

Selective Thinning —Douglas-fir (DF)

Stands that are predominantly Douglas-fir and have low-moderate productive site conditions would be treated to a relative density range of 0.30-0.40. Stands would be harvested to a range of 40-50 percent canopy cover and would be thinned using guidelines to reduce basal area between 100 and 130 ft² per acre. These stands are lacking suitable natural regeneration of drought tolerant and fire resilient species in the understory, while the overstory is greater than 90 percent Douglas-fir with scattered legacy ponderosa pine, incense cedar, and black oak.

Selective Thinning —Mixed conifer (MC)

Stands that are predominantly Douglas-fir and have moderate-high productive site conditions would be treated to a relative density range of 0.35-0.45. Stands would be harvested to a range of 40-50 percent canopy cover and would be thinned using guidelines to reduce basal area between 110 and 140 ft² per acre. Depending on aspect and elevation these mixed conifer stands can have a relatively high amount of stand density due to the presence and absence of shade tolerant species. These stands are generally dominated by a Douglas-fir, ponderosa pine, and white fir overstory, with less prominent species as incense cedar and sugar pine.

Selective Thinning —White fir (WF)

Stands that are predominantly white fir and have moderate-high productive site conditions would be treated to a relative density range of 0.35-0.45. Stands would be harvested to a range of 45-55 percent canopy cover and would be thinned using guidelines to reduce basal area between 120 and 140 ft² per acre. These stands are dominated by shade tolerant species in the understory and overstory. The overstory is greater than 90 percent white fir with remnant or legacy Douglas-fir and incense cedar.

Selective Thinning—Ponderosa pine (PP)

Stands that are predominantly composed of ponderosa pine or have the lowest productive site conditions would be treated to a relative density range of 0.25-0.35. Stands would be harvested to a range of 35-45 percent canopy cover and would be thinned using guidelines to reduce basal area between 80 and 110 ft² per acre. These sites may have suitable natural regeneration of drought tolerant and fire resilient species in the understory; however more shade tolerant species (Douglas-fir) have restricted growth in the overstory (dominant and co-dominant trees).

Group Selection

The principal purpose for a group selection treatment is to create structural diversity among stands that are homogenous in appearance, or have a one-layer overstory. Residual trees would have improved health, vigor, and growth from the added growing space, water, and nutrients that they receive. Group selection would create small openings, allowing regeneration establishment and release, and would preserve legacy trees within the stand, and remove trees of low vigor. There are two types of retention levels for group selection listed below to increase spatial heterogeneity.

➤ Group Selection->40 percent (GS/40) – in dispersal habitat or in R/F downgrade

Stands would be harvested to a range of 40-50 percent canopy cover and would be treated using guidelines to reduce basal area between 100 and 140 ft² at the stand level. The size of patches or openings should be no greater than .50 acre and should not exceed 25 percent of the total treatment unit area. Opening size would range from 0.10-0.25 acre where fire resilient and drought tolerant species need release to reduce competition.

Opening size would range from 0.25-0.50 acre where regeneration is encouraged or where poor crown conditions exist (weakened and suppressed trees). Openings should be no closer than 100 feet to the next opening.

➤ **Group Selection->60 percent (GS/60) –RF habitat**

Stands would be harvested to a range of 60-70 percent canopy cover and would be treated using guidelines to reduce basal area between 160 and 180 ft² at the stand level. The size of patches or openings should be no greater than 0.25 acre and should not exceed 20 percent of the total treatment unit area. Opening size would range from 0.10-0.25 acre where fire resilient and drought tolerant species need release to reduce competition. Opening size would be no larger than 0.25 acre where regeneration is encouraged or where poor crown conditions exist (weakened and suppressed trees). Openings should be no closer than 100 feet to the next opening.

