United States Department of the Interior

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Memorandum

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

From: District Manager, Medford

Subject: Submission of the Medford BLM Brimstone/Stratton Creek Fire Salvage, Associated Hazard Tree Removal, and Pump Chance Clearing Biological Assessment

This Biological Assessment (BA) evaluates three projects (Brimstone/Stratton Creek Fire Salvage, Associated Hazard Tree Removal, and Pump Chance Clearing) that "may affect, but are not likely to adversely affect" (NLAA) Northern Spotted Owls. The projects also have some treatment units in the 2012 revised designated northern spotted owl (NSO) critical habitat (77 Federal Register 233:71876-72068) and "may affect, but are not likely to adversely affect" (NLAA) critical habitat. No other listed wildlife species or critical habitats are affected. Listed plants and fish are evaluated under other consultation documents.

The Medford BLM Biological Assessment for the Brimstone/Stratton Creek Fire Salvage, Associated Hazard Tree Removal, and Pump Chance Clearing projects is attached. The BA also includes Appendix A which lists Project design criteria for northern spotted owls, and Appendix B, which are the proposed Action Maps, and Appendix C, a NSO Site History table.

We request concurrence from the US Fish and Wildlife Service on all projects in this BA. We look forward to working with the US Fish and Wildlife Service to meet our joint obligations under the Endangered Species Act 7(a) 1 and 7(a) 2.

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

Sincerely,

Dayne Barron
District Manager
BLM Medford District

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Biological Assessment
for the
Brimstone/Stratton Creek Fire Salvage, Associated Hazard Tree Removal, and Pump Chance Clearing Projects

(Cite as Brimstone BA)

An Assessment of Effects to the Northern Spotted Owl

Medford District
Bureau of Land Management
February 2014

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1. INTRODUCTION

The Medford District of the Bureau of Land Management (BLM) is submitting this Biological Assessment (BA) to the US Fish and Wildlife Service (Service) pursuant to Section 7 (a)(2) of the Endangered Species Act (ESA). Section 7 (a)(2) requires Federal agencies to consult with the Service to ensure their actions will not jeopardize the continued existence of any listed species or adversely modify designated critical habitats. Conservation measures described in this BA also meet obligations under Section 7 (a)(1) to conserve listed species.

This Biological Assessment (BA) describes and evaluates the potential effects from the Brimstone/ Stratton Creek Fire Salvage, Hazard Tree felling in the Brimstone/Stratton Creek fires, and Pump Chance Clearing projects. All of the projects are in the Grants Pass Resource area on the Medford District BLM.

The BLM requests concurrence for the projects we have determined may affect, and are not likely to adversely affect (NLAA) northern spotted owls or their designated critical habitat. The Stratton Creek Fire salvage unit and the Pump Chance Clearing projects are within the 2012 revised designated northern spotted owl (NSO) critical habitat (77 Federal Register 233:71876-72068). No other listed wildlife species or designated critical habitat will be affected by the activities identified in this BA.

The effects to plants are evaluated in the *Assessment of 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).* Listed fish will be evaluated separately through consultation with National Marine Fisheries Service (NMFS).

1.1 Consultation History

These projects are all new projects. However, the BLM is also working on Emergency Consultation for the Brimstone and Stratton Creek Fires, as well as the Douglas Complex and Big Windy Fires. The BLM will prepare additional biological assessments later in 2014 to cover potential salvage treatments, future roadside hazard tree removal, and imminent hazard tree removal associated with the Douglas Complex and Big Windy fires.

All projects in this BA were designed to conform to the 1995 Medford District Resource Management Plan (USDI 1995) and the Northwest Forest Plan (USDA USDI 1994a). The Brimstone/Stratton Creek Fire salvage and hazard tree removal projects covered in this BA were presented to the Southwest Oregon Level 1 team on October 30, 2013. 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. Field trips to the Brimstone /Stratton Creek Fire area were held on November 6, 2013 and January 15, 2014. The combined Roseburg District and SW Oregon Level 1 teams held meetings on December 5, 2013, and December 16, 2013 to discuss fire related consultation. After reviewing the units in the field and at the various meetings, the USFWS shared their concerns regarding one proposed Brimstone/Stratton Creek Fire salvage treatment in a mixed severity NRF stand within a 0.5 mile northern spotted owl core

area. The BLM subsequently dropped this unit from the proposed action to help ensure the project would not adversely affect northern spotted owls. Approximately 25 acres will still be treated in the 0.5 mile cores, but only in capable or dispersal habitat. Dispersal habitat would not be removed as a result of the proposed action. Level 1 team members from the Roseburg and Medford Districts, the Rogue-Siskiyou National Forest and the Roseburg Field Office of the USFWS have all reviewed this BA. All projects will be consistent with the project descriptions and PDCs described in this BA. If any changes to the proposed projects occur after the Biological Assessment has been submitted, the new proposals will be presented to Level 1 for evaluation to see if reinitiation is necessary.

1.2 Northern Spotted Owl Recovery Plan

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

The BLM is also a collaborator in Recovery Actions that address barred owl issues, such as Recovery Action 32 (RA 32). The intent of RA 32 is to maintain the older and more structurally complex multi-layered conifer forests on Federal lands in order not to further exacerbate the competitive interactions between spotted owls and barred owls. Within the administrative units of the Rogue River-Siskiyou National Forest and the Medford District BLM, an interagency, interdisciplinary team was created to develop a methodology for identifying Recovery Action 32/ structurally complex forest for project level planning and NSO consultation needs in SW Oregon. RA 32 surveys have not been completed in the Brimstone/Stratton Creek Fire Salvage area because units that burned at a high severity no longer have adequate numbers of habitat characteristics such as high canopy cover, multi-layers, large snags, large coarse woody debris, and decadence required to classify these units as RA32. However, any green tree removal locations (anchor trees, yarding corridors, etc.) will be reviewed in the field by the resource area wildlife biologist to determine if RA32 stands are present and to ensure these areas would be avoided. Surveys have not been completed for the hazard tree removal project. However, hazard tree removal locations outside of the road prism (area extending from 10 feet beyond the cut-slope to 5 feet beyond the fill slope), and within low to mixed severity areas, will be reviewed in the field to ensure they are not located within an RA32 stand. If hazard trees are located within RA32 stands the trees will be felled and left on site in the stand for coarse woody debris material. The pump chance locations occur in previously disturbed areas and based on the aerial photos, do not have habitat characteristics required to classify as RA32 stands.

Projects in this BA will also meet other Recovery Actions listed in the Revised Recovery Plan, such as Recovery Action 10 and Recovery Action 12. Projects in this BA will meet Recovery Action 10 because they have been planned to minimize effects to spotted owl sites, by dropping

treatments that would remove NRF, foraging, or post-fire foraging habitat within 0.5 mile spotted owl core areas. Projects in this BA will meet Recovery Action 12 because higher retention of snags and coarse wood are being left in the critical habitat and 0.5 mile core areas compared to BLM administered land with only matrix land use allocation management considerations (see Brimstone/Stratton Creek proposed action). Additionally, the largest snags and coarse woody debris will be targeted for retention and left in patches in order to help conserve these NSO habitat elements that take a long time to develop.

1.3 Definitions

Northern Spotted Owls

Table 1. Northern Spotted Owl Breeding Periods		
Entire Breeding Period	Critical Breeding Period	Extended Breeding Period
March 1-September 30	March 1-June 30	July 1-September 30

Nesting, Roosting, and Foraging (NRF) Habitat for the northern spotted owl consists of habitat used by owls for nesting, roosting, and foraging. Generally, this habitat is multistoried, 80 years old or older (depending on stand type and structural condition), has high canopy cover, and has sufficient snags and down wood to provide opportunities for nesting, roosting, and foraging. Other attributes include a high incidence of large trees with various deformities (e.g. large cavities, broken tops, mistletoe infestations, and other evidence of decadence), large snags, large accumulations of fallen trees and other woody debris on the ground, and sufficient open space below the canopy for owls to fly (Thomas *et al*., 1990).

In southwest Oregon, NRF habitat varies greatly, but is typified by mixed-conifer habitat, recurrent fire history, patchy habitat components, and a higher incidence of woodrats (a high quality spotted owl prey species). It may consist of somewhat smaller tree sizes. One or more important habitat components, such as dead down wood, snags, dense canopy, multistoried stands, or mid-canopy habitat, might be lacking or even absent in portions of southwest Oregon NRF. NRF habitat also functions as dispersal habitat.

The Medford BLM classifies NRF into McKelvey 1 and McKelvey 2 ratings. Mckelvey 1 generally represents Nesting habitat as described above and the basal area is typically greater than 240ft^2/acre. McKelvey 2 represents Foraging habitat and is different than nesting habitat because even though they might have larger trees and higher canopy, the stands are often single storied, lack decadent features, and have lower basal areas (greater than 150 ft^2/acre). However, for this analysis the BLM combines McKelvey 1 and McKelvey 2 ratings to equal NRF habitat.

Dispersal Habitat is a subcategory of "all dispersal" habitat for northern spotted owls. All-dispersal is defined as dispersal plus NRF. Throughout this document, "dispersal" will be used to describe dispersal-only habitat. Dispersal habitat, at a minimum, consists of stands with adequate tree size and canopy closure 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. Dispersal will be used throughout this document to refer to habitat that does not meet the criteria to be NRF habitat, but has adequate cover to facilitate movement between blocks of NRF habitat.

Post-Fire Foraging habitat for the northern spotted owl is habitat that was typed as NRF before the fire and burned at high and moderate burn severity levels (BARC soil severity data). Even with the loss of canopy cover and key habitat components, this habitat may still function as foraging habitat after the fire, depending on patch size, edge type, and proximity to known owl sites (Bond et al 2002, Bond et al. 2009; Clark 2007, Clark et al. 2011, and Clark et al. 2013).

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

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

Treat and Maintain NRF or Dispersal Habitat is the treatment defined when an action or activity in NRF or dispersal habitat removes some trees, but does not change the conditions that would classify the stand as NRF or dispersal post-treatment, as defined above. The treated stand will still function as NRF because it will continue to provide at least 60 percent canopy cover, large trees, multistoried canopy, standing and down dead wood, diverse understory adequate to support prey, and may have some mistletoe or other decay. The treated stand will still function as dispersal habitat because it will continue to provide at least 40 percent canopy cover, flying space, and an average of trees 11 inches diameter at breast height (dbh) or greater.

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

1.4 Spotted Owl Critical Habitat

Critical habitat for the northern spotted owl was designated in 1992 in *Federal Register* 57, and includes the primary constituent elements that support nesting, roosting, foraging, and dispersal. Designated critical habitat also includes forest land that is currently unsuitable, but has the capability of becoming NRF habitat in the future (57 FR 10:1796-1837). Critical habitat was revised for the northern spotted owl and the final designation was published by the USFWS in the *Federal Register* (signed on August 12, 2008, 73 Federal Register 157:47326) and became

effective on September 12, 2008. The 2008 USFWS's Critical Habitat delineations were challenged in court and the 2008 designation of northern spotted owl CHU was remanded. The USFWS was ordered to revise the CHU designation. On February 28, 2012, the Service released the proposed critical habitat in the form of maps and the draft form of the *Federal Register* publication. The proposed rule was published in the *Federal Register* on March 8, 2012 (77 *Federal Register* 46:14062-14165). The final CHU rule was published in the Federal Register on December 4, 2012 **(**77 Federal Register 233:71876-72068) and became effective January 3, 2013.

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

Primary Constituent Elements of Critical Habitat

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

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

2) **Habitat that provides for nesting and roosting.** This habitat must provide:
   a) Sufficient foraging habitat to meet the home range needs of territorial pairs of northern spotted owls throughout the year.
   b) Stands for nesting and roosting that are generally characterized by:
      (i) Moderate to high canopy cover (60 to over 80 percent),
      (ii) Multilayered, multispecies canopies with large (20- 30 in (51-76 cm) or greater dbh) overstory trees,
      (iii) High basal area (greater than 240 ft2/acre (55 m2/ha)),
      (iv) High diversity of different diameters of trees,
      (v) High incidence of large live trees with various deformities (e.g., large cavities, broken tops, mistletoe infections, and other evidence of decadence)
      (vi) Large snags and large accumulations of fallen trees and other woody debris on the ground, and
      (vii) Sufficient open space below the canopy for northern spotted owls to fly.

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

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

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

2. DESCRIPTION OF THE PROPOSED ACTION

Projects in this BA occur in Matrix land use allocation. Matrix lands are Federal lands outside of reserves and special management areas that are available for timber harvest at varying levels (USDI BLM1995, 107). Some of the identified imminent hazard trees targeted for removal are located along roads within Known Spotted Owl Activity Centers (KSOACs). The management direction of these KSOACs are to follow the objective of Late-Successional Reserves, which is to protect and enhance conditions of late-successional and old-growth forest ecosystems, which serve as habitat for late-successional and old-growth related species including the northern spotted owl (USDA USDI 1994).

