United States Department of the Interior

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

From: District Manager, Medford

Subject: Submission of the Medford BLM Nedsbar and Jack-Ash Trail Biological Assessment

This Biological Assessment (BA) evaluates effects to northern spotted owls from the Nedsbar and Jack-Ash Trail Projects in the Ashland Resource Area. Some of the proposed units in the Nedsbar Project and some of the segments of the Jack-Ash Trail Project are located in the 2012 revised designated northern spotted owl (NSO) critical habitat (77 Federal Register 233:71876-72068). 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 these projects 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 for the Nedsbar Project and concurrence for the Jack-Ash Trail Project. 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 additional information, please contact Robin Snider 541-618-2496.

Sincerely,

Dayne Barron
District Manager
BLM Medford District

Biological Assessment
for the
Nedsbar Forest Management Project and Jack-Ash Trail Construction

(Cite Nedsbar BA 2016)

An Assessment of Effects to the Northern Spotted Owl

Medford District
Bureau of Land Management
April 2016

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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 agency actions will not jeopardize the continued existence of any listed species or adversely modify designated critical habitats. Conservation measures described in this Biological Assessment (BA) are also intended to meet obligations under Section 7 (a)(1) to conserve listed species. Additionally, the Nedsbar project meets the intent of the 2011 Northern Spotted Owl Recovery Plan Actions such as Recovery Actions 6, 10, and 32. By following Recovery Actions 10 and 32, the BLM has protected known spotted owl sites and has retained structurally-complex forest habitat within the Nedsbar project. This follows recommendations by the Service in the 2011 Revised Recovery Plan to conserve occupied spotted owl sites throughout the range, especially those containing the habitat conditions to support successful reproduction (USFWS 2011). The Nedsbar project will meet other non-owl-specific objectives (timber production and forest health) while still creating, maintaining, and improving habitat over the long term. The desired future conditions for NSO habitat include encouraging tree growth; increasing heterogeneity; enhancing and creating horizontal and vertical structure; and reducing risk of habitat loss due to fire, disease and insects. These treatments for NSO habitat also aim to restore ecosystem functions by accelerating the growth of healthier trees. More details are found in Section 2.3.

This BA describes and evaluates the potential effects from the Nedsbar Forest Management Project and the Jack-Ash Trail Construction Project in the Ashland Resource Area (ARA) on the Medford District BLM. The Nedsbar project is designed to meet the BLM's need to manage Adaptive Management Lands (AMA) lands in a manner that provides for a sustainable supply of timber, helps meet the Medford BLM’s annual timber volume target, and improves forest health. Timber products produced from the Nedsbar project would be sold in support of the District’s Allowable Sale Quantity (ASQ) declared in the 1995 Medford District RMP (USDI 1995). The Jack-Ash Trail Project is designed to meet the BLM’s need to provide a wide range of developed and dispersed recreation opportunities on the Medford District (USDI 1995).

The projects are described in more detail in Section 2.3 below. These projects 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 the Level 1 team for evaluation to determine if reinitiation of consultation is necessary. 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.

Northern Spotted Owl (Threatened)
The proposed Nedsbar project would remove and downgrade spotted owl habitat and would adversely affect spotted owl sites. The Jack-Ash Trail project would only treat and maintain NRF and dispersal habitat. Approximately 1,325 acres of NRF and dispersal habitat proposed for treatment in the Nedsbar project and two acres of NRF and dispersal habitat in the Jack-Ash Trail

project are within the 2012 Revised Designated Northern Spotted Owl (NSO) Critical Habitat (77 Federal Register 233:71876-72068). BLM requests formal consultation for the Nedsbar Project because, as described below, we have determined the proposed action *may affect, and is likely to adversely affect (LAA)* the northern spotted owl and their designated critical habitat. BLM requests concurrence for the Jack-Ash Trail Project because, as described below, we have determined the proposed action *may affect, and is not likely to adversely affect (NLAA)* the northern spotted owl and their designated critical habitat.

Fisher (Species of Concern/BLM Bureau Sensitive)
The Nedsbar and Jack-Ash Trail Projects fall within the range of the West Coast DPS of fisher. The 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 (79 FR 194:60419-60443). This proposal occurred during early planning of the Nedsbar project. On April 14 2016, the USFWS announced the West Coast Distinct Population Segment (DPS) of fisher (*Pekania pennanti*) would not be listed under the Endangered Species Act, and was later published in the Federal Register on April 18, 2016 (81 FR 74:22710-22808). Effects to fisher from the Nedsbar and Jack-Ash projects will not be addressed in this Biological Assessment because the fisher is not a federally threatened, endangered, or proposed species.

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, Oregon Department of Fish and Wildlife (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. Since March 2013, ODFW has documented OR-7 spending the majority of his time in the southwest Cascades. In May 2014, ODFW reported that OR-7 had found a mate and then in June, pups were confirmed. In January, 2015, ODFW identified OR-7, his mate, and pups as the Rogue Pack and the known wolf activity map was updated on the ODFW website on January 13, 2015. ODFW also identified the Keno Area of Known Wolf Activity (AKWA) at this time. The Nedsbar and Jack-Ash projects are outside of both of these southern Oregon wolf activity areas.

- 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). The BLM will implement seasonal restrictions (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 Service and ODFW.

- Effects 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.

Oregon Spotted Frog (Threatened) – No Effect

- The Nedsbar Project will not affect habitat and will not occur within the Upper Klamath and Upper Klamath Lake subbasins, where Oregon Spotted frogs are known to occur.

Marbled Murrelet (Threatened) – No Effect

- The Nedsbar Project will not affect habitat and will not occur within the range of the marbled murrelet.

Vernal Pool Fairy Shrimp (Threatened) – No Effect

- The Nedsbar 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.

1.2 Consultation History

The Jack-Ash Trail Project is a new project that has not had previous consultation. Some of the Nedsbar Project proposed units were originally covered in a combination of three previous biological assessments. Table 1 summarizes the history of the various biological assessments that incorporated portions of the Nedsbar Project. New consultation is necessary because the units carried forward in the previous biological assessments were never implemented and the 2008 District Analysis and Biological Assessment of Forest Habitat (2008 DA BA FH) was never completed. This BA will assess the effects to owls and critical habitat from the updated Nedsbar project proposal.

Table 1. Consultation History

Project	BA FY 04-08	BA FY 06-08	BA DA BA FH	Name of original project
Nedsbar	X	X	X	Bald Lick, Bobar, Wagner Anderson

The projects in this BA were presented to the Level 1 team during separate project briefing meetings. The Nedsbar team met with the Level 1 team on October 14, 2014 and the Level 1 team also attended a Nedsbar Interdisciplinary team meeting on December 16, 2014. The Jack-Ash Trail project was discussed with the Level 1 team on December 9, 2015.

Level 1 field trips to the Nedsbar project occurred on October 14, 2014 and December 5, 2014. An additional field trip occurred on February 9, 2016 with the USFWS Roseburg Field Office Field Supervisor, USFWS Level 1 team Wildlife Biologist, BLM Level 1 team Wildlife Biologist, and the Nedsbar Core team. Recommendations from the Level 1 team were incorporated into the preparation of the final proposal for consultation. The Nedsbar core team met with the Level 1 team on February 25, 2015 to review the final proposal that would be submitted in this biological assessment. The draft Nedsbar Biological Assessment was originally submitted to the Level 1 team for review on March 10, 2015 when it was included in the Big Butte Creek Biological Assessment (BA). However, the Nedsbar Project was not ready for final consultation and was pulled from that BA. The updated Nedsbar BA was submitted to the Level 1 team on March 23, 2016 for another review.

1.3 Definitions

Table 2. Northern Spotted Owl Breeding Periods

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

Nesting, Roosting, and Foraging (NRF) Habitat for the northern spotted owl consists of habitat used by owls for nesting, roosting, and foraging. Generally, this habitat is multistoried, 80 years old or older (depending on stand type and structural condition), has high canopy cover, and has sufficient snags and down wood to provide opportunities for nesting, roosting, and foraging. Other attributes that may be present include large trees with various deformities (e.g. large cavities, broken tops, mistletoe infestations, and other evidence of decadence), large snags, large fallen trees and other woody debris on the ground, and sufficient open space below the canopy for owls to fly (Thomas, et al. 1990). Not all of these habitat components need to be present to qualify as NRF habitat. Sometimes only some of the habitat components are present, or all of them are present, but at lower quantities. Nesting habitat is described above and the basal area ranges from approximately180 to 240 ft^2/acre, but is typically greater than 240 ft^2/acre.

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.

Roosting/Foraging (RF) 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 ft^2/acre basal area. Currently, the SW Oregon Level 1 team uses NRF habitat in the Biological Assessment to represent both NRF and Roosting/Foraging habitat. 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 effects determinations for both projects.

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 current 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 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 alters known spotted owl NRF habitat so the habitat no longer functions as nesting, roosting, or foraging 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, or foraging, or dispersal habitat for owls.

Remove Dispersal alters known spotted owl dispersal-only habitat so the habitat no longer functions as dispersal habitat. Removal generally drops canopy cover to less than 40 percent and otherwise changes the stand so it no longer provides dispersal habitat for owls. The post-harvest stand would be too open to provide protection from predators.

2. DESCRIPTION OF THE PROPOSED ACTION

2.1 Project Area History and Current Condition

Nedsbar Project Area Vegetation Conditions

Current conditions:
The Nedsbar Project is located in the Little Applegate River, Upper Applegate River, and Bear Creek Fifth field watersheds. The project is south of the town of Jacksonville. The Nedsbar Project is within the Mixed Conifer Zone as described by Franklin and Dyrness (1973). The project area ranges between 1,500 and 5,700 feet in elevation. The vegetation native to the watershed is a result of time, the unique geology of the area, aspect, 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 higher elevation areas, prime black oak woodland likely existed. Douglas-fir stands were comparatively open, with a higher proportion of mature ponderosa and sugar pine than at present (USDI 1997). Infrequent, stand-replacing natural fires may have played a dominant role overall. There is a natural diversity of vegetation condition classes[1] 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 suppression, bark beetles, pathogens, and dwarf mistletoe species associated with Douglas-fir and true fir species (USDI 1997). The 2001 Quartz fire was the most recent fire that impacted the project area and at least two owl sites (0957O and FS1993). Additionally, stands in the project area contain noticeable Douglas-fir mortality occurring in pockets and ridge tops. This mortality is caused from high competition for resources (because of high density levels and limited resources) which results in a higher vulnerability to insects/diseases.

Jack-Ash Trail Project Area Vegetation Conditions
The Jack-Ash Trail is also located within the Lower Applegate 5th field watershed. The project is located on the upper slopes of Anderson Butte and Grub Gulch drainage, about 7 miles south of the city of Jacksonville. Elevation ranges from about 2,800 feet near Sterling Creek to about 4,800 near the top of Anderson Butte.

The vegetation in the Project Area consists of managed mixed conifer stands (Ponderosa pine, Douglas-fir) on the south-facing slopes of Grub Gulch and west-facing slopes of Anderson Butte,

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/Old-growth (21 inches DBH and larger trees).

to areas of moderately dense shrub stands and open grasslands with scattered junipers and rock outcrops on the west-facing upper slopes of Anderson Butte.

2.2 Proposed Action Overview

The Nedsbar Project is designed to conform to the 1995 Medford District Resource Management Plan (USDI 1995) and the Northwest Forest Plan (NWFP) (USDA USDI 1994a).

This project was selected for FY16 project on the district because it is located in the Adaptive Management Area (AMA) Land Use Allocation. AMAs generally follow Matrix guidance, but encourage adaptive management approaches to forest management. Matrix lands are federal lands outside of reserves and special management areas that are available for scheduled timber harvest at varying levels (USDI 1995). The Nedsbar project also includes some thinning within Riparian Reserves to enhance the development of vertical structure and heterogeneity in otherwise homogeneous stands with smaller diameter trees. Riparian Reserves are areas along all streams, wetlands, ponds, lakes, and unstable and potentially unstable areas where riparian-dependent resources receive primary emphasis (USDA USDI 1994a).

The BLM ranked all fifth field watersheds on the district in the 2012 Integrated Vegetation Management analysis of current conditions of watersheds within the Medford District. The 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 years old) within the watershed, (3) amount of 10-30" dbh class available for harvest, (4) amount of high fuel hazard and fire regime condition class within the wildland/urban interface in the watershed, (5) opportunities for enhancement or conservation of owl sites, (6) percentages of matrix and Adaptive Management Area (AMA) within the watershed, and (7) amount of existing roads within the watershed.

The majority of the Nedsbar project is located in two fifth field watersheds that ranked as medium in the watershed prioritization (Little Applegate and Upper Applegate). Two units and a helicopter landing are located in the adjacent Bear Creek fifth field watershed, which also ranked as medium. Projects in Ashland Resource Area’s one high ranking fifth field watershed, Middle Applegate River, have been implemented in the past few years, so it was feasible to look at projects ranking in the medium priority category.

The BLM expects these projects to be implemented soon after the Biological Opinion is received and compliance with the National Environmental Policy Act (NEPA) is completed. These projects 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 the Nedsbar Project are scheduled to be implemented in Fiscal Years 2016 and 2017. 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 Nedsbar 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. Table 3 below provides a breakdown of the amount of proposed vegetation treatment, road construction, landing construction, and trail construction by spotted owl habitat type.

Table 3. Project Treatment/Road/Landing Construction Acres by NSO Habitat

Project	NRF		Dispersal	Capable	Non-Habitat	Total
	NRF (McKelvey 1)	Roosting/Foraging (McKelvey 2)				
Nedsbar	0	671	1,176	247	505	2,599
Jack-Ash Trail	1	0	2	1	3	7
TOTAL	**1**	**671**	**1,178**	**248**	**508**	**2,606**

Detailed stand objectives and prescriptions are described below (Section 2.3.2). 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 noncommercial treatments.

2.3.1 Project Objectives and Project Development Strategies - Nedsbar

Forest stands selected for treatment in the project areas 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).

There are two main objectives for the Nedsbar Project:

1) *Design and implement commercial timber sales on adaptive management.*

    - 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 2016 and possibly 2017, and would produce revenue for the federal government.

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

Spotted Owl Considerations in Project Planning

The effects to spotted owls and their critical habitat were considered while planning these projects. 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 (Geographic Information System) GIS layer, and recent spotted owl survey results 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 from proposed vegetation treatments were avoided at high priority sites. Treatments proposed at lower priority sites may have adverse effects, but are designed to improve habitat in the long-term. Proposed downgrade in roosting/foraging habitat would occur in areas of high habitat suitability (RHS) to create more stand structure and species diversity in the future and promote the development of NRF (Mck. 1) habitat conditions. See Section 4.7 Consistency with NSO Recovery Plan Recommendations to see how the Nedsbar 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.
    a. Adverse effects were avoided within the home ranges of occupied sites within critical habitat, to minimize impacts to the demographic support role of the critical habitat sub-unit.
    b. Adverse effects were minimized in critical habitat, but allowed 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. For example, 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 through vegetation treatments.
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 outside of home ranges of high priority owl sites.
5) No Treatment in NRF (McKelvey 1) would occur in the Nedsbar Project. Approximately 418 acres were dropped because the team felt the stands were already functioning as NRF habitat, so treatments were not necessary to improve the habitat.
6) Proposed treatments in RA32 stands and nest patches were eliminated from the projects.
7) 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 (in home ranges and cores, but not nest patches, and in critical habitat). 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.