Density Management

The primary objective of the density management prescription is to reduce stand density in order to promote the growth and structural development of the remaining stand. Density Management is prescribed in stands that are currently providing northern spotted owl roosting and foraging habitat. The objective for Density Management units would be to treat and maintain the habitat because they are located within 0.5 mile core areas. Spacing of the residual (leave) trees would involve crown spacing of the healthiest dominant and co-dominant trees to achieve a canopy cover of 60 percent or greater at the stand level. Stands would be treated to a relative density range of 0.50-0.60 as a result and would be thinned using NSO habitat guidelines in the SW Oregon Recovery Action 10 Guidance Document (2013) to maintain the basal area between 160 and 180 ft² per acre. Unique stand features such as snags, coarse woody debris, large hardwoods, and older trees exhibiting characteristics would remain to maintain desired structural components for wildlife.

Smaller trees would be targeted for removal over larger trees. Trees targeted for removal would include those exhibiting crown decline, narrow crown widths, and that contribute least to the canopy layer or structural components. Trees that demonstrate these characteristics would be individually selected for removal, unless it compromises the required minimum canopy cover of 60 percent. Trees may be marked in small patches (ie. Groups of trees with poor crowns) and left in clumps (ie. Groups of old trees) to create hiding cover for wildlife species and increase spatial heterogeneity. The size of patches or openings should be no greater than 0.20 acre and should not exceed 5 percent of the total treatment unit area.

Structural Retention

This prescription applies to stands primarily dominated by mature Douglas fir, have poor annual stand growth, and/or have limited conifer regeneration. Thinning these stands would not provide the desired growth and increase in productivity. As directed by the Medford District RMP, structural retention as proposed under this project would leave at least 16 to 25 large green conifer trees per acre, provided structural objectives were met. Large green conifer trees are described as those greater than 20 inches diameter at breast height (DBH). Stands would be harvested to a range of 30-40 percent canopy cover.

Insect and Disease Management

This prescription applies to stands that have a high degree of dwarf mistletoe disease infection and contain susceptible tree species in the understory and overstory. Many of these stands developed in conjunction with disturbance (fire, insects, harvest, etc.) and lack desirable growth rates and vigor ratings for site conditions. These sites are exhibiting a deteriorating stand condition and are not currently providing a suitable environment to meet long-term management objectives stated above. These stands do not currently provide NRF or dispersal habitat due to the lack of structure and canopy cover, but they are capable of developing into dispersal and/or NRF in the future. The primary objective is to reduce the long-term effects of forest disease by reducing the spread of disease to existing overstory and understory trees, not eradicating it.

The silvicultural strategy would use the single tree selection method whereby, the most infected trees would be removed and least infected and/or uninfected trees would be retained depending on topographic positions and site conditions. The Medford District RMP instructs to “design silvicultural treatments so that within-stand endemic levels do not increase, and where possible, affected trees contribute to the achievement of land use allocation objectives” (USDI 1995, p. 194). The presence of mistletoe necessitates a variation in prescriptions with stand conditions in these areas requiring lower than 40 percent canopy cover (USDI 1995). These stands exhibiting a diseased condition would be harvested, leaving a residual overstory of 6-8 overstory trees per acre (TPA) greater than 20-inches DBH. Stands would be harvested to a range of 30-35 percent canopy cover. Single tree selection would be followed up with one or a combination of silvicultural activities, such as understory thinning, prescribed burning, and/or tree planting of desirable species.

Mortality Salvage

Mortality Salvage is proposed in stands or portions of stands where dead and dying trees are found. Dying trees are defined as a standing tree that has been severely damaged by forces such as fire, wind, ice, insects, or disease, such that in the judgment of an experienced forest professional or someone technically trained for the work, the tree is likely to die within a few years. The primary objective is to assist in meeting Allowable Sale Quantity (ASQ) for timber production. Mortality Salvage involves removing dead and dying trees singly or in groups for sawlogs, specialty products, or fuelwood. A minimum of 2 snags per acre greater than 16 inches DBH would be retained, preferably in clumps or groups.