We expect the projects to be implemented soon after the Letter of Concurrence (LOC) is received and National Environmental Policy Act (NEPA) compliance is completed. Some of the imminent hazard trees may have been felled already for worker or public safety. However, the dispensation of the tree will not be determined until consultation has been completed. Projects are scheduled to be implemented in Fiscal Year 2014. For consultation tracking and monitoring purposes, the Level 1 team defines implementation of timber sales as the date a project is sold. Harvest activities could take up to five years to complete. Project completion includes stand treatments for slash and reforestation

All projects are evaluated and analyzed with information current as of the date of this BA. Timber sales are administered by an Authorized Officer and Contract Administrator. All other contracts are administered at the local level by Contracting Officer Representatives (CORs) and Project Inspectors (PI) throughout implementation until the project work is completed, or

implemented by BLM staff. Timber sales also have a contract clause (E-4) that authorizes stop work when Threatened and Endangered species are found on the timber sale or to comply with court orders. If or when a spotted owl or other listed species is found in the project area the timber operators are authorized to stop the work until the issue is evaluated further. If a spotted owl is found, biologists will review PDCs and the BO (or LOC) to confirm the ESA analysis remains valid.

If a new owl site, alternative site, or other listed species is found and was not analyzed in the BA, if the project area changes from what was originally analyzed in the BA, if a site has moved, or other information is inconsistent with what is authorized, the District will coordinate with project proponents, contractors, managers, local biologists and the Level 1 team to ensure the project impacts remain consistent with the BA and the responding LOC. If not, the project will remain stopped until BLM completes one or more of the following:

- Modifies the proposed action to ensure that impacts remain as described in the consultation documents;
- Imposes seasonal protections (if necessary);
- Reinitiates and completes new consultation

2.1 Proposed Action Overview

Table 2. Proposed Action Summary

Project	Fire	Resource Area	Physiographic Province	Total Habitat Acres* (In BA)	LUA	Treatment type	Road building miles**	RA 32 Treat
Brimstone/ Stratton Fire Salvage	Brimstone /Stratton	Grants Pass	Klamath	177	Matrix	Timber Harvest	0.5	N/A
Imminent Fire Hazard Trees	Brimstone /Stratton	Grants Pass	Klamath	8	Matrix LSR	Safety	0	N/A
Pump Chance Clearing	Adjacent to Douglas	Grants Pass	Klamath	2	Matrix	Fuels	0	N/A

NA=Not applicable. No RA 32 stands will be treated
*Acres from Nov. 2013 GIS project layer and post fire habitat updates. All GIS acres are rounded to the nearest integer. Slivers less than 0.5 acres are deleted. ** Temporary road construction. *** Estimate of acres based approximate hazard trees per road mile multiplied by 0.125 acres. Individual trees haven't been identified yet.

Brimstone/Stratton Creek Fire Salvage Project

Current conditions:

Brimstone Fire

The Brimstone Fire began July 26, 2013 and burned a total of 2,298 acres across all land ownerships and 1,413 of these acres occurred on BLM land. Only 165 of the 1,413 acres burned

on BLM administered lands are proposed for salvage treatment. The fire burned with a mixed severity. Many of the lowest cooler draw bottoms experienced relatively less burn severity than upper sloped areas throughout the fire. Approximately 53% (750 acres) of the fire on BLM lands occurred in stands less than 40 years old. Elevation ranges between 1,520 and 3,480 feet. The proposed action area is within dry Douglas-fir Associations consisting mostly of Douglas-fir, ponderosa pine, sugar pine, and California black oak.

Burn Severity Determination

Burned Area Reflectance Classification (BARC) data was used to determine preliminary Soil Burn Severity. BARC data rates fire impacts on soil productivity and erosion rate, and the potential for vegetation recovery. Burn severity is delineated on maps as polygons in four classes of burn severity High, Moderate, Low and Unburned to Very Low. While the BARC data is not an exact match for vegetation mortality, high and moderate burn severity categories can be used estimate the amount of vegetation mortality as a result of the fire. Rapid Assessment of Vegetation Condition after Wildfire (RAVG) data was not available for the Brimstone/Stratton Creek fire area. RAVG can determine canopy cover and basal area loss to determine vegetation mortality.

Stratton Creek Fire

The Stratton Creek Fire began July 5, 2013 and burned a total of 154 acres across all land ownerships and 107 of these acres occurred on BLM land. The 12 acres proposed for treatment exhibited extreme fire behavior and created a stand replacement condition. The elevation ranges between 2200 and 2600 feet. Annual precipitation averages 41 inches. The proposed action area is within the Douglas-fir Plant Series in the plant association group PSME/PIPO consisting of Douglas-fir, ponderosa pine, sugar pine, and California black oak. Sprouting of California black oak was evident throughout the unit 1 month after the fire.

Imminent Hazard Tree Removal Project (*Brimstone/Stratton Creek Fires)*

Current conditions:
All of the hazard trees are typically within 1½ tree lengths of roads the BLM is responsible for maintaining within the Brimstone/Stratton Creek Fires. Extreme slopes (≥ 35%) above roads and facilities may necessitate the felling of trees up to two tree lengths. There are 17 miles of roads across all ownerships within the fire perimeters. The hazard trees are primarily scattered individual trees, but there may be areas with small clusters of trees. Before the fire, the areas were generally mixed conifer stands with varying degrees of stem densities. Because of the varying burn severities across the fire, the hazard trees may occur in all NSO habitat conditions. Hazard trees will be assessed using the Field Guide for Danger Tree Identification and Response (Toupin et al. 2008).

Pump Chance Clearing Project

Current conditions:
The project area is located between the Dad's Creek and Rabbit Mountain fires of the Douglas Fire Complex. The five pump chance locations provide water source for fire suppression and are in or adjacent to capable, NRF, or dispersal habitat. The photo below is an example of small conifers and brush that are preventing adequate access to the pump chances. Other sites have even less vegetation surrounding the sites.

Description of the Implementation Tools for Vegetation Management Projects

Treatments described in Section 2.2 will be implemented using a variety of manual and mechanical treatments. All of these implementation tools will be incorporated into the final design of proposed action and included into the effects analysis for each unit. For example, the openings created from proposed yarding corridors, landings, and roads will be assessed and added

to the potential treatment effects determination for each unit. Reinitiation will occur if the actual effects from these tools exceed our anticipated effects during analysis.

Ground based extraction: On slopes averaging < 35 percent, woody biomass and saw log material created from salvage operations would be cut, skidded, hauled or chipped to landings or road sides using low ground pressure machinery. Skidding machinery would be restricted to approved skid trails. This method requires narrow skid trails, approximately 7 to 12 feet in width as measured from the outer edges of the standard width dozer blade in the straight position (yarding tractor). Existing skid trails would be used where possible. Skid trail locations would be approximately 150 feet apart, but vary depending on the site-specific terrain, and would be pre-located and approved by the BLM contract administrator, thereby, minimizing soil disturbance. Openings from skid trails will be assessed for the overall unit effects determination.

Cable based extraction: On slopes ≥35 percent, woody biomass and saw log material created from salvage operations would be yarded to landings or road sides. Cable yarding drags trees with one end suspended and one end on the ground. Corridors would be generally less than 15 feet wide, depending on the size of trees to be removed and the terrain. Corridor locations would be pre-approved by the BLM contract administrator. Landings would generally be a minimum of 150 feet apart. Openings from corridors and landings will be included in the overall effects analysis for each project, and may include some green tree removal. When the corridor and landings are located in a unit, the additional openings will be assessed for the overall unit effects determination. However, when the landings are located outside of a unit, then those will be assessed as an extended portion of the unit or a separate unit.

Guy line anchor and tailhold trees used for anchors will likely be green trees but may be burned trees. If needed to ensure the safety of logging operations, as specified under Oregon OSHA laws, these trees may be felled and removed. Anchor trees are selected to match the size of the yarder. Trees with suitable spotted owl habitat features will be avoided when possible, and anchor trees (i.e. tailhold trees) will be left standing when feasible. Trees felled within Riparian Reserves, LSRs, Critical Habitat, and RA32 stands will remain on site. These measures will help to reduce impacts to spotted owl habitat. The effects from the loss of these trees would be NLAA since only a few trees would be cut within the larger stand. The exact number of guy or tailhold trees that would be cut is unknown, but likely several could be cut adjacent to each unit, which could be up to 50 trees for the Brimstone/Stratton Creek fire salvage project. The majority of these locations occur in spotted owl Low Relative Habitat Suitability (RHS) and outside of known nest site nest patches. As mentioned above, the effects from anchor tree removal will be considered in the overall effects analysis for the Brimstone/Stratton Creek fire salvage project.

Helicopter Based Extraction: This is an aerial system that uses helicopters to extract logs off the landscape. A cable suspended from the underside of a helicopter would be lowered to the forest floor. The cable is then attached to logs and lifted upwards until the logs are fully suspended. The logs are then flown the most advantageous path back to a large landing. Once at the landing the logs are lowered to the ground and released for processing. The typical log landing for helicopter based extraction is approximately one half acre in size. Helicopter extraction also requires service landings. These landings must be large enough to land a helicopter and have access for a fuel truck to approach the equipment for refueling. Landings proposed for this project are not located

in suitable spotted owl habitat because they occur in existing openings from previous landings, road junctions, or a rock quarries.

Access Route Construction
Access route and landing construction may be needed in treatment units where extraction of timber products is proposed. Access roads are not planned for hazard tree felling. All new access and landings constructed under these projects would be temporary and would be constructed to allow operators temporary access to harvest units. Temporary spur roads and associated landings would be ripped, seeded with native grasses, mulched, and blocked. The habitat effects from the road construction that occur outside of treatment units are analyzed as a separate treatment area and have incorporated into the total habitat effects for the project (Table 10). All other roads and openings area are within treatment units or existing road beds.

Temporary Route Construction: A temporary route is an access road constructed to minimum standards on undisturbed terrain, or existing footprints when feasible. These are intended for short-term use. Construction includes clearing, grubbing, removing, and disposing of vegetation and debris from within established clearing limits. Work also includes construction of a minimum width subgrade by excavating, placing embankment, leveling, grading, and outsloping. After use, the route would either be decommissioned (partially or fully), or obliterated. Partial decommissioning would include ripping and/or roughing up the surface, water barring, seeding, mulching and blocking. Some green tree removal will occur where the proposed temporary routes are proposed and are incorporated into the effects analysis below.

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

Opening of Existing Routes (not part of the designated transportation network system):
Existing routes are roads that have been blocked, but have a defined prism which receives no periodic maintenance. Grass and forbs may be growing on the road surface. The road would be made suitable for log haul by removing encroaching vegetation, repairing narrowed sections and blading the road surface. After use, the route would be decommissioned by ripping, water barring, seeding, mulching and re-blocking.

Conservation Measures will be implemented for all fire salvage projects which will reduce impacts to spotted owls.

- Project design incorporated historical spotted owl site information in order to minimize effects to spotted owls.
- RA 32 evaluations will be completed for all projects prior to implementation. No harvest activities, yarding corridors or skid are planned to occur within RA32 stands.

- If owls are located during surveys in previously unknown owl sites, treatments within the home range or 0.5 mile core will be modified or dropped, or will be brought forward to Level 1 to evaluate if the activity requires reinitiation of consultation.

2.2 Detailed Project Descriptions

BRIMSTONE/ STRATTON CREEK FIRE SALVAGE

Project description:

Treatments would focus on matrix commercial forest land within the fire perimeter and would follow the Medford RMP Management Direction for Salvage in Matrix. Only mortality above the level needed to meet snag retention and other habitat goals and provide desired levels of coarse woody debris would be harvested (USDI 1995, 186).

The proposed action aims to harvest dead and dying trees due to wildfire and initiate a stand with species suited to the natural plant community including drought resistant tree species. Retained legacy structures would occur as dispersed and/or aggregated residuals. A legacy of the previous stand of suitable live green trees, standing dead, and coarse woody debris would remain to meet the needs of species and provide for ecological functions. Subsequent tree planting would accelerate early seral development and restore a multi-layered conifer forest at the landscape

Only trees considered dead, dying, or high risk (tree health condition indicates that the tree death will probably occur within 4 years) would be harvested. However, to access some of these dead and dying trees, some incidental live trees may be felled and removed in yarding corridors, landings, and road construction. Crown scorch is a measure of the proportion of foliage that has been killed by the fire relative to the entire amount of foliage present before the burn (SWOFIDSC 2001). Shaw et al. (2009) identify trees with more than 50% crown scorch as having high risk of insect attack that should be removed to avoid subsequent post-fire insect related damage. Using crown scorch of ≥70%, excluding cambium inspections, is a conservative measure for determining post-fire mortality in trees, primarily Douglas-fir, with a high probability of dying within the next 2-5 years (SWOFIDSC 2001, Fowler and Seig 2004, Filip et al. 2007).

Salvage units outside of critical habitat or 0.5 mile core areas would retain a minimum of 2 snags (overstory fire-killed trees, as defined above) per acre of the largest available diameters. In addition, a minimum of 120 linear feet of logs per acre greater than or equal to 16 inches in diameter and 16 feet long would be left per the 1995 ROD/RMP management direction (p. 39). Where naturally occurring merchantable downed wood exceeds 120 linear feet per acre, additional merchantable downed wood may be removed as a commercial product. In addition to the 120 linear feet of merchantable material, a minimum of 280 linear feet of non-merchantable down woody debris would be retained. Where present, the total retention for down woody debris per unit would be 400 linear feet on average. When stands are deficient in coarse woody debris (a minimum of 120 feet of logs per acre greater than or equal to 16 inches in diameter and 16 feet long), merchantable material would be used to make up the deficit (USDI 1995).