The Jack-Ash Trail was also designed to minimize effects to spotted owls. The original plan was modified to move trail construction outside of spotted owl nest patches.

2.3.2 *Project Descriptions and Prescriptions:*

Nedsbar Forest Management Project

The 1995 Medford District RMP adopted a set of silviculture treatments for managing conifer forests and would be used to accomplish the objectives of the Nedsbar 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.

Nedsbar Project

The Nedsbar project includes a variety of thinning treatments, group selection, structural retention, small diameter thinning, riparian thinning, understory reduction, and fuels management. Units selected for treatment were selected based on current stocking levels, to promote forest health and resiliency, or to reduce the risk of high intensity fire. The prescriptions are summarized below and related to owl habitat conditions and needs. More detailed prescription descriptions are located in Appendix B.

Selective Thinning

There are different types of Selective Thinning prescriptions proposed in the Nedsbar Project based on the vegetation type (Douglas-fir and ponderosa pine). Stands would be harvested to a range of 35-50 percent canopy cover and would be thinned using guidelines to reduce basal area between 80 and 140 ft^2 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, talus habitat, and seeps/wet areas would be protected according to RMP guidance.

Selective thinning proposed in roosting/foraging and dispersal habitat follow recommendations in the 2012 NSO Final Critical Habitat Rule and the 2011 NSO Revised Recovery Plan by treating this 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, fire resiliency, and species diversity, as recommended in the recovery plan.

The stand conditions are declining and are at the risk of not providing habitat over the long-term without treatment. As described above, the prescriptions would restore heterogeneity within stands, including both vertical and horizontal diversity. Stands located in high habitat suitability according to the Relative Habitat Suitability (RHS) output from the MaxEnt model (USFWS 2011) represent areas on the landscape expected to provide long-term suitability and high frequency use for spotted owls, so stand structural improvement in Roosting/Foraging or Dispersal habitat would benefit owls over the long-term.

The Ponderosa Pine Selection Thinning prescription is proposed in critical habitat and may have adverse effects to roosting/foraging habitat (currently the stands do not function as nesting 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 are 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 (USFWS 2011). These locations are not expected to provide long-term suitability and are not in areas where spotted owls would select for nesting. However, even though the stands would be more open and be more pine dominated, these areas could still provide dispersal habitat in the future.

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. 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. Openings would range from 0.10-0.5 acres in size. 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 and younger over stocked pine stands that are 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 (USFWS 2011). 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

Density Management is prescribed in stands that are currently providing northern spotted owl roosting and foraging habitat (RF). The Density Management prescription would treat and maintain RF habitat and would be applied in the home range of high priority spotted owl sites. 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. 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 heterogeinity.

Structural Retention

This prescription applies to stands primarily dominated by mature Douglas-fir, have poor annual stand growth, and/or have limited conifer regeneration. As directed by the Medford District RMP, structural retention would retain at least 16 to 25 large green conifer trees per acre. 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. This prescription is proposed outside of critical habitat and known spotted owl home ranges. This treatment occurs in one dispersal-only habitat unit.

Riparian Thinning

The proposed treatment areas are overstocked, even-aged stands lacking structural complexity and stagnant in growth. Trees would primarily be thinned from below to remove the suppressed

component of the stand, followed by the thinning of the main canopy to reduce density and to remove trees infected by disease or insects or otherwise declining (based on crown ratio and form). These treatments would occur in both RF and Dispersal-only habitat. Vegetation will be treated in designated Riparian Reserves outside of a no treatment buffer (50 ft.).

Small Diameter Thin (SDT)-Stewardship
The objectives of the small diameter thinning treatments combine the objectives of selective thinning (a commercial treatment), and understory reduction (a noncommercial treatment). Dry-Douglas-fir stands would be thinned using guidelines to reduce basal area between 100 and 140 ft^2 per acre. Ponderosa pine stands would be thinned using guidelines to reduce basal area between 80 and 120 ft^2 per acre. Stands would be thinned to a canopy cover range of 35-50 percent. Understory reduction consists of cutting small trees (generally less than 8 inches DBH for conifer and less than 12 inches DBH for hardwood) Small diameter thinning increases tree growth rates and promotes horizontal and vertical structural heterogeneity in stands. Small diameter thinning 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 treatment is proposed in dispersal and capable habitats.

Understory Reduction (UR)
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. This proposed treatment could be combined with other prescriptions and could occur in roosting/foraging, dispersal-only, and capable habitat, while maintaining the same NSO objectives as the other prescriptions.

Hazardous Fuels Reduction

Forest Management Activity Fuels:
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. Post-harvest fuels treatments may include selective slashing/hand pile burning, and under-burning.

Follow-up maintenance underburning may take place within five years following initial treatments. Underburning involves the controlled application of fire to understory vegetation and downed woody material when fuel moisture, soil moisture, and weather and atmospheric conditions allow for the fire to be confined to a predetermined area at a prescribed intensity to achieve the planned resource objectives. Prescribed underburning usually occurs during late winter to spring when soil and duff moisture conditions are sufficient to retain the required amounts of duff, large woody material, and to reduce soil heating. Occasionally, these conditions can be met during the fall season. No follow-up underburning would occur in RF habitat.

Fuels Reduction Maintenance:
Maintenance fuels treatments are designed to maintain a desired fuel condition. These treatments may occur in areas that have been previously treated or in natural areas that are beginning to overgrow (i.e., meadow maintenance/restoration). Numerous hazardous fuels reduction treatments have occurred within the Nedsbar Project Area. Past fuels reduction projects have included mechanical mastication (slashbuster), thinning/slashing, hand piling, and hand pile burning. These past treatments took place between 5–10 years ago. In order to maintain the benefit of these initial treatments, many areas are in need of follow-up treatment. Maintenance treatments would include manual thinning, prescribed fire techniques, or both.

Jack-Ash Trail Project
The Ashland Resource Area of the Medford District is proposing to authorize construction of Phase 1 of a sustainable non-motorized trail system for equestrians, hikers, runners, and mountain bikers. The trail would connect a Jacksonville trail system with an Ashland trail system primarily along the ridges and crests of the Siskiyou Mountains in southwest Oregon, Jackson County. Phase I of the Jack-Ash Trail would connect to the north and south ends of the Sterling Mine Ditch Trail creating a large loop around and over Anderson Butte. The route would primarily utilize existing BLM roads and historic trails, and approximately 4.7 miles of new trails would be constructed. The proposed trail is in partnership with the Siskiyou Upland Trails Association (SUTA), a community volunteer organization.

Phase 1 would be constructed using hand tools (such as shovels and chainsaws to cut brush). No heavy equipment would be used. Trail construction would be completed by BLM staff, contractors, and volunteers. The trail design would be guided by the U.S. Forest Service Trail Construction and Maintenance Handbook, and would adhere to BLM Trails Handbook 9114. The desired average tread width would be 3 feet, with an additional 3 feet of vegetation trimming and thinning on either side of the trail. Most of the vegetation removed and trimmed would be mixed fir/chaparral vegetation. Trail design would minimize vegetation removal through route location and would avoid the removal of trees over 12 inches in diameter. Dead trees (snags) may need to be felled for safety reasons. The trail would be constructed in mostly non-habitat, but would also occur in approximately 1 acre of NRF and 2 acres of dispersal habitat.

2.3.3 Proposed Action Implementation Methods - Nedsbar

The proposed treatments would be implemented using a variety of manual and mechanical tools. These methods include ground-based, skyline-cable, and helicopter log extraction. Polygons representing possible landing locations were included in the proposed units GIS layer used to determine effects from the proposed action. Approximately two acres of RF habitat and five acres of dispersal-only habitat removed by landing construction would be scattered throughout the Nedsbar 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 8). 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 the anticipated effects.

Access to some units may require road construction to extract timber. The access could be permanent road and/or temporary route construction. The habitat effects from the road construction are analyzed as separate treatment areas and have been incorporated into the total habitat effects for the project (Table 8). 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 12 acres of RF habitat and 29 acres of dispersal habitat would be removed by proposed road construction scattered throughout the Nedsbar Project Area. The proposed road construction acres are high in the Nedsbar project because they include several alternate locations that would likely be dropped by the time the NEPA process has been completed.

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, measures applied to project activities, are 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 Nedsbar Project. PDC involving seasonal restrictions will be implemented unless surveys, following approved protocols, indicate either non-occupancy or non-nesting of target species.

If new spotted owl sites are located during surveys, biologists will review PDCs 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 are no longer consistent with the analysis, the project will remain stopped until the 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.

2.4.2 Conservation Measures

The following conservation measures were designed for the Nedsbar 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.
- One small landing (0.7 acres) is proposed in capable habitat in the nest patch of site # 2232. Seasonal restrictions would be implemented for landing construction and landing use during harvest.

- No-treatment buffers for protecting mollusks, great gray owls, meadows, Siskiyou Mountains salamander talus habitat, and sensitive plant sites will provide untreated patches of spotted owl habitat throughout the Action Area.
- Treatments proposed in 418 acres of NRF (McKelvey 1) habitat, as defined above, were dropped in the Nedsbar Project.
- RA32 field evaluations identified 20 acres in three patches (five to ten acres) in the Nedsbar project. No harvest activities, temporary route construction, yarding corridors, or skid roads are planned to occur within RA32 stands.
- Large standing (snags and live trees) and down wood will be retained in all project areas to meet RMP (USDI BLM 1995) guidelines. Generally the marking guidelines require the retention of large hardwoods and large (> 20 inches DBH), broken, forked-top, and deformed trees, which provide nesting opportunities for spotted owls. Some snags may be felled for safety reasons or logging systems (skyline corridors), 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). 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).

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 1.3 miles for the Klamath Province (Thomas, et al. 1990; Courtney, et al. 2004). Both projects are in the Klamath Province. Therefore, the Action Area represents all lands within 1.3 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. The Action Area for the Nedsbar project is displayed on Map 1 in Appendix E. Table 4 in Section 3.3 provides habitat baseline data for the Action Area. Some of the Jack-Ash Trail project is also within the Nedsbar 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), SEI 2004 Northern Spotted Owl Status Review (Courtney, et al. 2004); 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. Dugger et al 2016, 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.*

Metadata analysis evaluates population statistics of the owls in the demographic study areas. The most recent metadata analysis was published in 2016 and found that fecundity, the number of female young produced per adult female, is declining. Dugger et. al (2016) 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. The 2016 metadata analysis found these declines are occurring in more study areas than indicated in the last 2011 metadata analysis (Forsman 2011). The 2016 data indicate that competition with barred owls may now be the primary cause of northern spotted owl population declines across their range.

There is one demographic study area associated with these projects. The projects are in the Klamath province which is represented by the Klamath Demography Study Area, which is approximately 32 miles northwest of the projects. An annual report is completed for the demographic study areas and the last three years for the Klamath Study Area is summarized below.

Klamath Study Area

According to the 2012 Annual Report for the Klamath Demography Study Area, at least one spotted owl was detected at 79 (50 percent) of the sites. In recent years there has been a steady decline in the number of non-juveniles detected and an even larger decrease in the number of pairs detected in the study area. The number of non-juveniles detected in 2012 (134) was the lowest ever documented on the study area. The number of individual spotted owls during 2012 was 39.6 percent less than the high of 222 during 2002. The decline in the number of pairs was even more sizeable, with 48.4 percent fewer detected in 2012 than the high of 97 during 2005. The 50 pairs detected during 2012 was the lowest number documented during the study period. The number of pairs detected at sites has declined within the study area and the number of unoccupied sites has increased. While the recent meta-analysis (Forsman et al, 2011) indicated

that survival on the KSA was stable through 2006, the most recent data regarding occupancy has shown a rapid decline, which suggests the stability of the survival rate may no longer be valid. The fecundity rate in 2012 was 0.191, which was lower than the average for the years 1990-2012 (0.320). Forsman et al. (2011) noted that the fecundity rate on the KSA was declining and the most recent data agrees with this conclusion. The number of juveniles detected within the KSA during 2012 (12) was much lower than the overall median (44) (Davis et al, 2013).

The 2013 data indicates the occupancy and fecundity rates have not improved. At least one spotted owl was detected at 78 (49.3 percent) of the sites and there were no new sites documented within the study during 2013. The fecundity rate for 2013 was 0.160. Fifteen juveniles were detected in the study area in 2013 (Davis et al 2014). The 2014 data indicates the occupancy rates continued to decline. At least one spotted owl was detected at 61 (38.6 %) of the sites. The fecundity rate was 0.366 in 2014. Thirty-one juveniles were detected in the study area in 2014 (Hollen et al. 2015). The 2015 data indicates the occupancy rates continued to decline. At least one spotted owl was detected at 59 (37.3%) of the sites. The fecundity rate was 0.219 in 2015. Nesting status was confirmed at 30 sites in 2015, which is the lowest number documented since the study was initiated. Fourteen juveniles were detected in the study area in 2015 (Hollen et al. 2016).

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 March 2016. The Medford environmental baseline was initially developed in 2008 using field assessments by experienced wildlife biologists, Interagency Vegetation Mapping Project (IVMP) imagery from 1996 (as corrected through 2003), and additional stand data. The BLM used the updated 2014 Rogue Basin habitat layer based on GNN (Gradient Nearest Neighbor) data for non-BLM managed lands. This layer types habitat (NRF, dispersal, capable, and non-habitat) across the region and across all ownerships.

The baseline is updated annually for each BLM project area. Habitat updates within the units were based on field evaluations. These field evaluations included taking measurements of overstory canopy cover using a moosehorn or ocular estimates, measuring overstory tree diameters, recording the number of canopy layers, recording the amount of coarse woody debris and snags, and recording other habitat characteristics such as nesting platforms, cavities, and mistletoe brooms. The current baseline also includes updates to habitat from post-harvest monitoring of the recently implemented timber sales and stewardship projects in the Nedsbar Action Area. Specifically, the habitat updates from the Bald Lick, O'Lickety, Lick Stew, and Wagner Anderson Projects have been incorporated into the baseline.

A separate Action Area was not created for the Jack-Ash Trail Project because the scope of the project is so small (3 acres of habitat) and the project would not remove or downgrade spotted owl habitat. The habitat acres in the Action Area would not change after the project is implemented, so the Action Area habitat information would not provide additional information for the effects analysis. Additionally, approximately 1/3 of the Jack-Ash Trail habitat is within the Nedsbar Action Area.

Table 4 summarizes baseline habitat and ownership information for the Nedsbar Action Area.