Appendix C: Treatment Summaries

PROJECT INFORMATION				GENERAL EFFECTS						CHU EFFECTS							
RA	Project ID	Prov	Project Type	NRF remove	NRF downgrd	NRF T&M	Disp remove	Disp T&M	Total Habitat acres	CHU	Sub-Unit	NRF remove	NRF downgrd	NRF T&M	Disp remove	Disp T&M	all CHU acres
AS	South Fork Little Butte	WC	Timber	33	203	364	87	1,244	1,931	10	KLE5	0	78	240	34	1,017	1,369
AS	South Fork Little Butte	WC	Roads	2	0	0	1	0	3	10	KLE5	1	0	0	10	0	11
AS	South Fork Little Butte	WC	Landing	6	0	0	15	0	21	10	KLE5	2	0	0	0	0	2
Total				41	203	364	103	1,244	1,955			3	78	240	44	1,017	1,382

NSO SITE	NRF Acres Removed			NRF Acres Downgraded			NRF Acres Maintained			Dispersal Acres Removed			Dispersal Acres Maintained		
	HR	Core	NP	HR	Core	NP	HR	Core	NP	HR	Core	NP	HR	Core	NP
0089O	0	0	0	0	0	0	17	0	0	1.7	0.1	0	172	63	0
0902A	0.4	0	0	0	0	0	27	0	0	2.7	0	0	260	17	0
0902O	0.4	0	0	10	0	0	44	12	0	1.5	0	0	82	2	0
0931O	1.7	0.7	0	0	0	0	84	24	0	3.1	0.1	0	91	18	0
FS2031	0	0	0	44	0	0	0	0	0	0	0	0	28	0	0
2403O	0	0	0	0	0	0	1	0	0	2	0.5	0	277	127	0
3275O	0.1	0	0	4.4	0	0	15	0	0	0.7	0	0	175	7	0
3276O	0.1	0	0	4.4	0	0	5	0	0	0	0	0	21	3	0
3563O	0.6	0	0	0	0	0	77	0	0	0.1	0	0	97	2	0
4062O	0.2	0	0	26.8	11	0	15	0	0	0.4	0	0	88	0	0
4065O	2.2	1	0	15.1	12	0	15	10	0	5	2	0	130	38	0
4464O	0.1	0	0	0	0	0	1	0	0	24.1	0	0	69	20	0
1834O	0	0	0	0	0	0	8	0	0	1	0	0	171	44	0
2106O	0.6	0	0	0	0	0	26	3	0	5.6	0	0	193	33	0
2011O	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0

Appendix D NSO Site History

Table D-1: Northern Spotted Owl Sites within the South Fork Little Butte Project							
Site Number	Survey Results and History Prior to 2014						2014
	# Years Surveyed (at Least 1 Visit)	# Years with Pair Status	# Years Nested with Young	Last Year with Pair Status	Last Year Nested with Young	Last Year Surveyed	
0089O	25	16	6	2003	1994	2003	Resident single male w/ one female response. Did not meet pair status; nesting unknown
0902A/O	27	19	9	2007	2006	2009	Single male detected at the Alt site, but does not meet resident single status (barred owl detected). No Response at original
0931O	18	12	6	2002	2002	2004	No Response
FS2031	A single male owl was last detected at the site in 2012. The last confirmed pair and nest at this site occurred more than 20 years ago.						No Response
2403O	15	10	1	2007	1992	2008	No NSO Response; pair of barred owls detected
3275O	9	7	3	2004	2004	2004	Single Resident Status Male
3276O	12	10	4	2003	2003	2003	No Response
3563O	1	1	1	2010	2010	2010	Pair, nested, 2 young
4062O	11	2	0	1998	N/A	2004	Single Resident Status Male detected
4065O	5	0	0	N/A	N/A	2004	No Response
4464O	8	4	3	2000	2000	2004	Resident Single Male (also pair of barred owls with young)
1834O	N/A	N/A	N/A	N/A	N/A	N/A	Pair; nested, 1 young
2106O	N/A	N/A	N/A	N/A	N/A	N/A	Pair; nesting unknown
2022O	N/A	N/A	N/A	N/A	N/A	N/A	Male and female present; did not meet pair status; nesting unknown