Salvage units within 0.5 mile northern spotted owl core areas or critical habitat would retain 4-7 snags per acre of the largest available diameters (20″ DBH or greater when present) to provide additional wildlife structure. Additionally, all existing down coarse wood in units within 0.5 mile core areas or critical habitat would be left and protected to the greatest extent possible during treatment.

As mentioned above in the Implementation Tools Section, some green trees may be removed for landing and temporary route construction, tail-hold trees, and yarding corridors. However, the green tree removal will be minimized through project design criteria and sale administrator approval.

Brimstone Fire

- Within marked unit boundaries, harvest fire-killed and fire-injured trees 8" DBH and greater that exhibit ≥70% crown scorch (DF, PP, SP, and IC).
- Within marked unit boundaries with stands burned at a mixed severity, only individual dead or dying trees or small pockets of dead or dying trees would be removed.
- To create access for planting sites and site preparation, pockets of **dead** sub-merchantable material less than 8" DBH may be slashed, piled and burned, or removed to be utilized for firewood, biomass, piled and burned, chipped, or any combination thereof.
- Hardwoods with live branches would be retained on-site.
- Where available, retain a minimum of 2-7 dead/dying trees (snags) per acre over 20" DBH within unit boundaries outside of NSO core areas.
- Where available, retain an average of 4-7 dead/dying trees (snags) per acre over 20" DBH within units occurring in NSO core areas.
- Even spacing of the retention trees is not required and the leave trees/snags can generally be clustered in groups of 3 or more. These trees are meant to act as wildlife trees/snags and future downed woody material on the harvested areas. The untreated clusters will be placed in a location within the unit to avoid felling the trees to meet OSHA requirements.
- If conditions exist, units within the 0.5 mile NSO core area will retain an average of 4-6 dead/dying trees per acre over 20" DBH within unit boundaries. Some units within the 0.5 mile core area were previous young plantations prior to the fire, with very few 20" DBH trees.
- Live trees would be retained; however, some live trees would need to be felled and extracted for landing construction, temp road construction, and road widening for suitable haul widths. Yarding corridors will avoid going through patches of live trees in order to minimize the effects to unburned forest stands.

Stratton Creek Fire

- Within marked unit boundaries, harvest fire-killed and fire-injured trees 10" DBH and greater that exhibit ≥70% crown scorch (DF, PP, SP, and IC).
- Within marked unit boundaries with stands burned at a mixed severity, only individual dead or dying trees or small pockets of dead or dying trees would be removed.
- To create access for planting sites and site preparation, pockets of **dead** submerchantable material less than 8" DBH may be slashed, piled and burned, or removed to be utilized for firewood, biomass, piled and burned, chipped, or any combination thereof.

- Hardwoods with live branches would be retained on-site.
- Retain 4-7 dead/dying trees per acre over 20" DBH, ≥50 ft ht, Decay Class 1 & 2 within unit boundaries. Even spacing of these trees is not required and the leave trees/snags can generally be clustered in groups of 3 or more. These trees are meant to act as wildlife trees/snags and future downed woody material on the harvested areas. The untreated clusters will be placed in a location within the unit to avoid felling the trees to meet OSHA requirements.
- Live trees would be retained; however, some live trees would need to be felled and extracted for landing construction, temp road construction, and road widening for suitable haul widths. Yarding corridors will avoid going through patches of live trees in order to minimize the effects to unburned forest stands.

Conservation measures specific to the Brimstone/Stratton Creek Fire Salvage

- Higher retention of large snags, and CWD would occur in the unit within critical habitat (Stratton Creek Fire) and within the NSO core areas of the Brimstone Fire. Snag retention would be 1-5 snags/acre higher than the 1995 RMP standards for matrix. In critical habitat and within 0.5 mile core areas, all existing down coarse wood would be left and protected to the greatest extent possible during treatment. When stands are deficient in coarse woody debris (a minimum of 120 feet of logs per acre greater than or equal to 16 inches in diameter and 16 feet long), merchantable material would be used to make up the deficit (USDI 1995)

Imminent Hazard Tree Removal (*Brimstone/Stratton Creek Fires)*

Project description:
The imminent roadside hazard tree removal project will occur on Medford BLM administered lands, along roads managed by the BLM within the 2013 Brimstone and Stratton Creek Fires. Hazard trees are present in all burn severities within the fire perimeters.

Danger trees that pose an imminent hazard to the public and BLM workers will be identified and removed within the first year after the fire. Only trees identified as hazardous by the Field Guide for Danger Tree Identification and Response (Toupin et al. 2008) will be felled. Identified trees will also follow the Occupational Safety and Health Administration (OSHA) "Danger Tree" rule (29 C.F.R. § 1910.266 (h)(1)(vi)):

> *Each danger tree shall be felled, removed or avoided. Each danger tree, including lodged trees and snags, shall be felled or removed using mechanical or other techniques that minimize employee exposure before work is commenced in the area of the danger tree. If the danger tree is not felled or removed, it shall be marked and no work shall be conducted within two tree lengths of the danger tree unless the employer demonstrates that a shorter distance will not create a hazard for an employee. A danger tree includes any standing tree that presents a hazard to employees due to conditions such as, but not limited to, deterioration or damage to the tree, and direction or lean of the tree.*

Danger trees have been identified along BLM managed roads within the fire perimeter. Some trees are clumped, while others are scattered along the road. As mentioned above, there are 17 miles of roads across all ownerships within the fire perimeters and approximately 42 trees have been identified in the field as imminent hazard trees on BLM lands. These trees range in size from 12" DBH to 48" DBH and the average size is approximately 18" DBH. For this assessment, the BLM will assume up to 18 additional imminent hazard trees could be identified within the Brimstone/Stratton Creek Fires, for a total of 60 trees that would need to be felled for safety reasons. These additional trees may need to be removed to ensure safe hauling conditions for the Brimstone/Stratton Creek fire salvage project. The felling of 60 trees would total approximately eight acres of affected NSO habitat (0.125 acres per tree). Additional trees identified that exceed the 60 imminent hazard trees covered in this assessment, will be covered under emergency consultation or reinititation of this biological assessment,

Once felled, hazard trees could be available for sale. Identified hazard trees located outside of the road prism (area extending from 10 feet beyond the cut-slope to 5 feet beyond the fill slope), may be left in the stand after the trees are felled when stands are deficient in coarse woody debris.

Conservation measures specific to Roadside Fire Hazard Tree Removal

- Hazard trees that need to be felled outside of the road prisms within Known Spotted Owl Activity Centers (KSOACs), nest patches, critical habitat, and RA32 stands will be left in the stand after the trees are cut in order to provide additional CWD if assessments determine these areas are deficient in CWD.

PUMP CHANCE CLEARING

***Project description*:**
This project is designed to improve and maintain access to five water sources used in emergency wildland firefighting situations. The project includes limited amounts of brush, small diameter (≤ 8" DBH) conifer, and hardwood (≤ 14 DBH) removal immediately adjacent to each water source to allow for clear and unobstructed ingress and egress at these sites. All projects combined would amount to no more than 2 acres of vegetation treatments, but only ¼ of an acre would be cleared at any one site. In general the sites are already disturbed and the majority of the vegetation removal would occur along the edge of the roadway and the areas immediately adjacent to the ponds. This is a Title 2 project[1] that also provides funding to clear vegetation around one private pump chance. The pump chance on private land is also included in this Biological assessment because federal funds are used to complete the work on private lands. Individual project descriptions are given below for each of the five sites:

- ***Bonnie Rifle Spring and Spring Box***: 1/10-acre of brushing and small saplings removed (less than 8" dbh). Species to be removed mostly hardwoods and maybe a couple of Douglas firs saplings.

1 Title II projects are part of the Secure Rural Schools and Community Self- Determination Act of 2000. Title II of the Act makes funds available for a variety of activities that benefit federally managed lands and resources such as trail maintenance, road maintenance, watershed restoration, control of noxious weeds, and fire protection.

- ***Bonnie Riffle Pump Chance:*** Remove brush species and small saplings within a previously disturbed area; mostly hardwoods less than 2" dbh.
- ***Bonnie Riffle Helipond Site:*** Re-construction of this site would include removal of brush species and small saplings (less than 8" dbh).
- ***Bonnie Creek Pump Chance:*** Less than ¼-acre of brush and small saplings removal within previously disturbed areas and within the road prism.
- ***Skull Creek Pump Chance (Private-Plum Creek):*** Improve ramp access, remove brush species and small saplings on approximately ¼ acre of a previously disturbed area.

2.3 Project Design Criteria

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

3. ENVIRONMENTAL BASELINE

3.1 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). The Action Area is defined as the area directly or indirectly affected by the proposed action. 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 and Courtney et al. 2004). 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 owl activity centers that could be directly, indirectly or cumulatively impacted by the proposed action. The Brimstone/Stratton Creek Fire Salvage project and associated hazard trees are located within the same action area. A separate action area was created for the pump chance clearing project since they are not in the same vicinity as the Brimstone/Stratton Creek fire. The Action Area for the pump chance project was created by buffering the five locations by 1.3 miles because the project affects a smaller area.

Tables 3 and 4 below in Section 3.3 provide habitat baseline data for the two Action Areas.

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 environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impacts of state and private actions which are contemporaneous with the consultation in progress. Such actions include, but are not limited to, previous timber harvests and other land management activities*.

A detailed account of the taxonomy, ecology, and reproductive characteristics of the spotted owl can be found in the *2011Revised Recovery Plan for the Northern Spotted Owl* (USDI FWS 2011), the SEI 2004 Northern Spotted Owl Status Review (Courtney *et al.* 2004); the Interagency Scientific Committee Report (Thomas et al. 1990); Forest Service Ecosystem Management Report (USDA et al. 1993), final rule designating the spotted owl as a threatened species (1990), and several key monographs (e.g., Anthony et al. 2006 and Forsman et al. 2004). These documents are incorporated by reference.

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

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

Medford shares one demographic study area, the Klamath, with Roseburg BLM and the Rogue River Siskiyou National Forest. The Southern Cascades demographic study area is also near the Medford District. The Pump Chance project is within the Klamath Demography Study area. The Brimstone/Stratton Salvage and the associated hazard tree removal projects are approximately two miles south of the Klamath Demography Study area.

Metadata analysis evaluates population statistics of the owls in the demographic study areas. The last metadata analysis was completed in 2011, and key findings are summarized below:

> Estimates of the annual finite rate of population change (λ) were below 1.0 for all study areas, and there was strong evidence that populations on 7 of the 11 study areas declined during the study. For four study areas, the 95 percent confidence intervals for λ overlapped 1.0, so they could not conclude that those populations were declining (Forsman et al 2011). Two of those four study areas are the Klamath and Southern Cascades study area, indicating that finite rate of population change remains statistically stable, but that relationship is weaker than Anthony

et al reported in 2006. Although the statistics have many assumptions, and the data on owls is complex, basic lambda can be interpreted as follows.

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

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

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

3.3 Status of Northern Spotted Owl Habitat in the Action Area

The environmental baseline for owls on the Medford BLM administered lands for the Action Area is current as of December, 2013. The baseline was updated in the fall of 2013 to indicate habitat loss from the fires. The Medford environmental baseline was developed using existing information, field assessments by experienced wildlife biologists, Interagency Vegetation Mapping Project (IVMP) imagery from 1996 (as corrected through 2003), and several additional steps of refinements during project lay-out and evaluation. IVMP data is the source for information for non-BLM lands. The environmental baseline used information from photos, field information, and FOI data to update the IVMP environmental baseline update. Field-verified information was used for effects determinations for each project and for geographic information system (GIS) shapefile attributes. The environmental baseline was corrected to match the field-evaluated habitat used for project shapefiles when necessary.

The proposed projects are within the Klamath Mountains physiographic province. Atzet and Wheeler (1982) discuss fire as a key natural disturbance in the Klamath Province in southwestern Oregon. Spotted owl habitat patterns in these drier portions of its range are not continuous, but occurred naturally in a mosaic pattern (USDI USFWS 2008). Agee (1993, 2003) and Hessburg and Agee (2003) characterized the historical wildfire regime as low- to mixed-severity with fire return intervals of less than 10 to 50 or more years, depending on local conditions.

Table 3 summarizes baseline habitat and ownership information for the Brimstone/Stratton Creek Fire Salvage and associated Hazard Tree Removal Action Area and Table 4 summarizes baseline habitat and ownership for the Pump Chance Action Area.

