Medford BLM FY 2010 Fall NLAA Biological Assessment of Effects to the Northern Spotted Owl

(Cite as July 2010 NLAA BA)

Medford District
Bureau of Land Management
July 2010

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1. Introduction

The Medford District Bureau of Land Management (BLM) is submitting this Biological Assessment (BA) to the US Fish and Wildlife Service (Service) to comply with 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. BLM also offers project design criteria and sets aside large portions of the District to comply with section 7 (a)(1) of ESA. Section 7 (a)(1) requires Federal agencies to utilize their authorities for the conservation of listed species.

The Medford BLM seeks concurrence that the proposed action analyzed in this BA may affect and will not adversely affect northern spotted owls or their federally-listed critical habitat. This BA describes and evaluates the potential effects to northern spotted owls, 1992 ex-critical habitat and 2008 CHU (Critical Habitat Units) from 38 projects. One (1) of those projects occurs on private land in conjunction with the Healthy Forest Initiative. Two (2) projects are proposed within Late Successional Reserves (LSR). Listed fish are evaluated in separate project level consultations, as necessary. The effects on plants are evaluated in the FY 2009-2013 Programmatic 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 2008b). No other listed species or designated critical habitat will be affected by the activities identified in this BA This BA is in conformance with and incorporates by reference the Medford District (District) Resource Management Plan (USDI 1995) and the Northwest Forest Plan (USDA and USDI 1994b).

The BA was shared with the Level 1 team (July 26, 2010). The Level 1 team was developed to implement the streamlining guidance for Section 7 (USDA et al.1999) and includes the Rogue River-Siskiyou National Forest Biologist, the Medford BLM District Biologist, and the Roseburg Fish and Wildlife Office Biologist. All consensus recommendations were incorporated into this final draft.

1.1 Northern Spotted Owl Status and Recovery Plan (see also Definitions)

The Service listed the spotted owl as threatened in 1990 (http://www.fws.gov/oregonfwo/Species/Data/NorthernSpottedOwl). A 2004 status review re-evaluated the status of spotted owls. *Major threats to Northern Spotted Owls at this time include: the effects of past and current harvest; loss of habitat to fire; barred owls…. Of threats identified at the time of listing, only one (predation linked to fragmentation) does not now appear well supporte*d (Courtney et al.2004). *West Nile Virus is a potential threat, but of uncertain magnitude and effect.*

Home ranges in our province range from an average of 1.2 miles (Western Cascades Physiographic Province) to 1.3 miles (Klamath Physiographic Province). Owls nest in predominately Douglas-fir trees, and often nest in mistletoe clumps in our area, and use contiguous, large, structurally-complex stands of forested habitat. They feed on small mammals and birds. Woodrats and flying squirrels constitute the largest mass and numbers of prey species

(Forsman et al.2004). Spotted owls have strong site fidelity, and have been documented to stay in home ranges even if habitat decreases, although they may stop or decrease breeding attempts. In Medford BLM, federally-managed checkerboard ownership challenges the maintenance of owls. Private lands near or adjacent to Federal lands are managed for commercial harvest, or rural agriculture, and may not be conducive to long-term spotted owl maintenance. Spotted owls are thought to respond negatively to noise/disturbance close to their nests during nesting periods. To reduce the chances of disturbing nesting birds, the Level 1 team has developed protection buffers around nest sites to reduce noise/activity during the vulnerable nesting period (see PDCs).

1.1.1 Critical Habitat

Critical Habitat for the spotted owl was delineated in 1992 (1796 Federal Register /Vol. 57 No 10/, January 15, 1992) and revised in 2008 (**47326 Federal Register** / Vol. 73, No. 157 / Wednesday, August 13, 2008). There have been challenges to the 2008 CHU, and the Service has advised BLM to consider maintaining CHU guidelines for both the 1992 ex CHU and the 2008 CHU. Medford BLM provides analysis for actions in both (See 3.2).

In December 1992, the Service completed the Final Draft Recovery Plan for the Northern Spotted Owl in Washington, Oregon and California (USDI 1992). This plan was never finalized. The Northwest Forest Plan provided an alternate approach to spotted owl Recovery by identifying Late Successional Reserves to manage for the current and future habitat of the northern spotted owl. Any historic owl sites known as of 1994 outside of the larger designated LSRs were designated as Known Spotted Owl Activity Centers (KSOACs) and were designated with 100 acres of LSR habitat to provide for future dispersal and “stepping stones” across matrix lands. A new Recovery Plan for the Northern Spotted Owl finalized on May 13, 2008 (USDI 2008c). That Recovery Plan was challenged in court. On July 16, 2009, the Assistant Secretary for Fish, Wildlife and Parks, announced that the Federal government would conduct a thorough review of the Recovery Plan prior to its full implementation, and a revised Recovery Plan is expected shortly after this BA is completed.

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. BLM continues to work with the Service to incorporate Recovery Goals and Actions that are consistent with BLM laws and regulations. All projects in this BA are consistent with overall Recovery Plan actions and are designed to maintain existing NRF and dispersal across all land use allocations, and to maintain or improve habitat conditions in CHU, ex-CHU, and LSR for owls, prey and other late-seral species by making it more ecologically-sustainable, providing space for residual trees in the upper and mid-canopy to gain size and height and reducing threats of tree mortality due to suppression, disease or wildfire.

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. Listing Factor A (http://ecos.fws.gov/docs/recovery_plan/NSO percent20Final percent20Rec percent20Plan percent20051408.pdf) identifies *the (1) loss of habitat and changes in distribution of habitat as a result of past activities and disturbances due especially to timber harvest and*

permanent conversion of habitat, and (2) ongoing habitat loss from natural disturbance (especially fire), timber harvest, and permanent conversion of habitat. Projects in this BA specifically address Recovery Action 7 and habitat management in the Oregon and California Klamath Provinces. The Recovery Plan (2008:69-70) cited SEI (referenced in this BA as Courtney et al.2004):

> *The forest landscapes of the Klamath Mountains are unique…. The loss of Northern Spotted Owl habitat to high-severity wildfire in the Klamath and Cascade Provinces has been relatively high over the last decade and if this trend continued, could significantly impact the owl in these drier forests.*

The BLM is also a collaborator in Recovery Actions that address barred owl issues, including Recovery Action 32 (RA 32). The intent of RA 32 is to maintain substantially all of 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 District, 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 District will use the most current methodology to identify RA 32 stands for this consultation.

1.2 Definitions

1.2.1 NW Forest Plan Land Use Allocations (USDA and USDI 1994b)

AMAs (Adaptive Management Areas) generally follow Matrix guidance, but encourage adaptive management approaches to forest management.

KSOACs (Known Spotted Owl Activity Centers): 100-acre residual habitat areas 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 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 and USDI 1994b).

LSRs (Late-Successional Reserves) are managed to protect and enhance habitat conditions for late-successional and old-growth related species. These reserves are designed to maintain a functional, interacting late-successional and old-growth ecosystem.

Matrix lands are Federal lands outside of reserves and special management areas that are available for timber harvest at varying levels (USDI 1995, 107). Matrix includes northern and southern General Forest Management Areas (NGFMA and SGFMA). Green tree retention ranges from 6 to 25 trees per acre following regeneration harvest in Matrix lands (USDI 1995, 38-39).