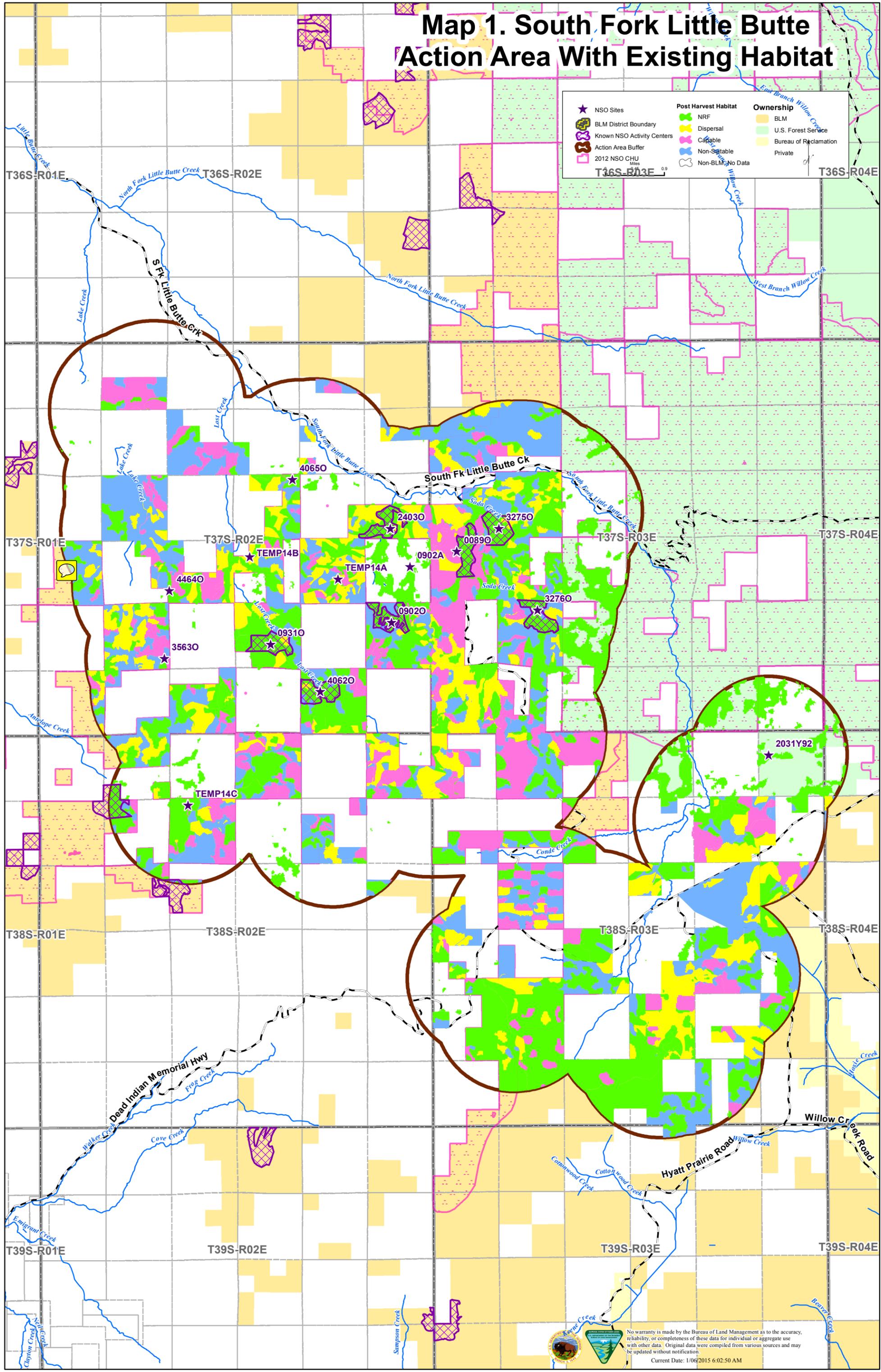
Appendix E: Maps

Map 1: South Fork Little Butte Action Area

Map 2: South Fork Little Butte Project Units

Map 3: South Fork Little Butte NSOs and GGOs

Map 1. South Fork Little Butte Action Area With Existing Habitat



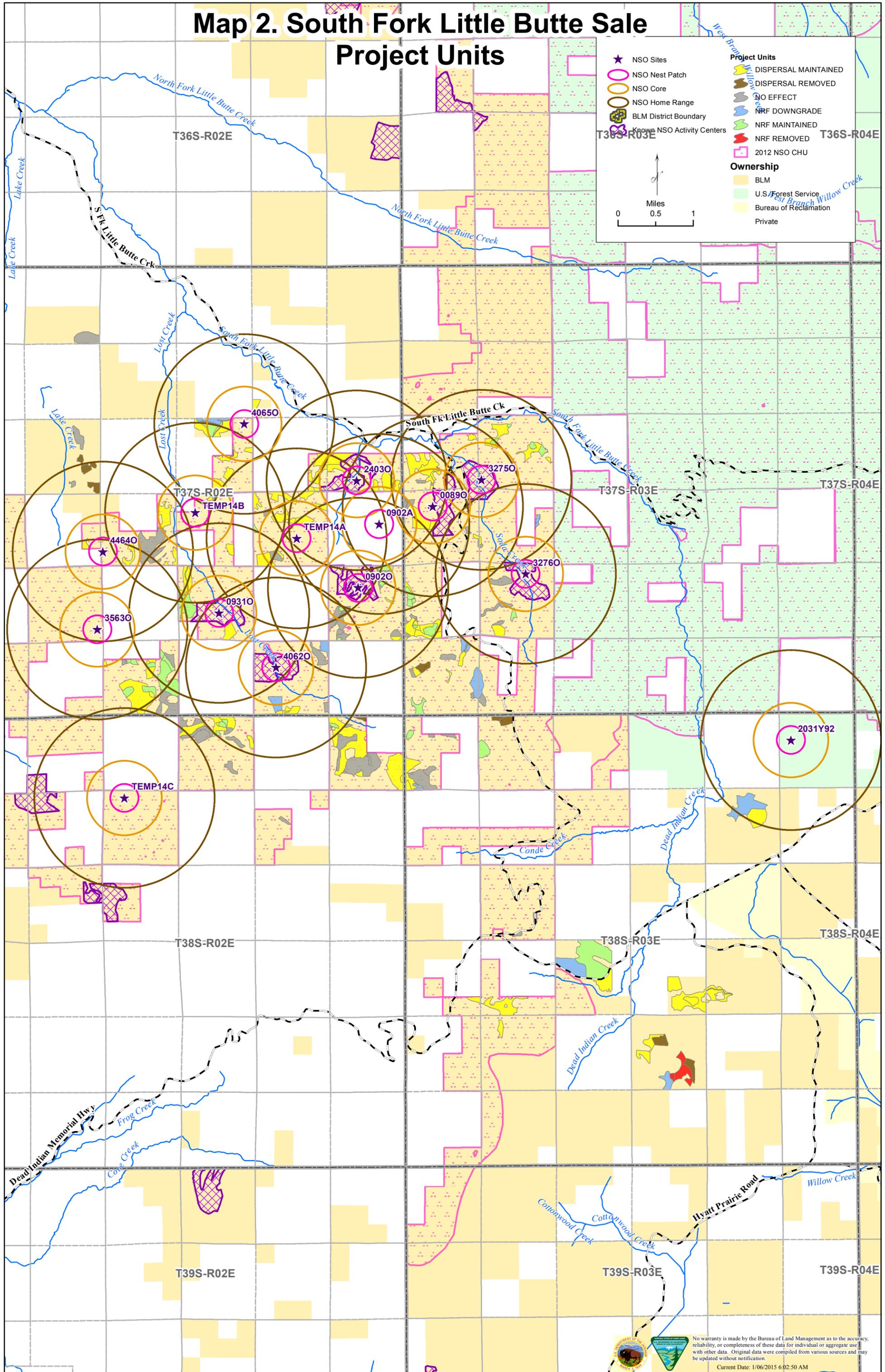
★ NSO Sites	Post Harvest Habitat	Ownership
📏 BLM District Boundary	🟢 NRF	🟠 BLM
📍 Known NSO Activity Centers	🟡 Dispersal	🟩 U.S. Forest Service
📐 Action Area Buffer	🟠 Capable	🟨 Bureau of Reclamation
📏 2012 NSO CHU Miles	🟦 Non-Suitable	🟤 Private
	🟤 Non-BLM/No Data	



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources and may be updated without notification.