Table 3. Environmental Baseline for the Brimstone/Stratton Creek and Hazard Tree Removal Action Area							
		ACRES	NSO NRF HABITAT ACRES (% TOTAL)	CAPABLE[4] NSO HABITAT ACRES (% TOTAL)	PROTECTED ACRES[1] (% OF TOTAL)	UNPROTECTED ACRES (% OF TOTAL)	DISPERSAL[2,4] ACRES (% OF TOTAL)
OWNERSHIP							
-All Ownerships		14,024	6,017 (43%)	1,656 (12%)	408 (3%)	13,617 (97%)	7,498 (53%)
- Non-Federal (Private, State)		7,147	2,353 (33%)	0	0	0	2,353 (33%)
-Federal (BLM, USFS,)		6,877	3,664 (53%)	1,656 (24%)	408 (6%)	6,469 (94%)	5,145 (75%)
LAND ALLOCATION - FEDERAL (*hierarchal, no acres double-counted*)							
- Administratively Withdrawn Areas		0	0	0	408 (100%)	0	0
-Late-Successional Reserves (mapped)		0	0	0			0
- 100-Acre Spotted Owl Core Areas in the Matrix		408	333 (82%)	72 (18%)			336 (82%)
-Matrix/Adaptive Management Areas [3]		6,469	3,331 (51%)	1,409 (22%)	0	6,469 (100%)	4,984 (77%)
Spotted Owl Critical Habitat							
Critical Habitat Unit	**Sub-unit**	**Acres[5]**	**NRF Habitat Acres**	**Capable NSO Habitat Acres**	**PROTECTED**	**UNPROTECTED**	**DISPERSAL**
KLW 9	**KLW1**	1,752	800 (46%)	350 (20%)	146 (8%)	262 (15%)	1,300 (74%)

Notes: 1. Protected = land allocation with no programmed timber harvest which includes Congressionally Reserved land, LSR's, Owl Cores and Wild and Scenic River Corridors. 2. Dispersal includes NRF habitat. 3. Matrix/AMA includes Riparian Reserves (no Riparian Reserved layer is available) 4. Capable and Dispersal-Only acres are primarily calculated on federal lands only in this BLM layer (BLM used the same layer to be consistent with the BA data). 5. Includes CH on State Lands

Table 4. Environmental Baseline for the Pump Chance Project Action Area						
	ACRES	NSO NRF HABITAT ACRES (% TOTAL)	CAPABLE[4] NSO HABITAT ACRES (% TOTAL)	PROTECTED ACRES[1] (% OF TOTAL)	UNPROTECTED ACRES (% OF TOTAL)	DISPERSAL[2,4] ACRES (% OF TOTAL)
OWNERSHIP						
-All Ownerships	9,310	4,752 (51%)	1,493 (16%)	294 (3%)	9,016 (97%)	5,730 (62%)
- Non-Federal (Private, State)	2,870	921 (32%)	0	0	0	921 (32%)
-Federal (BLM, USFS,)	6,440	3,831 (59%)	1,493 (23%)	294 (5%)	6,146 (95%)	4,809 (75%)
LAND ALLOCATION - FEDERAL (*hierarchal, no acres double-counted*)						
- Administratively Withdrawn Areas	0	0	0	294 (100%)	0	0
-Late-Successional Reserves (mapped)	0	0	0			0
- 100-Acre Spotted Owl Core Areas in the Matrix	294	239 (81%)	30 (10%)			264 (90%)
-Matrix/Adaptive Management Areas [3]	6,146	3,592 (58%)	1,373 (22%)	0	6,146 (100%)	4,545 (74%)

Table 4. Environmental Baseline for the Pump Chance Project Action Area							
		ACRES	NSO NRF HABITAT ACRES (% TOTAL)	CAPABLE[4] NSO HABITAT ACRES (% TOTAL)	PROTECTED ACRES[1] (% OF TOTAL)	UNPROTECTED ACRES (% OF TOTAL)	DISPERSAL[2,4] ACRES (% OF TOTAL)
Spotted Owl Critical Habitat							
Critical Habitat Unit	**Sub-unit**	**Acres[5]**	**NRF Habitat Acres**	**Capable NSO Habitat Acres**	**PROTECTED**	**UNPROTECTED**	**DISPERSAL**
KLW 9	**KLW1**	6,257	3,696 (59%)	1,451 (23%)	277 (4%)	5,980 (96%)	4,666 (75%)
Notes: 1. Protected = land allocation with no programmed timber harvest which includes Congressionally Reserved land, LSR's, Owl Cores and Wild and Scenic River Corridors. 2. Dispersal includes NRF habitat. 3. Matrix/AMA includes Riparian Reserves (no Riparian Reserved layer is available) 4. Capable and Dispersal-Only acres are primarily calculated on federal lands only in this BLM layer (BLM used the same layer to be consistent with the BA data). 5. Includes CH on State Lands							

3.4 Status of Northern Spotted Owl Sites in the Action Area

Spotted owl sites used in this BA are based on historic information, protocol surveys, or incidental observations. The number of spotted owl sites are summarized in Table 5 by Section Seven watershed and associated with the Action area. These sites can also be referred to as territories because several alternates nest locations are often associated with each individual site represented in the table.

Brimstone/Stratton Creek Fire Salvage and associated Hazard Tree Removal

There are four historic NSO sites with home ranges within the Brimstone and Stratton Creek Fire perimeters. These sites have had limited surveys in the past 10 years. See Appendix C for a summary of the survey history, as well as occupancy and reproductive status.

Pump Chance Clearing

The five pump chances proposed for clearing work are within the home range of four historic spotted owl sites. These sites have been surveyed extensively since they are in the Klamath Demography Study area. See Appendix C for a summary of the survey history, as well as occupancy and reproductive status.

Table 5. Spotted Owl Sites by Section Seven Watersheds and Action Area		
	Number of owl sites (centers) within Watershed boundary *	**Number of owl home ranges Associated with the Action Area**
Cow-Upper	187 known	
Pump Chance Clearing		4 known
Rogue-Middle	126 known	
Brimstone/Stratton/Hazard Trees		4 known

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

The pre-and post- fire habitat acres for spotted owl sites associated with the Brimstone/Stratton Creek Fire Salvage and Imminent Hazard Tree Removal projects are identified in Table 6. This demonstrates the degree of change from the fires at the home range and 0.5 mile core area scales.

Table 6. Pre-Fire / Post-Fire Habitat Analysis –Brimstone/Stratton Creek Fires

SITE	Scale	Pre-Fire Habitat Type	Federal Acres	Post-Fire Habitat Type	Federal Acres
0915A	1.3 mile Home Range	NRF	815	NRF	723
		Dispersal	606	Dispersal	525
	0.5 mile Core	NRF	185	NRF	138
		Dispersal	24	Dispersal	19
0916B	1.3 mile Home Range	NRF	798	NRF	798
		Dispersal	56	Dispersal	56
	0.5 mile Core	NRF	237	NRF	237
		Dispersal	0	Dispersal	0
0923A	1.3 mile Home Range	NRF	1,020	NRF	1,000
		Dispersal	326	Dispersal	310
	0.5 mile Core	NRF	235	NRF	220
		Dispersal	87	Dispersal	91
4407O	1.3 mile Home Range	NRF	938	NRF	760
		Dispersal	561	Dispersal	568
	0.5 mile Core	NRF	184	NRF	177
		Dispersal	77	Dispersal	71

** Increases to Dispersal occur due to NRF that has been downgraded to dispersal during the fire or capable lands that were incorrectly typed as capable pre-fire and aerial photos show they are dispersal

3.5 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. Barred owls may be out-competing northern spotted owls for habitat and food because barred owls are less selective about the habitat they use and the prey they feed on. The effects of the barred owl on spotted owl survival and reproduction is unknown. However, exclusion from habitat through interference competition has been shown by decreased spotted owl occupancy rates in areas with increased barred owl presence (Dugger et al 2011, Wiens 2012). There is no evidence that habitat condition facilitates or prevents the barred owl effects (Dugger et al 2011). Barred owls are detected opportunistically because the BLM does not conduct barred owl surveys across the District. These incidental observations are increasing within the Medford District, which matches the trend of increasing numbers of barred owls across the range of the Northern Spotted owl.

Incidental observations across the District, as well as information from the Klamath and South Cascades Demography Study Areas indicate that barred owls are increasing in this area. Local

populations of barred owls are likely to increase over time. To date, impacts to spotted owls cannot be statistically evaluated to date, but observational data suggests direct competition with and aggressive displacement of spotted owls from prime nesting habitat.

Prior to the fire, the BLM did not conduct surveys specifically for barred owls in these areas. However barred owls were detected during spotted owl surveys and recorded when detected. No barred owls have been observed at the four owl sites associated with the Brimstone and Stratton Creek Fires.

3.6 Status of Spotted Owl Critical Habitat

A portion of the Brimstone/Stratton Creek Fire Salvage project and all of the pump chance clearing project locations are within 2012 designated critical habitat (77 Federal Register 233:71876-72068). The unit associated with the Stratton Creek Fire and all of the sites associated with the pump chance clearing project are in Critical Habitat Unit 9, sub-unit KLW-1.

The following descriptions for the critical habitat units and sub-units within the propose action are directly out of the final rule in the *Federal Register* (77 Federal Register 233:71931-71935).

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

KLW-1
The KLW-1 subunit occurs in Douglas, Josephine, Curry, and Coos Counties, Oregon, and comprises lands managed by the State of Oregon and the BLM. Of this subunit 7,682 ac (3,109 ha) are managed by the State of Oregon for multiple uses including timber revenue production, recreation, and wildlife habitat according to the Southwest Oregon State Forests Management Plan (ODF 2010b, entire). Federal lands are managed as directed by the NWFP (USDA and USDI 1994, entire). Special management considerations or protection are required in this subunit to address threats 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 for demographic support to the overall population and for north-south and east-west connectivity between subunits and critical habitat

units. This subunit sits at the western edge of an important connectivity corridor between coastal Oregon and the western Cascades.

3.7 Northern Spotted Owl Critical Habitat Baseline Data

Table 7 summarizes the NSO habitat conditions for the critical habitat units and sub-units within the Action Area. The Rogue Basin Level 1 team used the Northwest Forest Plan (NWFP) 15 year monitoring spotted owl habitat layer (Davis 2011) because a comprehensive habitat baseline has not been established yet for the critical habitats. The Level 1 team combined highly suitable and suitable designations to represent Nesting, Roosting, Foraging (NRF) habitat and the marginal designation to represent dispersal-only habitat. NRF was combined with dispersal-only to represent the dispersal habitat baseline because NRF also functions as dispersal habitat. The habitat baseline layer was created by clipping the NWFP dataset to the December 2012 critical habitat layer from the USFWS website. Project specific habitat calls are based on field verification, GIS habitat layers, and photo interpretation.

Table 7: Critical Habitat Baseline (acres)

CHU / Sub-Unit	NRF	Dispersal - Only	Dispersal (NRF + Dispersal Only)	Unsuitable	Non-Habitat	Total (Dispersal + Unsuitable + Non-Habitat)
9 - KLW1	73,910	45,698	119,608	27,078	560	147,246

** Total Unit acres, Source: NRF/Dispersal removal and downgrade acres from Medford Monitoring Reports and Douglas ESR report. subtracted from the USFWS NSOCH_2012_Baseline_Summaries_Dec19_2012 Data.*

4. EFFECTS OF THE PROPOSED ACTION

4.1 Effects Analyzed By Spotted Owl Sites

Project design criteria (Appendix A) will be applied to all sites within or adjacent to project units to reduce or eliminate the impacts from potentially disturbing noise or activity near owl sites. The proposed salvage treatments, hazard tree removal, and pump chance clearing projects located adjacent to owl sites will occur outside the critical nesting period (Appendix A, Table A) to avoid adverse impacts to nesting birds due to noise and activity. Only a few hazard trees are located within the seasonal restriction distance of one known site within the Brimstone/Stratton project and the project foresters have determined these can be felled outside of the critical breeding period.

Owl sites are analyzed at the home range, core area, and nest patch scales. These different analysis scales are discussed in more detail below. Northern spotted owl site occupancy is defined as locations with evidence of continued use by spotted owls, including breeding, repeated location of a pair or single birds during a single season or over several years, presence of young before dispersal, or some other strong indication of continued occupation. Documented spotted owl sites are tracked in the BLM northern spotted owl database. A spotted owl site may include

one or more alternate nest sites. Historic site activity has been evaluated in the design of projects and in this BA analysis.

Home Range Circle is an approximation of the median home range size used by spotted owls in the Klamath Province. Medford District uses the median home range estimated for southwestern Oregon of 3,340 acres or a circle with a radius of 1.3 miles. The Home Range Circle provides a coarse but useful analogue of the median home range for northern spotted owl (Lehmkuhl and Raphael, 1993, Raphael et al 1996). Although it provides an imprecise estimate of actual home ranges, the home range circle approach has been used to show that stand age/structure, patch size, and configuration within the circle influences the likelihood of occupancy. When less than 40 to 60 percent of the circle is in NRF habitat, the likelihood of spotted owl presence is lower, and survival and reproduction may be reduced (Thomas et al. 1990, Bart and Forsman 1992, Bart 1995, and Dugger et al. 2005). Therefore, the home range circle is a useful analytical scale for the purpose of quantifying habitat and the impact to owl sites from proposed habitat modification. The provincial home ranges of several owl pairs may overlap.

Core Area Circle has a radius that captures the approximate core use area, defined as the area around the nest tree that receives disproportionate use (Bingham and Noon 1997). The Medford District uses a 0.5 mile radius (~500 acre) circle to approximate the core area. Research has indicated that the quantity and configuration of "older forest" (analogous to Nesting Roosting Foraging Habitat) provides a valid inference into the likelihood of occupancy (Hunter et al 1995), survival, and reproduction (Franklin et al 2000, Zabel et al 2003, Olson et al 2004, Dugger et al, 2005, Dugger et al 2011). Generally survival and reproduction are supported when there is between 40 and 60 percent older forest within the core (Dugger et al 2005), but local conditions and possibly pair experience, contribute to large variance in actual amounts for individual owls. The amount of habitat within an approximate 0.5 mile radius provides reliable predictor of occupancy, and the quantity and configuration have been shown to provide reasonable inferences into survival and reproduction. Core areas represent the areas that are defended by territorial owls and generally do not overlap the core areas of other owl pairs (Wagner and Anthony 1998, Dugger et al. 2005, Zabel et al. 2003, Bingham and Noon 1997).

