United States Department of the Interior

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IN REPLY REFER TO:

6840 (ORM020)

Memorandum

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

From: District Manager, Medford

Subject: Submission of Medford BLM, Ashland and Butte Falls Resource Areas, Fall FY12 LAA BA

This Biological Assessment (BA) evaluates three projects (Heppsie, Sterling Sweeper, Friese Camp) that "may affect and are likely to adversely affect" (LAA) and one project (Friese Stew) that "may affect and is not likely to adversely affect" (NLAA) northern spotted owls. No effects to northern spotted owl critical habitat are anticipated. Listed plants and fish are evaluated under other consultation documents. No other listed species or critical habitats are affected.

Attached is The Medford Bureau of Land Management (BLM), Fall FY12 LAA Biological Assessment including Appendix A which lists Project design criteria for northern spotted owls, and Appendix B and C Proposed Action Maps.

We request formal consultation from the US Fish and Wildlife Service that evaluates these projects. The District has been working with the Service on this BA since October 4, 2011 when these projects were first presented at a Level 1 team meeting. The Draft BA was submitted to the Level 1 team on December 12, 2011 and comments from the Level 1 team have been addressed in this final BA. The BLM anticipates our coordinated work with the Level 1 team have ensured the projects proposed in this BA will meet our joint obligations under the Endangered Species Act 7(a) 1 and 7(a) 2 to conserve habitat for endangered species, to avoid jeopardizing listed species and to avoid adverse modification of designated critical habitat.

For further information, please contact Marlin Pose (541) 471-6617.

Attachment

Medford FY12 Fall
May Affect, Likely to Adversely Affect (LAA)
Biological Assessment

(Cite as Fall FY12 LAA BA)

An Assessment of Effects to the
Northern Spotted Owl

Medford District
Bureau of Land Management
January 2012

Table of Contents

1. INTRODUCTION 3
1.1 Consultation History 3
1.2 Northern Spotted Owl Recovery Plan 4
1.3 Definitions 4
2. DESCRIPTION OF THE PROPOSED ACTION 6
2.1 Description of the Action Area 7
2.2 Description of the Treatment Types/ Prescriptions 7
2.3 Description of the Projects 10
2.4 Detailed Timber Project Descriptions 12
2.5 Project Design Criteria 16
3. ENVIRONMENTAL BASELINE 16
3.1 Status of Owls Range-wide 16
3.2 Status of Northern Spotted Owl Habitat in the Action Area 17
3.3 Status of Northern Spotted Owl Sites in the Action Area 20
3.4 Barred Owls 20
4. EFFECTS OF THE PROPOSED ACTION 21
4.1 Effects Analyzed By Spotted Owl Sites 21
4.2 Effects Analyzed by Habitat 26
4.3 Effects to Spotted Owl Prey 30
4.4 Effects of Disturbance to Northern Spotted Owls 33
4.5 Interrelated and Interdependent Effects 33
4.6 Cumulative Effects 33
Appendix A: Project Design Criteria (PDC) 40
Appendix B: Proposed Action Maps 1

1. INTRODUCTION

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

This Biological Assessment (BA) describes and evaluates the potential effects from the Friese Camp, Friese Stew, Heppsie, and Sterling Sweeper projects in two Resource Areas. These projects may be divided into smaller timber sales. BLM requests formal consultation for projects we have determined *may affect, likely to adversely affect (LAA)* the northern spotted owl and concurrence for portions of those projects that *may affect, but is not likely to adversely affect (NLAA)* the northern spotted owl. No other listed terrestrial wildlife species are affected. These projects do not occur in northern spotted owl critical habitat units designated in 2008.

The effects on plants are evaluated in the FY 2009-2013 Programmatic Biological Assessment for Activities that May Affect the listed endangered plant species Gentner's Fritillary, Cook's Lomatium, McDonald's rockcress, and large-flowered wooly meadowfoam (USDI BLM 2008). Listed fish are evaluated in separate project level consultations.

1.1 Consultation History

The Sweeper and Heppsie projects are new proposals, while portions of the Friese Camp project were in previous Medford BLM consultations. The Camp Cur project within the Friese Camp planning area was in the FY04-08, FY06-08, and 2008 BA DA FH consultation packages. The associated biological opinions for the FY04-08 and FY06-08 BA were withdrawn by the Service due to litigation. The 2008 BA DA FH was never completed.

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). There is currently ongoing litigation regarding BLM's land use plan. All projects will comply with the plan guidance in place at the date of the Record of Decision (ROD) for that project, however, projects will be consistent with the project descriptions and PDC's described in this BA, or that project will be presented to Level 1 for evaluation to see if reinitiation is necessary.

The projects in this BA were presented to the Level 1 team at a briefing meeting on October 4th, 2011. The Level 1 team includes the Rogue River-Siskiyou National Forest Biologist, the Medford BLM District Biologist, and the Roseburg Fish and Wildlife Office Biologist. A field trip to the Friese Camp occurred on October 20th, 2011 and a field trip to the Sterling Sweeper project occurred on October 25th, 2011.

1.2 Northern Spotted Owl Recovery Plan

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

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

Projects in this BA will also meet other Recovery Actions listed in the Revised Recovery Plan, such Recovery Action 6 and Recovery Action 10. Young stand treatments designed to accelerate the development of structural complexity and biological diversity will meet Recovery Action 6. All projects in this BA will meet Recovery Action 10 because they aim to conserve and enhance known northern spotted owl sites. The BLM will incorporate other Recovery Actions to the extent possible.

1.3 Definitions

Table 1. Northern Spotted Owl Breeding Periods

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

Nesting, Roosting, and Foraging (NRF) Habitat for the northern spotted owl consists of habitat used by owls for nesting, roosting, and foraging. Generally, this habitat is multistoried, 80 years old or older (depending on stand type and structural condition), and has sufficient snags and down wood to provide opportunities for nesting, roosting, and foraging. The canopy closure generally exceeds 60 percent, but canopy closure or age alone does not qualify a stand as NRF. Other attributes include a high incidence of large trees with various deformities (e.g. large

cavities, broken tops, mistletoe infestations, and other evidence of decadence), large snags, large accumulations of fallen trees and other woody debris on the ground, and sufficient open space below the canopy for owls to fly (Thomas *et al*., 1990).

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

Dispersal Habitat is a subcategory of "all dispersal" habitat for northern spotted owls. All-dispersal is defined as dispersal plus NRF. Throughout this document, "dispersal" will be used to describe dispersal-only habitat. Thomas *et al*., 1990, defined dispersal habitat as forested habitat more than 40 years old, with canopy closure more than 40 percent, average diameter greater than 11 inches, and flying space for owls in the understory and does not provide the components found in NRF. It provides temporary shelter for owls moving through the area between NRF habitats and some opportunity for owls to find prey; but it does not provide all of the requirements to support an owl throughout its life. Dispersal will be used throughout this document to refer to habitat that does not meet the criteria to be NRF habitat, but has adequate cover to facilitate movement between blocks of NRF habitat.

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

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

Treat and Maintain NRF or Dispersal Habitat is the treatment defined when an action or activity in NRF or dispersal habitat removes some trees, but does not change the conditions that would classify the stand as NRF or dispersal post-treatment, as defined by Thomas et al. (1990). The NRF stand will retain at least 60 percent canopy cover, large trees, multistoried canopy, standing and down dead wood, diverse understory adequate to support prey, and may have some mistletoe or other decay. Dispersal habitat will retain at least 40 percent canopy, flying space, and trees 11 inches diameter at breast height (dbh) or greater, on average. The habitat classification of the stand following treatment will be the same as the pretreatment habitat classification.

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

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

2. DESCRIPTION OF THE PROPOSED ACTION

All projects in this BA occur in the 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). Matrix includes north and south General Forest Management Areas (NGFMA and SGFMA).

The projects are scattered across four Section 7 watersheds (Table 4) within two spotted owl physiographic provinces: Klamath Mountains and Western Cascades. Section 7 watersheds were developed by the Level 1 team shortly after the spotted owl was listed as a logical area for evaluation when multiple projects are proposed (USDI BLM 2004). They are similar, but not identical, to HUC 5 watersheds.

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

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

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

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

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

2.1 Description of the Action Area

The Action Area is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR 402.02). For this consultation, the analysis area is described in four section 7 watersheds. The action area is defined as the area directly or indirectly affected by the proposed action, usually the home range of affected NSO sites plus any disturbance/disruption distances.

2.2 Description of the Treatment Types/ Prescriptions

General Descriptions

Commercial thinning (CT) (Heppsie, Friese Camp/Friese Stew) is used to control stocking and to redistribute the growth potential to fewer but larger trees. Removal of smaller trees and trees in direct competition with healthy dominant and codominant trees would redirect the site resources toward the development and maintenance of large healthy trees. A minimum of 40% canopy cover would remain after harvest.

Density management (DM) (Friese Camp/Friese Stew) would thin trees from below to maintain or enhance forest health, stand structure, and function for northern spotted owl habitat. The residual canopy cover would be a minimum of 40 or 60%, depending on the current owl habitat designation (dispersal or nesting, roosting, and foraging), with multiple layers present.

Selection harvest (SH) (Friese Camp) would remove poor vigor trees from *all* diameter classes. Stand densities would be reduced and site resources (water, sunlight, nutrients, and growing space) would be available for the remaining trees. The stand structure would have multiple layers with multiple-aged trees. Canopy cover would range from 40 to 60% following harvest.

Regeneration harvest (RH) (Freise Camp, Heppsie)***:*** would occur in older forest stands with declining growth rates or experiencing deterioration from insects, disease, or other factors. Retained trees would be the most vigorous trees and would be selected based on tree crown ratio and form. Northern GFMA (General Forest Management Area) regeneration harvest would retain 6 to 8 trees per acre greater than 20 inches dbh (diameter at breast height). A canopy closure of 10 to 15% would remain after harvest. Southern GFMA regeneration harvest would retain 16 to 25 green trees per acre greater than 20 inches dbh. A canopy closure of 25 to 40% would remain after harvest. Regeneration harvest units would be replanted after harvest.

Regeneration harvest would occur only in one laminated root rot (*Phellinus weirii*) pocket in T34-03E-Section 13 of the Friese Camp Project, which includes 8 acres of roosting/foraging habitat. Without stand treatment, trees infected with laminated root rot have reduced growth rates and higher than normal mortality rates. As the fungus spreads and kills more trees, stand openings would occur, with snags and wind thrown trees common. Coarse woody debris would accumulate at higher than normal levels. Root to root contact between infected trees and uninfected trees would continue with crown symptoms appearing 5 to 15 years after initial infection. After crown symptoms appear, large trees would live an average of 10 years before tree mortality (Theis and Sturrock 1995).