Current Date: 1/06/2015 6:02:50 AM

Map 2. South Fork Little Butte Sale Project Units



Legend

- ★ NSO Sites
- NSO Nest Patch
- NSO Core
- NSO Home Range
- BLM District Boundary
- ⊗ Known NSO Activity Centers

Project Units

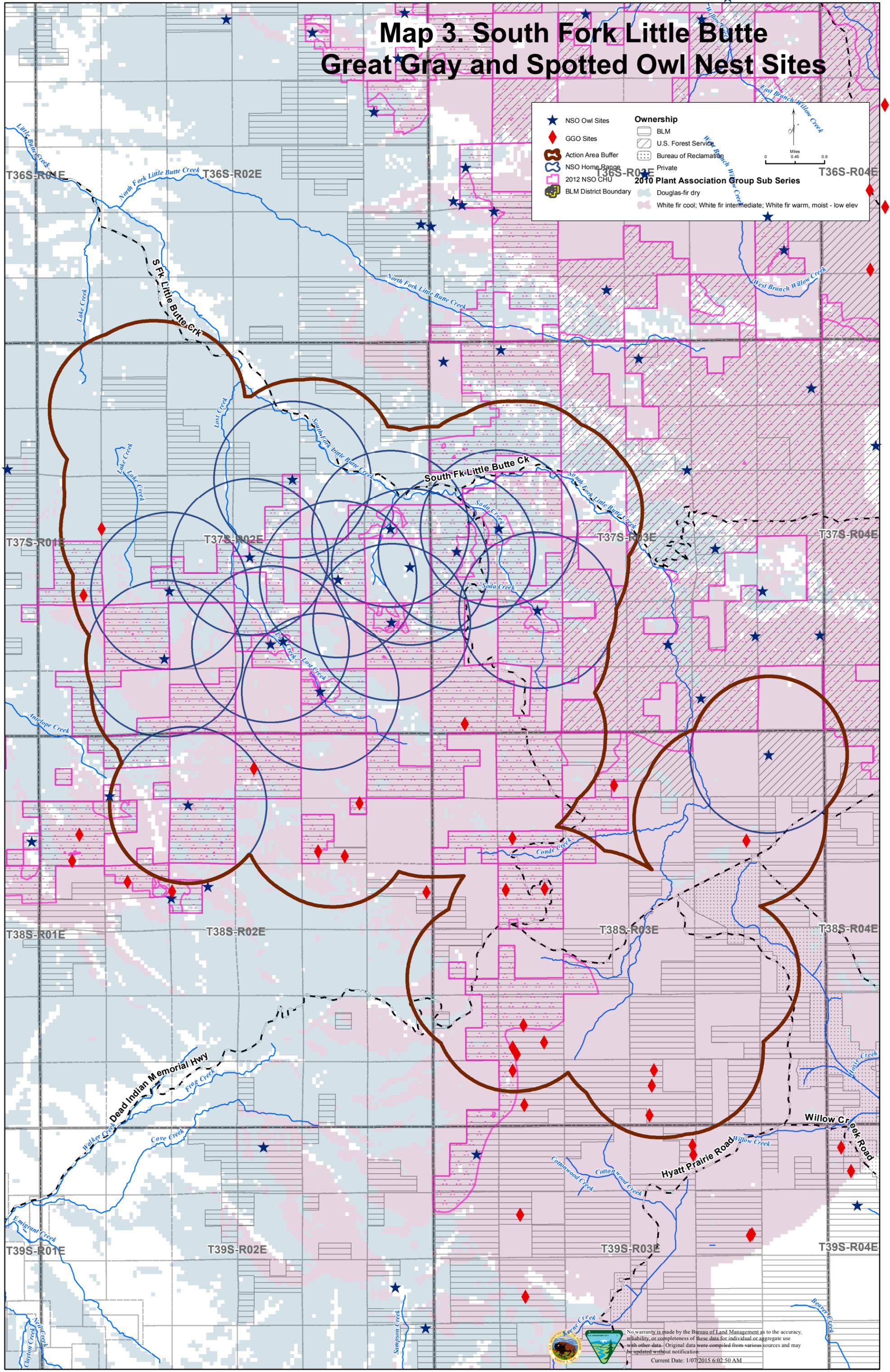
- DISPERSAL MAINTAINED
- DISPERSAL REMOVED
- NO EFFECT
- NRF DOWNGRADE
- NRF MAINTAINED
- NRF REMOVED
- 2012 NSO CHU