Table 4. Environmental Baseline for the Nedsbar Action Area

		Total 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		51,440	16,368 (32%)	16,474 (32%)	1,128 (2%)	50,312 (98%)	27,843 (54%)
- Non-Federal (Private, State)		15,492	2,042 (13%)	5,661 (37%)	0	15,492 (100%)	6,820 (44%)
-Federal (BLM, USFS)		35,948	14,326 (40%)	10,813 (30%)	1,128 (3%)	34,820 (97%)	21,023 (58%)
LAND ALLOCATION—FEDERAL (*hierarchal, no acres double-counted*)							
-Late-Successional Reserves (mapped)		0	0	0	1,128 (100%)	33,692 (97%)	0
- 100-Acre Spotted Owl Core Areas in the Matrix/AMA		1,128	880 (78%)	230 (20%)			898 (80%)
-Matrix/AMA[3]		35,948	14,326 (40%)	10,813 (30%)			21,023 (58%)
SPOTTED OWL CRITICAL HABITAT							
CHU -10	**Sub Unit KLE-6**	18,934	10,464 (55%)	4,117 (22%)	1,024 (4%)	17,910 (96%)	13,395 (71%)

Notes: 1. Reserved= land allocation with no programmed timber harvest which includes Congressionally Reserved land, LSRs, 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).

Table 5 estimates the current NSO habitat conditions within the fifth field watersheds associated with the Nedsbar project. Fifth field watersheds can provide a qualitative evaluation for dispersal function using the concepts of Thomas, et al., as described below. This landscape-level approach 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 biologically meaningful way to evaluate dispersal function. For the larger fifth 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.

Table 5. Dispersal Habitat Conditions in the Fifth Field Watersheds Associated with the Nedsbar Action Area

5th 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)
Bear Creek	231,249	39,521	55,815	95,336	41%
Little Applegate River	72,303	23,475	22,708	46,183	64%
Upper Applegate River	52,296	19,561	16,168	35,729	68%

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.

Nedsbar

As mentioned above, the Action Area represents all lands within 1.3 miles of proposed treatment units and all lands within any associated provincial home ranges of known spotted sites that could be directly, indirectly or cumulatively impacted by the proposed action. Sites that could be directly, indirectly, or cumulatively impacted include sites with proposed units within their home range. There are 13 NSO known site home ranges (including two sites with an original and alternate site location) that could be impacted by proposed Nedsbar units. Therefore these home ranges are completely contained within the Nedsbar Action Area. There are 24 NSO site centers outside of the Action Area and a portion of their home range overlaps the Action Area. However, no units are proposed within these home ranges, so no effects are anticipated. Therefore these home ranges are not included in the Action Area and the sites are not carried forward in the effects analysis. Table 6 summarizes this description of NSO sites associated with the Nedsbar Action Area.

Table 6. Spotted Owl Sites Associated with the Nedsbar Action Area	
Number of Owl Home Ranges Completely Contained in AA *(proposed units in NSO HR)*	**13**
Number of Owl Home Ranges Overlapping AA *(site center outside of AA and no units inside NSO HR)*	**24**
TOTAL	**37**

All of 13 home ranges completely contained in the Action Area are historic sites, including four sites on Forest Service land. These sites have not been surveyed or monitored consistently in the past 15 years. Surveys for the BLM sites started again in 2014 after 5 to 14 year break from surveys (approximately eight year average since surveys were last done at the sites). Spotted owls were only detected in two of the sites in 2014. Additionally, one unknown strix species (barred or spotted owl) was heard at one site in 2014. Spotted owls were only detected in two of the sites in 2015 (only one site was the same as in 2014). Eight of the total ten sites on BLM within Action Area have been occupied by a pair of spotted owls at least one year since the original surveys in the early 1990's. Only limited survey history is available for the three Forest Service sites. See Appendix D for a summary of the survey history, as well as occupancy and reproductive status for all of 13 sites.

2014 surveys in the Nedsbar 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. Three visits to the historic sites occurred in 2015 and three visits are planned again in 2016 due to budget and hiring constraints. Six visits are targeted in areas outside of home ranges of the known sites within the Action Area. Spot checks will continue in 2017 and 2018 as needed.

Jack-Ash Trail

The Jack-Ash trail is within seven spotted owl home ranges. Of the seven sites, one is shared with the Nedsbar project (0973O). Actual treatment in habitat would only occur in three of the seven sites and is described in more detail in the effects analysis. Only the site associated with the Nedsbar project has been surveyed recently, so the remaining six sites are assumed to be occupied.

NSO Site Pre-Treatment Habitat Conditions

The pre-treatment NRF habitat acres for spotted owl sites in the Nedsbar Action Area are displayed in Table 10. This table provides the current habitat baseline on federal lands 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

Federal lands within the Nedsbar Action Area contain 6,148 acres of NRF habitat that occur outside of known spotted owl home ranges. These occur primarily in small patches that are unlikely to support owl occupancy, but there are larger blocks in the Action Area. The Nedsbar Action Area has one large block in the western edge and one in the center of the Action Area. These blocks will be analyzed in more detail to determine the potential for occupancy by northern spotted owls.

The BLM conducted a GIS analysis by placing a point in available large contiguous NRF stands on BLM lands and buffering the location by 0.5 miles to determine if the amount of NRF habitat on federal lands could support owls. Blocks of NRF habitat greater than 70 acres were identified and used for the occupancy analysis based on models developed by Swindle, et al. (1997) and Perkins (2000) that indicate the 200- to 300-meter radius (and sometimes greater), encompassing up to 70 acres around a nest is important to spotted owls. Additionally, large blocks of habitat were selected if they were located in high habitat suitability according to the Relative Habitat Suitability (RHS) output from the MaxEnt model (USFWS 2011). Abiotic factors represented in the high habitat suitability, such as slope, aspect, and core habitat, increase the likelihood of supporting nesting owls compared to other locations across the landscape. The 0.5-mile buffer was used because it is the distance 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). The amount of habitat within an approximate 0.5-mile radius provides a reliable predictor of occupancy; the quantity and configuration have been shown to provide

reasonable inferences into survival and reproduction. 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. Sites on the Medford District have been shown to have high rates of occupancy and reproduction when only 35 percent NRF habitat exists at the core scale. This analysis was done for each of the large habitat blocks outside of the home ranges in order to determine if owls could occupy these areas. The analysis for the Nedsbar project is described below. In summary, the analysis determined that the habitat outside of home ranges could support four pairs of nesting spotted owls in the Nedsbar Action Area

In 2014 the BLM started surveying these areas outside of known home ranges in NRF habitat that is within 1.3 miles of proposed Nedsbar units to determine occupancy status of these areas. 2014 surveys in the Nedsbar 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. Three visits were conducted to these areas in 2015 due to budget and hiring constraints. Six visits are targeted in these areas outside of home ranges of the known sites within the Nedsbar Action Area. Spot checks will continue in 2017 and 2018 as needed according to the 2012 NSO protocol (USDI 2012). If owls are located, the BLM will modify or drop the units to reduce potential effects to spotted owls or reinitiate consultation.

Nedsbar—Western Area

There are three large contiguous blocks of NRF that meet the criteria listed above. One patch of NRF is approximately 170 acres and is located in multiple Forest Operations Inventory (FOI) units that range from 120-150 years old. Approximately 320 acres (64 percent) of NRF habitat is located on federal lands within the 0.5 mile buffer, so there is enough NRF habitat available to support a nesting pair of owls.

The second large block is approximately 112 acres and is located in FOI units that range from 100-200 years old. Approximately 304 acres (61 percent) of NRF habitat is located on federal lands within the 0.5 mile buffer, so there is enough NRF habitat available to support a nesting pair of owls.

The third large block is approximately 93 acres and primarily located in Forest Service lands with approximately 15 acres on BLM lands. The age of the stands are not available for the FS lands, but the BLM stands are 80-150 years old. Approximately 160 acres (32 percent) of NRF habitat is located on federal lands within the 0.5 mile buffer. There are similar amounts of NRF habitat that exist at high priority spotted owl sites in the Nedsbar Project Area that have supported owl pairs. Therefore, it is assumed this area could support a nesting pair of owls. Three other patches of NRF habitat in high RHS occur in the west area of the action area outside of known home ranges. However, these are smaller patches, less than 40 acres and are surrounded by low RHS, private lands, and meadows and therefore do not meet the minimum nest patch size of 70 acres as described above.

Nedsbar—Center Area

There is only one contiguous large block of NRF in the center of the Action Area. It is approximately 95 acres and is located in multiple FOI units that range from 90-150 years old.

Approximately 210 acres (42 percent) of NRF habitat is located on federal lands within the 0.5 mile buffer. Since this is above the threshold listed in the studies and above, it is assumed this area could support a nesting pair of owls. Two other patches of NRF habitat in high RHS occur in the center area of the action area outside of known home ranges. However, these are smaller patches (less than 40 acres) and are surrounded by low RHS, private lands, and meadows.

The additional 500 acre analysis was not performed for the areas at the small scale that did not provide contiguous NRF habitat similar to the nest patch size. In summary, the analysis has determined that there is the likelihood of at least four owl sites within the Nedsbar Action Area outside of the known home ranges.

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 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 2011Revised Recovery Plan for the Northern Spotted Owl identifies competition from the barred owl as a threat to the spotted owl (USDI FWS 2011). Barred owls (*Strix varia*) are native to eastern North America, but have moved west into spotted owl habitat. Existing evidence suggests 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 Demography Study Area, 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 Nedsbar Project Areas. While the BLM did not specifically survey for barred owls, a study in the Oregon Coast range suggests that over the course of a season, spotted owl surveys to protocol (> 3 visits) allow ~85%

of the barred owls present in the area to be detected (Wiens et al. 2011). Additionally, the 2012 NSO survey protocol allows for a reasonable assurance that spotted owls in an area will be detected, even where barred owls are present. The Service and cooperators conducted analyses of historical spotted owl survey data, leading to estimates of detection rates for spotted owls that account for the effects of barred owl presence. These detection rates, along with data on spotted owl site colonization and extinction probabilities, and empirical analysis of spotted owl site occupancy, were utilized in developing the survey protocol used by the BLM in the Project Area. Use of the 2012 Protocol serves two primary purposes: (1) provide a methodology that results in adequate coverage and assessment of an area for the presence of spotted owls, and (2) ensure a high probability of locating resident spotted owls and identifying owl territories that may be affected by a proposed management activity, thereby minimizing the potential for unauthorized incidental take (USDI 2012).

Barred owls have been recorded when detected during spotted owl surveys. Since NSO surveys started again in 2014, barred owls have been detected at sites 0097O, 0973O, 2232O, and 3648O. In 2014, a barred owl pair with young was detected near BLM site 3648O.

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 Service in the *Federal Register* (signed on August 12, 2008, 73 FR 157:47326) and became effective on September 12, 2008. The 2008 Service's Critical Habitat delineations were challenged in court and the 2008 designation of northern spotted owl CHU was remanded. The Service 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 FR 46:14062-14165). The final Critical Habitat Rule was published in the *Federal Register* on December 4, 2012 **(**77 FR 233:71876-72068) and became effective January 3, 2013.

Section 4(a)(3) of the ESA 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:

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 ft^2/acre [55 m^2/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 1,325 acres of NRF and dispersal habitat proposed for treatment in the Nedsbar project are within Klamath East (KLE) Critical Habitat Unit (CHU) 10, sub-unit KLE-6. Approximately 2 acres of NRF and dispersal habitat proposed for trail construction in the Jack-Ash Trail project is also within KLE-6. The following descriptions for KLE CHU 10 and subunit KLE-6 are directly out of the final rule in the *Federal Register* (77 FR 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-6
The KLE-6 subunit consists of Federal lands managed by the BLM and USFS per the NWFP (USDA and USDI 1994, entire) in Jackson County, Oregon, and Siskiyou County, California. 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 80 total historic spotted owl sites on BLM and FS lands in Oregon in this entire critical habitat subunit. The number of NSO sites in KLE-6 in California is unavailable for this analysis.

Northern Spotted Owl Critical Habitat Baseline Data

Table 7 summarizes the NSO habitat baseline for the entire critical habitat subunit KLE-6. The Service created the habitat baseline acres by clipping the NWFP Interagency Regional Monitoring Program NSO habitat layer to the December 2012 critical habitat layer. The Service then created a spreadsheet on December 19, 2012 with the baseline habitat acres by CHUs and subunits. For this BA, the BLM used the April 13, 2016 USFWS updated critical habitat acres for the current CH habitat baseline for subunit KLE-6. These acres were derived by subtracting NSO habitat removed by habitat-altering projects and fires from the December 19, 2012 layer. Project specific habitat calls are based on field verification, GIS habitat layers, and photo interpretation.

Table 7. Critical Habitat Baseline (acres)					
CHU/ Subunit	**NRF**	**Dispersal-Only**	**Dispersal** (NRF + Dispersal-Only)	**Capable or Non-Habitat**	**Total** (Dispersal + Capable + Non-Habitat)
10-KLE-6	46,770	88,227	134,997	32,852	167,849

* Total Unit acres, Source: Recent projects in the USFWS NWFP tracking database subtracted from the USFWS NSOCH_2012_Baseline_Summaries_Dec19_2012 Data on April 13, 2016.

4. EFFECTS OF THE PROPOSED ACTION

4.1 Effects to Northern Spotted Owls Analyzed by Habitat

The effects to NRF (including RF) and dispersal-only habitats are summarized in Table 8 and displayed in Maps 3 and 4 in Appendix D. The project listed in this BA represents the current proposal for the Nedsbar project and Jack-Ash Trail. It is likely 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 fewer acres offered for sale. Consultation monitoring reports will reflect the actual implemented acres for this project.

Table 8. Effects to NSO Habitat from the Proposed Actions									
Action Area Baseline Habitat ***(From Table 4)***	***(16,368)***						***(27,843)*** *(NRF + Dispersal-only)*		***51,440[1]*** *(total AA)*
	NRF Remove (acres)		**NRF Downgrade (acres)**		**NRF T&M (acres)**		**Dispersal-only Remove (acres)**	**Dispersal-only T&M (acres)**	**Total Acres Treated**
	NRF[2]	**RF[3]**	**NRF[2]**	**RF[3]**	**NRF[2]**	**RF[3]**			
Nedsbar Project	0	110	0	284	0	277	240	936	**1,847**
% Change to the Nedsbar Action Area Baseline Habitat	**-0.7%**		**-1.7%**		**No Change**		**-0.9%**	**No Change**	**3.5% of AA treated**
Jack -Ash Trail	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**3**
TOTAL	**0**	**110**	**0**	**284**	**1**	**277**	**240**	**938**	**1,850**

1- Total Action Area acres across all ownership, including 7,123 acres of non-habitat and 16,474 acres of capable habitat
2- NRF = Nesting/Roosting/Foraging (McKelvey 1)
3- RF = Roosting /Foraging (McKelvey 2)
4- **Total dispersal-only acres, but only the 220 acres outside of critical habitat will be discussed below. The 20 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 8. The determinations cover NRF removal, NRF downgrade, NRF treat and maintain, dispersal removed, and dispersal treat and maintained collectively for each project 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).

4.1.1 Effects to NRF Habitat

The BLM has determined the <u>removal</u> of 110 acres of NRF habitat (110 acres R/F) associated with the Nedsbar Project (*selective thinning, road and landing construction*) **<u>may affect and is likely to adversely affect (LAA)</u> northern spotted owls because:**

- The removal of NRF habitat through structural retention harvest would remove large amounts of key habitat structural elements for roosting and foraging, including large-diameter trees, adequate cover, and hunting perches.
- Structural retention harvest would reduce the overall canopy cover to 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 roosting, foraging, and dispersal opportunities for owls in the Action Area, and lead to increased predation risk.
- Loss of habitat would 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 0.7 percent.