Selective Thinning (ST) (Heppsie and Sterling Sweeper projects)***:*** Selected forest stands that are currently providing for northern spotted owl nesting, roosting, and foraging habitat would be thinned to maintain NRF habitat function. Selective thinning in NRF habitat is designed to accelerate the growth of large trees while maintaining a minimum of 60 percent canopy cover at the stand level. Spacing of the residual (leave) trees would involve crown spacing off the healthiest dominant and co-dominant trees to achieve an average crown spacing range of 1-6 ft. (dripline to dripline) at the stand level. Trees targeted for removal would include those with crown ratios less than 30%, exhibit crown decline, narrow crown widths, contribute least to the canopy layer, and those that may have disease. Trees would be individually selected for removal that demonstrate these characteristics, unless it compromises the required minimum canopy cover of 60%.

Density Management (DM) (Heppsie and Sterling Sweeper projects)***:*** The primary objective of thinning in units identified for density management is to improve tree vigor and growth for long-term forest production and to reduce the impacts of forest disease. Silvicultural prescriptions are based on site conditions that dictate forest types such as pine site, dry Douglas-fir, and mixed conifer. This prescription is typically prescribed for uneven-aged stands for the primary purpose of widening the spacing of residual trees in order to promote the growth and structural development of the remaining stand. Many of these stands developed in conjunction with disturbance (fire, insects, harvest, etc.) and have several layers containing multiple species. Spacing of the residual trees would use the basal area of the healthiest dominant and co-dominant trees to achieve an average relative density of 0.25 to 0.35 (25 to 35%).

Group Selection (GS) (Sterling Sweeper project)***:*** The principal purpose for group selection treatment is to create structural diversity among stands that have a monoculture appearance or a one- layer overstory. Residual trees will have improved health, vigor, and growth from the added growing space, water, and nutrients that they receive. Group selection will create small openings allowing regeneration establishment and release, preserve legacy trees within the stand, and remove diseased trees.

Where dominant legacy candidate ponderosa pine, sugar pine, incense cedar, and Douglas-fir (≥ 18 inches DBH) are encountered, removal of the codominant, intermediate, and suppressed conifers from below the dominant legacy trees would occur. Creation of 1/4-acre openings (59 ft. radius or 118 ft. diameter) and no more than 1/2-acre openings(83 ft. radius or 168 ft. diameter) in size would be formed for preservation of old growth pine. Legacy candidate species would be

centered in the 1/4-1/2-acre circular openings but will vary in shape depending on site conditions and unique stand features.

Group selection will occur in stands that have pockets of Douglas-fir that are infected with dwarf mitstletoe. Removal of Douglas-fir infected trees will create small openings between ¼-1/2 acres in size. The openings formed will vary in shape to capture the diseased trees. Because dwarf mistletoe seeds spread downhill, where high concentrations of mistletoe are found, group openings will be created beginning on the uphill edge of heavily infested areas then extend downhill. Resistant species such as ponderosa pine, sugar pine, and incense cedar will be retained in openings where mistletoe removal occurs.

Disease Sanitation (DS) (Sterling Sweeper, Heppsie project)***:*** Forested stands that are heavily infected with Douglas-fir dwarf mistletoe and/or beetle kill are candidates for disease sanitation. The stands selected for treatment will have infected trees removed of various size classes to minimize infection that is likely to spread to other codominant or intermediate trees. Resistant species such as ponderosa pine, sugar pine, and incense cedar will be retained throughout the stands where mistletoe removal occurs. Healthy Douglas-fir that appears resistant to the infection will be retained as residual trees as well. Follow up planting may occur if tree density is below desired stocking levels.

A second phase of the disease sanitation will take place shortly after the initial treatment. These stands have well- stocked understories that are susceptible to infection. Infected regeneration will be removed from the stand by thinning the understory so as not to infect healthy trees. The regeneration thinning of infected trees will favor resistant species such as ponderosa pine, sugar pine, and incense cedar to be retained.

Small Diameter Thinning **(**Heppsie and Friese Stew project):
Thin stands to promote stand health, create structural diversity within the stands, and increase landscape resiliency to environmental disturbances. Riparian areas located adjacent to upland thinning units would be thinned using a similar prescription with an emphasis on retaining riparian species (e.g., maple, willow). In mixed conifer stands, conifer trees 8 inches and greater would be thinned to a 25% relative density on sites where average rainfall is less than 35 inches per year, and a 35% relative density on sites where average rainfall is more than 35 inches per year. Pine stands would be thinned to a 25% relative density.

(Heppsie): Approximately 10 to 15% of the stands would be left in unthinned patches and small openings ranging in size from 0.1 to 0.25 acre. In conifer stands containing hardwoods, 3 to 5 of the largest hardwood trees per acre would be retained. In stands where the relative density of trees larger than 8 inches is less than 35%, trees less than 8 inches would be thinned and spaced 20 feet from existing conifer trees.

Ground-based yarding uses a skidder (rubber-tired or tracked) or tractor that moves from the landing into the harvest unit on designated skid trails. Skidders or tractors are equipped with a cable (winch) line drum, grapples, or both. The winch drum holds 75 to 150 feet of cable called the bull or winch line. Depending on their proximity, trees would be bull lined or grappled to the skid trail. The bull line can run directly to the logs or, more commonly, through an integral arch

mounted on the machine. When the trees are on the skid trail, the skidder or tractor skids the trees to the landing. An integral arch or grapple lifts the front end of the logs off the ground during the skidding process. This lift reduces friction between the logs and the ground, reduces soil disturbance, and improves traction by transferring part of the log weight to the skidder. The skidder would travel on skid trails that are designated and approved by the BLM. Ground-based yarding is generally limited to slopes of 35% or less. Skid trails and landings no longer needed for future management activities would be ripped after harvest is completed.

Skyline-cable yarding uses a stationary machine, or yarder, that sits on the road and pulls the logs to the landing using stationary steel cables with a moveable carriage. They are generally used on ground too steep for ground-based yarding. The skyline cable is the major load-bearing line; it provides most of the lift to the logs. A mainline cable runs to or through the carriage and pulls the carriage and logs along the skyline to the landing. One end of the log is suspended unless a topographic condition (convex slopes, benched ground) reduces the ability to lift the end of the log off the ground. The exact number of anchor trees that would be cut is unknown, but likely several would be cut above each unit. The effects from the loss of these trees are included in the acreage and disturbance of the projects. The size of trees selected for anchor trees is expected to be equal to or larger than the trees being yarded.

Spur roads would be constructed to allow operators temporary access to harvest units. All temporary spur roads would be located on stable areas. After harvest is complete, the roads would be decommissioned in the same season as used. Temporary spur roads would be ripped, seeded with native grasses, mulched, and blocked.

Permanent Road Construction Roads would be constructed where permanent access to proposed and future harvest units is needed. Roads may be temporarily blocked after use but would remain in the BLM road record inventory for future use.

Lop and Scatter When the slash (live and dead material 9 inches or less) remaining in the units after harvest is less than 11 tons per acre, all stems and branches would be cut from the tree trunk and scattered. Trunks 7 inches in diameter and less would be cut to 3-foot lengths and left on the ground. The depth of the slash would not exceed 18 inches.

Hand Piling and Hand Pile Burning If the slash remaining in the units after harvest is greater than 11 tons per acre, the material between 1 and 7 inches in diameter and longer than 2 feet will be piled by hand. The piles will be a maximum of 4 feet high and 6 feet in diameter. Piles will be burned in the fall, winter, or spring.

2.3 Description of the Projects

Actions common to all projects

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

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

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

- Spotted owl habitat assessments were completed to accurately locate and identify spotted owl habitat and develop prescriptions to maintain or reduce impacts to NRF habitat.
- Protection of red tree vole, mollusk, great gray owl sites, fragile soils, and sensitive plant surveys resulted in no treatment buffers allowed for untreated patches of spotted owl habitat throughout the project areas.
- Project design that incorporated historic owl survey data assessments
- Protection of fragile soils
- None of the projects in this BA are located within CHU (USDI Fish and Wildlife Service 2008)
- None of the projects occur in Late Successional Reserves (USDA and USDI 1994b)
- RA 32 evaluations have been conducted in all four projects. No harvest activities, or yarding corridors or road construction will occur in RA 32 stands.
- No projects occur within Known Spotted Owl Activity Centers (KSOAC). KSOAC are the best 100 acres around northern spotted owl activity centers that were documented as of January 1, 1994 on Matrix and AMA lands, and are managed as Late Successional Reserves (LSR). The criteria for mapping these areas are identified on pages C-10 and C-11 of the Northwest Forest Plan Standards and Guidelines (USDA USDI 1994b).
- No spotted owl known site nest patches will be treated.
- If treatments are proposed in the core or home range of previously unknown owl sites that are found during surveys, the treatment will be modified or dropped, or will be brought forward to Level 1 to evaluate if the activity requires reinitiation of consultation.

Table 2. Proposed Action Summary

Project	Resource Area	Physiographic Province	Total Project Acres* (In BA)	LUA	Treatment type	Road building miles	RA 32 Treat
Rogue-Upper Section Seven Watershed							
Friese Camp	Butte Falls	Western Cascades	2,004	Matrix	Timber Harvest	1	NA
Friese Stew	Butte Falls	Western Cascades	433	Matrix	Young Stand Thinning	0	NA
Little Butte Creek Section Seven Watershed							

Table 2. Proposed Action Summary							
Project	**Resource Area**	**Physiographic Province**	**Total Project Acres* (In BA)**	**LUA**	**Treatment type**	**Road building miles**	**RA 32 Treat**
Heppsie	Ashland	Western Cascades	515	Matrix	Timber Harvest	2	NA
Bear Creek and Applegate River Section Seven Watershed							
Sterling Sweeper	Ashland	Klamath	477	Matrix	Timber Harvest	1.5	NA

NA=Not applicable. No RA 32 stands would be treated
*GIS acres rounded to nearest full acre
*Acres from 12/2/11 GIS project layer. All GIS acres are rounded to the nearest integer. Slivers less than 0.5 acres are deleted.

2.4 Detailed Timber Project Descriptions

Friese Camp

Current conditions: The Friese Camp Timber Sale is in the Butte Falls Resource Area and will treat 964 acres of NRF, 1,030 acres of dispersal habitat, and 10 acres of density management (DM) in capable habitat. Stand ages vary from approximately 40 to 180 years old, with canopy closures exceeding 60%.

The white fir plant series is the most common forest plant classification in the project area (USDA 1995b, 24). Douglas-fir is the dominant overstory tree, with lesser amounts of white fir, incense-cedar, ponderosa pine and sugar pine. Understory species include Douglas-fir, white fir, and incense cedar. Hardwoods include minor amounts of California black oak, madrone in areas of relatively recent fires, and golden chinquapin on shallow rocky soils. Shrub competition is moderate following site disturbance once the overstory is opened up. Shrub species present in varying amounts are ceanothus species, oceanspray, vine maple, hazel, serviceberry, and Oregon grape.

The 964 acres of NRF habitat lacks the structural complexity that is found in RA32 habitat and/or lacks decadence such as course woody debris and large snags. Tree diameters in these stands are greater than 16 inches and the canopy closures are greater than 60%. The resource area biologist has determined that these stands function as roosting, foraging, and dispersal habitat.