Nest Patch is the 300-meter radius (70 acres) around a known or likely nest site and is included in the core and home range area. Nest area arrangement and nest patch size have been shown to be an important attribute for site selection by spotted owls (Swindle et al. 1997, Perkins et al. 2000, Miller et al. 1989, and Meyer et al. 1998). Models developed by Swindle et al. (1997) and Perkins et al. (2000) showed that the 200-300 meter radius (and sometimes greater), encompassing approximately up to 75 acres, around a nest is important to spotted owls. The nest patch size also represents key areas used by juveniles prior to dispersal. Miller et al. (1989) found that on average, the extent of forested area used by juvenile owls prior to dispersal averaged approximately 70 acres.

4.1.1 Effects to Individual Owl Sites

As indicated in Table 5, there are approximately 313 owl sites within the analysis area (two Section 7 Watersheds). Of these 313 sites, there are three owl sites within the Brimstone/Stratton Creek Action Area and four owl sites within the Pump Chance Action Area that have proposed

treatment units within their home ranges. Approximately 0.63 acres of NRF would be removed within the home range of two of the sites associated with the Brimstone/Stratton Creek Fire Salvage project through temporary road construction (0.13 acres in site #4407 and 0.5 acres in site #0915A). NRF would not be removed at the home range or core scales as a result of the pump chance or the hazard tree removal projects.

4.1.2 Project Specific Owl Site Effects

Brimstone/Stratton Creek Salvage Project

Proposed harvest treatments would not remove or downgrade NRF habitat. Approximately, 0.63 acres of NRF would be removed as a result of access route construction. See Table 8 for a summary of effects to the NSO sites from the Brimstone /Stratton Creek Fire salvage project.

Results from radio-telemetry studies of spotted owls in post-fire landscapes indicate that spotted owls use forest stands that have been burned, but use may be affected by post-fire salvage (USFWS 2011). However, no salvage with the exception of roadside hazard tree removal is proposed in NRF habitat or areas that could serve as post-fire foraging in areas occurring within the core scale. Mitigating measures have been included in the project design to reduce impacts to owls within the 0.5 mile core area: 1) areas of moderate burn severity that still contain green/live trees will not be treated, 2) Post Fire Foraging or NRF habitat will not be removed or downgraded, 3) untreated patches of burned trees/snags will be retained in units, and 4) higher amounts of snag and coarse woody material would be retained in high burn severity within the 0.5 mile core area. Additionally, riparian areas within the Brimstone/Stratton Creek Fire project will not be treated, which will help mitigate potential adverse effects to northern spotted owls associated with this project. Clark (2007) reported that in burned landscapes, owls were more likely to select habitats in areas of lower elevation and/or close to perennial streams where available.

Summary of Effects within the 0.5 mile core areas:

Sites with proposed units in their 0.5 mile core area are discussed in more detail below to describe impacts to the sites from the proposed action. This scale is used because, as mentioned above in the core area circle defintion, 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. Additionally, Bingham and Noon (1997) reported that a spotted owl core area is the area that provides the important habitat elements of nest sites, roost sites, and access to prey, benefiting spotted owl survival and reproduction. Rosenberg and McKelvey (1999) reported that spotted owls are “central place” animals with the core area (the area closest to the nest) being the focal area. Several studies (Wagner and Anthony 1998, Dugger *et al*. 2005, Zabel *et al*. 2003, Bingham and Noon 1997) indicate the core area size for the Klamath and Western Cascades provinces is 0.5 miles (or 500 acres) of the nest site.

Site #0915 (Stratton Creek Fire)

This site has received limited surveys in the past 10 years (See appendix C). 2000 was the last year a pair was verified at the site and is the last time successful reproduction occurred. Surveys occurred in 2007 and 2008, but no owls were observed. However, the BLM assumes this site is

still occupied after the fire because this site still has suitable habitat conditions to support spotted owls. Even though Table 8 indicates NRF habitat amounts are below thresholds typically known to support nesting owls, unburned habitat is present adjacent to the site and the owls could shift their patterns of use to these areas. Additionally, productive owl sites on the Medford district have been known to have less than 40% NRF habitat on federal lands within their home range.

Treatments within the 0.5 mile core of this site would not remove or downgrade NRF habitat and would not remove post-fire foraging habitat. The proposed salvage in the Stratton Creek Fire would treat 11 acres of capable habitat and treat but maintain one acre of dispersal habitat. Even though there are some large snags within the proposed 12 acre unit located within the 0.5 mile core area, the unit lacks the structure for post-fire foraging because the stand was harvested and downgraded NRF habitat to dispersal habitat prior to the fire. Large green trees that were retained after the harvest now serve as large snags with structure after the fire and would be left in order to retain legacy components within critical habitat. Approximately 42 acres of post-fire foraging acres adjacent to the Stratton Creek Fire Salvage unit will not be harvested because they are part of the NWFP Known Spotted Owl Activity Center (KSOAC). This untreated burned area will still provide foraging, as well as the contiguous unburned green around the nest site west of the fire. Additionally, the proposed unit is located on the upper portion of the slope, on the ridge, and in low habitat suitability according to the Relative Habitat Suitability (RHS) output from the MaxEnt model. The frequency of owl use and likelihood of nesting is much lower in these areas compared to lower on the slope and in the draws (Courtney 2004).

Therefore, the proposed action within the 0.5 mile core area is not expected to adversely affect spotted owls at this site because NRF or post-foraging habitat would not be removed and the treatment is located in low quality habitat on the ridge. The proposed action is not expected to adversely impact the essential behavioral patterns, including breeding, feeding, or sheltering of the associated owls.

Site #4407 (Brimstone Fire)

Limited surveys have occurred at this site since 2007. The most recent surveys occurred in 2012, but no owls were observed during the three visits. In 2009, a male was observed once and in 2008 a male and female were observed, but not enough times to meet pair status (USDI 2012). 2000 was the last time a pair was verified at the site and 1997 was the last time young successfully fledged at this site. However, the BLM assumes this site is still occupied after the fire because this site still has suitable habitat conditions to support spotted owls. Even though Table 8 indicates NRF habitat amounts are below thresholds typically known to support nesting owls, unburned habitat is present adjacent to the site and the owls could shift their patterns of use to these areas. Additionally, productive owl sites on the Medford district have been known to have less than 40% NRF habitat on federal lands within their home range.

Treatments proposed within the 0.5 mile core of this site would not remove or downgrade NRF habitat and would not remove post-fire foraging habitat. The proposed salvage in the Brimstone Fire would treat approximately 11 acres of capable habitat and treat, but maintain one acre of dispersal habitat and one acre of NRF habitat. The capable units served as capable and dispersal habitat prior to the fire and still lack the tree size, structure, and down wood to provide prey

species and perch sites for potential spotted owl after the fire. The treatments proposed in NRF and dispersal will still maintain habitat function post-treatment because these units are in mixed severity burn areas where only limited burned trees exist that will be targeted for removal and key habitat elements will remain post treatment. Since NRF and foraging would not be removed or downgraded, the proposed action salvage within the 0.5 mile area may affect, but would not likely to adversely affect spotted owls at this site because the treatment is not expected to adversely impact the essential behavioral patterns, including breeding, feeding, or sheltering of the associated owls.

Approximately, 138 acres proposed for treatment are located outside of the core, but within the home range of site #4407. The majority of the units are in low habitat suitability areas (primarily on ridges) according to the Relative Habitat Suitability (RHS) output from the MaxEnt model, which also indicates there is a low likelihood the treatment of these units would adversely affect nesting spotted owls. Additionally, these proposed treatments are outside of the core, but within the home range, but would not remove or downgrade NRF habitat. Only 10 acres of post-fire foraging would be removed in this area as a result of the proposed action (see Effects to Post-Fire Foraging Section below). The remaining units in this area would treat capable habitat or treat and maintain NRF and dispersal through scattered individual tree removal.

Table 8. Summary of Effects to NSO Sites (Brimstone/Stratton Creek Fire) – Federal Only Acres

NSO Activity Center	0.5 Mile Radius NRF *acres lost from the fire*	1.3 Mile Radius – *NRF acres lost from the fire*	NRF acres Removed from the Project		NRF Treat and maintain from the Project		Post-Project NRF Acres and % (0.5 core)	Post-Project NRF Acres and % (1.3 HR)
			0.5 Mile	1.3 Mile	0.5 Mile	1.3 Mile		
0915A	**42**	**92**	0.13	0.13	0	0	137.87 (28%)	722.87 (21%)
0916B*	**0**	**0**	0	0	0	0	237 (47%)	798 (24%)
0923A	11	20	0	0	0	5	220 (44%)	1,000 (29%)
4407O	7	89	0	0.5	1	50	177 (35%)	759.5 (22%)

* The home range of 0916B is within the Action Area and within the fire perimeter of the Brimstone Fire, but no units are proposed within the home range.

All but 10 acres proposed for salvage in the Brimstone/Stratton Creek Fire project are located within the home range of historic spotted owl sites. These 10 acres are located in a narrow strip between home ranges of site #0916 and site #4407. Even though these units are outside of known home ranges, they still receive surveys because they are near the original site and NWFP 100 acre core area for site #0916. Surveys at known sites within the fire perimeters will occur in 2014 and will also be expanding beyond the previous known locations in order to locate owls that have

moved since the fire. If owls are located at new site centers, the Level 1 team will be briefed to determine if reinitiation of consultation is warranted.

Imminent Hazard Tree Removal:

None of the hazard trees proposed for removal will remove or downgrade NRF habitat, so current levels of NRF habitat within the home range, core, and nest patch scales will not change as a result of this project. The hazard tree removal will occur as scattered individual trees within stands affecting approximately 0.125 acres per tree. The affected acres would be insignificant compared to the amount of untreated habitat retained within the surrounding stand. NRF and dispersal function would be maintained post treatment.

Adverse effects are not anticipated to the two spotted owl sites associated with the hazard tree removal project because NRF habitat would not be removed. The small openings from the individual tree removal would be insignificant at the core and home range scales because they would be scattered throughout the home ranges and will not adversely impact the essential behavioral patterns, including breeding, feeding, or sheltering of the associated owls.

Site #4407

Two hazard trees are identified for removal within the nest patch of site #4407 in the Brimstone/Stratton Creek Fires. The hazard tree removal within this nest patch would be insignificant because only 0.25 acres would be affected and the trees will be removed outside of the critical breeding period. Approximately 10 additional hazard trees would be removed within the 0.5 mile core of site and approximately 18 hazard trees would be removed between the core and home range scales at site #4407. See the site history information regarding site #4407 in the Brimstone/Stratton Creek Fire Salvage Project site effects section.

Site #0923

Approximately five hazard trees have been identified for removal at the outer edge of the home range of site #0923. Limited surveys have occurred at this site since 2002. The most recent surveys occurred in 2012, but no owls were observed during the four visits. 2001 was the last time a pair was verified at the site and the last time young successfully fledged at this site. However, the BLM assumes this site is still occupied after the fire because this site still has suitable habitat conditions to support spotted owls.

No hazard trees have been identified for removal within the nest patch, core, or home range scales of site #0915 or site #0916. The home range of site #0916 is barely within the Brimstone Fire perimeter. No hazard trees have been identified for removal at site #0915 because this site is associated with the Stratton Creek fire. The BLM roads associated with this fire are only along the perimeter of the fire and potential hazard trees were already felled during suppression activities.

Pump Chance Clearing:

Extensive surveys have been conducted at the four sites associated with the pump chance clearing project. Pairs have been confirmed on all but one site associated with the Pump Chance Clearing

project in the last five years. Of these three sites, two successfully fledged young in the past five years. The pump chance clearing projects will not remove or downgrade NRF habitat, so current levels of NRF habitat within the home range, core, and nest patch scales will not change as a result of this project. Only 2 acres of dispersal habitat would be removed, and the treatment areas are located outside of the 0.5 mile core area scale. The proposed pump chance clearing projects are not expected to adversely affect the four NSO sites within 1.3 miles of the project because NRF habitat would not be removed at the project location and PDCs will prevent disturbance related effects. The project is not expected to adversely impact the essential behavioral patterns, including breeding, feeding, or sheltering of the associated owls.

None of the pump chance project locations are within unsurveyed suitable habitat because the pump chance locations are completely within the home range of four historic spotted owl home ranges. Additionally, these areas have been surveyed in the past several years, which have included expanded search areas when owls aren't located at the known site locations.

4.2 Effects to Northern Spotted Owls Analyzed by Habitat

Table 9 summarizes the impacts from the fire and the additional proposed harvest on BLM lands. The effects to NRF, post-fire foraging, and dispersal habitat are summarized in Table 10. The proposed projects listed in this BA are still in planning. It's likely that the effects to habitat described in the following tables would be reduced at the time of the NEPA Decision Record or Timber Sale because it's anticipated that acres will be dropped for various reasons including logging feasibility issues.