The BLM has determined <u>downgrading</u> 284 acres of NRF (284 acres R/F) habitat associated with the Nedsbar Project (*selective thinning and group selection-40%*) **<u>may affect, and is likely to adversely affect (LAA)</u> northern spotted owls because:**

- Thinning that downgrades suitable NRF habitat to dispersal habitat would remove key habitat elements (high percent of canopy cover and hunting perches).
- The removal of these key habitat features would reduce the 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 the amount of existing NRF habitat within the Action Area (federal, state, private) by 1.7 percent.

The BLM has determined that <u>treating and maintaining</u> 277 acres of NRF habitat (277 acres R/F) associated with the Nedsbar Project (*density management, group selection 60%, and fuels reduction*) **and 1 acre of NRF treat and maintain from the Jack-Ash Trail <u>may affect, but is not likely to adversely affect (NLAA)</u> northern spotted owls because:**

- Treatments would 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 would 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 ft^2/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 to meet Occupational Safety and Health Administration guidelines would be left on site where safety allows.
- NRF (McKelvey 1) stands would not be treated in the Nedsbar project.
- Small openings (approximately 0.1 to 0.25 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.
  .

4.1.2 Effects to Dispersal-only Habitat

The BLM has determined that the <u>removal</u> of 220 acres of dispersal-only habitat associated with the Nedsbar Project (*selective thinning, structural retention, and road/landing construction* **located outside of critical habitat <u>may affect, but is not likely to adversely affect (NLAA)</u> northern spotted owls because:**

- No dispersal habitat would be removed in nest patches.
- 206 acres of dispersal-only habitat removal outside of critical habitat would be distributed throughout the Action Area. Additional removal of 10 acres of dispersal-only habitat would occur in small proposed road and landing construction areas.
- Removal of dispersal-only habitat would occur in all three 5th field watersheds. The Bear Creek fifth field watershed is the only watershed that currently has less than 50 percent of the watershed in dispersal habitat (NRF + dispersal-only). Only one acre of dispersal-only habitat removal is proposed in the Bear Creek watershed. The removal of one acre of dispersal-only habitat within the Bear Creek fifth 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.
- The removal of 220 acres of dispersal-only habitat outside of critical habitat would not preclude owls from dispersing throughout the Action Area. Removal of dispersal-only habitat would result in the reduction of 0.9 percent of the total dispersal habitat (NRF and dispersal-only) in the Action Area. The additional 110 acres of NRF removal would reduce total dispersal habitat by 1.3 percent.
- Forest landscapes traversed by dispersing owls typically include a fragmented mosaic of roads, clear-cuts, and 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).
- Approximately 20 acres of dispersal-only habitat removal within critical habitat may affect and is likely to adversely affect northern spotted owls (see Effects to Critical Habitat section below).

The BLM has determined that <u>treating and maintaining</u> 1,847 acres of dispersal-only habitat associated with the Nedsbar Project (*selective thinning and group selection 40%*) **and 1 acre in the Jack-Ash Trail Project <u>may affect, but is not likely to adversely affect (NLAA)</u> northern spotted owls because:**

- Treatments would not change the intended function of the habitat and the conditions that 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 Occupational Safety and Health Administration 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 would be distributed 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 actions 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. The Medford District uses the median home range estimated for southwestern Oregon of 3,400 acres or a circle with a radius of 1.3 miles for the Klamath Province (Thomas, et al. 1990; Courtney, et al. 2004). 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; 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 areas. 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 2000; Miller, et al. 1989; Meyer, et al. 1998). Models developed by Swindle, et al. (1997) and Perkins,(2000) showed that the 200- to 300-meter radius (and sometimes greater), encompassing up to approximately 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 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 determinations for individual sites affected by the proposed action. Table 9 provides the general approach, while recognizing site-specific conditions may provide exceptions to the factors.

Table 9. Medford BLM General Factors for NSO Site Effect Determinations

LAA Determination Factors	NLAA Determination Factors
• More than 3 acres of contiguous NRF Removal or Downgrade in a home range with < 40% pretreatment NRF on federal lands. • More than 1 acre of NRF Removal or Downgrade in a 0.5-mile core area with < 50% pretreatment NRF on federal lands. • NRF Removal or Downgrade that would reduce the pretreatment 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 pretreatment.	• NRF would not be removed within the home range, 0.5-mile core area, or nest patch. • Less than 3 acres of contiguous 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 13 owl sites/territories affected by the proposed Nedsbar Project. Some treatments are proposed in all 13 home ranges. Effect

determinations to NSO sites are 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 10. Maps displaying owl sites, home ranges, 0.5-mile core areas, nest patches, and proposed units are included in Appendix E.

As indicated in Table 10, the NRF habitat amounts are currently low on federal lands within the home ranges of eight territories and eight of the 0.5-mile core areas. Seven sites have low amounts of NRF habitat at both the home range and core area scales. 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; 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 Nedsbar Action Area.

Owl Summary by Project

Nedsbar Project

The Nedsbar Project is within the home ranges of 13 owl sites/territories. Most of these sites have not been consistently surveyed. The Ashland Resource Area resumed surveys in 2014. Each site received six visits in 2014, but only three visits in 2015. The sites will be targeted for six visits in 2016, with spot checks in 2017 and beyond if necessary. Sites were prioritized for Recovery Action 10 purposes based on occupancy and reproduction history. Since many of the sites have not been surveyed in over 10 years, many of the sites were conservatively rated as high based on historical information of high occupancy and reproduction rates.

A total of 121 acres of RF habitat would be removed and downgraded within the home range of six sites. The majority of the acres (112 acres of RF downgrade) would occur in one home range that would remain above NRF thresholds after treatment. Nine acres of RF removal would occur in five sites from road and landing construction. Approximately, two acres of RF would be removed from road and landing construction within the 0.5 mile core area of site 1936A. In all 13 home ranges, a total of 268 acres of RF would be treated and maintained, 133 acres of dispersal habitat would be removed, and 757 acres of dispersal habitat would be treated and maintained. The acres described above are total acres and do not double count units in overlapping home ranges.

Sites Likely to be Adversely Affected from Habitat Modification:

Based on the general factors listed in table 9, three sites would be adversely affected by the proposed action (1836A/O, 2232O, and FS1993). The two BLM sites were ranked high in the RA10 site priority ranking process due to high pair occupancy and reproductive success. While the LAA determinations described below to these high priority sites would be measurable, the proposed actions are not expected to adversely impact essential habitat for foraging, which could affect reproduction and survival of the owls at the site. In site 1836A/O, up to nine acres of RF removal within home range from road construction and the road segments are small in scope, spread throughout the home range in six different segments (no more than 3 acres each, and most are less than 1 acre) and are not expected to affect reproduction of future owls at this site. RF downgrade is proposed in site 2232O, but the actions are not anticipated to affect occupancy and reproduction because this site would stay above thresholds post-treatments. Three acres of RF

would be removed from road and landing construction within the home range at site FS1993, but would not occur within the 0.5 mile core. The proposed action would only remove three acres of RF habitat from road/landing construction on a ridge and in low habitat suitability (RHS). Due to the location and small acreage, it is unlikely the treatments would adversely impact essential habitat for nesting or foraging, which could affect reproduction and survival of the owls associated with the site.

Sites Not Likely to be Adversely Affected from Habitat Modification:
Based on the general factors listed in table 8, 10 sites would not be adversely affected by the proposed action (0097O, 0875O, 0957O, 0973O, 2401O, 3648O, 3941O, 4066A/O, FS2001, and FS2002). 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 the sites. Four of these ten sites are high priority sites as determined through the RA10 priority ranking process.

More site specific information for the effects determination for each Nedsbar NSO site is included in Table 10.

Jack-Ash Trail
Since the scope of the Jack-Ash Trail is so small, the effects at the site level will be addressed here rather than in the table below. A total of one acre of NRF habitat and two acres of dispersal habitat would be treated and maintained in this project. The one acre of NRF treat and maintain is located within the home ranges of three NSO sites (0096O, 0114O, and 4068O). The portion of the trail construction in NRF habitat is within the 0.5 mile core area, but outside of the nest patch of site 0096O. This NRF portion of the trail is in the home range, but outside of the 0.5 mile core area of sites 0114O and 4068O). These sites are not likely to be adversely affected (NLAA) from habitat modification because of the small acreage (1 acre) and minimal habitat effects (treat and maintain). The one acre of NRF treat and maintain from the proposed trail construction would be undetectable at the home ranges because less than 0.1 % of the NRF would be affected. It is unlikely the treatments would adversely impact essential habitat for nesting or foraging, which could affect reproduction and survival of the owls associated with the site.

Table 10. NSO Sites Affected by the Proposed Action

Site	Pre-treatment NRF Habitat[1] (acres)/%		NRF Habitat Reduced[2] (acres)			Dispersal Removed (acres)			T&M in Core (acres)/%		T&M in Home Range (acres)		Post-Treatment NRF Habitat (acres)/%		Site Status in 2014/ 2015[3]	Effects	Effects Determination Summary
	HR	Core	HR	Core	NP	HR	Core	NP	NRF	Disp	NRF	Disp	HR	Core			
Nedsbar (Home Range=3,400 acres)																	
0097O[4]	756 (22%)	135 (27%)	0	0	0	3	0	0	2 (1%)	1	57	131	756 (22%)	135 (27%)	No NSO Response 2014/2015 (single barred seen once 2014)	NLAA	**High Priority Site** based on historically high pair occupancy and reproductive success. Adverse effects are not anticipated because NRF would not be removed or downgraded. Only 1 % of the existing NRF in the core area would be treated.
0875O[4]	1,303 (38%)	274 (55%)	0	0	0	1	0	0	0	5	105	76	1,303 (38%)	274 (55%)	No NSO Response 2014/2015	NLAA	**High Priority Site** based on historically high pair occupancy and reproductive success. Adverse effects are not anticipated because NRF would not be removed or downgraded and NRF would not be treated in the core area.
0957O	629 (19%)	1 (0.2%)	0	0	0	2	0	0	0	0	15	52	629 (19%)	1 (0.2%)	Not surveyed 2014, 2015	NLAA	**Low Priority Site** based on the low pair occupancy and reproductive success, and recent surveys with no responses. **Additionally, this site was burned at a** high severity during the 2001 Quartz Fire and only 18% of the home range and 0.2% of the core area currently supports NRF habitat. Therefore, it is unlikely there is enough habitat to support owls.

Table 10. NSO Sites Affected by the Proposed Action

Site	Pre-treatment NRF Habitat[1] (acres)/%		NRF Habitat Reduced[2] (acres)			Dispersal Removed (acres)			T&M in Core (acres)/%		T&M in Home Range (acres)		Post-Treatment NRF Habitat (acres)/%		Site Status in 2014/ 2015[3]	Effects	Effects Determination Summary
	HR	Core	HR	Core	NP	HR	Core	NP	NRF	Disp	NRF	Disp	HR	Core			
0973O[4]	787 (23%)	35 (7%)	0	0	0	1	0	0	0	0	11	52	787 (23%)	35 (7%)	2015 No Response; 2014, One Female NSO response; barred owl male in Sept.	NLAA	**Low Priority Site** based on the low pair occupancy and low reproductive success. The female was not detected enough times to qualify as a resident singe. Adverse effects are not anticipated because NRF would not be removed or downgraded and NRF would not be treated in the core area.
1836A[4]	1,152 (34%)	53 (11%)	7	2	0	11	1	0	6 (11%)	48	63	289	1,145 (34%)	51 (10%)	No NSO Response 2014/2015	LAA	**High Priority Site** based on historically high pair occupancy and reproductive success. The most recent activity (2006) was at the original site. Vegetation treatments avoided NRF downgrade and removal within the home range and core areas. up to 9 acres of NRF removal within home range from road construction. These 9 acres spread out in 6 small (less than 2.5 acres) road segments and landings. Approximately 6 of these acres are in high habitat suitability (RHS). The road segments are small in scope and are not expected to affect reproduction of future owls at this site.
1836O[4]	1,099 (32%)	307 (62%)	9	0	0	12	4	0	0	92	58	228	1,090 (32%)	307 (62%)			

Table 10. NSO Sites Affected by the Proposed Action

Site	Pre-treatment NRF Habitat[1] (acres)/%		NRF Habitat Reduced[2] (acres)			Dispersal Removed (acres)			T&M in Core (acres)/%		T&M in Home Range (acres)		Post-Treatment NRF Habitat (acres)/%		Site Status in 2014/ 2015[3]	Effects	Effects Determination Summary
	HR	Core	HR	Core	NP	HR	Core	NP	NRF	Disp	NRF	Disp	HR	Core			
2232O[4]	1,666 (49%)	335 (67%)	**112**	0	0	4	0	0	5 (1%)	1	93	197	**1,554 (46%)**	**335 (67%)**	No NSO Response 2014/2015 (barred owl early Sept. 2015)	**LAA**	**High priority** site based on historically high pair occupancy and reproductive success. NRF downgrade (111 acres) is proposed in Roosting/foraging habitat in high habitat suitability (RHS) to promote future structural diversity and promote the development of NRF (Mck. 1) habitat conditions. Downgrade is also proposed in areas of low habitat suitability (RHS) and on the ridges for forest health, ecological enhancement, and to increase stand resiliency from fires, insects, and drought**.** One acre of RF removal from road construction. The NRF reduction **Not anticipated to affect occupancy and reproduction because this site will stay above thresholds post-treatments.**
2401O[4]	1,052 (31%)	155 (31%)	0	0	0	3	0	0	0	15	59	172	1,052 (31%)	155 (31%)	No response 2015; One unknown Strix. Response 2014	NLAA	**High Priority Site** based on historically high pair occupancy and reproductive success. Adverse effects are not anticipated because NRF would not be removed or downgraded within the home range and NRF would not be treated within the 0.5 mile core area.