Project description: This project will use Density Management, Select Harvest, Commercial Thinning, Regeneration Harvest, and Small Diameter Thinning prescriptions as described above. The units will be treated using tractor and cable logging methods and will utilize tailhold/anchor trees in dispersal habitat to facilitate operational feasibility. Approximately 14 acres of dispersal maintained treatment would result from the removal of tailhold/anchor trees from cable logging. Approximately 0.5 miles of temporary roads and 0.5 miles of permanent roads will be constructed

in dispersal habitat outside of the proposed project units. Activity slash will be lop and scattered and hand-piled and burned in denser stands.

Conservation measures specific to Friese Camp
The development of the Friese Camp projects over the past several years involved:

- Spotted owl habitat assessments
- Mollusk, great gray owl, and spotted owl surveys
- Sensitive plant surveys
- Tracking locations and nesting success of spotted owls
- Tree stand exams
- Identification of fragile soils, riparian, and fish-bearing streams.

Stand treatments revolved around trying to avoid adversely affecting spotted owls. Careful attention was focused toward avoiding the downgrade or removal of habitat within the home ranges of known and generated owl sites. RA 32 habitat was identified in the field and dropped from treatment. Under-burning in project units will not be conducted, thus retaining lower tree layers where present.

Sensitive plant sites, riparian zones, raptor nests, and Survey and Manage mollusk sites were all buffered and removed from treatment. These sensitive areas will continue to provide dispersal corridors, foraging habitat, and nesting and roosting opportunities for owls.

Stands of young trees that are currently marginal dispersal habitat or capable habitat will be thinned to encourage the growth of the remaining, older trees, and to reduce the danger of stand-replacing fires.

Friese Stew

Current Conditions:
Plantations are approximately 30-50 years old, predominantly 8- 16" dbh. Unmanaged stands are approximately 60-110 years old and diameter ranges predominantly from 8-20" dbh. Canopy cover in all stands is approximately 60% or greater.

Project description:
Friese Stew project is 433 acres. Prescriptions will treat and maintain 11 acres of roosting and foraging habitat, 346 acres of dispersal habitat, and 76 acres of capable habitat. Commercial and pre-commercial thinning will occur to reduce stand density. Dense planted and natural conifers generally 8" and less in diameter would be pre-commercially thinned to a spacing approximately 15'X15'. Dispersal and roosting/foraging stands would maintain 40% and 60% canopy cover and thinned from below to retain most dominant midstory and overstory trees, and tree species diversity and vertical layering where it occurs. There is no permanent or temporary road construction.

Conservation measures specific to Friese Stew

- Leave 10 to 15% of stands in unthinned patches/ small openings approximately 0.1 to 0.25 acre
- Retain 3 to 5 of the largest hardwood trees per acre in conifer stands

Heppsie

Current conditions: The Heppsie Timber Sale is in the Ashland Resource Area and will treat 93 acres of NRF and 342 acres of dispersal habitat and 80 acres of capable habitat. Stand ages vary from approximately 80-150 years old, with canopy closures exceeding 60%. Capable habitat (80 acres) have less 40% canopy cover and most tree diameters ranging approximately 8-24".

The mixed conifer plant series is the most common forest plant classification in the project area (USDA 1995b, 24). Douglas-fir is the dominant overstory tree, with lesser amounts of white fir, incense-cedar, ponderosa pine and sugar pine. Understory species include Douglas-fir, incense-cedar, ponderosa pine and sugar pine. Hardwoods include minor amounts of California black oak, madrone in areas of relatively recent fires. Shrub competition is moderate following site disturbance once the overstory is opened up. Shrub species present in varying amounts are ceanothus species, oceanspray, big leaf maple, hazel, serviceberry, and Oregon grape.

The 93 acres of NRF habitat lacks the structural complexity that is found in RA32 habitat and/or lacks decadence such as course woody debris and large snags. Tree diameters in these stands are greater than 16 inches and the canopy closures are greater than 60%. They function as roosting and foraging, and dispersal habitat.

Project description: This project will use Density Management, Select Harvest, Commercial Thinning, Regeneration Harvest, Disease Sanitation, and Small Diameter Thinning prescriptions as described above. The units will be treated using tractor and cable logging methods. Approximately 2.0 miles of permanent roads will be constructed in dispersal habitat outside of the proposed project units. Activity slash will be lop and scattered and hand-piled and burned in denser stands.

The silvicultural objectives for harvest are as follows: 1) Reduce stand density to increase tree health, growth, and vigor of the residual trees; 2) Create structural diversity (height, age, and diameter classes) and old-growth stand characteristics; 3) Increase growing space and decrease competition for large or legacy pine, oak, and cedar (preserve existing genotypes which are physiologically better adapted to fire disturbance); 4) maintain and create nesting, roosting, and foraging owl habitat within forest stands in the analysis area.

Trees would be marked for treatment within proposed sale units by BLM personnel, with oversight from the Ashland Resource Area's silviculturist and wildlife biologist to ensure that treatment units are marked according to the silvicultural prescriptions.

Capable habitat (80 acres) would be treated with disease sanitation (DS). The dead and dying beetle kill and mistletoe infected trees would be removed and reduce canopy cover to approximately 25-30% canopy cover and be followed with pine planting. The stands would remain as capable habitat.

Conservation measures specific to Heppsie

Stand treatments revolved around trying to avoid adversely affecting spotted owls. Careful attention was focused toward avoiding the downgrade or removal of NRF habitat within the home ranges of owl sites. All proposed units were assessed for qualification as RA 32 habitat. No RA 32 habitat was located.

Sterling Sweeper

Current conditions: The Sterling Sweeper Timber Sale is in the Ashland Resource Area and will treat 31 acres of NRF and 372 acres of dispersal habitat and 74 acres of capable habitat. Stand ages vary from approximately 60 to 170 years old, with canopy closures exceeding 60%.

The Douglas fir plant series is the most common forest plant classification in the project area (USDA 1995b, 24). Douglas-fir is the dominant overstory tree, with lesser amounts of white fir, incense-cedar, ponderosa pine and sugar pine. Understory species include Douglas-fir, white fir, Pondersosa pine, sugar pine, and incense cedar. Hardwoods include minor amounts of California black oak, madrone in areas of relatively recent fires. Shrub competition is moderate following site disturbance once the overstory is opened up. Shrub species present in varying amounts are ceanothus species, oceanspray, hazel, and Oregon grape.

The 25 acres of NRF habitat planned for treatment lacks the structural complexity that is found in RA-32 habitat and/or lacks decadence such as course woody debris and large snags. 169 acres of proposed treatment areas were dropped when it was determined that they met the RA-32 requirements. Tree diameters in these stands are greater than 16 inches and the canopy closures are greater than 60%. They function as nesting, roosting, foraging, and dispersal habitat.

Project description: This project will use Selective Thinning, Density Management, Group Select, Disease Sanitation prescriptions as described above. The units will be treated using tractor and cable logging methods. One half mile of road will be constructed outside of proposed project units and will be located in capable habitat. One half mile of road will be constructed outside of proposed project units and will be located in capable habitat. One mile of new road will be constructed in dispersal habitat inside of the proposed project units. Activity slash will be lop and scattered and hand-piled and burned in denser stands.

The silvicultural objectives for harvest are as follows: 1) Reduce stand density to increase tree health, growth, and vigor of the residual trees; 2) Create structural diversity (height, age, and diameter classes) and old-growth stand characteristics; 3) Increase growing space and decrease competition for large or legacy pine, oak, and cedar (preserve existing genotypes which are physiologically better adapted to fire disturbance); 4) maintain and create nesting, roosting, and foraging owl habitat within forest stands in the analysis area.

Trees would be marked for treatment within proposed sale units by BLM personnel, with oversight from the Ashland Resource Area's silviculturist and wildlife biologist to ensure that treatment units are marked according to the silvicultural prescriptions.

Conservation measures specific to Sterling Sweeper

Stand treatments revolved around trying to avoid adversely affecting spotted owls. Careful attention was focused toward avoiding the downgrade or removal of NRF habitat within the home ranges of owl sites. All proposed units were assessed for qualification as RA 32 habitat. Approximately 169 acres of RA32 habitat was identified within the project area and removed from treatment consideration. Protection for adits suitable for bat use also deferred 15 acres of NRF habitat and 2 acres of capable habitat.

Approximately 74 acres of young stands that are currently capable habitat will be thinned to encourage the growth of the remaining, older trees, and to reduce the danger of stand-replacing fires.

2.5 Project Design Criteria

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

3. ENVIRONMENTAL BASELINE

3.1 Status of Owls Range-wide

ESA regulations (50 CFR 402.02) states *the environmental baseline includes the past and present impacts of all Federal, state, or private actions and other human activities in the Action Area. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impacts of state and private actions which are contemporaneous with the consultation in progress. Such actions include, but are not limited to, previous timber harvests and other land management activities*.

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

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

- *Assess changes in population trend and demographic performance of spotted owls on federally administered forest lands within the range of the owl and*

- *Assess changes in the amount and distribution of nesting, roosting, and foraging habitat and dispersal habitat for spotted owls on federally administered forest lands.*

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

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

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

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

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

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

3.2 Status of Northern Spotted Owl Habitat in the Action Area

The environmental baseline for owls on the Medford BLM administered lands for the Action Area is current as of December 2011. The environmental baseline was developed using existing

information, field assessments by experienced wildlife biologists, Interagency Vegetation Mapping Project (IVMP) imagery from 1996 (as corrected through 2003), and several additional steps of refinements during project lay-out and evaluation. IVMP data is the source for information for non-BLM lands. Much of the forested habitat in the Medford BLM is mixed-age, mixed-conifer habitat, which makes it difficult to delineate listed species habitat using traditional photo or satellite imagery or by depending solely on data from the Forest Operations Inventory (FOI) BLM timber classification system or Microstorms, the silviculture data system. The environmental baseline used information from photos, field information, and FOI data to update the IVMP environmental baseline update. Field verified information was used for effects determinations for each project and for geographic information system (GIS) shapefile attributes. The environmental baseline was corrected to match the field-evaluated habitat used for project shapefiles when necessary. Modifications were incorporated in this BA as a result of field verifications during the planning process and corrections in the database unit boundaries.

The proposed projects are within two physiographic provinces, the Western Cascades and Klamath Mountains. Harvest history and wildfire have influenced habitat conditions in both physiographic provinces and has played an important role in influencing successional processes and creating diverse forest conditions. Atzet and Wheeler (1982) discuss fire as a key natural disturbance in the Klamath Province in southwestern Oregon. Within the Western Cascades Province, historical fire frequencies that are low or moderate in the northern part of the province are higher in the south (Moeur et al. 2005).