Table 9. Project/Treatment and Fire-wide Effects

Fire NAME	Acres proposed for harvest	% of fire burned with high to moderate/high severity	% of moderate and high severity burned area proposed for harvest	% of the fire proposed for harvest on BLM
Stratton	12	63	18	8
Brimstone	165	25	26	6

Table 10. Effects to NSO Habitat within the Action Area

	NRF Removed	NRF Treat and Maintained	Post Fire Foraging Removed	Post Fire Treat and Maintained	Dispersal Removed	Dispersal Treat and Maintained	Capable Treated
Brimstone/Stratton Salvage	**0.63**	**51**	10	0	0.6	15	100
Hazard Tree	0	2	0	0	0	2	4
Pump Chance Clearing	0	0	0	0	2	0	0
TOTAL	**0.63**	**53**	**10**	**0**	**2.6**	**17**	**104**

The BLM has determined the removal of 0.63 acres of NRF habitat associated with the access road construction may affect, but is not likely to adversely affect (NLAA) northern spotted owls because:

- The proposed access road construction routes for units 23-1 and 27-24 of the Brimstone/Stratton Creek Fire project are within low habitat suitability according to the RHS output from the MaxEnt model, and are not in a location to provide long term viability for spotted owls. Owls typically do not nest on the upper 1/3 of the slope or ridges.
- Even with the loss of canopy cover and habitat components, the proposed road in the Stratton Creek fire is located on the edge of a larger block of 60 acres of contiguous NRF habitat and the removal of 0.13 acres would not affect the stand's ability to function as NRF post treatment.
- The proposed road in unit 23-1 (Brimstone Fire) has been designed by the engineers and interdisciplinary team to avoid large live trees that survived the fire. The proposed road is on the edge of a larger block of more than 90 acres of relatively contiguous NRF habitat. The removal of 0.5 acres of NRF would not affect the larger stand's ability to function as NRF post treatment.

The BLM has determined the maintenance of 53 acres of NRF habitat associated with these projects (Hazard Tree Removal and Brimstone/Stratton Salvage) may affect, but is not likely to adversely affect (NLAA) northern spotted owls because:

- The conditions that characterize a stand as NRF would be retained following treatment.
- Canopy cover within treated NRF stands will be retained at or above 60 percent.
- Multiple canopy layers would be retained in stands with more than one layer present prior to treatment.
- Decadent components important to owls such as large snags, large down wood, and large hardwoods would be retained.
- Only burned trees would be targeted for removal in these projects. Salvage would only remove individual dead or dying trees or small pockets of dead or dying trees within stands burned at a mixed severity.
- Salvage would not occur in unburned patches of trees within identified units. Especially in units burned at a mixed severity, only the small 1-2 acre patches that burned at a high severity within the units would be salvaged, which would result in < 20% of openings across the overall unit. CWD and snag retention requirements would still be met within the unit.
- Yarding corridors would be placed in locations to minimize green tree removal and would avoid patches of unburned trees.
- No spotted owl nest trees will be removed.
- The hazard tree removal project will occur as scattered individual trees within stands affecting approximately 0.125 acres per tree. The affected acres would be insignificant compared to the amount of habitat untreated and retained within surrounding stand.

The BLM has determined that the removal of 2.6 acres of dispersal-only habitat associated with two projects (Brimstone/Stratton and Pump Chance Clearing) may affect, but is not likely to adversely affect (NLAA) northern spotted owls because:

- No dispersal habitat will be removed within nest patches.
- The proposed treatments will be dispersed throughout the Analysis Area which will minimize the potential for adversely affecting spotted owl dispersal.
- The removal of dispersal habitat would not preclude owls from dispersing throughout the Action Area. Removal of Dispersal-only habitat would result the reduction of 0.002 percent of the total dispersal habitat (NRF and dispersal-only) in the two Action Areas.

The BLM has determined that the maintenance of 17 acres of dispersal-only habitat associated with these projects (Hazard Tree Removal and Brimstone/Stratton Salvage) may affect, but is not likely to adversely affect (NLAA) northern spotted owls because:

- Only burned trees would be targeted for removal in these projects. Salvage would only remove individual dead or dying trees or small pockets of dead or dying trees within stands burned at a mixed severity.
- These treatment acres would be expected to continue to provide dispersal opportunities post-treatment.
- Unburned patches within and adjacent to the units would not be treated, which will continue to allow for dispersal within the project area.
- The proposed treatments will be dispersed throughout the Action Area to minimize the potential for adversely affecting spotted owl dispersal.
- Decadent components important to owls such as large snags, large down wood, and large hardwoods would be retained.
- The hazard tree removal project will occur as scattered individual trees within stands affecting approximately 0.125 acres per tree. The affected acres would be insignificant compared to the amount of habitat untreated and retained within surrounding stand.

The BLM has determined that the removal of 10 acres of post-fire foraging habitat associated with Brimstone Fire Salvage project may affect, but is not likely to adversely affect (NLAA) northern spotted owls because:

- The 10 acres of post-fire foraging habitat occurs outside of the 0.5 mile core area of site #4407. As mentioned above, 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. Contiguous foraging habitat exists on the east portion of the core area and within the nest patch. The available habitat in the core would provide easier foraging opportunities for the owl pair which would make it less likely they would need to use the post-fire foraging unit for additional access to prey. Therefore, the removal of 10 acres of potential post-fire foraging habitat outside of the core area would be an insignificant effect to the essential behavioral patterns, including breeding, feeding, or sheltering of the associated owls.

- This unit is located on the upper portion of the slope, on the ridge, and in low habitat suitability according to the Relative Habitat Suitability (RHS) output from the MaxEnt model. The unit location would not cause adverse impacts because the frequency of owl use and likelihood of nesting is much lower in these areas compared to lower on the slope and in the draws.
- The removal of 10 acre of post-fire foraging would not preclude the owls from dispersing and foraging within the Action Area. 99% of the NRF and dispersal habitat would remain within the Action Area post-treatment that will continue to provide potential foraging opportunities.

The BLM has determined that the treatment of 100 acres of capable habitat associated with Brimstone/Stratton Salvage project is a No Effect to northern spotted owls because:

- The units do not contain suitable habitat or structure post-fire, so they do not classify as post-fire foraging. The fire burned at the highest severity level that eliminated the structure in these stands in most units. In other units, the structure didn't exist prior to the fire because the stands were young plantations or small diameter dispersal stands.
- Seasonal restrictions would be implemented to avoid disturbance to adjacent nesting owls from the proposed action.

4.3 Effects to Northern Spotted Owl Critical Habitat

Portions of these projects are within the 2012 designated critical habitat and the effects to critical habitat are addressed below. The final CHU rule was published in the Federal Register on December 4, 2012 (77 Federal Register 233:71876-72068) and became effective January 3, 2013.

The proposed action is located within one designated critical habitat unit (Unit 9) and one sub-unit (KLW1). The effects to the primary constituent elements (Forest Habitat, Nesting Roosting, Foraging, and Dispersal) are addressed in Table 11.

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 11: Summary of NSO Habitat Effects in Critical Habitat

Sub Unit	Project	NRF Removed	NRF T&M	PFF Removed	PFF T&M	Dispersal Removed	Dispersal T&M	Capable Treated
KLW1	Stratton Brimstone	0.13	0	0	0	0.6	1	11
	Hazard Tree	0	0	0	0	0	0	0
	Pump Chance Clearing	0	0	0	0	2	0	0
	KLW1 TOTAL	**0.13**	**0**	**0**	**0**	**2.6**	**1**	**11**

Effects from NRF Removal

The proposed access road construction associated with the Stratton Creek Fire Salvage project would remove 0.13 acres of NRF habitat and will contribute to a reduction of suitable NRF habitat within one CHU sub-unit (KLW1).

According to the 2012 Final CHU rule (77 *Federal Register* 46:14062-14165), Section 7 consultations need to consider the temporal and spatial scale of impacts a proposed action may have on the PCEs. The USFWS recommends using a scale that is relevant to the needs and biology of the spotted owl and believes the 500 acre core area scale is a reasonable metric for land managers to use as a screen when assessing effects on critical habitat. This 500 acre analysis approach was recommended in the proposed critical habitat rule, and in order 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 acres within 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 habitat amounts within the 500 acre analysis areas were compared to determine effects to primary constituent elements and primary biological features of critical habitat (Table 12).

Table 12: Pre and Post Treatment Habitat Amounts within 500 acre buffers

Project	CHU Sub-unit	Unit ID	NRF Habitat Acres Pre-Treatment	NRF Habitat Acres Post-Treatment	Percent Changed	Effects to CH
Stratton Creek Fire	KLW1	Temp rd	196	195.9	0.07%	NLAA

Based on the 500 acre analyses the district has determined the NRF removal associated with the temp road construction proposal in the Stratton Creek Fire project, may affect, but is **not likely to adversely affect (NLAA)** spotted owl critical habitat because result in an insignificant amount of removal of a primary constituent element. At the 500 acre scale, the impacts to proposed critical habitat primary constituent elements are insignificant and undetectable and adverse impacts are unlikely to occur. Additionally, the proposed NRF removal within critical habitat would only result in a reduction of 0.0003 percent of NRF habitat within the sub-unit. Substantial habitat would be retained in the sub-unit to maintain the intended dispersal function of the KLW1. The proposed spur road in the Stratton Creek fire unit is within low habitat suitability according to the RHS output from the MaxEnt model and is not in a location to provide long term viability for spotted owls.

Effects to Post-Fire Foraging

The proposed salvage will not remove post-fire foraging habitat in designated critical habitat, so there will be **no effect** to foraging habitat (PCE 3). Even though there are some large snags within the proposed unit, the unit lacks the structure for post-fire foraging because the stand was harvested prior to the fire and only qualified as dispersal habitat. Large trees retained after the harvest now serve as large snags with structure after the fire and would be left in order to retain

legacy components within critical habitat. Approximately 42 acres of post-fire foraging acres adjacent to the Stratton Creek Fire Salvage unit will not be harvested because they are part of the NWFP Known Spotted Owl Activity Center (KSOAC). This untreated burned area will still provide foraging, as well as the contiguous unburned green around the nest site west of the fire.

Effects from Dispersal Removal

The proposed action (Pump Chance Clearing and Stratton Creek Fire Salvage temp road construction) would remove 2.6 acre of dispersal-only habitat within one proposed CHU sub-unit (KLW1) and will contribute to a reduction of suitable dispersal habitat. The District has determined the removal of 2.6 acres of dispersal-only habitat may affect, but would **not likely adversely affect (NLAA)** spotted owl critical habitat because it would result in an insignificant amount of removal of a primary constituent element. Even with the removal of dispersal-only habitat, the proposed action will not affect the intended conservation function of this sub-unit (north-south and east-west connectivity and demographic support) because the proposed removal of dispersal-only habitat would result in a reduction of 0.002 percent of the dispersal habitat within sub-unit KLW1. Additionally, these 2.6 acres of dispersal-only habitat removal would not preclude owls from dispersing within the adjacent landscape because they are spread out across the project are and are primarily 1 acre or less in size.

Effects from Dispersal Treat and Maintain

The BLM has determined that the proposed maintenance of **one** acre of dispersal-only habitat (Stratton Creek Fire Salvage) within critical habitat will have an insignificant effect to spotted owl critical habitat and is **not likely to adversely affect (NLAA)** critical habitat because:

- Canopy cover within affected stand will be maintained at 40 percent or greater post-treatment.
- Only scattered dead and dying trees within the mixed severity portion of the proposed Stratton Creek Fire Salvage unit would be targeted for removal
- Decadent components important to owls such as large snags, large down wood, and large hardwoods would be retained.

Effects to the Sub-units

The proposed action would not adversely affect the sub-units' intended function of providing demographic support for spotted owls because historic sites associated with the projects would not be adversely affected by the proposed action. Even with the removal of dispersal-only habitat, the proposed action will not affect the intended conservation function of this sub-unit (north-south and east-west connectivity and demographic support) because the proposed removal of dispersal-only habitat would result in a reduction of 0.002 percent of the dispersal habitat within sub-unit KLW1. The 2.6 acres of dispersal removal would not preclude owls from dispersing within the adjacent landscape because they are spread out across the project are and are primarily 1 acre or less in size.

4.4 Effects to Spotted Owl Prey

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

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. Therefore, effects to prey species are likely most critical at the nest patch and core areas. Effects to spotted owl sites at the nest patch and core areas are analyzed in Section 4.1.2 above and the indirect effects to prey species can be derived from this data. Minimal effects are anticipated to spotted owl prey because only small amounts of treat and maintain treatments are proposed within the core areas of the owl sites associated with the proposed action.

The BLM anticipates that overall impacts of the proposed action on prey will not adversely affect spotted owls in the area. BLM will retain large standing and down wood in all treatments, hardwoods, and untreated green patches will be retained within the project areas, which are important to spotted owl prey species. Additionally, approximately 915 acres of NRF and dispersal habitat on BLM lands within the fire perimeter will not be treated, which will reduce the impacts to potential prey and foraging habitat for northern spotted owls.

Woody debris is an important habitat component, providing cover for NSO prey species. With the quantities of residual snags and down wood that will remain within treatment units and the abundance of snags and down wood in directly adjacent non-treatment areas, the project area is expected to provide abundant prey availability and foraging opportunities for any NSO that may be present, including ample perch sites within hazard tree areas to facilitate roosting and foraging by NSO if they are using these burned areas for foraging. In addition, conversion of snags to down logs may have a positive or neutral effect on NSO because it will decrease availability of perch sites for NSO but will also contribute to coarse woody debris, improving habitat for NSO prey species.