Ownership

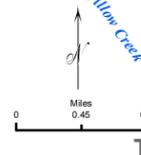
- BLM
- U.S./Forest Service
- Bureau of Reclamation
- Private

Scale: 0, 0.5, 1 Miles

Map 3. South Fork Little Butte Great Gray and Spotted Owl Nest Sites



	NSO Owl Sites		Ownership
	GGO Sites		BLM
	Action Area Buffer		U.S. Forest Service
	NSO Home Range		Bureau of Reclamation
	2012 NSO CHU		Private
	BLM District Boundary		2010 Plant Association Group Sub Series
			Douglas-fir dry
			White fir cool; White fir intermediate; White fir warm, moist - low elev



South Fork Little Butte BA Amendment and Errata

2.9.15

The information below updates portions of the Medford BLM South Fork Little Butte BA, dated January 9, 2015. This amendment includes updated wolf information, updated Action Area habitat acres for private and Forest Service Lands, and corrections to errors in the BA.

Gray Wolf (Endangered)

The January 9, 2015 South Fork Little Butte (SFLB) BA addressed effects to wolves and made a No Effect determination for wolves because the proposed activities would not disturb key wolf areas such as den sites and rendezvous sites, would not change prey availability, and would not increase public access in the area known to be used for denning and rendezvous sites. The BA also indicated the SFLB project was within the known wolf activity area that ODFW had identified for OR-7 (ODFW 2014).

Shortly before the SFLB BA was submitted to USFWS, ODFW identified OR-7, his mate, and pups as the Rogue Pack. Then on January 13, 2015, ODFW identified additional wolf activity in the Keno area. The known wolf activity maps for the Rogue Pack and the new Keno wolf pair was updated on the ODFW website on January 13, 2015. The South Fork Little Butte project is no longer within the Rogue Pack (OR-7) Activity Area and is not within the new Keno Activity Area. This new information does not change the effects determination for the SFLB project. Additionally, as indicated in the BA, if a den or rendezvous site is identified prior to or during project activities, Section 7 Consultation PDC for wolves will be followed (Appendix A). Seasonal restrictions would be put in place (March 1 to June 30) for project activities located within one mile of a den or rendezvous site. Because these sites are difficult to locate and can change from year to year, this will need to be assessed on an ongoing basis throughout the life of this project through annual updates and communication with the USFWS and ODFW.

Updated South Fork Little Butte BA Action Area (Table 4, pg. 23)

This update includes habitat on FS and private lands using the updated 2014 Rogue Basin habitat layer based on GNN (Gradient Nearest Neighbor) data. This layer types habitat (NRF, dispersal, capable, and non-habitat) across the region and across all ownerships. The Action Area in the original BA used the BLM habitat layer, which only includes NRF habitat on non-BLM lands.