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

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

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

Rogue-Upper Section Seven Watershed	**Acres**
Total acres all ownership	793,937
Total acres Non-Medford BLM ownership	685,352
BLM Non-habitat	10,285
BLM Capable	33,465
BLM Dispersal	23,369
BLM NRF	**41,466**
Total acres Medford BLM	108,585
Other Federal NRF	173,161
Non-Federal NRF	23,590

Total NRF on Non-Medford BLM ownership	**196,751**
Little Butte Section Seven Watershed	**Acres**
Total acres all ownership	238,594
Total acres Non-Medford BLM ownership	183,800
BLM Non-habitat	14,394
BLM Capable	17,981
BLM Dispersal	6,662
BLM NRF	**15,757**
Total acres Medford BLM	54,794
Other Federal NRF	23,115
Non-Federal NRF	3,059
Total NRF on Non-Medford BLM ownership	**26,174**
Bear Creek Section Seven Watershed	**Acres**
Total acres all ownership	231,095
Total acres Non-Medford BLM ownership	204,447
BLM Non-habitat	9,466
BLM Capable	4,295
BLM Dispersal	2,112
BLM NRF	**10,775**
Total acres Medford BLM	26,648
Other Federal NRF	10,788
Non-Federal NRF	12,105
Total NRF on Non-Medford BLM ownership	**22,893**
Applegate Section Seven Watershed	**Acres**
Total acres all ownership	492,884
Total acres Non-Medford BLM ownership	344,477
BLM Non-habitat	12,154
BLM Capable	49,757
BLM Dispersal	24,939
BLM NRF	**61,557**
Total acres Medford BLM	148,407
Other Federal NRF	84,308
Non-Federal NRF	30,036

Total NRF on Non-Medford BLM ownership	**114,344**

Other Federal = US Forest Service, Corps of Engineers, Bureau of Reclamation
Non-Federal = State, private, county, local government

3.3 Status of Northern Spotted Owl Sites in the Action Area

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

Most of these sites have not been surveyed recently. Limited surveys have been conducted at these sites in the past decade, so history for every site within the project area is lacking. Since the existing survey coverage and effort are insufficient to produce reliable range-wide estimates of population size, demographic data are used to evaluate trends in spotted owl populations (USDI 2008c). See Section 3.1 for information regarding population trends in the Klamath Mountain and West Cascades provinces.

Table 4. Spotted Owl Sites (by Section Seven Watershed and Project Area)

	Number of owl sites (centers) within Watershed boundary *	Number of owl home ranges Associated with the Action Area
Rogue-Upper	**77 Historic / 11 Generated**	
Friese Camp/Stew		**12**
Little Butte	**29 Historic/ 6 Generated**	
Heppsie		**3**
Bear Creek	**21 Historic/ 7 Generated**	
Sterling Sweeper		**2**
Applegate	**69 Historic/15 Generated**	
Sterling Sweeper		**7**

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

3.4 Barred Owls

The 2011Revised Recovery Plan for the Northern Spotted Owl identifies competition from the barred owl as a threat to the spotted owl (USDI FWS 2011). Barred owls (Strix varia) are native to eastern North America, but have moved west into spotted owl habitat. Since barred owls are less selective about the habitat they use and the prey they feed on, they may be out-competing northern spotted owls for habitat and food. The effects of the barred owl on spotted owl survival

and reproduction is unknown. Barred owls are detected opportunistically since we haven't conducted protocol surveys across the District. There is a trend of increasing numbers of barred owls across the range and also within the Medford District.

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

Barred owls have been observed in six of the historic spotted owl sites whose home ranges envelop the Friese Camp project units. No barred owls have been detected in the Sweeper or Heppsie projects.

4. EFFECTS OF THE PROPOSED ACTION

4.1 Effects Analyzed By Spotted Owl Sites

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

The proposed action may adversely impact northern spotted owls by removing 19 acres of NRF in the Friese Camp project (Table 7) and downgrading 8 acres of NRF habitat to dispersal in association with the Heppsie project (Table 8). Owl sites are analyzed at the nest patch, core area, and provincial home range scales. Northern spotted owl site occupancy is defined as locations with evidence of continued use by spotted owls, including breeding, repeated location of a pair or single birds during a single season or over several years, presence of young before dispersal, or some other strong indication of continued occupation. Documented spotted owl sites are tracked in the BLM northern spotted owl database. A spotted owl site may include one or more alternate nest sites. Historic site activity has been evaluated in the design of projects and in this BA analysis, but not all habitat has been surveyed to protocol.

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

Provincial Home Range is defined, for analysis purposes in this document, by a circle located around an activity center and represents the area owls are assumed to use for nesting and foraging in any given year. Provincial home range radii (provincial radius) vary based on the physiographic province in which they are located: Klamath Mountains Province = 1.3 miles (3,400 acres), and Western Cascades Province = 1.2 miles (2,895 acres). The provincial home ranges of several owl pairs may overlap.

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

Nest Patch is the 300-meter radius (70 acres) around a known or likely nest site. Nest patch is included in the core and home range area (USDI et al. 2008).

4.1.1 Site Descriptions for Effects to Individual Owl Sites

Table 5. Effects to Spotted Owl Sites at the Nest Patch, Core Area, and Home Range (NRF on Federal Lands Only)

	Nest Patch (300m)		Core Area (0.5 miles)		Home Range (1.3 miles)		Sales affecting Sites
	Current NRF acres (% NP)	Post NRF acres (% NP)	Current NRF acres (% Core)	Post NRF acres (% Core)	Current NRF acres (% HR)	Post NRF acres (% HR)	
0096O	67 (95.1)	67 (95.1)	326 (65.7)	326 (65.7)	1402 (41.2)	1402 (41.2)	Sterling Sweeper
0114O	48 (68.0)	48 (68.0)	123 (24.8)	123 (24.8)	1038 (30.6)	1038 (30.6)	Sterling Sweeper
0971O	58 (83.3)	58 (83.3)	137 (27.7)	137 (27.7)	381 (11.2)	381 (11.2)	Sterling Sweeper
0972O	62 (88.8)	62 (88.8)	216 (43.4)	216 (43.4)	870 (25.6)	870 (25.6)	Sterling Sweeper
0973A	45 (64.9)	45 (64.9)	200 (40.3)	200 (40.3)	868 (25.6)	868 (25.6)	Sterling Sweeper
2361O	52 (73.8)	52 (73.8)	196 (39.4)	196 (39.4)	917 (27)	917 (27)	Sterling Sweeper
3942O	26 (37.6)	26 (37.6)	72 (14.4)	72 (14.4)	445 (13.1)	445 (13.1)	Sterling Sweeper
4068O	50 (71.1)	50 (71.1)	209 (42.1)	209 (42.1)	1256 (37)	1256 (37)	Sterling Sweeper
4513O	20 (29.0)	20 (29.0)	20 (4.1)	20 (4.1)	457 (13.5)	457 (13.5)	Sterling Sweeper

	Nest Patch (300m)		Core Area (0.5 miles)		Home Range (1.2 miles)		Sales affecting Sites
	Current NRF acres (% NP)	Post NRF acres (% NP)	Current NRF acres (% Core)	Post NRF acres (% Core)	Current NRF acres (% HR)	Post NRF acres (% HR)	
153G	33 (46.9)	33 (46.9)	81 (16.3)	81 (16.3)	269 (9.3)	269 (9.3)	Friese Camp,/ Stew
1831A	32 (45.3)	32 (45.3)	51 (10.3)	51 (10.3)	329 (11.4)	329 (11.4)	Friese Camp/ Stew
1957A	30 (42.9)	30 (42.9)	193 (38.9)	193 (38.9)	1201 (41.5)	1201 (41.5)	Friese Camp
1826B	11 (16.0)	11 (16.0)	67 (13.5)	67 (13.5)	**828 (28.6)**	**820 (28.3)**	**Friese Camp**
2007B	13 (18.6)	13 (18.6)	93 (18.8)	93 (18.8)	227 (7.9)	227 (7.9)	Friese Camp
2059O	38 (53.9)	38 (53.9)	105 (21.1)	105 (21.1)	441 (15.2)	441 (15.2)	Friese Camp/Stew
2220O	59 (84.1)	59 (84.1)	160 (32.3)	160 (32.3)	561 (19.4)	561 (19.4)	Friese Camp
2359O	50 (72.2)	50 (72.2)	96 (19.4)	96 (19.4)	256 (8.9)	256 (8.9)	Friese Camp
2360A	40 (57.5)	40 (57.5)	72 (14.4)	72 (14.4)	294 (10.2)	294 (10.2)	Friese Camp/ Stew
3932A	48 (69.2)	48 (69.2)	136 (27.5)	136 (27.5)	623 (21.5)	623 (21.5)	Heppsie
3932O	0 (0)	0 (0)	21 (4.3)	21 (4.3)	197 (6.8)	197 (6.8)	Heppsie
4079O	19 (27.9)	19 (27.9)	45 (9.0)	45 (9.0)	244 (8.4)	244 (8.4)	Friese Camp/Stew
4616O	58 (82.6)	58 (82.6)	150 (30.2)	150 (30.2)	477 (16.5)	477 (16.5)	Friese Camp
4620O	29 (41.3)	29 (41.3)	88 (17.7)	88 (17.7)	192 (6.6)	192 (6.6)	Friese Camp
6HCRDO	35 (50.2)	35 (50.2)	174 (35.1)	174 (35.1)	1193 (41.2)	1193 (41.2)	Heppsie

4.1.2 Project Specific Owl Site Effects

Friese Camp/ Friese Stew:
The Friese Camp/ Friese Stew project is within the home ranges of 11 historic owl sites and 1 generated site. Treatments in 10 historic sites and 1 generated site would maintain habitat at the

home range and core scales. No nest patches would be treated within the Friese Camp/ Friese Stew projects.

Regeneration harvest will occur in one laminated root rot (*Phellinus weirii*) pocket within the home range of historic site 1826B. Harvest here will remove 8 acres of NRF habitat. These 8 acres are not structurally complex and function more as roosting/foraging habitat. Fragmentation would be increased in this area near the US Forest Service boundary. Spotted owls could still disperse through the area, but one unit would no longer provide suitable roosting/foraging habitat. The stands are surrounded by mid-seral forest and are not large enough to provide nesting habitat. Without treatment in this stand, trees infected with laminated root rot will have reduced growth rates and higher than normal mortality rates. As the fungus spreads and kills more trees, stand openings will occur, with snags and wind thrown trees common. Coarse woody debris will accumulate at higher than normal levels. Root to root contact between infected trees and uninfected trees will continue with crown symptoms appearing 5 to 15 years after initial infection. After crown symptoms appear, large trees will live an average of 10 years before tree mortality (Theis and Sturrock 1995).The proposed treatments are located approximately 0.6 miles from the site center of 1826B, and the majority of the land between the unit and the site center is currently non-suitable/capable habitat. It's the field biologist's opinion that it's unlikely the owls would use the habitat in the proposed unit because the owls would need to expend more energy and risk predation by crossing capable habitat. Contiguous foraging habitat exists within the core area and within the home range to the east and west of the site center. The available habitat would provide easier foraging opportunities for the owl pair and it would not be necessary for the pair to use the habitat in the proposed unit. NRF removal will not occur within the core or nest patch.

Site 1826 was surveyed 28 times between 2001 and 2011, with no spotted owl responses. There was a barred owl response in the core area in 2010. In 1999, there was a single male spotted owl at the site. The last year a spotted owl pair was observed there was in 1998, and the last year they successfully reproduced was in 1997. The site was discovered by biologists in 1990.