1.2.2 Northern Spotted Owl Home Range Terminology

Documented Spotted Owl Sites are 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 activity centers (i.e., alternate nest site).

Generated ("G") Sites are estimated locations of spotted owl activity centers created by the use of a methodology developed by an interagency team to estimate the number of northern spotted owl home ranges that are likely to occur within the area affected by a proposed federal action. These 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. In particular, the methodology relies upon known spotted owl locations derived from surveys as the foundation for a "northern spotted owl occupancy" map (NSOOM) (USDI et al. 2008).

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. For the Klamath Mountains Province the home range is a 1.3 mile radius circle (approximately 3,400 acres (USDI et al. 2008). The home ranges of several owl sites 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 which 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 area around a known or likely nest site; it is included in the core area (USDI et al. 2008).

1.2.3 Northern Spotted Owl Habitat Descriptions

BLM lands are classified into four categories in this BA. These categories are distinct and not over-lapping. Only NRF and Dispersal are considered current habitat for owls.

NRF (Nesting, Roosting and Foraging). NRF also functions as dispersal.

Nesting, Roosting, and Foraging (NRF) Habitat for the northern spotted owl consists of habitat used 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). Mistletoe can provide nesting structure to owls in our area. NRF habitat in southwest Oregon is typified by mixed-conifer habitat, recurrent fire history, patchy habitat components, and high incidence of woodrats, the dominant spotted owl prey species in our area. NRF in southwest Oregon varies greatly. It may consist of somewhat smaller tree sizes. One or more important habitat component, 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.

In some portions of the range in the south, northern spotted owl survival is positively associated with the area of old forest habitat in the core, but reproductive output is positively associated with amount of edge between older forest and other habitat types in the home range (Franklin et al. 2000, pp. 573, 579). This pattern suggests that where dusky-footed woodrats are the primary prey species, core areas that have nesting habitat stands interspersed with varied types of foraging habitat may be optimal for northern spotted owl survival and reproduction. The appropriate amount and spatial distribution of nesting habitat is essential for successful reproduction of northern spotted owls.

*In the southern portion of their range, where woodrats are a major component of their diet, northern spotted owls are more likely to use a variety of stands, including younger stands, brushy openings in older stands, and edges between forest types in response to higher prey density in some of these areas (Solis 1983, pp. 89 to 90; Sakai and Noon 1993, pp. 376 to 378; Carey et al. 1999, p. 73; Sakai and Noon1997, p. 347; Franklin et al. 2000, p. 579..(**Federal Register** Vol. 72, No. 112 / Tuesday, June 12, 2007 / Proposed Rules **32457**).*

Dispersal (Dispersal is defined in this BA as habitat that is dispersal-only)

Dispersal Habitat is a subcategory of "all dispersal" habitat for northern spotted owls. 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 but does not provide the components found in NRF. It provides temporary shelter for owls moving through the area between NRF habitat and some opportunity for owls to find prey, but 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. Owls also disperse through NRF habitat. Some of Medford BLM's dispersal habitat is made up of widely-spaced trees that could be well over 80 years old and may be over 18 inches DBH. This type of dispersal habitat may have resulted from wild fire, or may have resulted from previous thinning of NRF stands which left the larger trees and reduced the canopy cover to percentages from 40-60 percent.

Capable (Currently not NRF or dispersal, but is capable of developing into spotted owl habitat)

Non-Habitat Rocks, water, hardwoods and other habitat not capable of ever becoming NRF or dispersal.

1.2.4 Northern Spotted Owl Activity Periods

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

1.2.5 Project Treatment Descriptions

Treat and Maintain in NRF or Dispersal Habitat means an action or activity will not change the habitat classification post treatment. The post-project 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. Post-project dispersal habitat will continue to provide at least 40 percent canopy, flying space, and trees 11 inches diameter at breast height (DBH) or greater, on average. Some of Medford's dispersal stands may have widely-spaced larger and older diameter trees. The habitat classification of the stand following treatment will be the same as the pretreatment habitat classification.

2. Proposed Action

All projects that occur in spotted owl NRF or dispersal habitat meet the following conditions of treat and maintain. All projects included in this BA share the following design features:

- NRF habitat will retain at least 60 percent canopy closure post treatment.
- Dispersal habitat will retain at least 40 percent canopy closure post treatment.
- Post project NRF or dispersal will reflect pre-treatment composition and diversity. All species and age classes will be retained, but at a lower density.
- Prey habitat will be maintained or improved in quantity and condition to support owls
- Large snags will be retained post treatment.
- Large down wood will be retained post treatment.
- Small openings will be similar to the size, condition and shape of natural openings in late seral forest such that the overall stand reflects the pre-project structural diversity
- Nest structures will be maintained in adequate quantity and condition to support spotted owls
- All projects that occur in spotted owl critical habitat meet the treat and maintain conditions of NRF and dispersal, listed above and in addition maintain or improve the primary constituent elements of spotted owl critical habitat

2.1 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 action area includes all proposed harvest units as well as all areas subject to increased ambient noise levels caused by activities associated with the proposed action.

The Action Area includes eight (8) Section 7 Watersheds in two Physiographic Provinces of the Medford District BLM. Section 7 Watersheds are smaller sub-units devised for scale-appropriate consultation analysis, and are configured of similarly-sized HUC4 and/or HUC 5 Watersheds (Appendix Figure 2). Projects are located in each of the Medford District's four (4) Resource Areas: Ashland, Butte Falls, Grants Pass or Glendale Resource Area.

2.2 Project Descriptions

The Proposed Action includes 14 projects (Table 2). We expect the projects to be implemented within ten (10) years after the Letter of Concurrence (LOC) is received. BLM defines implementation of

Timber sales and salvage	Date of sale
Stewardship and forest health treatments	Date of task order
Rights of way	Date of contract

Harvest activities could take up to five (5) years to complete following award. Once a sale is sold and awarded, purchasers usually have three (3) years to implement (harvest) the sale, but contracts can be extended for seasonal clearances and other reasons. Purchasers have the option to log the entire sale in one season or they may log portions of the sale in different years. Forest health treatments are expected to occur within five (5) to ten (10) years from the date of the task order. All timber sale, salvage and stewardship treatment units will be evaluated post harvest to determine if fuels treatments are necessary to reduce harvest-generated slash. The District anticipates all projects analyzed in this BA will be completed within a 10-year timeframe from the date of the Letter of Concurrence (LOC), but the actual implementation may vary due to appeals, litigation, weather or economic contract issues.

Appendix Figure 1 is a map of project locations by Section 7 Watershed.
Appendix Figure 2 is a map of project locations showing Late Successional Reserves, Wildland Urban Interface, 1992 Ex-CHU, and 2008 CHU.