Table 10. NSO Sites Affected by the Proposed Action

Site	Pre-treatment NRF Habitat[1] (acres)/%		NRF Habitat Reduced[2] (acres)			Dispersal Removed (acres)			T&M in Core (acres)/%		T&M in Home Range (acres)		Post-Treatment NRF Habitat (acres)/%		Site Status in 2014/ 2015[3]	Effects	Effects Determination Summary
	HR	Core	HR	Core	NP	HR	Core	NP	NRF	Disp	NRF	Disp	HR	Core			
3648O[4]	1,716 (50%)	203 (41%)	0	0	0	1	0	0	0	27	69	125	1,716 (50%)	203 (41%)	2015, one NSO male response; 2014 one male NSO response once and barred owl pair w/ young	NLAA	**Low Priority Site** based on the low pair occupancy and reproductive success. Adverse effects are not anticipated because NRF would not be removed or downgraded within the home range and NRF would not be treated within the 0.5 mile core area. Male not heard or seen enough times and not enough visits in 2014/2015 to meet resident single status.
3941O	755 (22%)	25 (5%)	0	0	0	1	0	0	0	0	11	53	755 (22%)	25 (5%)	No NSO Response 2014/2015	NLAA	**Low Priority Site** based on the low pair occupancy and reproductive success. Adverse effects are not anticipated because NRF would not be removed or downgraded within the home range and NRF would not be treated within the 0.5 mile core area. The site center and nest patch, and the majority of the core is on private lands.
4066A[4]	576 (17%)	123 (25%)	0	0	0	1	0	0	0	0	69	71	576 (17%)	123 (25%)	No NSO Response 2014, 2015	NLAA	**High Priority Site** based on historically high pair occupancy and reproductive success. Adverse effects are not anticipated because NRF would not be removed or downgraded within the home range and NRF would not be treated within the 0.5 mile core area. Alternate nest is on private and 100 acres on private in the core were recently logged
4066O	713 (21%)	72 (14%)	0	0	0	1	0	0	0	0	29	0	713 (21%)	72 (14%)			

Table 10. NSO Sites Affected by the Proposed Action

Site	Pre-treatment NRF Habitat[1] (acres)/%		NRF Habitat Reduced[2] (acres)			Dispersal Removed (acres)			T&M in Core (acres)/%		T&M in Home Range (acres)		Post-Treatment NRF Habitat (acres)/%		Site Status in 2014/ 2015[3]	Effects	Effects Determination Summary
	HR	Core	HR	Core	NP	HR	Core	NP	NRF	Disp	NRF	Disp	HR	Core			
FS1993	553 (16%)	74 (15%)	3	0	0	3	1	0	6 (8%)	1	47	85	550 (16%)	74 (15%)	2015 –male heard once during BLM surveys (not resident single); 2014 – not surveyed	LAA	**Low Priority Site** based on the low pair occupancy and reproductive success. Vegetation treatments avoided NRF downgrade and removal within the home range. 3 acres of NRF removal in the home range from road construction in low habitat suitability (RHS) and on a ridge.
FS2001[4]	1,829 (54%)	460 (93%)	0	0	0	0	0	0	0	0	0	11	1,829 (54%)	460 (93%)	Not Surveyed	NLAA	**Low Priority Site** based on the low pair occupancy and reproductive success. Adverse effects are not anticipated because NRF would not be removed or downgraded within the home range and NRF would not be treated within the 0.5 mile core area.
FS2002[4]	1,944 (57%)	336 (68%)	0	0	0	0	0	0	0	0	0	63	1,944 (57%)	336 (68%)	Not Surveyed	NLAA	**Low Priority Site** based on the low pair occupancy and reproductive success. Adverse effects are not anticipated because NRF would not be removed or downgraded within the home range and NRF would not be treated within the 0.5 mile core area.

1- NRF on federal lands/ percent of habitat within the total home range
2- NRF reduced = NRF removed or downgraded from the proposed action
3- Six visits were made in 2014 and only 3 visits in 2015. More historical data in AppendixD.
4 – Site centers are within Critical Habitat

Effects from Disturbance
Mandatory PDC restricting activities during the breeding season and within recommended disturbance distance thresholds will be incorporated into the Nedsbar Project (Appendix A). The Jack-Ash trail construction is outside Mandatory PDC distances. 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 678 acres of spotted owl habitat outside of the home ranges of the historic spotted owl sites within the Nedsbar Project. These acres are a subset of the total project acres listed in table 8 above. The Jack-Ash trail construction in NSO habitat only occurs within spotted owl home ranges. See Table 11 for a summary of the effects by habitat type.

Table 11. Effects to NSO Habitat Outside of Known Home Ranges

	NRF Removed (acres)		NRF Downgraded (acres)		NRF T&M (acres)		Dispersal-Only Removed (acres)	Dispersal-Only T&M (acres)	Total Acres Treated
	NRF[2]	RF[3]	NRF[2]	RF[3]	NRF[2]	RF[3]			
Nedsbar Project	0	101	0	172	0	9	218	178	**678**

As noted above, enough habitat exists that could support up to four pairs of owls in the action area outside of the home ranges within the 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. To date, no owls have been found in these locations. Spotted owl protocol surveys will continue in 2016 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 adverse effects to newly detected spotted owls, or reinitiate consultation.

No adverse effects are anticipated to these potentially occupied habitat areas because the BLM would take actions to reduce adverse effects if owls are located in the future. These changes could include dropping units within home ranges, cores, and nest patches. The BLM could also modifying units to change prescriptions to treat and maintain habitat from the original removal or downgrading of habitat. Site specific analysis would be done if owls are located in the future to determine what unit modifications are needed to avoid adverse effects to spotted owls and to determine if reinitiation of consultation is necessary.

4.2.4 Effects to Barred Owls/Spotted Owl Interaction

Available evidence suggests that the presence and distribution of barred owls may affect habitat quality for spotted owls (Wiens 2012 and Yackulic et al. 2012). Additionally, many studies suggest that the two species compete for resources and maintaining older, high quality forest habitat may help spotted owls persist, at least in the short-term. There are no known forest conditions that give spotted owls a competitive advantage over barred owls. While not common, Wiens (2012) did find spotted owls and barred owls occupying the same territories concurrently. It is also not known if forest habitat removal directly results in a range expansion of barred owls (USDI FWS 2013).

As mentioned above, Ashland surveyed for RA 32 (structurally complex forest) within the Nedsbar project area and identified 20 acres of RA32 habitat. All 20 acres of RA 32 habitat, as well as 418 acres NRF (McKevley 1) habitat were deferred from treatment under this project. The intent of RA 32 is to maintain the older and more structurally complex multi-layered conifer forests on federal lands in order to not further exacerbate the competitive interactions between spotted owls and barred owls. Since Ashland is not proposing to treat structurally complex forest and is retaining additional NRF habitat within the project area, the likelihood that inter-species competition would be exacerbated as a result of this project would be minimal. Some competitive interactions are still anticipated to occur since barred owls have been observed in the action area. Barred owls have been recorded when detected during spotted owl surveys. Since NSO surveys started again in 2014, barred owls have been detected at sites 0097O, 0973O, 2232O, and 3648O. In 2014, a barred owl pair with young was detected near BLM site 3648O. Of these four sites with barred owl activity, treatments resulting in adverse effects to spotted owls are only proposed at site #2232O. However, no spotted owls have been observed at this site during 2014 and 2015 survey visits.

4.3 Effects to Northern Spotted Owl Critical Habitat

There are portions of the Nedsbar Project within the 2012 designated critical habitat. Table 12 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).

Table 12. Effects to NSO Critical Habitat from the Proposed Actions

	NRF Removed (acres)		NRF Downgrade (acres)		NRF T&M (acres)		Dispersal-Only Removed (acres)	Dispersal-Only T&M (acres)	Total Habitat Acres Treated
	NRF[1]	RF[2]	NRF[1]	RF[1]	NRF[1]	RF[2]			
KLE-6 (baseline acres from Table 7)	46,770						134,997		
Nedsbar Project	0	7	0	234	0	246	20	817	1,324
Jack-Ash Trail	0	0	0	0	1	0	0	1	2
TOTAL KLE-6	**0**	**7**	**0**	**234**	**1**	**246**	**20**	**818**	**1,326**
% Change to KLE-6 Baseline Habitat	**- 0.01%**		**- 0.5%**		**No Change**		**- 0.01%**	**No Change**	

1- NRF = Nesting/Roosting/Foraging (McKelvey 1) - PCE #2
2- RF = Roosting /Foraging (McKelvey 2) - PCE #3
3- All Dispersal Baseline (Dispersal-only + NRF)

4.3.1 Effects from NRF Removal and NRF Downgrade

The Nedsbar Project would remove seven acres of RF habitat (from road and landing construction) and would downgrade 234 acres of roosting/foraging habitat in critical habitat subunit KLE-6. No NRF (Primary Constituent #2) would be removed or downgraded within critical habitat.

As shown in Table 12, most of the NRF habitat acres are actually RF habitat, but the proposed actions would contribute to a 0.5 percent reduction of the suitable baseline NRF habitat that combines NRF and RF habitat. Treatments proposed to downgrade RF habitat (Primary Constituent #3) in CHU would be designed to improve habitat within high habitat suitability (according to the relative habitat suitability model) in the long-term, improve stand resiliency, or improve ecological needs of the stand that are not in conflict with spotted owl 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). Table 13 contains a summary of the rationale for each downgrade unit within critical habitat.

The Nedsbar Project contains stands with noticeable Douglas-fir mortality occurring in pockets and on ridge tops. This mortality is a result from high competition for resources (because of high density levels and limited resources), which has also made the trees more vulnerable to insects/diseases. Treatments in critical habitat are designed to reduce stand densities to increase tree vigor and resiliency to insects/disease/drought/fire conditions in remaining trees. Treatments in stands that are located in roosting/foraging habitat and in high habitat suitability (according to the Relative Habitat Suitability Model) are designed to increase diameter growth, create multi-layered structure, promote structural and species diversity, and place stands on a faster trajectory towards NRF habitat. Currently these stands are simple, single-storied stands that lack horizontal and vertical diversity important for spotted owl nesting habitat.

Table 13. Critical Habitat RF (McKelvey 2) Downgrade Summary by Nedsbar Treatment Unit

Unit Number	Rationale
19-20A/D	Selective Thinning with groups to promote structural and species diversity and put stand on a faster trajectory towards NRF habitat. Create multi-layered structure. Downgrade is proposed in areas of high habitat suitability (RHS) to create more stand structure and diversity in the future and promote the development of NRF (McKelvey 1) habitat conditions. Downgrade is proposed in areas of low habitat suitability (RHS) and on the ridges for forest health; ecological enhancement; and increased stand resiliency to fires, insects, and drought.
23-30A/B	Selective Thinning with groups to promote structural and species diversity and put stand on a faster trajectory towards NRF habitat. Create multi-layered structure. Downgrade is proposed in areas of high habitat suitability (RHS) to create more stand structure and diversity in the future and promote the development of NRF (McKelvey 1) habitat conditions. Downgrade is proposed in areas of low habitat suitability (RHS) and on the ridges for forest health; ecological enhancement; and increased stand resiliency to fires, insects, and drought.
23-31A	Selective Thinning with groups to promote structural and species diversity. Downgrade is proposed in areas of low habitat suitability (RHS) and on the ridges for forest health; ecological enhancement; and increased stand resiliency to fires, insects, and drought.

Table 13. Critical Habitat RF (McKelvey 2) Downgrade Summary by Nedsbar Treatment Unit

Unit Number	Rationale
25-30	Same proposal as unit 23-31A; low habitat suitability (RHS).
26-30A/c	Selective Thinning with groups to promote structural and species diversity and put stand on a faster trajectory towards NRF habitat. Create multi-layered structure. Downgrade is proposed in areas of high habitat suitability (RHS) to create more stand structure and diversity in the future and promote the development of NRF (McKelvey 1) habitat conditions. Downgrade is proposed in areas of low habitat suitability (RHS) and on the ridges for forest health; ecological enhancement; and increased stand resiliency to fires, insects, and drought.
27-33A	Same proposal as unit 23-31A; low habitat suitability (RHS).
27-34A	Selective Thinning with groups to promote structural and species diversity and place stand on a faster trajectory toward NRF habitat. Create multi-layered structure. Downgrade is proposed in areas of high habitat suitability (RHS) to create more stand structure and diversity in the future and promote the development of NRF (McKelvey 1) habitat conditions.
34-30C	Group Selection to break up single layer, dense, homogenous stand type. Create multi-layered structure and promote species diversity by allowing space/light for regeneration (e.g., pine, cedar, oak). Downgrade is proposed in areas of high habitat suitability (RHS) to create more stand structure and diversity in the future and promote the development of NRF (McKelvey 1) habitat conditions.
35-30A	Same proposal as unit 23-31A; low habitat suitability (RHS).
35-30B	Same proposal as unit 23-31A; low habitat suitability (RHS).
35-31A	Same proposal as unit 23-31A; low habitat suitability (RHS).
35-32	Selective Thinning with groups to promote structural and pine restoration. Downgrade is proposed on a ridge in area of low habitat suitability (RHS).
RT-27E	Same proposal as unit 27-34A; high habitat suitability (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. 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 14).

Table 14. Pre- and Post-Treatment NRF Habitat Amounts in 500-acre Critical Habitat Analysis Areas

Project	CHU Subunit	NRF Reduced (acres)	NRF Pre-Treatment (acres)	NRF Post-Treatment (acres)	Percent Change	Effect to CH
Nedsbar	KLE-6	78[1]	351	273	- 22%	LAA

1 = Includes NRF Downgrade from unit 27-34A and portions of other NRF downgrade units within the 500-acre circle (total of 78 acres).

Based on the 500-acre analyses the Medford District has determined the NRF downgrade associated with the Nedsbar Project in the KLE-6 subunit 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). The proposed treatments are likely to decrease flying squirrel abundance by removing mid-story and overstory structure (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 downgrade 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 to critical habitat anticipated from the project (see below).

4.3.2 Effects from NRF Treat and Maintain

The BLM has determined that treating and maintaining 247 acres of NRF habitat (1 acre of NRF/ 246 acres of RF) in critical habitat would 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 classify the stand as NRF would remain post-treatment. Table 12 shows that most of these NRF acres are actually in RF habitat (PCE #3) and only one acre of treatment from the Jack-Ash Trail project would 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 ft^2/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 would remain post-treatment.
- No spotted owl nest trees would be removed.

4.3.3 Effects from Dispersal Habitat Removal

The Nedsbar Project would remove 20 acres of dispersal-only habitat in critical habitat subunit KLE-6 from road and landing construction. The removal of seven acres of NRF habitat (see section 4.3.1) that also serves as dispersal habitat would, when combined with the removal of dispersal-only habitat, contribute to a reduction of suitable dispersal habitat (Primary Constituent #4) in critical habitat. The BLM has determined the removal of 20 acres of dispersal-only habitat may affect, and would **likely adversely affect (LAA)** spotted owl critical habitat because it would result in a measurable removal of a primary constituent element. However, the removal of dispersal habitat (NRF + dispersal-only) would not affect the intended north-south and east-west connectivity conservation function of this subunit because it would result in a reduction of 0.02 percent of the dispersal habitat within subunit KLE-6. Additionally, the landing and temporary route 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. Forest landscapes traversed by dispersing owls typically include fragmented mosaics of roads, clear-cuts, and 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 27 acres of dispersal habitat (NRF + dispersal-only) within critical habitat from the Nedsbar project would result in a reduction of 0.05 percent in the Little Applegate River fifth field watershed and 0.01 percent in the Upper Applegate River fifth field watershed. As shown in Table 5, over 50 percent of these watersheds currently provide dispersal habitat for spotted owls. One acre of dispersal-only habitat removal in subunit KLE-6 is also located in the Bear Creek fifth field watershed, which is the only watershed with less than 50 percent of the watershed providing dispersal habitat. However, the removal of one acre would result in a 0.001 percent reduction in dispersal habitat (NRF+ dispersal-only) at the fifth field watershed scale.

4.3.4 Effects from Dispersal Treat and Maintain

The District has determined the proposed maintenance of 818 acres of dispersal-only habitat within critical habitat would have an insignificant effect to spotted owl critical habitat and is **not likely to adversely affect (NLAA)** critical habitat because the treatment would 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 more post-treatment.
- Decadent components important to owls, such as large snags, large down wood, and large hardwoods, would be retained.
- The proposed treatments would be distributed in relatively small patches within the CHU to further minimize the potential for adversely affecting stand characteristics for dispersal habitat.