Approximately 109 acres of NRF habitat dispersed in twelve treatment areas, will be treated and maintained, and 11 acres removed, in the Friese Camp project outside of known or generated spotted owl home ranges (unsurveyed NRF habitat). Approximately 13% (1,290 acres out of 9,900 acres) of this unsurveyed area on Federal and private land is NRF habitat. Approximately 7% (690 acres) of the NRF habitat in that unsurveyed area is widely dispersed on Federal land (heavily concentrated on the adjacent solid block Forest Service land). Because of the fragmented position of the NRF habitat on BLM land in this area, and because the northern spotted owl occupancy map (NSOOM) does not show potential owl sites here, the likelihood of occupation is negligible and the BLM does not plan to perform protocol owl surveys.

In the Friese Camp and Friese Stew projects, tailhold/anchor trees in dispersal habitat will be utilized to facilitate operational feasibility. Approximately 14 acres of dispersal maintained treatment would result from the removal of trailhold/anchor trees from cable logging.

Friese Stew:
No treatments would occur in these nest patches. The 11 acres of treat and maintain of NRF habitat occurs only within the home range of owl site 1831A and outside of any other known

home ranges; treat and maintain of dispersal habitat occurs in 154 acres of young plantations and 192 acres of natural stands ≤ 120 years old.

Heppsie:
The Heppsie project is within the home ranges of 3 historic owl sites. Treatments in the 3 historic sites would maintain habitat at the home range and core scales. No treatments would occur in these nest patches. The Heppsie project would remove a combined total of 103 acres of dispersal habitat within the home ranges of sites 3932A and 3932O. Capable habitat (80 acres) with less 40% canopy cover and tree diameters ranging approximately 8-24" would be treated with disease sanitation (DS). The dead and dying beetle kill and mistletoe infected trees would be removed and reduce canopy cover to approximately 25-30% canopy cover and be followed with pine planting. The stands would remain as capable habitat.

Sterling Sweeper:
The Sterling Sweeper project is within the home ranges of 9 historic owl sites. Treatments in the 9 historic sites would maintain NRF habitat at the home range and core scales. No treatments would occur in these nest patches. The Sterling Sweeper treatments would remove a combined 301 acres of dispersal habitat in 9 home ranges (See Table 6). While dispersal removal is not included in the OEM process to assess effects to spotted owl sites, the effects from dispersal habitat removal is not expected to create barriers to dispersal within the home range of the historic sites because of the small size of treated units (1.7 acres – 29 acres), the dispersed distribution of units (21 units totaling 301 acres over 11,300 acres of BLM within the effected home ranges), and approximately 40% of BLM land within those home ranges are capable of functioning as dispersal habitat based upon a Mckelvey habitat rating analysis. In addition, the remaining habitat (capable and non-capable) in these home ranges would not likely represent a barrier to dispersal to spotted owls**.** Forest landscapes traversed by dispersing owls typically include fragmented mosaic of roads, clear-cuts, non-forested areas, and a variety of forest age classes ranging from fragmented forests on cutover areas, to old-growth forests (Forsman et al., 2002) and because there are no expansive valleys between units.

Table 6. Dispersal Removal NSO Site Analysis for the Sterling Sweeper Project

Site #	Acres of Dispersal Removal within the 0.5 Mile Core	Acres of Dispersal Removal within the Home Range*
0096O	7	29
0114O	1	29
0971O	0	21
0972O	0	23
0973A	1	14
2361A	4	14
3942O	16	47
4068O	7	78
4513O	4	48

* some of these are duplicate acres in overlapping home ranges

4.2 Effects Analyzed by Habitat

We describe potential effects of habitat change as compared to the current environmental baseline. The effects to NRF and dispersal habitat are summarized in Tables 7, 8, 9, and 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 7. Effects of NRF Removal by Section 7 Watershed (BLM Ownership)

	Pre-Project	Removed	Post-Project	% Changed
Rogue-Upper Section 7 Watershed				
Friese Camp	41,466	19	41,447	- 0.01 %

The BLM has determined the removal of 19 acres of NRF habitat associated with the Friese Camp project may affect, and is likely to adversely affect (LAA) northern spotted owls because:

- The removal of NRF habitat through regeneration harvest would remove key habitat elements, including large-diameter trees with nesting cavities or platforms, multiple canopy layers, adequate cover, and hunting perches.
- Regeneration harvests would reduce the overall canopy below 40 percent and the existing multi-canopy, uneven age tree structure would not remain post treatment. These treatment acres would not be expected to provide suitable NRF habitat for many years post-treatment.
- The removal of these key habitat features would reduce the nesting, roosting, foraging, and dispersal opportunities for owls within the project area, and lead to increased predation risk.
- Loss of habitat will reduce opportunities for future reproduction and survival of young.
- Removal of NRF would reduce the amount of existing NRF in the Section Seven Watershed.

Harvest here will remove 8 acres of NRF habitat within the core area of one owl site (1826B). Eleven of the 19 acres of NRF removal occurs outside of known or generated owl sites. Of the 11 acres, 7 acres is located on or near a ridgetop.

Table 8. Effects of NRF Downgrade by Section 7 Watershed (BLM Ownership)				
	Pre-Project	Downgraded	Post-Project	% Changed
Little Butte Section 7 Watershed				
Heppsie	15,757	8	15,749	<0.01%

The BLM has determined the downgrading of 8 acres of NRF habitat associated with the Heppsie project is likely to adversely affect (LAA) northern spotted owls because:

- Thinning that downgrades suitable NRF habitat to dispersal habitat would remove key habitat elements (high percent of canopy cover, multiple canopy layers, and hunting perches.
- The removal of these key habitat features would reduce the nesting, roosting, and foraging opportunities for owls within the Action Area, and may lead to increased predation risk by exposing owls to other raptors.
- Downgrading of NRF to dispersal would reduce the amount of existing NRF slightly in the Little Butte Section 7 Watersheds (< 0.01% reduction).

Thinned stands are expected to return to NRF habitat much more rapidly in comparison to stands treated with a regeneration harvest prescription because more of the key habitat features are retained after a typical thinning operation (Zabel *et al*. 1992, Davis *et al.* 2007).

NRF downgrade in the Heppsie project occurs on a south-facing slope just below ridgetop and is not likely to be selected as nesting or roosting habitat, as owls typically use the lower two-thirds of slopes for this (Blakesley et.al. 1992; Hershey et.al. 1998) The proposed actions were designed to avoid NRF habitat removal in nest patches and core areas of all historic sites within the Action Area. Between 99.9 and 100 percent of the existing BLM managed NRF habitat within each watershed would still be available post-harvest and would continue to provide nesting habitat for spotted owls.

Stands identified for thinning will have smaller, less vigorous trees harvested. Thinning will reduce the number of trees to levels that the site has water and nutrients to sustain. Thinning increases average stem diameter, crown width, and tree growth rate, and enhances overall tree vigor (Hann 2003). Thinning and prescribed fire can reduce surface fuels, reduce crown density, and manage surface fuels to increase the likelihood that the stand can withstand a wildfire (Agee and Skinner 2005).

Table 9. Effects to NRF from Treat and Maintain Treatment by Section 7 Watershed (BLM Ownership)			
Project	Pre-Project	Treated and Maintained	% Treated
Rogue-Upper Section 7 Watershed			
Friese Camp		945	
Friese Stew		11	
Total	41,466	(956)	2.4%

Table 9. Effects to NRF from Treat and Maintain Treatment by Section 7 Watershed (BLM Ownership)			
Project	**Pre-Project**	**Treated and Maintained**	**% Treated**
Little Butte Section 7 Watershed			
Heppsie	15,757	85	0.5 %
Applegate Section 7 Watershed			
Sterling Sweeper	61,557	7	< 0.01%
Bear Section 7 Watershed			
Sterling Sweeper	10,775	24	0.2 %
TOTAL		**1072 acres**	

The BLM has determined the maintenance of 1,072 acres of NRF habitat associated with these projects is not likely to adversely affect (NLAA) northern spotted owls because:

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

Table 10. Effects of Removal or Maintenance Treatments to Dispersal-Only by Section 7 Watershed (BLM Ownership)						
Project	**Dispersal**					
	Pre-Project	**Removed**	**Maintained**	**Added***	**Post-Project**	**% Changed**
Rogue-Upper Section 7 Watershed						
Friese Camp		40	990	0		
Friese Stew		0	346	0		
Total	23369	40	1,336	0	23,328	- 0.2 %
Little Butte Section 7 Watershed						
Heppsie	6,662	103	239	8	6559	- 1.5 %
Applegate Section 7 Watershed						
Sterling Sweeper	24,939	266	71	0	24,673	- 1.1 %
Bear Creek Section 7 Watershed						
Sterling Sweeper	2,112	35	0	0	2,077	- 1.6 %

* NRF downgrade increases dispersal-only acres.

The BLM has determined that the maintenance of 1,646 acres of dispersal habitat associated with these projects may affect, but is not likely to adversely affect (NLAA), northern spotted owls because:

- Canopy cover in treated stands will be maintained at 40 percent and would continue to function as dispersal habitat.
- These treatment acres would be expected to continue to provide dispersal opportunities post-treatment and may improve the flying space of the post-treatment dispersal.
- The proposed treatments will be dispersed throughout the watersheds to minimize the potential for adversely affecting spotted owl dispersal.
- Maintenance activities within dispersal would not remove the large standing and down wood and large hardwood components important to the dispersal of owls, and would make the residual habitat healthier and more ecologically sustainable over time.

The BLM has determined that the removal of 445 acres of dispersal habitat associated with these projects may affect, and is likely to adversely affect (LAA) northern spotted owls because:

- Treatments that do not maintain 40% canopy cover would remove the existing multi-canopy, uneven age tree structure.
- Removal of dispersal habitat will occur outside of any nest patch scale.
- Approximately, 41 acres of dispersal removal would occur within 8 separate core areas. The amount of NRF in six of these eight cores are already in deficit condition (see Table 5). NRF and dispersal habitat are limited within these home ranges due to the landscape conditions. Many of the southern slopes in this project area are meadows and non-suitable northern spotted owl habitat. 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 is critical at the core area.
- The removal of dispersal habitat would be less than 1.6 percent in all four Section 7 watersheds. The stands selected for dispersal removal would be expected to re-gain dispersal characteristics within 15-20 years, at which time the stand would be healthier, more suited to ecological site conditions and have less standing mortality.
- The proposed treatments will be dispersed throughout the watersheds to minimize the potential for adversely affecting spotted owl dispersal.
- Although Bear Creek and Little Butte watersheds may be low in dispersal habitat, dispersal habitat is widely distributed and abundant throughout the Action Area; the Medford BLM determines that changes to dispersal habitat may be adverse, but would not constitute changes to dispersal patterns or create barriers to dispersal outside of CHU.