Table 2a Project Summary by Klamath Physiographic Province				
RA	Project ID	Treatment type	1994 RMP LUA	Total Habitat acres
GL	Regor Thin	TS	M	170
GL	Susan's Dad	TS	M	600
GL	Lower Graves	TS	M	600
AS	Burton Ben	TS	A	295
AS	O'Lickety	TS	A	595
Total of Timber Sale Acres				**2,260**
BF	Brushy Battle	FHT	M	520
BF	Rogue Middle Silv	FHT	M	50
BF	Recreation Maint.	FHT	M	5
GL	Lawson Fire Resiliency	FHT	M	520
GL	Rattlesnake Fire Resiliency	FHT	M	500
GL	Healthy Murph	FHT	L	100
GP	West Williams (Private lands treatment)	FHT	M	65*
GP	Deer North non-timb	FHT	M	395
GP	East West non-timb	FHT	M	575
AS	Appleseed Fuels	FHT	A	420
Portion of Forest Health Treatment Acres on Private				**65**
Portion of Forest Health Treatment Acres on BLM				**3,085**
Total of Forest Health Treatment Acres				**3,150**
GL	Shively Stew	ST	L	200
GL	McKnabe Stew	ST	M	200
GL	300 Stew	ST	M	300
AS	Lick Stew	ST	A	690

AS	Can Stew	ST	A	490
Table 2a Project Summary by Klamath Physiographic Province, continued				
Total of Stewardship Acres				**1,880**
BF	Special Forest Products	SFP	M	100
GP	Special Forest Products	SFP	Z	40
GP	Special Forest Products	SFP	M	30
GP	Special Forest Products	SFP	M	30
Total of Special Forest Product Acres				**200**
BF	Hazard Tree Removal	SAL	M	20
GP	Hazard Tree Removal	SAL	M	10
GP	Hazard Tree Removal	SAL	Z	20
GP	Hazard Tree Removal	SAL	M	10
AS	Galls Creek Salvage**	SAL	M	{7** Miles}
AS	Robertson Salvage	SAL	M	20
Total of Salvage Acres				**70**
Total of Salvage Miles				**{7**}**
GP	Clary ROW	ROW	A	0.2
Total of ROW Acres				**0.2**
Total of All Project Acres				**7,557**

* Private land project within WUI as a partnership
**Hazard Tree Removal on these projects is MILES, not Acres.

Table 2b Project Summary by Western Cascades Physiographic Province, continued				
AS	Cottonwood	TS	M	1,850
Total of Timber Harvest Acres				**1,850**
BF	Cascade Silv	FHT	M	50
AS	Howard Prairie Fuels	FHT	M	540
Total of Forest Health Treatment Acres				**590**
BF	Special Forest Products	SFP	M	100
Total of Special Forest Product Acres				**100**
BF	Hazard Tree Removal	SAL	M	20
AS	Antelope Salvage	SAL	M	20
AS	Chuck Salvage**	SAL	M	{11**Miles}
Total of Salvage Acres				**40**
Total of all Project Acres				**2580**

** Miles
See Also Appendix A: July 2010 NLAA Spreadsheet

2.3 Detailed Descriptions

2.3.1 Timber Harvest

Timber harvest activities included in this proposed action include stewardship and commercial thinning activities. Harvest treatments described in this BA are designed to ensure that suitable habitat for owls retains characteristics post-treatment and dispersal habitat retains dispersal characteristics post-treatment. Harvest activities that meet these criteria include various levels of: commercial thinning, selective harvest, and density management. Proposed timber projects will reduce density in forest stands through thinning or individual tree removal. Some larger trees may be removed in areas of root rot, mistletoe, forest pathogen infestation, or to meet a proportional thinning prescription and in areas where restoration to pine dominance is desired while also maintaining the important broken topped, defective and structurally-complex trees important to owls.

Yarding and Other Activities: Timber harvest activities include the pre-project planning, surveys and marking; implementation activities such as road, skidtrail and corridor development, involve the removing and yarding of trees to facilitate the selected logging system; and the follow-up activities related to clearing slash including preparing the ground for planting or site restoration.

Commercial Thinning: typically prescribed for even-aged stands with a single canopy layer. In these stands, growth rates are beginning to decline due to competition. These treatments would typically thin stands by spacing the residual trees based on the crown radius of the healthiest dominant and co-dominant trees to achieve an average relative density of 35 percent with some variation for site differences (range between 25 and 45 percent relative density).

Density Management: typically prescribed for even or uneven-aged stands for the primary purpose of widening the spacing of residual trees to promote growth and structural development of the remaining stand. These treatments proportionally thin stands by spacing the residual trees based on the crown radius of the healthiest dominant and co-dominant trees to achieve an average relative density of as low as 35 percent relative density, but generally would be closer to 40-45 percent relative density to maintain NRF. (Treatment to reduce inter-tree competition is recommended when a stand reaches 55 percent relative density). This treatment involves the selective thinning of some trees within a stand to reduce moisture stress on the remaining large trees, allow for reintroduction of low intensity fire in the understory, and increase growth in the remaining trees.

Density management in young stands (20-40 years old) offers the best opportunity for developing the conditions most suitable for future development of old growth characteristics. Density management in older stands is primarily driven by the need to reduce stress, increase species diversity, and increase the forest's ability to survive the inevitable exposure to large-scale wildfire, insects, and disease.

Understory Reduction Treatments: primarily thin (the smallest diameter trees) from below to achieve a target canopy closure of 60 percent in stands of spotted owl NRF habitat, and 40 percent in stands of spotted owl dispersal habitat. The prescription for these areas includes the retention of the most vigorous, large trees in patches, while thinning lower and intermediate tree layers in an effort to accelerate development of multi-layered tree structure**.**

Modified Group Selection: the removal of trees (usually Douglas-fir) that are competing with vigorous pines and non-tanoak hardwoods with greater than 30 percent live crown ratio. Typically, openings created by these treatments would be between one quarter to one half acre in size, with the occasional openings of up to one acre in size if the pines and non-tanoak hardwoods require more release.

Small Group Selection: a silvicultural treatment that harvests small groups of trees within a stand in order to create regeneration openings. Generally, openings are between 0.25 and 0.75 acre. The gaps within each unit would not exceed 20 percent of the total unit area unless disease conditions require larger areas to be regenerated (see sanitation-salvage). Small group selection is intended to introduce structural diversity in an otherwise large homogeneous stand by mimicking the effects of a variety of natural disturbance processes (fire, wind, disease, etc.) that are essential for maintaining a healthy ecosystem. Natural seeding and/or planting would occur in each opening to insure that the desired mix of species is obtained. Though the regeneration in the small groups matures under even-aged conditions, the 0.25-0.75 acre or larger openings permit establishment of shade intolerant species such as ponderosa pine, and the result is a larger

uneven-aged, more species-diverse forest. Small group selection allows stands and landscapes to stay continuously forested while regeneration of each stand takes place over a long period of time.

Pine Release: This treatment removes competing vegetation from around selected trees typically large (>20 inches DBH pine species) to maintain and enhance the health and vigor of the remaining trees. Release is a manual treatment accomplished by cutting the competing vegetation by mechanical methods, usually chainsaws, within a radius around each tree usually equivalent to the radius of the tree's crown, plus 25 feet.

2.3.1.1 Detailed Timber Project Descriptions

All projects may extract biomass. The prescriptions in these thinning units will maintain 60 percent canopy NSO habitat and 40 percent in dispersal habitat. Riparian treatment may occur and will maintain 50 percent in dispersal and at least 60 percent in NRF. Primary constituent elements present would be retained. Prescriptions would include retaining the largest vigorous trees with large crowns, and thinning the remaining commercial size diameters. Down wood and most snags would be retained. Thinning would retain some of the suppressed or deformed type trees. Trees with potential for future nest trees or snags would be favored for retention. Some of the vigorous midstory perching or potential roosting trees will be retained. The diversity in tree species including hardwoods would be retained. Most landings will be restricted to the road prism. The units will be yarded with a combination of ground-based tractors and skyline cable yarders. Riparian Reserves may also be treated with light to moderate thinning in this project. Spotted owl nest patches will not be treated. Regor Thin, Susan's Dad and portions of Lower Graves occur within the Northern Spotted Owl Klamath Demographic Study Area and spotted owl activity is known. Project areas outside the Demographic Study Area will be surveyed to protocol and no treatment would occur in any new nest patches that may be found during those surveys. Second growth vegetation may be cleared along access roads as part of Glendale Resource Area sales. No RA 32 habitat will be treated with these sales. It is possible that skid trails, yarding corridors and/or tail holds will be located in RA 32 habitat.