4.3.5 Effects to Critical Habitat Subunit KLE-6

The proposed removal and downgrade of NRF and removal of dispersal habitat within critical habitat subunit KLE-6 would not alter the intended subunit function of providing demographic support for spotted owls because only two of the 80 total historic spotted owl sites in this critical habitat subunit would be adversely affected by the proposed action (see footnote in Table 10 for sites located in critical habitat). However, based on recent surveys, these two sites are likely unoccupied.

Even with the removal of NRF and dispersal-only habitat, the proposed action would not affect the intended conservation function of north-south and east-west connectivity between subunits and critical habitat units because the proposed removal of NRF habitat and dispersal-only habitat would result in a reduction of 0.02 percent of the dispersal habitat (NRF + dispersal-only habitat) within subunit KLE-6. Habitat supporting the transience phase of dispersal contains stands with adequate tree size and canopy cover to provide minimal foraging opportunities and protection from avian predators. This may include younger and less diverse forest stands, such as even-aged, pole-sized stands, than foraging habitat 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).

4.3.6 Beneficial Effects to Critical Habitat

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

- Thinning in RF and dispersal-only habitat would accelerate growth, improve future foraging conditions for spotted owls, and promote the development of structurally complex forest conditions. See Appendix Table B-1 for a description of stand improvement that would occur over time in the Nedsbar Project.
- 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, as well as mortality from insects and disease. Treatments would result in more vigorous trees that are less susceptible to insects and disease.

- Treatments would increase survivability and vigor of more drought- or fire-tolerant species (pines, cedars, hardwoods) on ridge tops and in areas where site conditions do not favor Douglas-fir, or Douglas-fir is suppressing the 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 Action 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 would 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 (under NRF treat and maintain conditions), 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 prescriptions in this BA would retain cover that would be used by flying squirrels. Removal and downgrade treatments may reduce flying squirrel densities. The proposed actions in the Nedsbar Project remove or downgrade 394 acres of NRF habitat. 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. 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.

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 Klamath and Western Cascades provinces is 0.5-mile (or 500 acres) around 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 Nedsbar 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, biomass removal, slashing, and burning, and slashing, but vary according to post-treatment conditions, fuels management objectives, requirements for coarse woody debris retention, and other resource management goals.

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. Updates to habitat from post-harvest monitoring of recent BLM timber sales within the Nedsbar Action Area have been included in this Biological Assessment.

The Nedsbar 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 Practices Act Rules (OAR 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 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 July 1, 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 Nedsbar Project also follows the intent of other Recovery Actions listed in the Revised Recovery Plan, such as Recovery Actions 6, 10, and 32.

Recovery Action 6
Approximately 417 acres of young stand thinning treatments (dispersal and capable habitat) planned in the Nedsbar project would accelerate the development of structural complexity and biological diversity and would meet Recovery Action 6.

Recovery Action 10
The BLM worked to meet the intent of Recovery Action 10 by planning the projects 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 project 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 (Table 15) categories based on occupancy and reproductive success data.

Of the 13 sites within Nedsbar project, six 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 conserve these high priority sites by avoiding adverse effects that could affect spotted owl breeding and survival. The intent was to avoid or significantly reduce the amount of NRF habitat removal or downgrading within the home range. While some adverse effects are anticipated at six 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 breeding seasons, only small amounts of NRF habitat would be removed from road/landing construction, or downgrading NRF would not drop available NRF below critical levels at the home range. The project core teams 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 seven sites within the project rated as low in the RA10 prioritization because of the poor NSO occupation history. The objectives at these sites were enhance these sites in order 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.

The Jack-Ash trail project reduced adverse effects to spotted owl sites by eliminating new trail construction within nest patches.

Table 15. Nedsbar RA 10 Site Summary

Site	RA 10 Priority	Effects	RA 10 Treatment Strategy/Rationale
0097O	HIGH	NLAA	No NRF Downgrade or removal within the home range and only 1 % of the existing NRF in the core area would be treated.
0875O	HIGH	NLAA	No NRF Downgrade or removal within the home range and no NRF treated within the 0.5 mile core area.
0957O	LOW	NLAA	No NRF Downgrade or removal within the home range and no NRF treated within the 0.5 mile core area
0973O	LOW	NLAA	Same as 0957O
1836A/O	HIGH	LAA	Vegetation treatments avoided NRF downgrade and removal within the home range and core areas. 9 acres of NRF removal within home range from road construction. These 9 acres spread out in 6 small (less than 2.5 acres) road segments and landings.
2232O	HIGH	LAA	112 acres of Roosting/Foraging downgrade would occur in the home range, but outside of the core area. Post-harvest, the NRF thresholds within the home range would be at 46%. Downgrade is proposed in areas of high habitat suitability (RHS) to create more stand structure and species diversity in the future and promote the development of NRF (Mck. 1) habitat conditions. Downgrade is proposed in areas of low habitat suitability (RHS) and on the ridges for forest health, ecological enhancement, and to increase stand resiliency from fires, insects, and drought.
2401O	HIGH	NLAA	Same as 0957O
3648O	LOW	NLAA	Same as 0957O
3941O	LOW	NLAA	Same as 0957O
4066A/O	HIGH	NLAA	Same as 0957O
FS1993	LOW	LAA	Vegetation treatments avoided NRF downgrade and removal within the home range. 3 acres of NRF removal in the home range from road construction in low habitat suitability (RHS) and on a ridge. 6 acres of NRF treat and maintain on the edge of the core area.
FS2001	LOW	NLAA	Same as 0957O
FS2002	LOW	NLAA	Same as 0957O

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 to not 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 field evaluations have been completed in the project. Approximately 20 acres have been identified in three patches (five to ten acres) in the Nedsbar project. No harvest activities, fuels reduction treatments, road construction, yarding corridors, or skid roads are planned to occur within RA32 stands. 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 Nedsbar Project and concurrence for the Jack-Ash Trail Project.

Table 16. Effects Determination Summary

Project	Effects to NSO	Effects to NSO CHU
Nedsbar	LAA	LAA
Jack-Ash Trail	NLAA	NLAA

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Appendix A: Project Design Criteria (PDC)

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

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.

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 A-1 distances from spotted owls are expected to have either negligible effects or no effect to spotted owls. The types of reactions that spotted owls could have to noise that the Service considers to have a negligible impact, include flapping of wings, the turning of a head 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.

Appendix B: Detailed Prescriptions and Descriptions

Nedsbar Project

Selective Thinning
There are two types of selective thinning prescriptions proposed in the Nedsbar 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 will be a combination of thinning with groups or openings to the extent or amount recommended by vegetation type and/or plant series that currently 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 will have a wide range of basal area or tree spacing targets based on stand types and conditions. The amount and size of openings created will depend on vegetation types (PP, DF) and current stand development stages. Opening size will range from 0.10-0.25 acre where fire resilient and drought tolerant species need release to reduce competition. Opening size will range from 0.25-0.50 acre where regeneration will be encouraged or where poor crown conditions exist (weakened and suppressed trees). The extent or amount of openings permitted will 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 older characteristics will remain to maintain desired structural components for wildlife. Components with these characteristics that need to be felled for operational or safety purposes will be left on site as where feasible to meet CWD. In addition to such stand features, rock outcrops, special status species sites, and seeps/wet areas will be protected.

Selective Thinning —Douglas-fir (ST/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 will be harvested to a range of 40-50 percent canopy cover and will be thinned using guidelines to reduce basal area between 100 and 130 ft^2 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—Ponderosa pine (ST/PP)
Stands that are predominantly composed of ponderosa pine or have the lowest productive site conditions will 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 will be thinned using guidelines to reduce basal area between 80 and 110 ft^2 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. Promoting shade intolerant species such as pine and oak which have been encroached by more shade tolerant species, such as Douglas-fir, is another principle purpose. Residual trees will have improved health, vigor, and growth from the added growing space, water, and nutrients that they receive. Group selection will create small openings, allowing regeneration establishment and release, will preserve legacy trees within the stand, and will remove trees of low vigor. There are two types of retention levels for group selection listed below to increase spatial heterogeneity.

- **Group Selection >40% (GS-40)**
  Stands will be harvested to a range of 40-50 percent canopy cover and will 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 0.50 acre and should not exceed 25 percent of the total treatment unit area. Opening size will range from 0.10-0.25 acre where fire-resilient and drought-tolerant species need release to reduce competition. Opening size will range from .25-.50 acre where regeneration is encouraged or where poor crown conditions currently exist (weakened and suppressed trees). Openings should be no closer than 100 feet to the next opening.

- **Group Selection >60% (GS-60)**
  Stands will be harvested to a range of 60-70 percent canopy cover and will 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 will range from 0.10-0.25 acre where fire resilient and drought tolerant species need release to reduce competition. Opening size will be no larger than 0.25 acre where regeneration is encouraged or where poor crown conditions currently exist (weakened and suppressed trees). Openings should be no closer than 100 feet to the next opening.

Density Management (DM)
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. Based on the unit location (within 0.5 mile core areas), the objective for spotted owl management will be to treat and maintain the habitat. Spacing of the residual (leave) trees will 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 will be treated to a relative density range of 0.50-0.60 as a result and will be thinned using guidelines to reduce basal area between 160 and 180 ft² per acre. Unique stand features such as snags, coarse woody debris, large hardwoods, and trees exhibiting older characteristics will remain to maintain desired structural components for wildlife. Components with these characteristics that need to be felled for operational or safety purposes will be left on site as where feasible to meet CWD

Smaller trees would be targeted for removal over larger trees. Trees targeted for removal will include those exhibiting crown decline, narrow crown widths, and those that contribute the least to the canopy layer or structural components. Trees that demonstrate these characteristics will 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 heterogeinity. 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 (SR) - Regeneration Harvest
Regeneration harvest is proposed in stands with declining growth rates or experiencing deterioration from high stand density levels, insects, disease, or other factors. The silvicultural objectives in these stands are as follows:

1) Create growing space for a new cohort of trees and/or increase the growth 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.
3) Create regeneration opportunities for species that are shade intolerant and provide long term success or survival of less prominent species (e.g.: sugar pine).

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 are 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.

Riparian Thinning (RT)
The objectives of riparian thinning treatments are similar to the objectives of density management (DM), primarily to enhance and accelerate the production of healthy trees in riparian areas. This prescription is used to implement management within specified Riparian Reserves consistent with Aquatic Conservation Strategy (ACS) objectives, while meeting site specific silvicultural objectives. Treatments would be designed to maintain or improve aquatic systems, achieving consistency with short and long term ACS objectives. The proposed treatment areas are overstocked, even-aged stands lacking structural complexity and stagnant in growth. These vegetation treatments will increase species diversity and tree vigor within dry Douglas-fir and ponderosa pine stands that exhibit uncharacteristic stand structure and species composition. Trees would primarily be thinned from below to remove the suppressed component of the stand, followed by the thinning of the main canopy to reduce density and to remove trees infected by disease or insects or otherwise declining (based on crown ratio and form). The healthiest Douglas-fir, ponderosa pine, and sugar pine would be retained. Stands will be treated to a relative density range of 0.35-0.45 as a result and will be thinned using guidelines to reduce basal area between 120 and 160 ft^2 per acre. Stands will be thinned to a canopy cover range of 50-60 percent. This will remove fuel accumulations in patches while thinning lower and middle tree layers to accelerate development of a mature multi-layered stand structure. Vegetation will be treated in designated Riparian Reserves outside of a no treatment buffer (50 ft.).

Small Diameter Thin (SDT)-Stewardship
The objectives of the small diameter thinning treatments combine the objectives of selective thinning (a commercial treatment), and understory reduction (a noncommercial treatment). This prescription is implemented with the tool of stewardship (goods for services), where the goods (merchantable material) help offset the services of understory reduction. Stewardship contracting is a treatment tool that provides a means to treat stands that may otherwise go untreated due to marginal economic feasibility. Refer to the objectives of selective thinning and understory reduction.

Dry-Douglas-fir stands will be treated to a relative density range of 0.30-0.40 as a result and will be thinned using guidelines to reduce basal area between 100 and 130 ft^2 per acre. Ponderosa pine stands will be treated to a relative density range of 0.25-0.35 as a result and will be thinned using guidelines to reduce basal area between 80 and 110 ft^2 per acre. Stands will be thinned to a canopy cover range of 35-50

percent. Understory reduction consists of cutting small trees (generally less than 8 inches DBH for conifer and less than 12 inches DBH 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. Small diameter thinning increases tree growth rates and promotes horizontal and vertical structural heterogeneity in stands. Small diameter thinning is also used in stands where pines and shade-intolerant hardwood species are diminishing in vigor and numbers because of overcrowded stand density conditions.

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”.

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

Table B-1 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) 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 B-1 Current and Future Stand Conditions and Effects on Habitat

	QMD (inches)	BA (ft^2)	TPA	Crown Ratio (%)	Canopy Cover (%)	Relative Density
Dispersal Maintain (936 acres)						
Current Conditions	11.5	272	380	31	84	0.89*
30 years No Action	13.6	323	322	27	85	0.99*
Post-Treatment	20.7	107	46	40	40	0.28
30 Years Post-Treatment	23.4	136	46	37	45	0.37
Dispersal Removal (240 acres)						
Current Conditions	6.5	206	899	43	75	0.84*
30 years No Action	10.2	257	454	42	76	0.88*
Post-Treatment	21.8	111	43	40	37	0.28
30 Years Post-Treatment	24.3	135	42	38	40	0.33
Roosting and Foraging Maintain (277 acres)						
Current Conditions	16.2	227	158	30	68	0.65*
30 years No Action	18.5	270	145	26	70	0.73*
Post-Treatment	16.3	180	124	30	60	0.51
30 Years Post-Treatment	18.6	220	117	27	62	0.59*
Roosting and Foraging Downgrade (284 acres)						
Current Conditions	6.7	188	769	32	68	0.76*
30 years No Action	10.3	226	390	29	69	0.77*
Post-Treatment	19.4	130	64	25	44	0.35
30 Years Post-Treatment	21.7	162	63	23	48	0.4

*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 Nedsbar 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.

a): Stand structure 30 yr. post-treatment **b): Stand structure 30 yr. no treatment**

In summary, stands under the Nedsbar Management Project would benefit immediately from forest management treatments. These silvilcultural 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 tolerant, and increasing growing space for residual trees would result from such treatments.

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 DBH for conifer and less than 12 inches DBH 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.