It is not likely that prey, such as flying squirrels, will be significantly affected by the proposed actions because large dead wood would be retained and some canopy diversity will be maintained. Additionally, the areas proposed for salvage are in heavily burned areas with low canopy cover and do not serve as quality flying squirrel habitat. Several habitat components that have been associated with high-quality flying squirrel habitat, including understory cover, large snags, large trees, shrubs, high canopy cover, abundant down wood, large down wood, increased litter depth, and availability of fungi (Wilson and Forsman 2013) are no longer present in these stands. Additionally, the mid-story structure is missing in these stands, which provides sufficient protection for squirrels to sustain population levels (Wilson 2010). 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). Residual trees, snags, and down wood that are retained in the units will provide some cover for prey species over time, and will help minimize long term harvest impacts to some prey species.

Edges created from harvest and fires can be areas of good prey availability and potentially increased vulnerability (i.e., better hunting for owls) (Clark 2007 and Zabel 1995). Prey animals may be more exposed in the disturbed area or may move away from the disturbed area for the short-term. Some minor changes in prey availability may occur as cover is disturbed and animals move around in the understory. They may become more vulnerable and exposed. The disturbance might attract other predators such as hawks, other owls, and mammalian predators. This may increase competition for owls in the treatment area, but the exposure of prey may also improve prey availability for northern spotted owls.

For all projects, treatment implementation would be spread out temporally and spatially within the Action Area, which would provide areas for spotted owl foraging during project implementation and reduce the impact of these short-term effects at the project level.

4.5 Effects of Disturbance to Northern Spotted Owls

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

4.7 Interrelated and Interdependent Effects

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

All proposed projects in this BA have interrelated and interdependent effects. such as noise, road construction or timber hauling on existing system roads, and post-harvest brush disposal. Brush disposal activities vary according to conditions post-treatment, fuels management objectives, requirements for retention of down woody material, and other resource management goals. Post project fuels reduction of the activity fuels may include biomass removal and pile burning.

4.8 Cumulative Effects

Cumulative effects under ESA are “those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the Action Area of the Federal action

subject to consultation" (50 CFR 402.02). The effects of future Federal actions will be evaluated during future section 7 consultations and are not included in cumulative effects.

The Action Area has a checkerboard pattern of ownership of private land interspersed with BLM. Management practices occurring on private lands range from residential home site development to intensive industrial timber management. Salvage logging has already begun on private, state, and county by removing trees killed by the 2013 fires on their lands within the Brimstone and Stratton Creek fire perimeters. There are approximately 913 acres of non-BLM land within the Brimstone and Stratton Creek fires that may be harvested. Of these 913 acres, 197 acres are within the 0.5 mile core area of two NSO sites (26 acres in site #0915 and 171 acres in site #4407), which could add to the impacts to these NSO sites. The BLM does not track pre-harvest habitat on non- BLM lands, so it is unknown how many of these acres functioned as NRF before and after the fire and would be removed through salvage on private land. However, based on 2012 aerial photos, these non-BLM lands located within these cores appeared to be capable or dispersal habitat prior to the fire.

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

5. BIOLOGICAL ASSESSMENT CONCLUSIONS

We request concurrence with the determination of this biological assessment for effects described in this BA:

Table 13. Effects Determination by Project

Project	Effects to Spotted Owls	Effects to NSO CHU
Brimstone/ Stratton Creek Fire Salvage	NLAA	NLAA
Roadside/Campground Fire Hazard Trees	NLAA	NLAA
Pump Chance Clearing	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.

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

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

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

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

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

Mandatory Project Design Criteria

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

distances may be shortened if significant topographical breaks or blast blankets (or other devices) muffle sound traveling between the work location and nest sites.

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

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

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

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

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

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

***** If below 1,500 feet above ground level

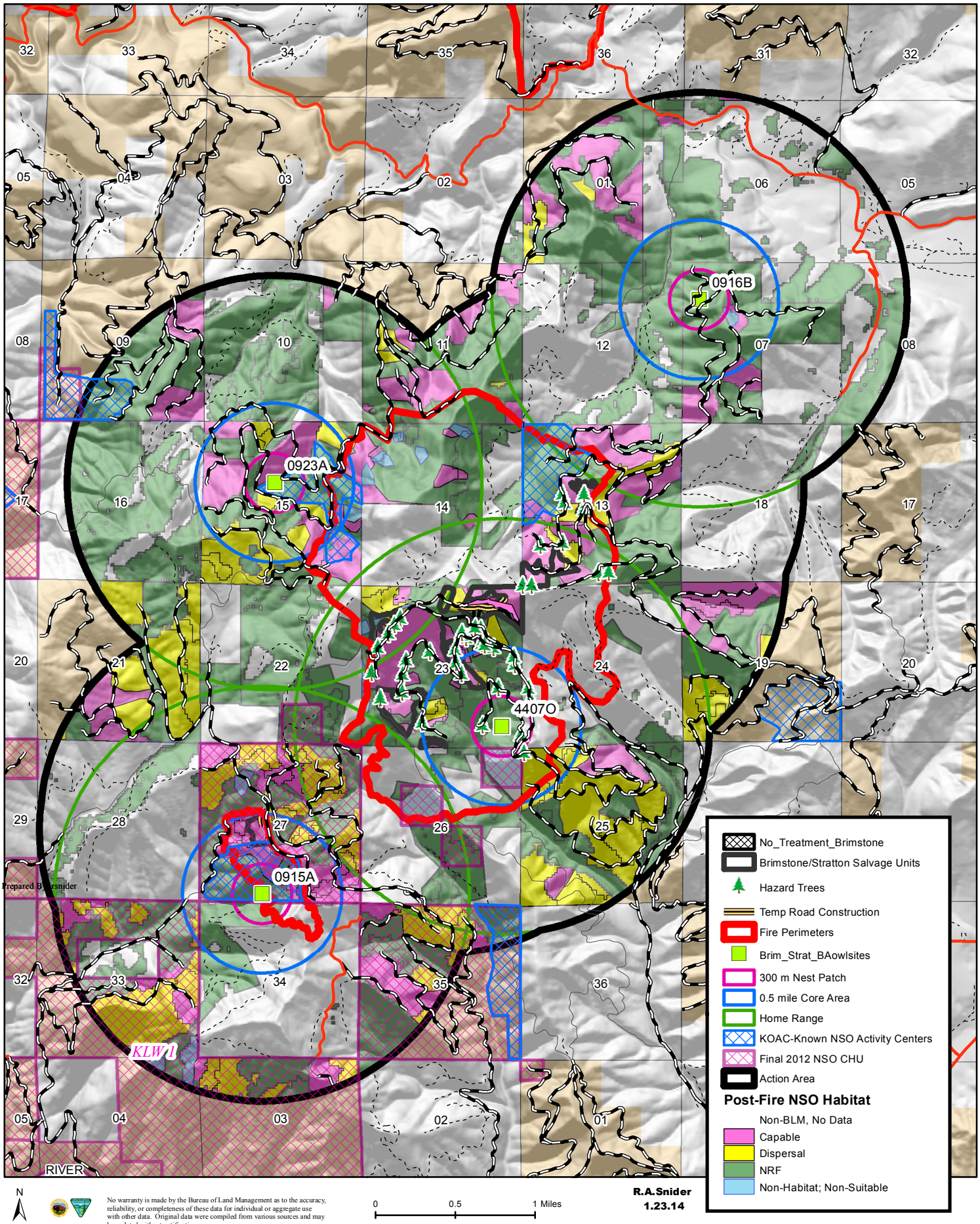
Above-ambient noises further than these Table B-1 distances from spotted owls are expected to have either negligible effects or no effect to spotted owls. The types of reactions that spotted owls could have to noise that the Service considers to have a negligible impact, include flapping of wings, the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

Recommended PDC

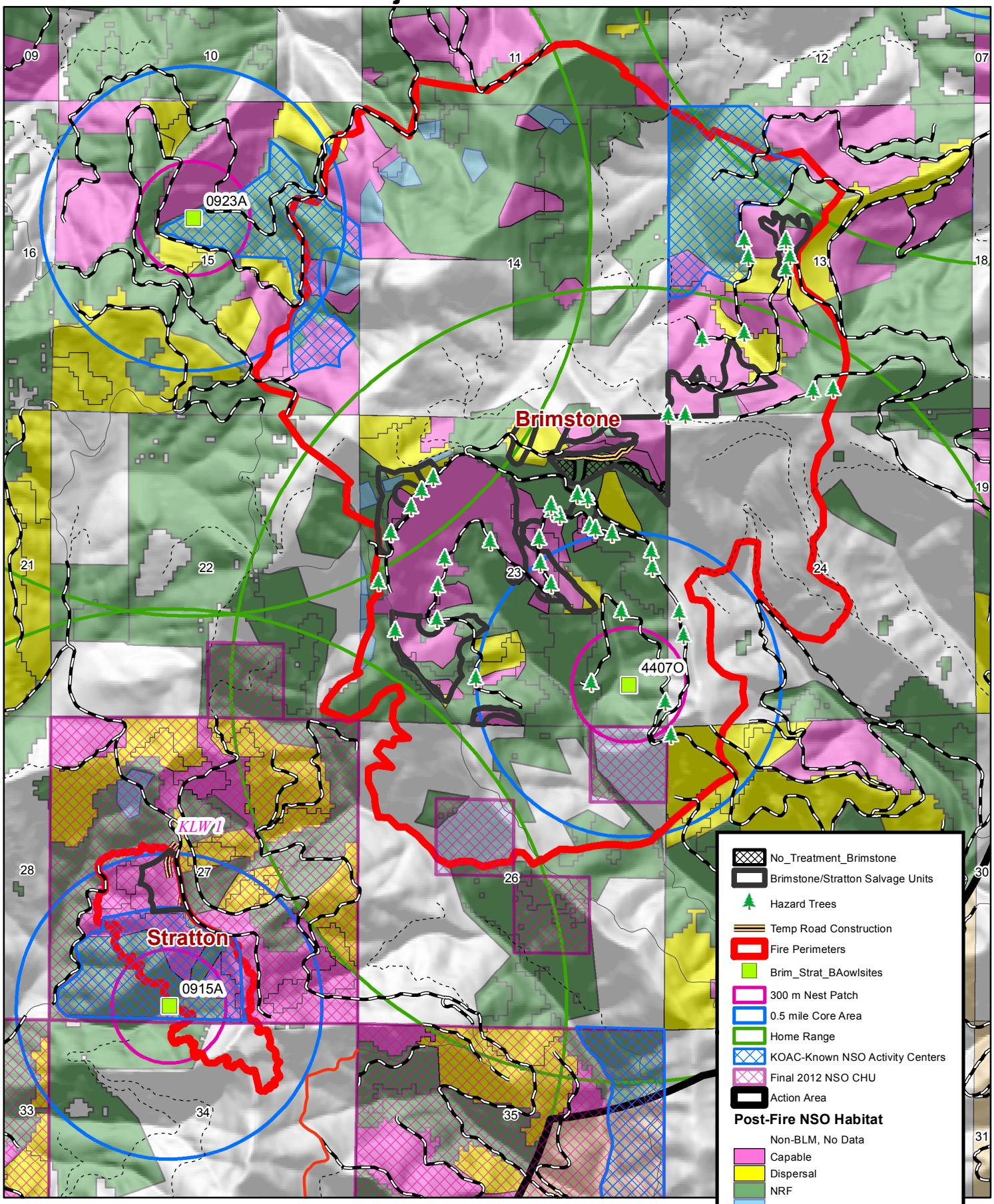
A. No NRF habitat removal will occur within 0.25 miles of any spotted owl site from March 1 through September 30, or until two (2) weeks after the fledging period, unless protocol surveys have determined owls are not present, are non-nesting, or nesting has failed.