Regor Thin timber sale in the Glendale Resource Area would thin approximately 170 acres of Matrix land allocation stands ranging from 40 to 140 years old. A majority of the sale units lay along ridge tops, while one unit drops down to mid-slope elevations. The project will utilize Commercial Thinning, Density Management, and Pine Release vegetation management.

Lower Graves timber sale in the Glendale Resource Area will thin approximately 600 acres of Matrix land allocation stands from 40 to 150 years old. Most of the units are in the Northern General Forest Management Area land use allocation. Some of the units are in the Southern General Forest Management Area land use allocation. The units in the sale occur along ridge tops, mid-slopes, and in valley bottoms. The project will utilize Commercial Thinning, Density Management, and Pine Release vegetation management.

Susan's Dad timber sale in the Glendale Resource Area will thin approximately 600 acres of stands from 40 to 150 years old in Matrix, both the Northern General Forest Management Area and Connectivity/Diversity Block land use allocations. The units in the sale occur along ridge

tops, mid-slopes, and in valley bottoms. The project will utilize Commercial Thinning, Density Management, and Pine Release vegetation management.

Cottonwood, Burton Ben, and O'Lickety timber sales in the Ashland Resource Area are in 1992 ex-CHUs. Prescriptions crafted to maintain the conditions that quality the stands as NRF or dispersal and ensure the post-treatment projects will maintain or improve the features that define primary constituent elements. All three of these projects will utilize the following forms of vegetation management: Commercial Thinning. Understory Reduction Treatments, Density Management. Small Group Selection, Pine Release.

2.3.2 Forest Health

Forest health projects can include prescriptions for fuels reduction and/or young stand development designed to maintain pre-treatment habitat. They incorporate PDC to avoid adverse disturbance. Fuels reduction can include density management, understory reduction, piling and prescribed burning, thinning, and brush treatments. These activities usually consist of the removal of surface fuels, brush or small trees, and the removal of ladder fuels or crowded conifers or hardwoods. Actual prescriptions vary by project. Acres reported do not duplicate the timber harvest acres, although most timber projects also have fuels reduction as an objective. The Glendale Lawson and Rattlesnake Fire Resiliency would restore ecosystem function where wildfire has been suppressed. Treatments would focus on stands less than 150 years of age in matrix and less than 80 years of age in LSRs. Proportional diameter thinning would increase the spacing of residual trees to promote growth and structural development of the remaining stand and increase fire resiliency by reducing crown density and spacing ladder fuels of the residual trees, while maintaining NRF and dispersal habitat structure for spotted owls.

Fuels management has three primary purposes: fuels reduction to reduce wildfire hazard, site preparation/slash reduction for improving conifer planting (covered in silviculture and timber above), and restoration of ecosystem function where wildfire has been excluded. Fuels projects designed to restore ecological function may have long-term beneficial effects to owls. Historically, Medford BLM lands had relatively short natural fire return intervals. The policy to suppress all natural wildfires and continuous forest growth has resulted in a build-up of fuels and a change to more fire-prone vegetative conditions. In most of the action area, surface fuels and ladder fuels have increased, which has in turned increased the threat of fire spreading to the canopies of trees. Fire scar studies of old-growth forest stands on the Medford District indicate that on average, old growth trees survived at least six fire events per century (Sensenig et al.1994). Trees that survived historic wildfires exhibited high growth rates following the fire, and developed thicker bark which helped them survive the following fire event (Sensenig, 2002). Forest Health treatments (and most timber sales and stewardship projects) in this BA seek to create similar growth pulses by thinning dense stands to similar stand densities as caused by regular historical wildfire events. Within the planning area, both BLM-managed resources and rural residential areas are threatened by the presence of stands with a potential for high intensity stand replacing wildfires.

Fuels Reduction and Young Stand Development includes manual and/or mechanical treatments using chainsaws or mechanical equipment followed up with prescribed fire (pile

burning or under-burns. Broadcast burning without pre-treatment (brush fields) can also occur. Mechanical treatment is designed to reduce abnormally high amounts of shrubs and ladder fuels so that subsequent prescribed burning or wildfire won't be as severe. The material may be piled or may be left dispersed, and is usually burned once that material dries out. Biomass could be removed using low impact ground-based equipment or cable yarding systems if the biomass removal also maintains habitat. A small portion of the acres may also be burned or brushed again. These fuel treatments are generally implemented over a period of years. The acres in the proposed action are the acres of the fuels treatment "footprint", and impacts are assessed for the entire treatment period.

Prescribed Fire use is dependent upon management objectives. The primary role of prescribed fire has traditionally been for site preparation and fuels reduction. Recently, natural fuels reduction and ecological "improvement" have become end goals of prescribed fire, particularly in areas managed for owls. The effects of prescribed natural fire, when limited to the prescription, can usually be controlled or manipulated. The resultant fuel is treated in one or more of the following methods.

Hand Piling and Burning: is typically used when under-burning is not possible due to heavy fuel loads. Sticks one (1) to seven (7) inches in diameter and longer than two (2) feet will be piled by hand.

Understory Burning (Under-Burning): used where the objective is to maintain greater than or equal to 80 percent of the overstory. Typically, burning occurs between fall and spring outside of the breeding season for spotted owls.

Lop and Scatter is a method of fuels reduction where accumulations of wood and brush and are broken up (usually with chain saws) and dispersed away from dense locations.

Leave Tops Attached is a method, sometimes referred to as whole tree yarding or logging with tops attached, would effectively reduce fuel loading within units and would transfer most of the slash to landings, where it would be treated. This practice is just what its name indicates: a tree, or the last bucked log, is yarded to the landing without cutting off the unmerchantable top and leaving it in the forest, as is usual practice.

Biomass is referred to as the product that can be removed from a unit for off-site purposes and can occur in a timber harvest, stewardship, forest health, or salvage project. The District does not consider decadent woody material, such as large snags and pre-existing large down wood as biomass material. Large standing dead and down wood will be retained within harvest units. Biomass utilizes material that would otherwise be treated as slash or yarding debris. It is any dead or living vegetation in a unit that is less than or equal to eight (8) inches in diameter for conifers or less than or equal to 12 inches for hardwoods. On slopes less than 35 percent, mechanized low ground-pressure machinery would cut, skid, haul or chip that material. On slopes greater than 35 percent, biomass would be cable yarded.