From Table 3 (Environmental Baseline for the Action Area), the estimated acres of NRF on private, and NRF and dispersal acres on BLM and other Federal land, provides a general dispersal condition for watersheds listed in Table 10 (Effects of Removal or Maintenance Treatments to Dispersal-Only by Section 7 Watershed). BLM did not estimate dispersal acres on private land, therefore the total percentage of dispersal habitat within each watershed is an undetermined but significant amount above the acreages displayed in Table 11 due to contributions from young forests on private land. Little Butte and Bear Creek watersheds are low in dispersal habitat and dispersal removal is likely to have adverse effects. However, the remaining habitat (including capable and non-capable) would not likely represent a barrier to dispersal for spotted owls, and all four watersheds will provide for dispersal across the landscape. Forest landscapes traversed by dispersing owls typically include fragmented mosaic of roads, clear-cuts, non-forested areas, and a variety of forest age classes ranging from fragmented forests on cutover areas, to old-growth forests (Forsman et al., 2002).

Table 11. Dispersal Habitat in Section 7 Watersheds (Private Not Included)

Section 7 Watershed	Dispersal-Only acres Removed	Dispersal Habitat Acres	All Ownership Acres	% Watershed Dispersal Habitat*	% of Watershed Dispersal Habitat Removed
Rogue-Upper	40	261,586	793,937	.33	.02%
Little Butte	103	48,593	238,594	.20	.21%
Bear Creek	35	35,780	231,095	.15	.09%
Applegate	266	200,840	492,884	.41	.13%

* Private dispersal habitat acres not included

4.3 Effects to Spotted Owl Prey

The northern flying squirrel, red tree vole, dusky-footed woodrat, and bushy-tailed woodrat are important prey of the northern spotted owl in this action area. Spotted owl prey relationships are complex and prey-switching may be important (Courtney et al 2004). Timber harvest and fuels reduction projects may impact foraging by changing habitat conditions for different species of prey. The Friese Camp, Heppsie, and Sterling Sweeper treatment units that don't maintain 40% canopy cover, would reduce habitat quality for arboreal prey species (flying squirrels and red tree voles), but may improve habitat for ground and tree-nesting species (woodrats), and non-arboreal species (western red backed voles and deer mice) (Courtney et al 2004, Section 7-2 Thinning).

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

stand through tree harvest can also provide more light to the ground and increase understory trees and shrubs.

Treatment sizes are relatively small (averaging less than 40 acres, many less than 20) and are dispersed throughout the project areas. Untreated patches will be retained within the project areas for special status species, riparian vegetation, and other constraints. We anticipate that overall impacts of the proposed action on prey will not adversely affect spotted owls in the area. Flying squirrel habitat may be reduced in quality in some places, but those same places are likely to maintain or improve woodrats and other small mammals (Courtney et al 2004). BLM maintains large standing and down wood in all treatments, which is important to flying squirrels (Carey et al 1999), and maintains hardwoods and multi-layered canopies as a design feature in projects. Maintaining a multi-layered canopy will somewhat ameliorate the adverse effects of thinning flying squirrel habitat (Carey et al 1999).

Sakai and Noon (1993) stated that dusky-footed woodrats, the primary prey of owls in our area, might benefit from some thinning or harvest that would increase shrub and pole stands. Bushy-tailed woodrat presence is more dependent on cover and food availability than on seral stage. They often use areas previously disturbed by fire (Carey 1991). Bushy-tailed woodrats are most abundant along streams, and riparian areas may serve as the principal avenue for woodrat recolonization (Carey et al 1992). Lemkuhl et al. (2006) found that fuels projects in eastern Washington could have impacts on bushy-tailed woodrats, but confirmed the importance of maintaining snags, down wood, and mistletoe. These components will be retained as part of our proposed action.

While some reports suggest negative impacts of thinning on flying squirrels (Wilson 2010, Holloway and Smith 2011), there is also some counter information as to these effects (e.g., Gomez et al. 2005, Ransome et al. 2004, Waters and Zabel 1995). Flying squirrel densities are correlated with high cavity density, large amounts of hypogenus fungi, and crown class differentiation (Carey et al 1999, Carey et al 2000). Gomez et al. (2005) noted that commercial thinning in young stands of Coastal Oregon Douglas-fir (35 to 45 years old) did not have a measurable short-term effect on density, survival, or body mass of northern flying squirrels. Similarly, Waters and Zabel (1995) compared squirrel densities and body mass in shelterwoods and in old and young stands in the northern Sierras (old = 3.29/Ha, shelterwood = 0.31/ha, young = 2.28/Ha) and found no difference in body mass or recapture rates between young and old stands in northern more mesic forest habitats, although they concluded that heavy logging and site preparation (burning) in the shelterwoods negatively affected flying squirrels. Ritchie et al (2009) found negative landscape effects on flying squirrels when harvested areas opened the stand to create open conditions.

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

A dispersal stand that resulted from the downgrade of NRF habitat would begin to develop the pretreatment habitat within 25 to 40 years, depending on treatment type, plant association, and location. Residual trees, snags, and down wood that are retained in the thinned stands will provide some cover for prey species over time, and will help minimize harvest impacts to some prey species. Lemkuhl *et al*. (2006) found that fuels projects in eastern Washington could have impacts on bushy-tailed woodrats, but confirmed the importance of maintaining snags, down wood, and mistletoe. Martin and McComb (2002) noted that small mammal diversity in the Coast Range matched the intermediate disturbance hypothesis (IDH): a combination of both early- and late-successional conditions produced highest small mammal diversity. The proposed treatments in this BA would result in similar habitat conditions at the landscape scale.

Residual trees, snags, and down wood that are retained in the thinned stands will provide some cover for prey species over time, and will help minimize harvest impacts to some prey species. The retained trees may respond favorably to more light and resources and gain height and canopy over time. Prey animals may be more exposed in the disturbed area or may move away from the disturbed area for the short-term. Some minor changes in prey availability may occur as cover is disturbed and animals move around in the understory. They may become more vulnerable and exposed. The disturbance might attract other predators such as hawks, other owls, and mammalian predators. This may increase competition for owls in the treatment area, but the exposure of prey may also improve prey availability for northern spotted owls.

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

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

Bingham and Noon (1997) reported that a spotted owl core area is the area that provides the important habitat elements of nest sites, roost sites, and access to prey, benefiting spotted owl survival and reproduction. Rosenberg and McKelvey (1999) reported that spotted owls are "central place" animals with the core area (the area closest to the nest) being the focal area. Several studies (Wagner and Anthony 1998, Dugger *et al*. 2005, Zabel *et al*. 2003, Bingham and Noon 1997) indicate the core area size for the Klamath and Western Cascades provinces is 0.5 miles (or 500 acres) of the nest site. Therefore, effects to prey species are most critical at the nest patch and core areas. Effects to spotted owl sites at the nest patch and core areas are analyzed in Section 4.3 above and the indirect effects to prey species can be derived from this data. 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.

4.4 Effects of Disturbance to Northern Spotted Owls

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

4.5 Interrelated and Interdependent Effects

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

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

4.6 Cumulative Effects

Cumulative effects under ESA are "*those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the Action Area of the Federal action subject to consultation*" (50 CFR 402.02). The effects of future Federal actions will be evaluated during future section 7 consultations and are not included in cumulative effects.

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

The majority of state and private forests in Washington, Oregon, and Northern California are managed for timber production. Non-Federal lands are not expected to provide demographic support for spotted owls across and between physiographic provinces (Thomas *et al*. 1990; USDA and USDI 1994a). Historically, non-Federal landowners practiced even-aged management (clear-cutting) of timber over extensive acreages. Private industrial forestlands are managed for timber production and will typically be harvested between 40 and 60 years of age, in accordance with State Forest Practices Act standards.

In 2008, data from Oregon Department of Forestry and the Pacific Northwest Inventory and Analysis team was used to estimate harvest rates in the past decade on private lands within the Medford District. Records indicate private harvest rates in Jackson and Josephine Counties have never exceeded 1.08 percent of the total private lands per year since 1998. These records did not provide information of pre-treatment habitat conditions. We anticipate some loss of owl habitat on private lands, but cannot predict the rate of loss, types of spotted owl habitat effected, or the specific location of harvest. BLM does not track private land harvest activity.

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

5. BIOLOGICAL ASSESSMENT CONCLUSIONS

The proposed actions in the Friese Camp and Heppsie projects "may affect and are likely to adversely affect" (LAA) spotted owls because of NRF habitat removal and downgrade. Within these treatment areas, there are some activities that may affect, but are not likely to adversely affect spotted owls for the reasons explained in this BA (NLAA): NRF maintained, Dispersal maintained and dispersal removed. The Sterling Sweeper project may affect and is likely to adversely affect" (LAA) spotted owls because of approximately 301 acres of dispersal removal. The Friese Stew project may affect, but is not likely to adversely affect spotted owls because activities would only treat and maintain dispersal habitat in young managed plantation stands and in roosting/foraging habitat in unmanaged stands 60-120 years old, and retain untreated patches within treatment stands.

Table 12. Effects Determination by Project

Project	Effects to Spotted Owls
Friese Camp	LAA
Friese Stew	NLAA
Heppsie	LAA
Sterling Sweeper	LAA

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Appendix A: Project Design Criteria (PDC)