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

Appendix B: Map1 -
Brimstone/Stratton Action Area with Post-Fire Habitat



Appendix B: Map 2 -
Brimstone/Stratton Fire and Project Units with Post-Fire Habitat



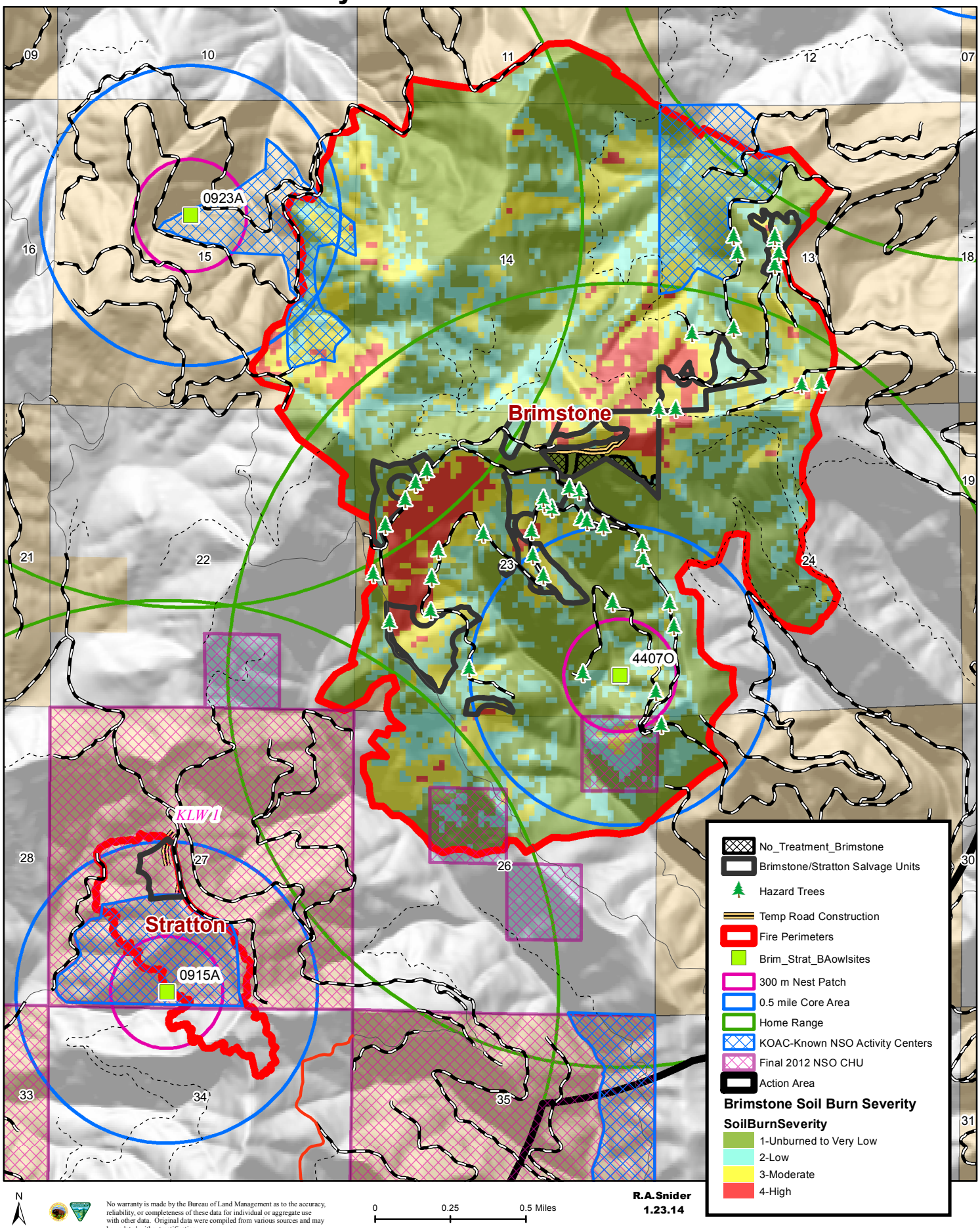
N

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

0 0.25 0.5 Miles

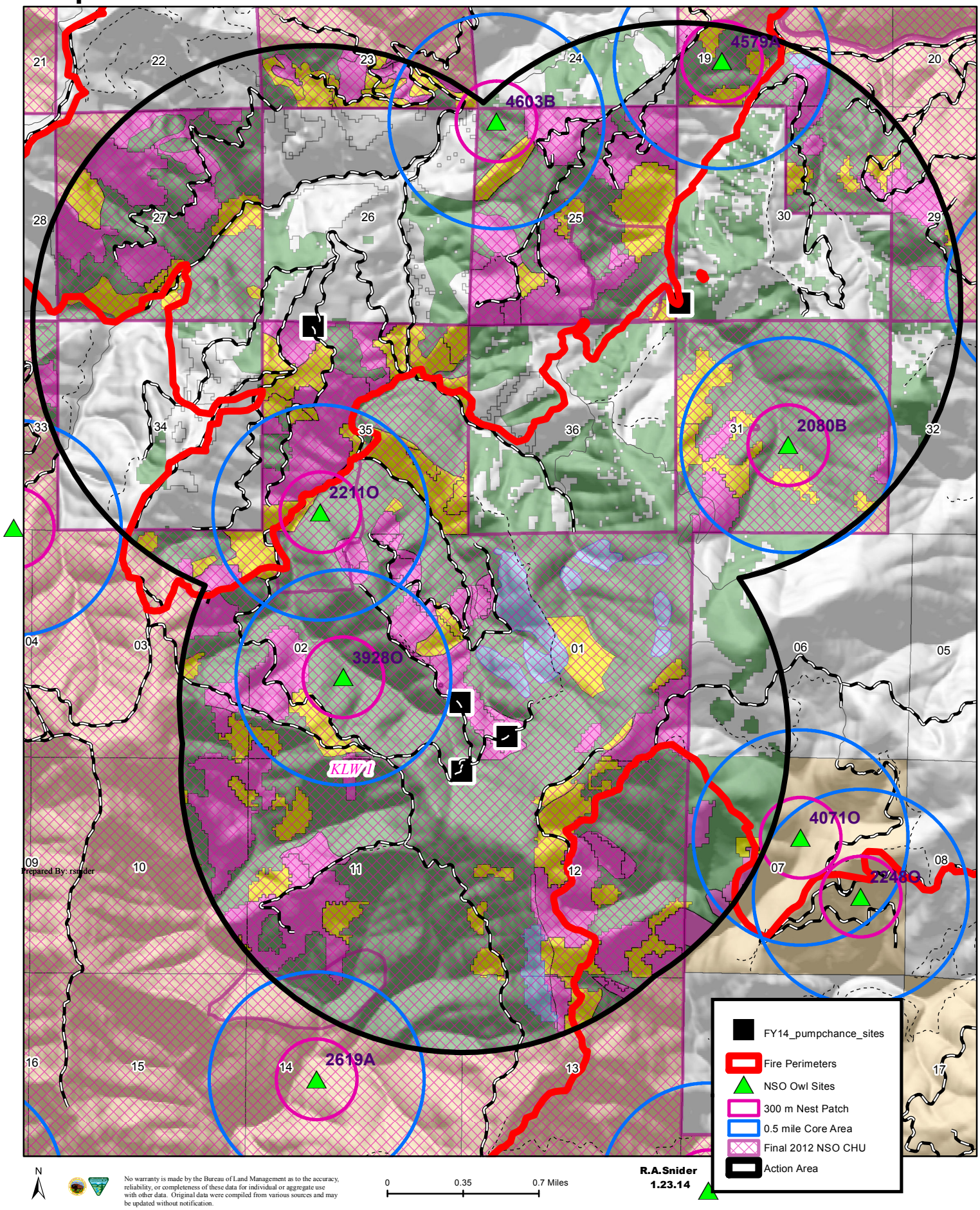
R.A.Snider
1.23.14

Appendix B: Map 3 -
Brimstone Soil Burn Severity



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

Appendix B: Map 4 -
Pump Chance Action Area with Post-Fire Habitat



Appendix C: NSO Site History

Spotted Owl Site Survey, Occupancy, and Reproductive History					
PROJECT	**SITE MSNO**	**SURVEY YEAR**	**# of Visits**	**PAIR STATUS**	**REPRO STATUS**
Brimstone/Stratton	0915	2013-2009	Not Surveyed		
Brimstone/Stratton	0915	2008	3	No Response	
Brimstone/Stratton	0915	2007	1	No Response	
Brimstone/Stratton	0915	2006	Not Surveyed		
Brimstone/Stratton	0915	2005	Not Surveyed		
Brimstone/Stratton	0915	2004-2001	4-6/year	Male and female only detected in 2004 (didn't meet pair status)	No young
	0915	2000	3	Last year pair was verified	Nested with 2 young fledged
Brimstone/Stratton	0916	2013	5	Pair	2 young fledged
Brimstone/Stratton	0916	2012	1	Pair	Nesting Status unknown
Brimstone/Stratton	0916	2011	Not Surveyed		
Brimstone/Stratton	0916	2010	1	No Response	
Brimstone/Stratton	0916	2009	2	Pair	1 young fledged
Brimstone/Stratton	0916	2008	8	Single Male	Nesting unknown
Brimstone/Stratton	0916	2007	2	Pair	Nesting unknown
Brimstone/Stratton	0923	2013	Not Surveyed		
Brimstone/Stratton	0923	2012	4	No Response	
Brimstone/Stratton	0923	2011-2009	Not Surveyed		
Brimstone/Stratton	0923	2008	4	No Response	
Brimstone/Stratton	0923	2007-2005	1-4	At least a single observed and sometimes both a male and female, but not enough times to confirm pair status	No young observed
Brimstone/Stratton	0923	2004-2003	Not Surveyed		
Brimstone/Stratton	0923	2002	6	Pair observed but not enough times to confirm pair status	No young observed
Brimstone/Stratton	0923	2001	4	Last year pair status was confirmed	Last year young successfully fledged
Brimstone/Stratton	4407	2013	Not Surveyed		
Brimstone/Stratton	4407	2012	3	No Response	
Brimstone/Stratton	4407	2011	Not Surveyed		
Brimstone/Stratton	4407	2010	Not Surveyed		
Brimstone/Stratton	4407	2009	1	One male response	
Brimstone/Stratton	4407	2008	3	Male and female detected, but not enough times to meet pair status)	
Brimstone/Stratton	4407	2007	1	No response	
Brimstone/Stratton	4407	2006	2	No Response	
Brimstone/Stratton	4407	2000/1997	3-7	2000 was the last year a pair was verified	1997 was the last year young fledged

Spotted Owl Site Survey, Occupancy, and Reproductive History					
PROJECT	**SITE MSNO**	**SURVEY YEAR**	**# of Visits**	**PAIR STATUS**	**REPRO STATUS**
Pump Chance Clearing	2080	2013	4	No Response	
Pump Chance Clearing	2080	2012	4	No Response	
Pump Chance Clearing	2080	2011	2	Pair	Non-Nesting confirmed
Pump Chance Clearing	2080	2010	8	Pair	2 young fledged
Pump Chance Clearing	2080	2009	5	Pair	Nesting Failed
Pump Chance Clearing	2080	2008	4	Pair	Non-Nesting confirmed
Pump Chance Clearing	2080	2007	7	Pair	2 young fledged
Pump Chance Clearing	2080	2006	3	Pair	Non-Nesting confirmed
Pump Chance Clearing	2080	2005	7	Pair	1 young fledged
Pump Chance Clearing	2080	2004	4	Pair	2 young fledged
Pump Chance Clearing	2211	2013	5	Male observed, but not enough times to meet single status	Nesting unknown
Pump Chance Clearing	2211	2012	5	2 males and 1 female observed	Nesting unknown
Pump Chance Clearing	2211	2011	5	Single male observed	Nesting Unknown
Pump Chance Clearing	2211	2010	5	Male observed, but not enough times to meet single status	Nesting Unknown
Pump Chance Clearing	2211	2009	3	Single female observed	Nesting Unknown
Pump Chance Clearing	2211	2008	8	Single female observed	Nesting Failed
Pump Chance Clearing	2211	2007	4	Single female observed	Non-Nesting confirmed
Pump Chance Clearing	2211	2006	5	Single male observed	Nesting Unknown
Pump Chance Clearing	2211	2005	10	Pair	1 young fledged
Pump Chance Clearing	2211	2004	4	Pair	Non-Nesting confirmed
Pump Chance Clearing	3928	2013	4	Pair	Non-Nesting confirmed
Pump Chance Clearing	3928	2012	6	Pair	Non-Nesting confirmed
Pump Chance Clearing	3928	2011	5	Male observed, but not enough times to confirm single status	Nesting unknown
Pump Chance Clearing	3928	2010	4	Pair	1 young fledged
Pump Chance Clearing	3928	2009	4	No Response	
Pump Chance Clearing	3928	2008	4	No Response	
Pump Chance Clearing	3928	2007	5	Female observed, but not enough times to confirm single status	
Pump Chance Clearing	3928	2006	5	Male observed, but not enough times to confirm single status	
Pump Chance Clearing	3928	2005	4	No Response	
Pump Chance Clearing	3928	2004	4	1 response from unknown sex	

Spotted Owl Site Survey, Occupancy, and Reproductive History					
PROJECT	**SITE MSNO**	**SURVEY YEAR**	**# of Visits**	**PAIR STATUS**	**REPRO STATUS**
Pump Chance Clearing	4579	2013	4	Male observed, but not enough times to confirm single status	
Pump Chance Clearing	4579	2012	2	Pair	Not-Nesting confirmed
Pump Chance Clearing	4579	2011	3	Female observed, but not enough times to confirm single status	
Pump Chance Clearing	4579	2010	4	No Response	
Pump Chance Clearing	4579	2009	4	No Response	
Pump Chance Clearing	4579	2008	4	Male observed, but not enough times to confirm single status	
Pump Chance Clearing	4579	2007	8	Single male observed	Nesting Unknown
Pump Chance Clearing	4579	2006	11	Pair	Nesting unknown
Pump Chance Clearing	4579	2005	4	Pair	2 young fledged
Pump Chance Clearing	4579	2004	2	Pair	1 young fledged
Pump Chance Clearing	4603	2013	4	No Response	
Pump Chance Clearing	4603	2012	4	No Response	
Pump Chance Clearing	4603	2011	5	Male observed, but not enough times to confirm single status	
Pump Chance Clearing	4603	2010	8	Single male	Nesting Unknown
Pump Chance Clearing	4603	2009	4	No Response	
Pump Chance Clearing	4603	2008	13	Female observed, but not enough times to confirm single status	
Pump Chance Clearing	4603	2007	5	Pair	1 young fledged
Pump Chance Clearing	4603	2006	9	Pair	Nesting Failed
Pump Chance Clearing	4603	2005	5	Pair	Nesting Failed
Pump Chance Clearing	4603	2004	5	Pair	1 young fledged