Table 4. Environmental Baseline for the South Fork Little Butte Action Area						
	ACRES	NSO NRF HABITAT ACRES (% TOTAL)	CAPABLE NSO HABITAT ACRES (% TOTAL)	RESERVED ACRES ¹ (% OF TOTAL)	NON- RESERVED ACRES (% OF TOTAL)	DISPERSAL ² ACRES (% OF TOTAL)
OWNERSHIP						
-All Ownerships	56,452	16,595 (29%)	14,104 (25%)	3,873 (13.6%)	24,680 (86.4%)	32,443 (57%)
- Non-Federal (Private, State)	27,899	5,932 (21%)	9,137 (33%)	N/A	N/A	16,478 (59%)
-Federal (BLM, USFS)	28,553	10,663 (37%)	4,967 (17%)	3,873 (13.6%)	24,680 (86.4%)	15,965 (56%)
LAND ALLOCATION - FEDERAL (hierarchical, no acres double-counted)						
-Late-Successional Reserves (mapped; FS)	3,123	1,784 (57%)	507 (16%)	3,873 (100%)	0	2,465 (79%)
- 100-Acre Spotted Owl Core Areas in the Matrix	780	671 (86%)	11 (1%)			709 (91%)
-Matrix ³	23,817	8,802 (36%)	4,466 (18%)	0	23,817 (100%)	13,310 (54%)

Table 4. Environmental Baseline for the South Fork Little Butte Action Area

		ACRES	NSO NRF HABITAT ACRES (% TOTAL)	CAPABLE NSO HABITAT ACRES (% TOTAL)	RESERVED ACRES ¹ (% OF TOTAL)	NON- RESERVED ACRES (% OF TOTAL)	DISPERSAL ² ACRES (% OF TOTAL)
Spotted Owl Critical Habitat							
Critical Habitat Unit	Sub-unit	Acres ⁴	NRF Habitat Acres	Capable NSO Habitat Acres	RESERVED	NON- RESERVED	DISPERSAL
10	KLE4	2,132	1,334 (63%)	303 (14%)	800 (37.5%)	1,332 (62.5%)	1,685 (79%)
10	KLE5	16,540	5,937 (36%)	3,021 (18.2%)	671 (4%)	15,779 (96%)	8,997 (54%)
Notes: 1. Reserved= land allocation with no programmed timber harvest which includes Congressionally Reserved land, LSR's, Owl Cores and Wild and Scenic River Corridors. 2. Dispersal includes NRF habitat. 3. Matrix/AMA includes Riparian Reserves (no Riparian Reserved layer is available) 4. Includes CH on State Lands							

Additional Updates

The Effects Analysis used the Action Area NRF and Dispersal baseline acres to put the effects in context with the available habitat. The list below provides the new updates:

- BA pg. 29, Table 7 – change to NRF in the Action Area from NRF removal = - 0.2 %
- BA pg. 29, Table 7 – change to NRF in the Action Area from NRF downgrade = - 1.2 %
- BA pg. 29, Table 7 – change to Dispersal in the Action Area from Dispersal Removal = - 0.3 %
- BA pg. 30, last bullet under NRF removal – removal of NRF would reduce NRF in the Action Area by 0.2 percent.
- BA pg. 30, last bullet under NRF downgrade – downgrading of NRF would reduce the NRF in the by 1.2 percent.
- BA pg. 31, third bullet under dispersal removal – removal of dispersal-only habitat would result of a reduction of 0.2 percent of the total dispersal habitat in the Action Area. When adding the acres of NRF removal, there would be a 0.3 reduction of dispersal habitat.

South Fork Little Butte BA Errata

The following South Fork Little Butte BA errors were discovered when reviewing the draft South Fork Little Butte BO:

- On page 11 of the BA, in the second paragraph from the bottom, the Basal Area range should be 80-140 ft² per acre. This matches the prescription in Appendix B (pg. 65 of the BA).
 “Selective Thinning would be a combination of thinning with groups or openings to the extent or amount recommended by vegetation type and/or plant series that exists. There are four vegetation types and/or plant series that would be targeted: Douglas-fir, white fir, mixed conifer, and ponderosa pine. Stands would be harvested to a range of 35-55 percent canopy cover and would be thinned using guidelines to reduce basal area between 80 and 140 ft² per acre, depending on the plant series and current habitat conditions.”
- On page 45 of the BA, in the first sentence of section 4.2.3, the acres of roosting/foraging were incorrect and should read as:
 “The BLM is proposing to treat three acres of NRF, 298 acres of roosting/foraging, and 494 acres of dispersal habitat outside of the home ranges of the historic spotted owl sites within the South Fork Little Butte Action Area.