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

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

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

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

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

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

Mandatory Project Design Criteria

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

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

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

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

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

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

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

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

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

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

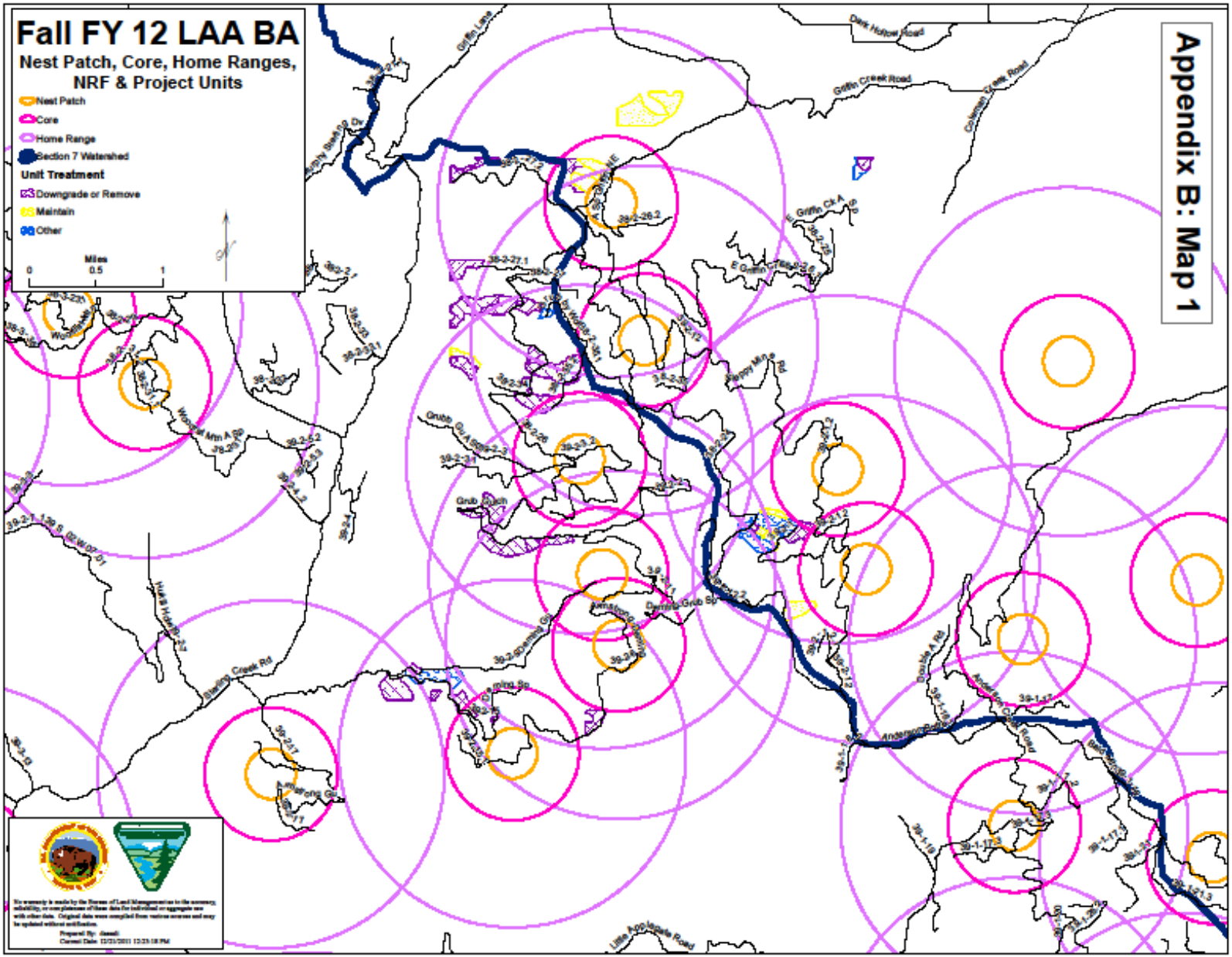
Recommended PDC

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

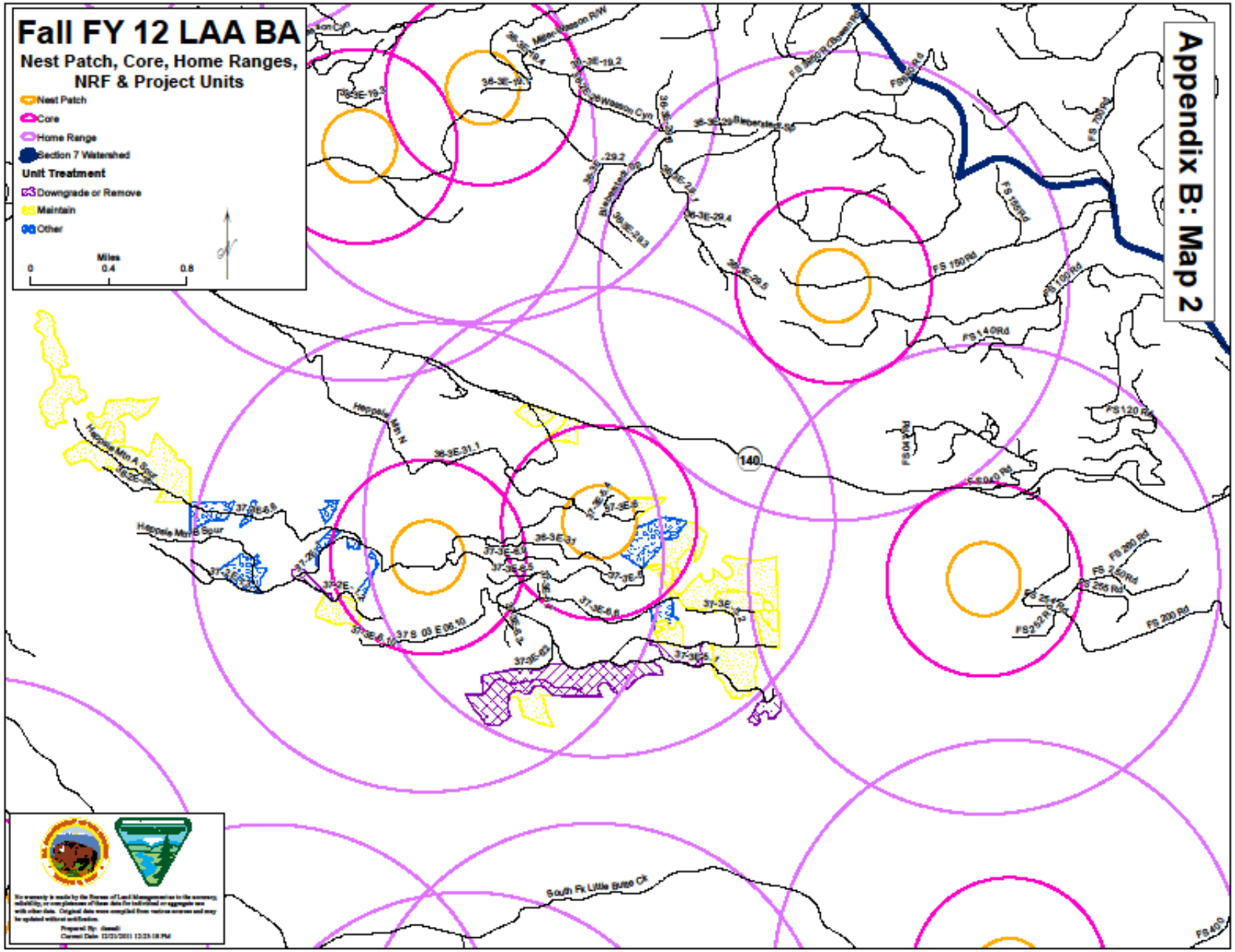
B. Minimize the use of fire line explosives within one (1) air mile of occupied stands from March 1 through June 30, or until two (2) weeks after the fledging period, unless protocol surveys have determined owls are not present, are non-nesting, or nesting has failed.