2.3.2.1 Fuels and Fire Regime

Forest Health projects (and most of the timber sale and stewardship projects in this BA) have primary (or secondary) objectives to reduce the threat of high intensity, stand replacing wildfires. A low fire hazard rating usually results in lower fire line intensity in the event of a wildfire, allowing for lower mortality and loss of tree canopy. Agee (1996) describes vegetation conditions that lead to manageable fire behavior: Surface fuel conditions that would limit the surface fireline intensity (flame lengths); forested conditions comprised of fire tolerant trees and vegetation, described in terms of species, sizes and structures (arrangement and condition); and a low probability for crown fires (fire burning through the canopies of trees) to be initiated or spread through the forest. The projects included in this BA are designed, in part, to retain and promote more fire tolerant tree species such as older Douglas-fir, pine and incense cedar and to alter forest conditions to reduce surface, ladder, and aerial fuels such that the potential fire behavior and the initiation of crown fire is reduced (Skinner et al. 2004).

There are many methods that maybe considered for fuels reduction to change the condition class. Agee and Skinner (2005) offer four principles of fire resistance for dry forests: reduce surface fuels, increase height to live crown, decrease crown density and keep big trees of resistant species. Methods to meet these objectives include: under burning, handpiling and burning piles, pruning ladder fuels, lop and scatter, thinning, chipping, brushing, whole tree yarding, and yard with tops attached. It may take more than one treatment to effectively lower the condition class.

Climate and topography combine to create the fire regime found throughout the project area. Fire regime refers to the frequency, severity and extent of fires occurring in an area. Historic fire regimes and the departure from them, correlate to the change from historical to current vegetative structure. The change in vegetation also helps to describe the difference in fuel loading (dead fuels and live in the form of increased vegetation) from historical to current conditions. These changes in vegetation and fuel conditions help to determine the expected change in fire behavior and its effects. This difference in many respects is attributed to fire exclusion, but also includes all human practices that would affect the extent, severity, or frequency of fire events compared to historical accounts. These practices include road building, livestock grazing, and some logging practices as well as fire suppression.

Three historic fire regimes are found within the project area (Schmidt et al.2002):

Fire Regime 1: 0-35 years fire return interval, Low Severity: Typical climax plant communities include ponderosa pine, pine-oak woodlands, and oak woodlands. Large stand-replacing fire can occur under certain weather conditions, but are rare events (i.e. every 200 years).

Fire Regime 2: 0-35 years fire return interval, High Severity: This regime includes true grasslands and savannahs with typical return intervals of less than 10 years and ceanothus and Oregon chaparral with typical return intervals of 10-25 years. Fire severity is generally high to moderate.

Fire Regime 3a: < 50 years fire return interval, Mixed Severity: Typical plant communities include mixed conifer and very dry westside Douglas-fir. Lower severity fire tends to predominate in many events. This regime usually results in heterogeneous landscapes. Large, stand-replacing fires may occur but are usually rare events.

Fire hazard assesses vegetation by type, arrangement, volume, condition and location. These characteristics combine to determine the threat of fire ignition, the spread of a fire and the difficulty of fire control. Fire hazard assessments help identify broad areas that could benefit from fuels management treatment. Hazard ratings estimating flame length, rate of spread and crown fire potential were developed for the project area using the system developed by Jackson and Josephine Counties. The Fire Regimes found on the Medford BLM is mostly I and III. Fire Regime II is the grass and true chaparral communities. Fire Regime IV is a longer return interval. Fire Regimes area calculated across the extent of the Medford District and include private lands. The Forest Health projects proposed in this BA occur in the following fuels ranking categories, although timber sales and stewardship projects would be similarly ranked in our area.

Percentage of Forest Health projects by Fuels Rating:

Low	12 percent
Medium	17 percent
High	70 percent

2.3.2.1 Detailed Forest Health Project Descriptions

The **Appleseed** and the **Howard Prairie Fuels** projects in the Ashland Resource Area would be standard fuels reduction treatments. The Appleseed occurs in mostly brushy chaparral and dry Douglas-fir forest with predominantly south facing slopes. The Howard Prairie fuels project occurs on flat ground with conifer habitat. Both projects will include the use of selective slashing, hand pile and burn and under burning.

The **Howard Prairie** fuels project proposes treating approximately 30 acres of the Howard Junction spotted owl Nest Patch (NP). The 30 acres proposed for treatments are only dispersal quality habitat, even though they are physically located within the NP radius (see map). Past surveys have never detected spotted owl within the proposed treatment area, but have detected them using the much more dense forest in the associated owl core to the Northwest of the spotted owl point. This project is proposed to occur in areas that have high fuel loading and receive high levels of seasonal recreation activity, thus increasing the likelihood of human ignition. The fuel hazard reduction treatments proposed to occur within the spotted owl NP would be implemented outside of the breeding season (March 1 – June 30).

The Deer North Non-Timber and **East West Junction Non-Timber** projects in the Grants Pass Resource Area are a combination of forest health and fuels reduction objectives. Vegetation management for both projects would include density management with understory reduction, biomass removal, selective slashing, hand pile and burn and under burning. Treatments would be implemented with stewardship, timber sale, and/or service contracts.

The West Williams Private Land Forest Health Treatment in the Grants Pass Resource Area is a hazardous fuels reduction project on private land adjacent to BLM using federal dollars. The Wyden Amendment (Public Law 104-208, Section 124), as amended (Public Law 105-277, Section 136) expands the authority and provides the framework by which BLM may enter into contracts or agreement to permit funding to do restoration work on non-BLM land. This project is designed to complement the hazardous fuels reduction efforts currently being implemented on adjacent BLM land under the Deer Willy FHRP project and follows objectives of the Healthy Forest Restoration Act of 2003 (Bill H.R. 1904), National Fire Plan (Public Law 106-291). The Approximately 2.6 miles of road would be treated on private land in T39S-5W-Section 6 and T38S-R6W-Section 36. Conifers, hardwoods, and brush less than eight (8) inches DBH would be cut, handpiled, and burned (or removed) on private land 100 feet above and below the road edge on participating land owners property. Spacing would be 25 x 25 foot maximum between leave trees.

Lawson and Rattlesnake Glendale Fire Resiliency Projects are designed promote forest resiliency by restoring fire regimes to levels within natural ranges of variability by thinning stands with moderate to high uncharacteristic fuel loading and applying prescribed fire activities. Treatments could be implemented with stewardship, timber sale, or service contracts.

Areas would be thinned prior to safely reintroducing fire into the ecosystem. The Glendale **Hazardous Fuel Treatment**s would be limited to eight (8) inches DBH and less in all stand age classes, including stands greater than 150 years of age on matrix lands and greater than 80 years in Late Successional Reserves (LSRs). In Riparian Reserves, canopy closures would be maintained at 50-60 percent. Stream buffers, such as Ecological Protection Zones (EPZ), would be applied from the stream bank full width. Appropriate seasonal restrictions would apply to operations and hauling in order to protect spotted owl nest sites.

LSR Density Management Treatments would focus on stands less than 150 years of age in matrix and less than 80 years of age. Proportional diameter thinning would increase the spacing of residual trees to promote growth and structural development of the remaining stand and increase fire resiliency by reducing crown density and spacing ladder fuels of the residual trees.