Appendix C: Treatment Summaries

Table C-2 Site Effects Summary - Nedsbar

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
0097O	0	0	0	0	0	0	57	2	0	3	0	0	131	1	0
0875O	0	0	0	0	0	0	105	0	0	1	0	0	76	5	0
0957O	0	0	0	0	0	0	15	0	0	2	0	0	52	0	0
0973O	0	0	0	0	0	0	11	0	0	1	0	0	52	0	0
1836A	7	2	0	0	0	0	63	6	0	11	1	0	289	48	0
1836O	9	0	0	0	0	0	58	0	0	12	4	0	228	92	0
2232O	1	0	0	111	0	0	93	5	0	4	0	0	197	1	0
2401O	0	0	0	0	0	0	59	0	0	3	0	0	172	15	0
3648O	0	0	0	0	0	0	69	0	0	1	0	0	125	27	0
3941O	0	0	0	0	0	0	11	0	0	1	0	0	53	0	0
4066A	0	0	0	0	0	0	69	0	0	1	0	0	71	0	0
4066O	0	0	0	0	0	0	29	0	0	1	0	0	0	0	0
FS1993	3	0	0	0	0	0	47	6	0	3	1	0	85	1	0
FS2001	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0
FS2002	0	0	0	0	0	0	0	0	0	0	0	0	63	0	0

Table C-1 Treatment Summary Information

PROJECT INFORMATION		GENERAL EFFECTS						CHU EFFECTS							
RA	Project ID	NRF remove	NRF dwngrd	NRF T&M	Disp remove	Disp T&M	Total Habitat acres	CHU	Sub-Unit	NRF remove	NRF dwngrd	NRF T&M	Disp remove	Disp T&M	all CHU acres
AS	Nedsbar Timber Units	96	284	192	206	626	1,404	10	KLE6	0	234	180	0	571	985
AS	Nedsbar Forest Health Units (fuels/small diameter)	0	0	85	0	158	243	10	KLE6	0	0	66	0	107	173
AS	Nedsbar Stewardship Units	0	0	0	0	143	143	10	KLE6	0	0	0	0	130	130
AS	Nedsbar Yarding corridors (outside of units)	0	0	0	0	9	9	10	KLE6	0	0	0	0	9	9
AS	Nedsbar Landing Construction	2	0	0	5	0	7	10	KLE6	1	0	0	4	0	5
AS	Nedsbar Road Construction	12	0	0	29	0	41	10	KLE6	6	0	0	16	0	22
AS	Jack-Ash Trail Construction	0	0	1	0	2	3	10	KLE6	0	0	1	0	1	2
	Total	**110**	**284**	**278**	**240**	**938**	**1,850**			**7**	**234**	**247**	**20**	**818**	**1,326**

Appendix D NSO Site History

Table D-1: Northern Spotted Owl Sites within the Nedsbar Project Area

Site #	Survey Results					Historic Summary						Notes
	2015	2014	2013	2012	2011	# 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	
NEDSBAR												
0097O	No Response	No Response; Barred owl once	Not Surveyed			22	14	7	1996	1996	2002	4 visits 2015
0875O	No Response	No Response	Not Surveyed			24	10	2	1990	1985	2007	4 visits 2015
0957O	Not Surveyed	Not Surveyed	Not Surveyed			25	15	5	2000	2006	2006	
0973O	No Response	One Female once at night; male barred owl	Not Surveyed		1 visit, no response	13	5	0	1998	N/A	2011	3 visits 2015
1836A 1836O	No Response	No Response	Not Surveyed			21	8	2	2006	2006	2006	3 visits 2015
2232O	No Response; Single Barred owl – sept.	No Response	Not Surveyed			12	3	1	1992	1990	2007	4 visits 2015
2401O	No Response	1 unknown strix once	Not Surveyed			9	6	2	1996	1994	2002	6 visits 2015
3648O	One male heard once	One male once; barred owl pair with young	Early observations were on adjacent FS lands - Survey history unknown with limited available survey data.									2014/2015 - Male not heard enough for resident single status
3941O	No Response	No Response	Not Surveyed			1	0	0	N/A	N/A	2006	Site center is on private
4066A 4066O	No Response	No Response	Not Surveyed			12	7	3	2004	2004	2009	Alternate nest is on private and 100 acres on private in the core were recently logged

Table D-1: Northern Spotted Owl Sites within the Nedsbar Project Area

Site #	Survey Results					Historic Summary						Notes
	2015	2014	2013	2012	2011	# 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	
FS1993	Single male heard once while BLM was surveying (not Resident single)	Forest Service Site - Survey history is limited: NSO pair 1990-1994; single male in 1998. Last surveyed in 1998. Site partially burned in Quartz Fire.										
FS2001	Forest Service Site - Survey history is limited: male and female in 2001, but pair status unknown; No surveys since 2001											
FS2002	Forest Service Site - Survey history is limited: Pair early 1990s; male and female in 2002, but pair status unknown; No surveys since 2002											

Appendix E: Maps

Map 1: Nedsbar Action Area

Map2: Nedsbar Project Units by Habitat Effects

Map 3: Nedsbar Project Units by Treatment Types

Map 4: Jack-Ash Trail Project

Map 1. Neds Bar Action Area

Legend

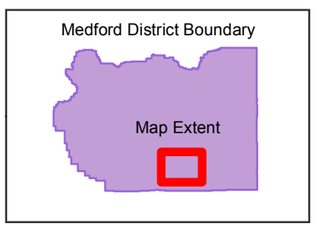
- Northern Spotted Owl Sites
- Final Action Area
- Northern Spotted Owl Critical Habitat November 2012

Pre-Harvest Habitat

- Capable
- Dispersal
- NRF
- Non-Habitat

Ownership

- Bureau of Land Management
- U.S. Forest Service
- Bureau of Reclamation
- Corps of Engineers
- Local Government
- State
- Private Individual or Company



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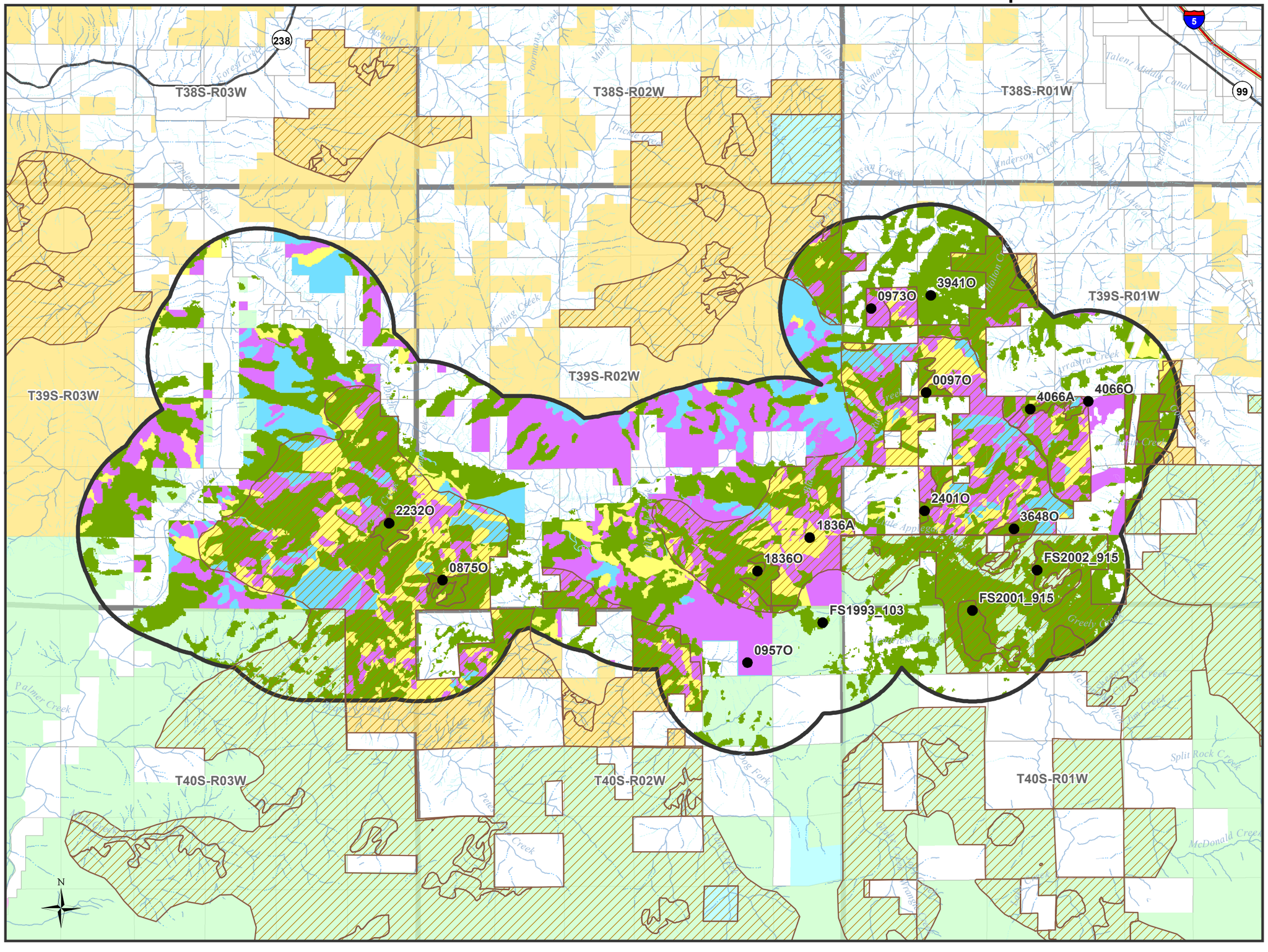
0 0.5 1 2 Kilometers



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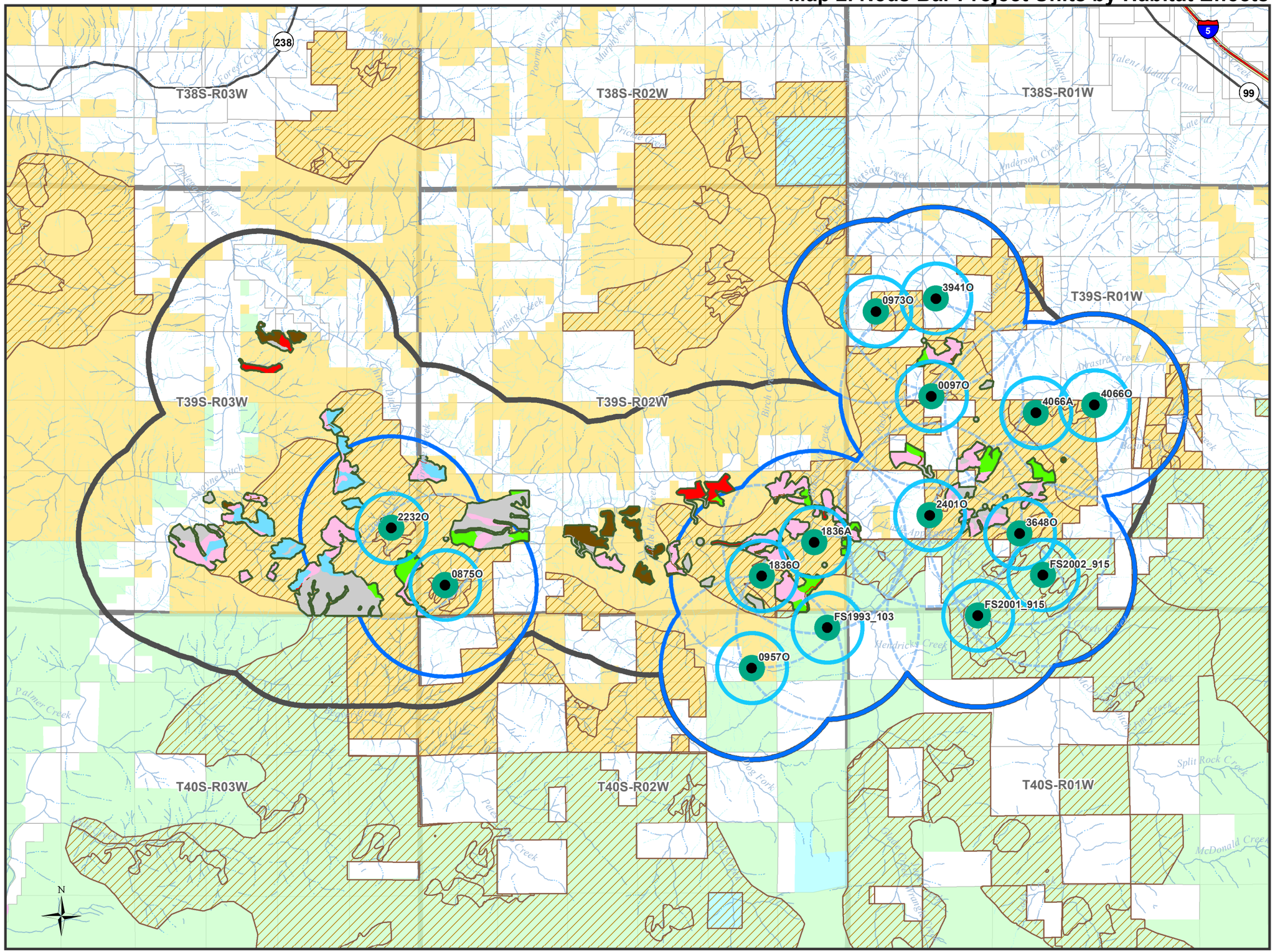
Map 2. Neds Bar Project Units by Habitat Effects



Legend

- Northern Spotted Owl Sites
- Final Action Area
- Northern Spotted Owl Critical Habitat November 2012

Northern Spotted Owl

- Nest Patch
- Owl CORE
- Owl Project Units
- Home Range

Unit Treatments

- Dispersal Maintained
- Dispersal Removed
- No Effect
- NRF Downgrade
- NRF Maintained
- NRF Removed

Ownership

- Bureau of Land Management
- U.S. Forest Service
- Bureau of Reclamation
- Corps of Engineers
- Local Government
- State
- Private Individual or Company

Medford District Boundary

Map Extent

1:85,000

0 0.5 1 2 Miles

0 0.5 1 2 Kilometers

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Map 3. Neds Bar Project Unit by Treatment

Legend

- Northern Spotted Owl Sites
- Final Action Area
- Northern Spotted Owl Critical Habitat November 2012

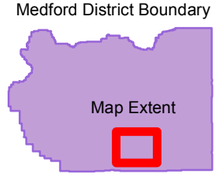
Treatment Type

- Forest Health/Fuels
- Landings
- Road Construction
- Stewardship
- Timber Sale

Ownership

- Bureau of Land Management
- U.S. Forest Service
- Bureau of Reclamation
- Corps of Engineers
- Local Government
- State
- Private Individual or Company