Appendix B&C: Proposed Action Maps

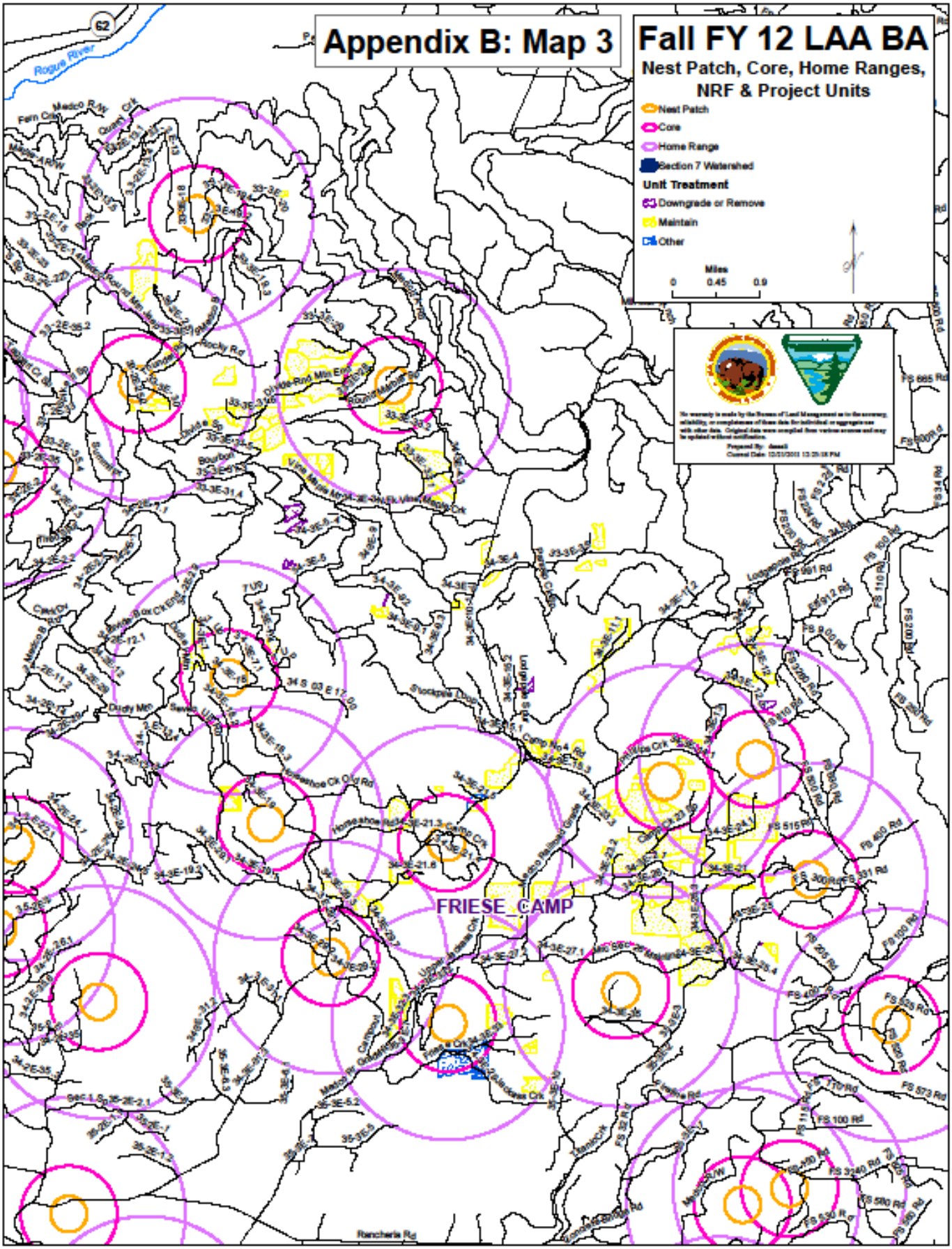
Sterling Sweeper



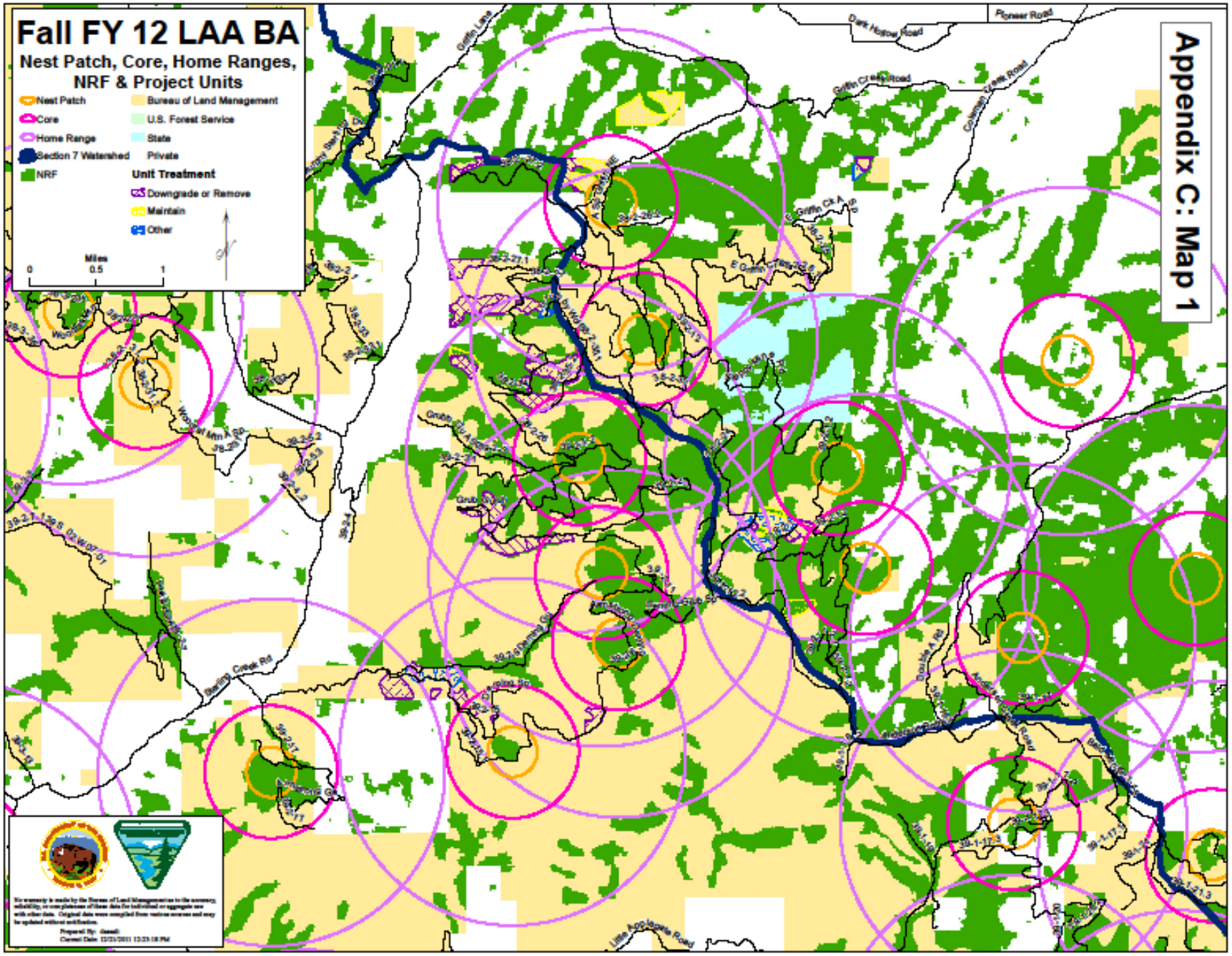
Heppsie


Fall FY 12 LAA BA
Nest Patch, Core, Home Ranges, NRF & Project Units
Nest Patch
Core
Home Range
Section 7 Watershed
Unit Treatment
Downgrade or Remove
Maintain
Other
Miles
0
0.4
0.8
Appendix B: Map 2
140
FS 150 Rd
FS 140 Rd
FS 120 Rd
FS 200 Rd
South Fk Little Butte Ck

Friese Camp/Stew



Sterling Sweeper



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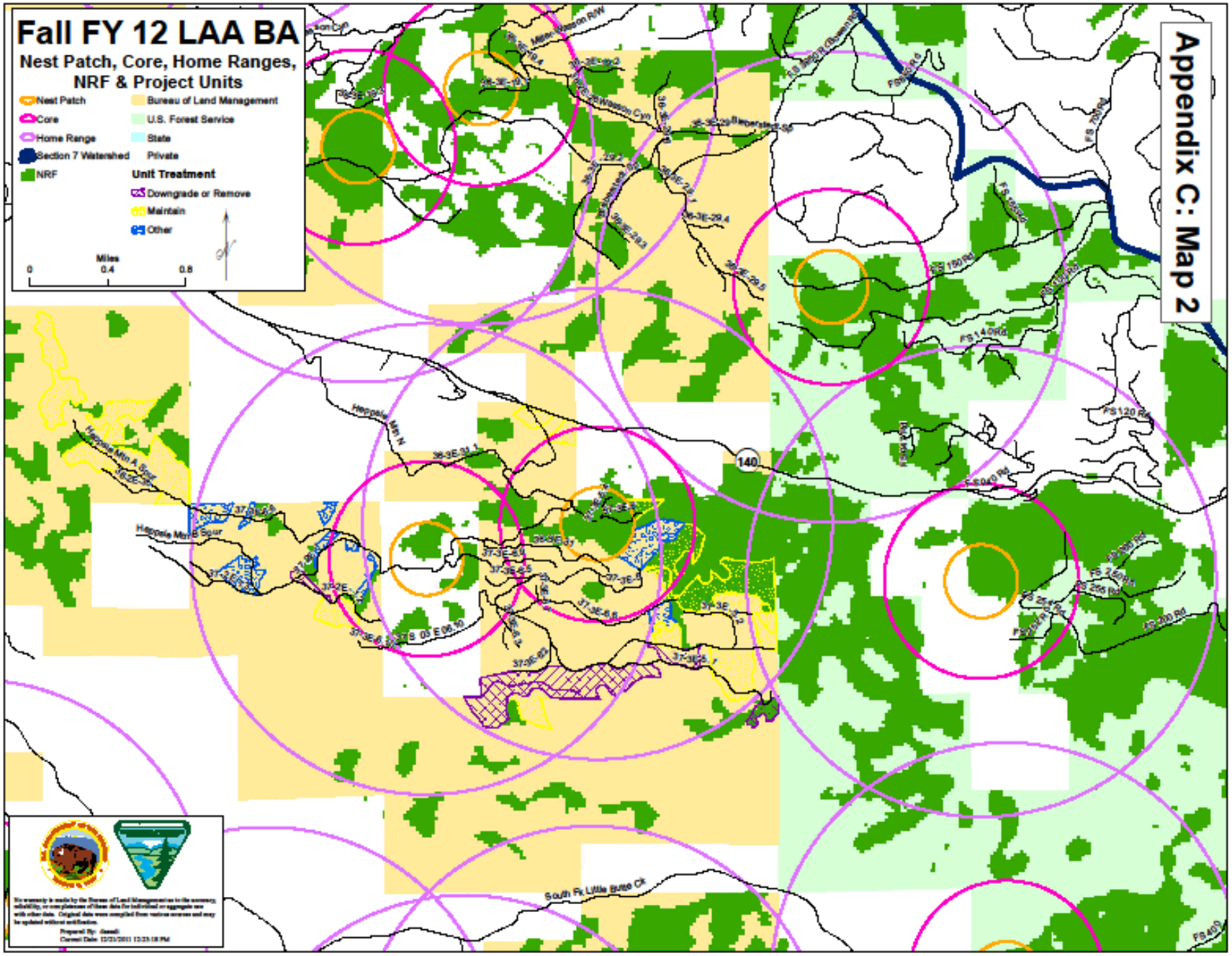
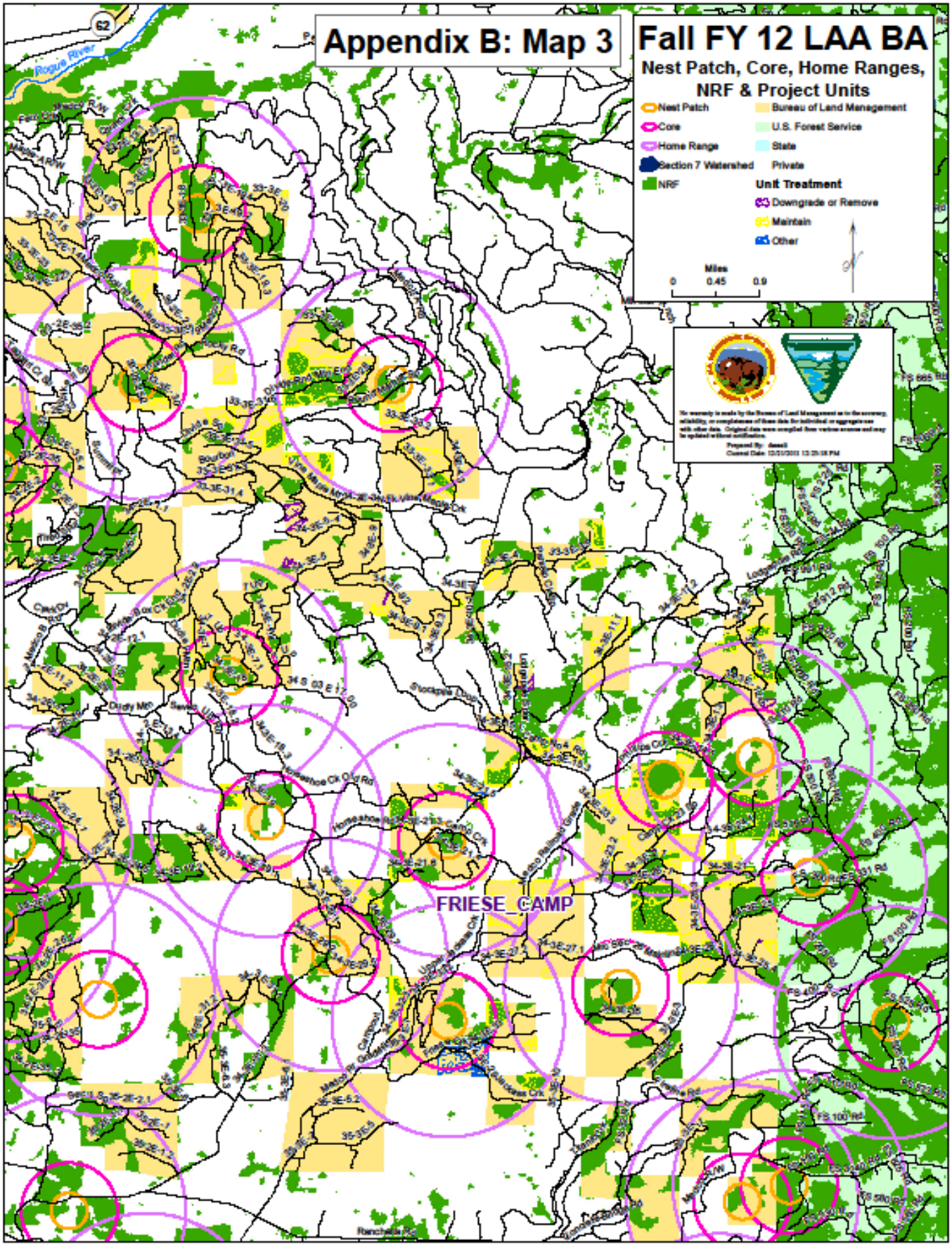

Fall FY 12 LAA BA
Nest Patch, Core, Home Ranges, NRF & Project Units
Nest Patch
Core
Home Range
Section 7 Watershed
NRF
Bureau of Land Management
U.S. Forest Service
State
Private
Unit Treatment
Downgrade or Remove
Maintain
Other
Miles
0
0.4
0.8
Appendix C: Map 2
Heppsie Mtn N
Heppsie Mtn A Spur
Heppsie Mtn B Spur
South Fk Little Butte Ck
140

Appendix C: Map 3 Friese Camp/Stew