Material from these projects would be used to the extent possible for traditional commercial markets as well as small diameter and biomass utilization markets. Extraction of by-product material would employ ground-based equipment on slopes up to thirty-five percent, and cable yarding systems on slopes greater than thirty-five percent. Helicopter or other means of aerial extraction could be used if economically viable. Whole-tree yarding and biomass extraction would be used where practical to reduce the amount of slash left on site. Biomass material would be piled at landing sites to be burned, chipped, or hauled to utilization facilities. Handpiling, handpile burning, and landing pile burning would occur in areas where extraction and removal is not practical. Prescribed under burning would take place up to ten years after primary thinning treatments in order to maintain reduced fuel loadings. Excess vegetation not accessible for extraction or suitable for utilization would be piled and burned, either as handpiles within the units or as machine piles at the landing sites. Pruning may be prescribed to reduce the ladder fuels. A lop-and-scatter treatment would be used in some areas to break up concentrations

of fuel and to arrange the material in a discontinuous pattern. Subsequent under burning would take place where practical to maintain the fire regime and to prevent future increases in fuel loading.

Temporary operator spur construction would occur to facilitate extraction, followed by decommissioning after use. Decommissioning would include the removal of culverts and cross drains, sub-soiling, planting, barricading, seeding with native seed, mulching or placement of woody material, and closed an earthen barrier or similar device. Road maintenance would occur as needed in relation to hauling. Road maintenance is defined as activities on an existing road to keep a road at its original design standard. Typical maintenance would include, but is not limited to: blading and shaping; cleaning of ditches, catch basins, and culverts; brush cutting and vegetation removal from roadway; surface patching and pot hole repair; surface replacement; culvert replacement; slide removal; and daylighting. Noxious weed treatments would take place along roadsides to prevent the spread of non-native invasive plant species, as funding allows.

Maintenance of existing water sources for fire suppression would also occur throughout the Glendale Resource Area. Associated activities would include clearing trees and brush around each water source as well as installing culverts. blading, and rocking roads in order to improve and maintain access for fire engines, water tenders, helicopters, and other fire suppression equipment. Second growth vegetation may be cleared along access roads as part of these projects. No RA 32 habitat will be treated in Lawson. Within Rattlesnake, however it is possible that skid trails, yarding corridors and/or tail holds will be located in RA 32 habitat.

2.3.3 Stewardship

Stewardship is a contracting method that authorizes the value of commercial vegetative material to offset the cost of services conducted. Stewardship projects may be initiated with private or public entities, by contract or by agreement and would authorize the outside party to perform services that achieve land management objectives. Stewardship projects would thin conifers, hardwoods and remove shrubs from the forest understory. Material could be used for biomass, or if not commercially viable, could be piled and burned. Thinning and shrub removal follow spacing guidelines to ensure retention of a diverse mosaic of habitat. Timber harvest project design features are incorporated to ensure projects retain the habitat characteristics that would classify the unit as the owl habitat it was prior to treatment.

Shively Stew, Mcknabe Stew, and 300 Stew in the Glendale Resource Area are light to moderate forest thinning that maintain pre-treatment spotted owl habitat, and CHU primary constituent elements. The projects occur within CHU #14. Shively Stew and 300 Stew also occur within 1992 designated CHUs. A combination of forest health and fuels reduction objectives would be implemented through stewardship contracting methods.

Lick Stew and **Can Stew** in the Ashland Resource Area are a combination of forest health and fuels reduction objectives, and would be implemented through stewardship contracting methods. Both these projects are in 1992 ex-CHUs. All three of these projects will utilize the following forms of vegetation management: understory reduction treatments, density management, small group selection, pine release, selective slashing, hand-piling and burning, biomass removal.

2.3.4 Salvage

Galls Creek Salvage, Antelope Salvage, Chuck Salvage, and **Robertson Salvage** sales occur in the Ashland Resource Area would harvest individual or small groups of dead or dying trees, or small pockets of trees with significant disease to develop healthier stands, and preclude predicted mortality. The **Galls Creek** and **Chuck Salvage** projects are roadside salvage projects, where the above prescriptions would be implemented along a BLM road system. These projects are targeting individual trees, and will occur in a scattered basis. Total acres are estimated on the spreadsheet.

These four (4) salvage projects would utilize the following prescriptions: Individual Tree Selection (salvage) and Small Group Selection (sanitation).

The **Antelope Salvage** and **Robertson Salvage** in the Ashland watershed would harvest the dead, dying and those conifers with heavy mistletoe infections would remove some mistletoe-infested trees from the heaviest-infested areas. The **Antelope Salvage** project involves an isolated 40 acre BLM parcel, and salvage is proposed within approximately 200 feet of the edges of the BLM lands. The **Robertson Salvage** would occur within a 20 acre unit of dispersal quality habitat. Infected old-growth trees and all trees 34 inches DBH and larger with a DMR rating of 1 and 2 will be reserved from harvest. Only trees with a Douglas-fir Mistletoe Rating (DMR) of three (3) or higher (one-half or more of the crown infected) would be considered for removal. Heavily- infested trees, where mistletoe infests more than 50 percent of the crown, leads to severe suppression of growth, loss of wood quality, top-killing and mortality (Pierce 1960, Mathiasen et. al.1990, Filip et. al.1991). Trees with heavily-infected crowns are usually killed within 10-15 years (Southwest Oregon Forest Insect and Disease Service Center (SWOFUDSC), Mallams, 2007). NWFP standing dead and down wood standards would be maintained in all treatment areas.

2.3.5 Special Forest Products

Butte Falls and Grants Pass Resource Areas anticipate some small **special forest products** requests primarily for poles in dispersal habitat, although there may be some occasional personal use firewood, cedar bough harvest, Christmas trees, Port-Orford-cedar arrow wood sales, mushroom harvest, brush and bear grass cuttings, medicinal plants, and burl removal. Special Forest Product permits require personal and commercial use permits. All permits would include restrictions that would ensure projects maintain pre-project habitat classifications, maintain standing and down dead wood, and would avoid potentially disturbing activities near historic or predicted spotted owl nest sites during the critical nesting period.

2.3.6 Rights of Way (ROW)

The Clary-Meehan ROW proposal is to issue a BLM road right-of-way (ROW) grant to provide legal ingress and egress to property owned by the applicants either side of BLM land in T37S R5W section 20. The applicants own two tax lots divided by BLM land with no road access; the ROW is needed for access to their private property. The proposed ROW would

construct approximately 140 feet of road on BLM. The ROW would grant the residents perpetual use for access to their property. The road would have a running width of 14 feet and a 45 foot clearing width. The ROW would be 50 feet wide with a native surface road bed. The road would run through a stand composed of Douglas fir, black oak, madrone, and cedar. Up to five (5) trees greater than 20 inches diameter breast height (DBH) may be removed, as well as shrubs and grass.

2.3.7 Project Design Criteria

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

All treatment units will meet Northwest Forest Plan (USDA and USDI 1994b) and District RMP (USDI 1995) snag and coarse woody material (CWD) guidelines. RA 32 stands would be identified based on the current methodology in place when the RA 32 at the time review was done for each project. No RA 32 stands would be treated, although there may be minor yarding corridors, hazard trees, guyline or tail hold trees, or short (< 1000') temporary skid tracks or roads through into stands classified as RA 32 if essential for logistical purposes. Minor corridors or roads will be designed to maintain the conditions that qualify the stand as one meeting RA 32 criteria before and after the project.

3. Effects of the Proposed Action

The proposed action may impact the northern spotted owl in a variety of ways and at differing levels depending on exactly where and when the activity occurs. Projects affecting NRF in this BA have been designed to maintain the pre-project conditions that constitute NRF at all stages of the project. Projects in dispersal habitat are designed to maintain the conditions that qualified that stand as dispersal through all stages of the project. All effects from the proposed action have been evaluated in this assessment, including effects from activities such a access, yarding, hauling and post-treatment slash/fuels treatments, which are interdependent or interrelated.