Medford District Boundary



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0 0.5 1 2 Kilometers

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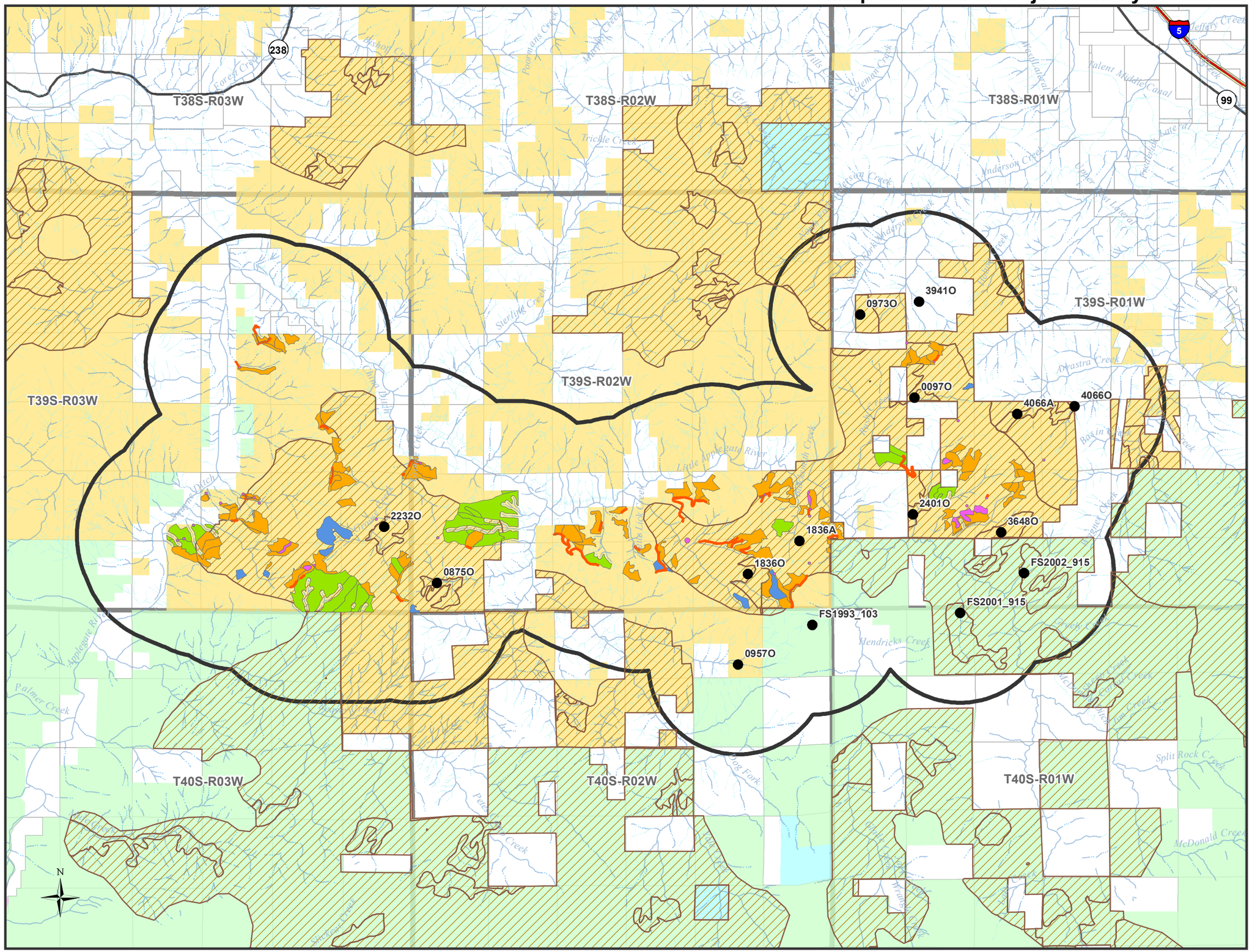
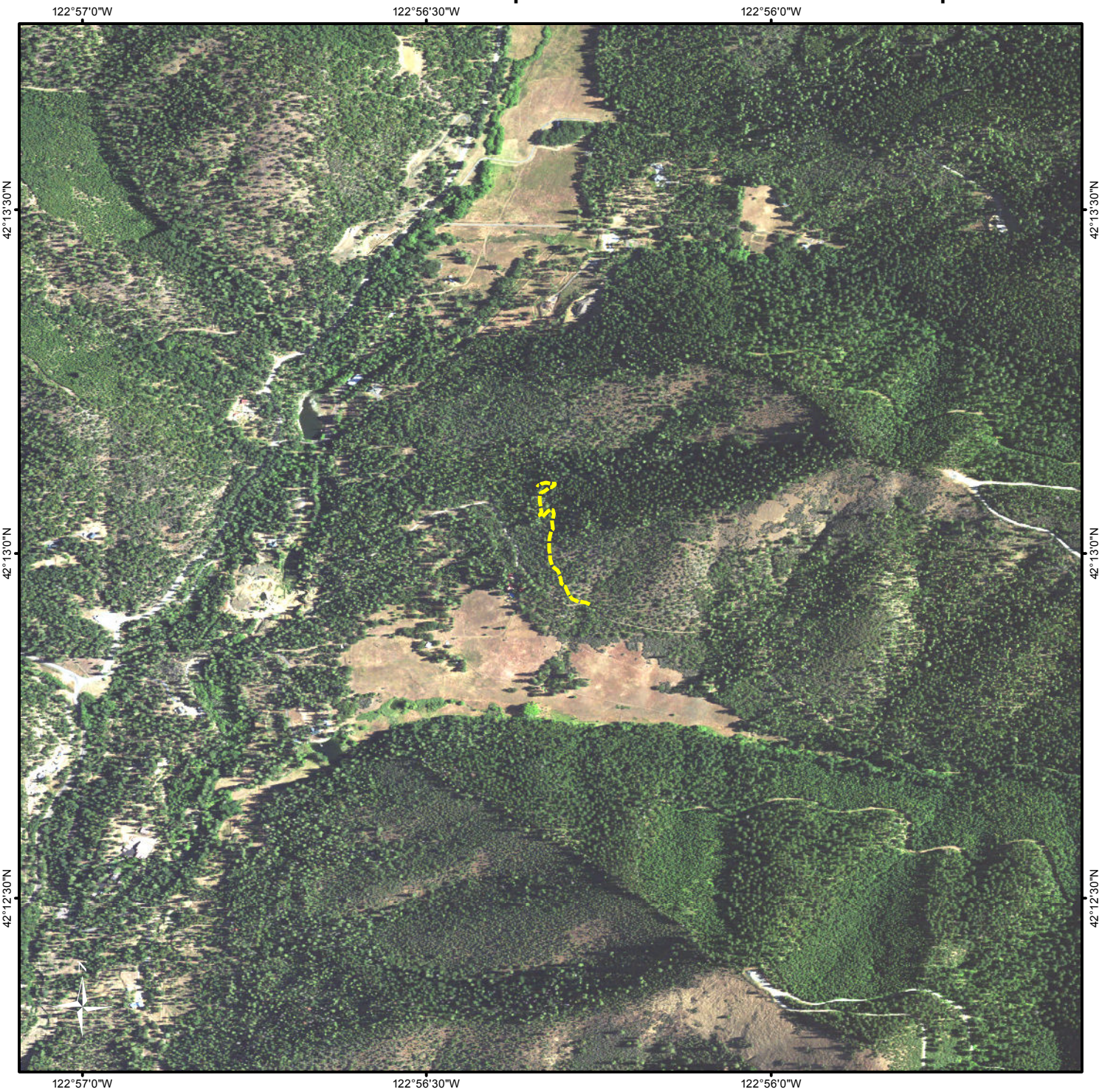


Map 4a: Jack-Ash Trail- Consultation Proposed Action



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0 0.25 0.5 1 Kilometers

Northern Spotted Owl Sites

Jack-Ash Trail Construction

Northern Spotted Owl Nest Patch

Northern Spotted Owl Core

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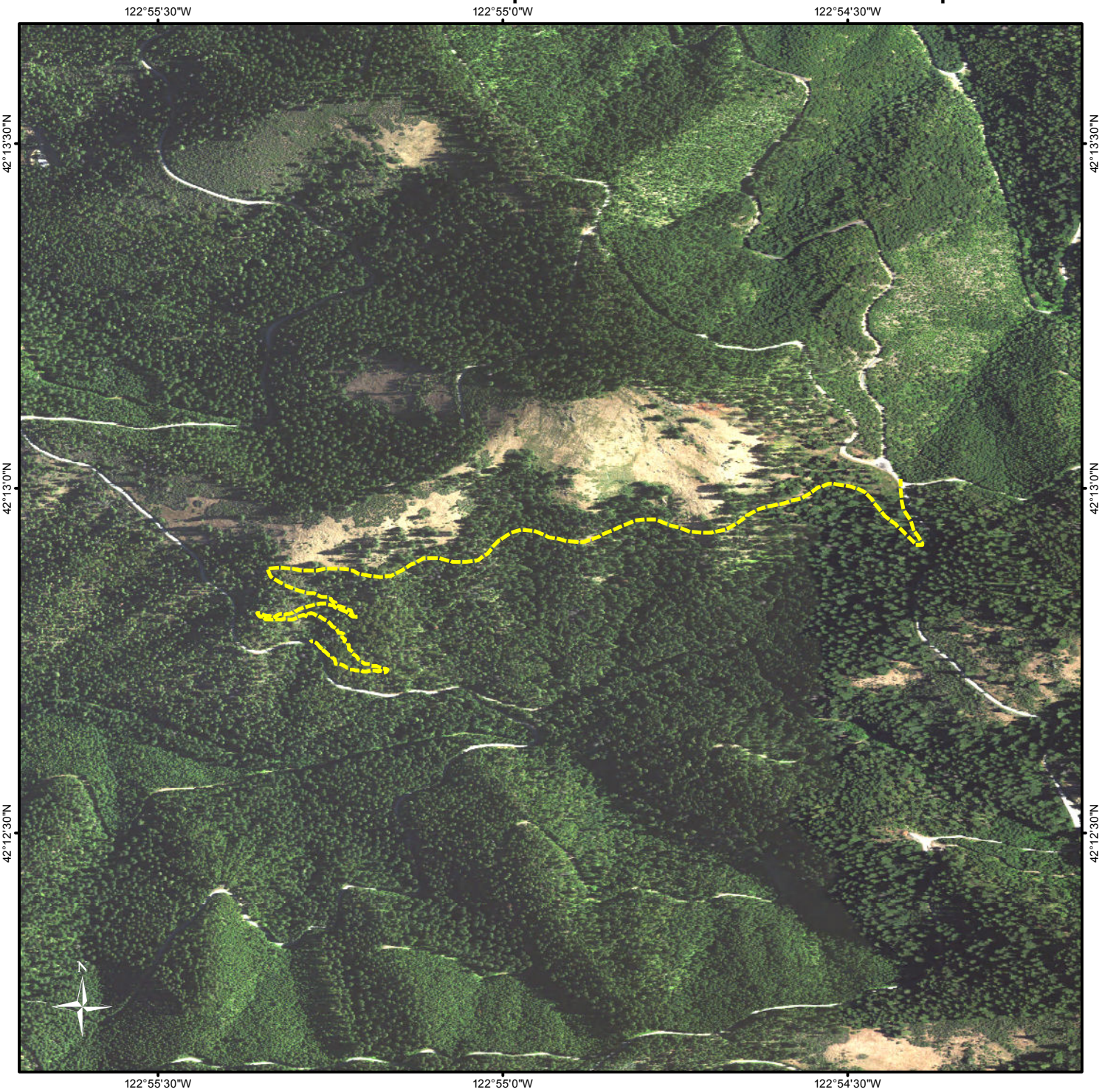
Map 4b: Jack-Ash Trail- Consultation Proposed Action



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0 0.25 0.5 1 Kilometers

Northern Spotted Owl Sites

Jack-Ash Trail Construction

Northern Spotted Owl Nest Patch

Northern Spotted Owl Core

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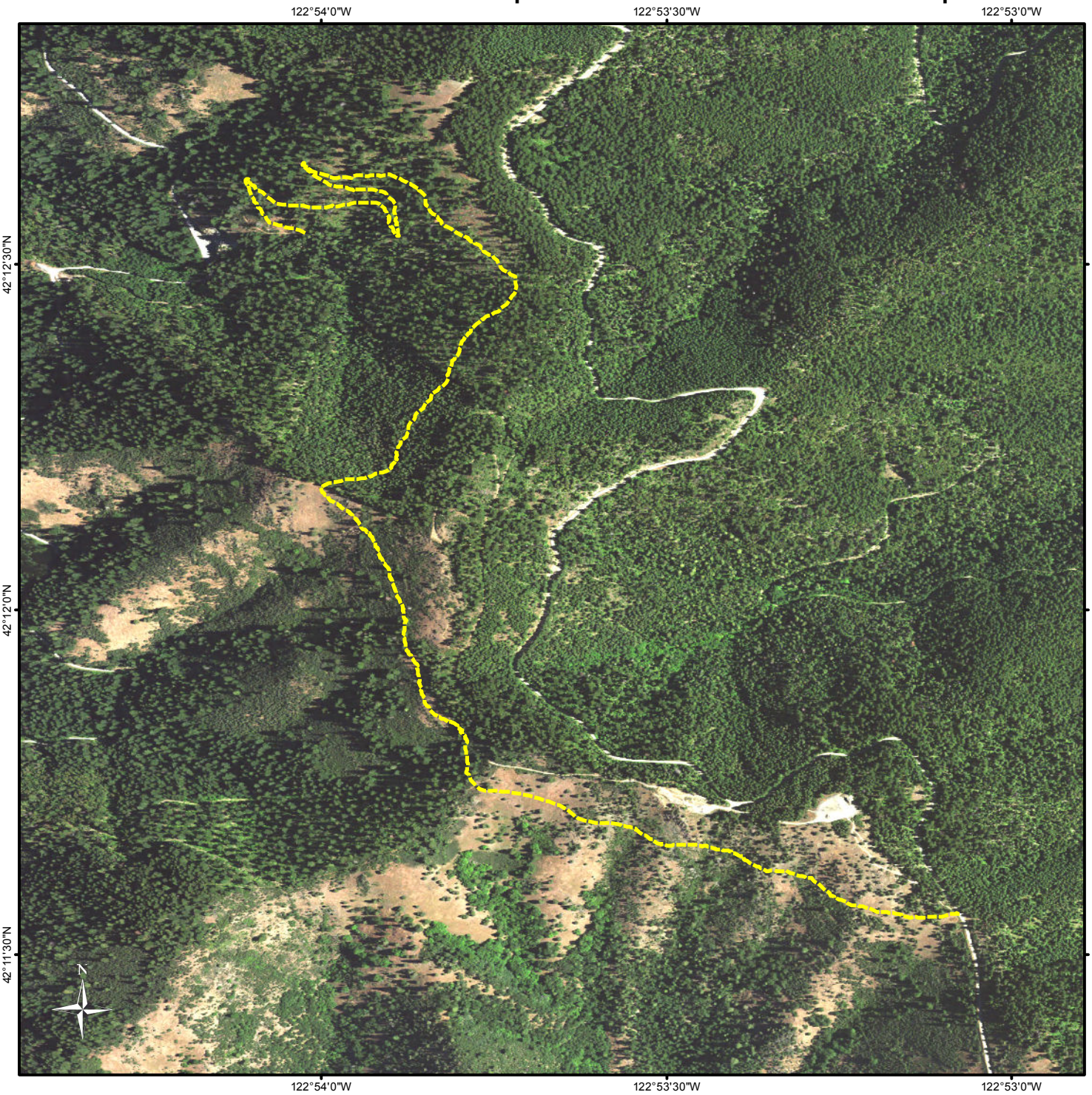
Map 4c: Jack-Ash Trail- Consultation Proposed Action



1:15,000

0 0.125 0.25 0.5 Miles

0 0.25 0.5 1 Kilometers

Northern Spotted Owl Sites

Jack-Ash Trail Construction

Northern Spotted Owl Nest Patch

Northern Spotted Owl Core

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