The decadence will be retained, some competing trees will be gone, and there will be a higher decadence component in the stand (percentage wise) than in the pretreated stand. Post-treatment tree boles, branch size and live crown ratios will increase to improve the beneficial habit characteristics for the owl following the projects. These minor treatments avoid adverse effects at the short term.

Most of the projects, 76 percent by acreage, occur in Wildland Urban Interface, areas identified by Medford BLM as areas of high fire risk to rural communities. There will be short-term reductions of competitive trees and a short-term reduction in fuels. For example, Organon Model evaluations of a pre-treatment stand of 18 inch trees has an average of 200 trees per acre and a Relative Density Index of 0.974 percent, well past the Zone of Imminent mortality, which is a relative density of 0.55 percent. An average treat and maintain thinning project would reduce relative density to approximately 0.32 percent, maintain approximately 60 percent canopy, and would average approximately 66 trees per acre (Bob Pierle, personal communication, 7/8/2010). Smaller trees would respond more quickly to the increased space than older trees, but canopy cover could be predicted to fill in approximately ten (10) percent per decade in average site-class stand.

3.1.1 Timber Harvest

Burton Ben, O'Lickety, Susan's Dad, Cottonwood, Regor Thin, and **Lower Graves** all have portions of NRF and dispersal habitat, and all would maintain the conditions that describe those stands as NRF or dispersal pre-project. Sales are distributed across two (2) Physiographic Provinces, four (4) Section 7 Watersheds and across two (2) Resource Areas, and avoid concentrating activities in a small area. Nest patches of historic or generated owl sites will not be entered. Large snags, down wood and large hardwoods would be retained. Mid-canopy trees, where they occur would be retained to maintain the multi-storied canopy important to owls and their prey. Some patchiness, similar to natural stands would be created in small group selection and pine release prescriptions. Gaps would be less than one (1) acre. No gaps would be large enough to change the classification of the pre-treatment stand. Large sugar and ponderosa pines would be released in portions of **Cottonwood, Burton Ben**, and **O'Lickety** to maintain and enhance the large tree structural diversity of the treated stands.

Portions of each timber sale occur in high or medium fuel risk areas. Thinning in high or medium risk units would also reduce the risks of high severity fire, particularly in areas of south slopes, ridgelines and adjacent to denser habitat areas. Reducing fuels risk would have the benefit of reducing the chance of habitat and owl loss to wild fire. Thinning NRF stands to 60 percent or dispersal stands to 40 percent would also have some immediate short-term benefits by reducing conifer competition in overly dense stands. A more ecologically-sustainable stand would result. Treatments are designed to maintain multi-storied stands and retain structural conditions, so the benefits from such a light treatment in fuels reduction is not expected to be long-term, although post-treatment residual trees would be expected to respond to the additional light and moisture by rapidly gaining height and girth, and filling in the canopy. Depending on the site conditions, it may take 10-30 years for the canopy and fuels to approach pre-treatment levels.

3.1.2 Forest Health Treatments

The twelve (12) Forest Health treatments all have NRF and dispersal units and all would maintain the conditions that describe those stands as NRF or dispersal pre-project. Treatments are distributed across two (2) Physiographic Provinces, six (6) Section 7 Watersheds, and all four

(4) Resource Areas and avoid concentrating activities in a small area. Nest patches would not be treated in eleven (11) projects (see Howard Prairie Fuels). **Lawson Fire Resiliency** would avoid RA 32 stands. Other projects have not yet completed RA 32 evaluations. No RA 32 stands would be treated. There may be minor yarding corridors, hazard trees, guyline or tail hold trees, or short (< 1000') temporary skid tracks or roads through into stands classified as RA 32 if essential to treat adjacent units and where such activities would not change the characteristics that led to the stand being categorized as RA 32

The **Howard Prairie Fuels** treatment would treat approximately 30 acres of dispersal habitat within the Howard Junction Spotted owl nest patch (see Appendix Figure 3). Fuels treatment within the nest patch would focus along a heavily-used road that accesses Howard Prairie Reservoir, a location that gets high recreational use, and has high human-caused fire risks. Fuels reduction within the dispersal section would provide protection of the nest and the NRF habitat to the north and west of the treatment area, but shouldn't impact the owl's use of the area (if owls remain on the site), because past owl surveys have found owls only in the NRF to the north and northwest, and in that area. PDC would reduce potential disturbance effects of the treatment to the Howard Junction owl site. From 1990-2000, the Howard Junction site was occupied by pairs seven (7) times and produced fledglings five (5) times. Incidental surveys in 2001 documented one single spotted owl at the sites. Since then opportunistic non-protocol surveys have not detected any owls, although the area to the NW retains some of the best NRF patch along Howard Prairie Reservoir, has a portion of ACEC designated for late seral conditions, and would be expected to support nesting owls in the future. Fuels reduction and thinning in the dispersal stand would improve spacing and reduce competition in the dispersal stand to accelerate the growth of residual trees in the treatment area. Habitat would be expected to improve the stand post-treatment and would last for at least the next 10-20 years in this site productivity class, until the canopy closes and stand suppression and fuels build up reaches pre-treatment conditions.

3.1.3 Salvage

Table 3.1.3.1
Effects of Salvage Treatment Along Roads Analyzed by Miles in that Section7 Watershed

RA	Project Name	Province	Section 7 Watershed	Type	NRF T&M Miles	Dispersal T&M Miles	BLM Road	Percent treated	All roads all ownership	Percent treated
AS	Galls Creek Salvage	KL	Rogue Middle	SAL	**0**	**7**	1311	0.53	4454.	0.16
AS	Chuck Salvage	WC	Little Butte Creek	SAL	**11**	**0**	270	0.26	1275	0.87

There are nine (9) salvage treatments proposed across two (2) Physiographic Provinces, six (6) Section 7 Watersheds and three (3) Resource Areas and avoid concentrating activities in a small area. Units are presented as estimated total acres. although actual tree removal will be individual

trees or small patches. There are five (5) **hazard tree removal** projects are in Butte Falls and Grants Pass Resource. Tree removal would occur along roads when required for public safety. Individual dead, dying or leaning hazard trees would be removed no more than 250 feet from the road.

Mistletoe removal in the **Chuck Salvage** and **Galls Creek Salvage** in the Ashland Resource Area would remove trees likely to die within the next two (2) decades, while concurrently maintaining NWFP standing and down dead wood requirements important for spotted owls and prey. Mistletoe infested stands are more flammable than uninfected stands, and removing trees heavily infested with mistletoe improves the stand's overall resistance to losses by wildfire (DecAD, SWOFIDSC). The fuel buildups in stands with dwarf mistletoe have higher total fuel loadings than un-infested stands. Infested branches are larger, more resinous, and persist longer than healthy branches. In these ways dwarf mistletoe infections increase the fire risk within an infected stand can increase fire risks because the infested trees have higher resin and greater crown structure (http://www.fs.fed.us/r4/spf/fhp/mgt_guide/dwarf_mistletoe/page8.html). Infected mistletoe trees respond rapidly to increased light. The mistletoe removal projects are designed to reduce the most-heavily infested trees, but not open the stand so much that the mistletoe in post-treatment mistletoe-infested trees would be stimulated.

Mistletoe provides structure for flying squirrels, a prey item for spotted owls, and provides structure for spotted owl nests in our area, but occurs at greater densities than found historically before fire suppression. BLM determines that this small percentage of infested trees can be removed without adversely affecting spotted owls because cavities and snags (primary nesting habitat) will be retained, no mistletoe would be removed from reserve areas scattered throughout the proposed project area, including riparian areas, KSOACs, historic and generated nest patches, and survey and manage reserve areas for great gray owl (up to 120 acres/owl site). No nest patches of historic or generated owl sites would be treated. Large diameter trees (>34 inch diameter) with low mistletoe infestations would be retained. Mistletoe treatment would be spaced throughout the treatment units. Large dominant Douglas fir, which have the highest probability for use by spotted owls or flying squirrels, would be retained. Flying space for both flying squirrels and owls should be improved under the canopy following treatment, while concurrently maintaining nesting structures important to both species. (See 3.4 Effects to Prey)

3.1.4 Stewardship

There are five (5) stewardship projects currently proposed in the Klamath Physiographic Province distributed across three (3) Section 7 Watersheds and two (2) Resource Areas and avoid concentrating activities in a watershed (Table 2a). Effects from stewardship are similar to that from timber harvest and forest health treatment, since they are generally a mix of the two types of projects. Stewardship varies only in how the project is executed. In most cases, these projects include forest health treatments that are not economical on their own. Stewardship contractors will use some commercial products to pay for the less economical units. The same spacing, large dead standing and down wood retention, unit spacing, canopy retention and PDC mitigations are implemented in stewardship as would be implemented in the timber harvest units as described

above in timber harvest and in the forest health units as previously described in the forest health section.

3.1.5 Special Forest Products

Anticipated special forest product permits are anticipated in four (4) Section 7 Watersheds, in two (2) different Resource Areas (Table 2a), as described in Section 2.3.5. Grants Pass anticipates some special forest product removal from LSR, 2008 CHU 16 and 1992 ex-CHU OR 72. Special Forest Product permits are driven by user-demand for firewood, brush, burls, poles, and similar types of forest products that may occur in or near spotted owl habitat. Permits will ensure that pre-project NRF and dispersal conditions are maintained to ensure no habitat removal would occur; standing and dead wood standards would be retained, prey habitat is not expected to be affected. Nesting structures would not be affected, and PDCs would ensure that any potentially disturbing activities would be avoided in the disturbance distance of historic and generated owl sites. Impacts to overall habitat are expected to be insignificant in scope and acres. Projects would be widely spaced and would not be anticipated to cause any changes to how an owl or prey would use the area post project.

3.1.6 ROW

Clary-Meehan ROW road construction would harvest approximately 0.2 acres of suitable (NRF) spotted owl habitat in a linear pattern within a 13 acre NRF stand. The 13 acre stand is also part of a larger contiguous 85 acre NRF and dispersal stand on BLM land. The harvest would be a may affect, not likely to adversely affect at the stand level because the trees cut is not expected to change the overall NRF characteristics of the larger stand following treatment. The proposed ROW and NRF treatment would not occur within a known or generated owl home range, core, or nest patch. There is a low likelihood spotted owls would use this stand for nesting because it’s a small patch of NRF habitat surrounded by oak woodlands and brushfields on the remaining 115 acres of BLM, and agricultural fields on private land. The habitat at the proposed road location is marginal NRF habitat and is immediately adjacent (within 80 ft) to a very busy stretch of Highway 238 in Josephine County. The proposed ROW is in an area unlikely to be used by spotted owls for nesting due to high disturbance levels and poor quality habitat. The impact to nesting, roosting, foraging, as well as potential dispersal opportunities would be insignificant since the area affected is so small. We do not anticipate adverse impacts from noise or activity along the road after it is built since it is not within the mandatory disturbance distances of any known or generated spotted owl sites (Appendix B PDC). The effects to NRF and dispersal habitat are summarized in Table 3.

3.1.7 Effects to NRF and Dispersal

The potential effects of habitat change are analyzed as a percent of the current environmental baseline. None of the projects would remove or alter habitat such that the amount of habitat would change. Projects are designed to ensure that NRF would remain NRF post-treatment and dispersal would remain dispersal post-treatment.

Table 3 Effects to NRF and Dispersal by Section 7 Watershed and Treatment Type

Applegate				**Total NRF**		**Total Dispersal**	
				62,599[1]	Percent treated	22,141[1]	Percent treated
RA	**Project**	**Section 7 Watershed**	**Project Type**	**NRF T&M**		**Disp T&M**	
AS	Burton Ben	Applegate	TS	200		95	
AS	O'Lickety	Applegate	TS	420		175	
Timber Harvest Subtotal				**620**	**1.0**	**270**	**0.1**
AS	Appleseed Fuels	Applegate	FHT	70		350	
Forest Health Treatment Subtotal				**70**	**0.1**	**350**	**1.6**
GP	Hazard Tree Removal	Applegate	SAL	10		10	
Salvage Subtotal				**10**	**<0.1**	**10**	**<0.1**
GP	Special Forest Products	Applegate	SFP	10		30	
Special Forest Products Subtotal				**10**	**<0.1**	**30**	**<0.1**
AS	Lick Stew	Applegate	ST	470		220	
AS	Can Stew	Applegate	ST	400		90	
Stewardship Subtotal				**870**	**1.4**	**310**	**1.4**
GP	Clary ROW	Applegate	ROW	0[2]		0[2]	
ROW subtotal							
Section 7 Watershed Total				**1600**	**2.6**	**970**	**4.4**

[1]Baseline Acres from Post-harvest Acres 2010 GPRA LAA BA (USDI 2010a).
[2]See ROW project description for effects units of measure.

Applegate-Private Land Portion				**Total NRF**		**Total Dispersal**	
				26,129[1]	Percent treated	2,011[1]	Percent treated
RA	**Project**	**Section 7 Watershed**	**Project Type**	**NRF T&M**		**Disp T&M**	
GP	WWilliams PVT	Applegate	FHT	{25}[2]		{40}[2]	
Salvage and Section 7 Watershed Total				**25**	**<0.1**	**40**	**NA[2]**

[1]Private NRF baseline from GIS, Assali 7/2/2010.

Dispersal information is not available for private land.[2]W Williams is a project on private land. Those NRF acres are calculated in percent treatment of private NRF from GIS 7/2/2010. Dispersal acres for private land are not available. Total Private non-NRF in Applegate Watershed is 115,746 acres.

Bear				**Total NRF**		**Total Dispersal**	
				10,866[1]	Percent treated	2,011[1]	Percent treated
RA	**Project**	**Section 7 Watershed**	**Project Type**	**NRF T&M**		**Disp T&M**	
AS	Robertson Salvage	Bear	SAL	0	0	20	
Salvage and Section 7 Watershed Total				**0**	**0**	**20**	**0.9**

[1]Baseline Acres from Post-harvest Acres 2010 Summer LAA with no harm BA (USDI 2010b)

Cow Upper				**Total NRF**		**Total Dispersal**	
				45,589[1]	Percent treated	9,092[1]	Percent treated
RA	**Project**	**Section 7 Watershed**	**Project Type**	**NRF T&M**		**Disp T&M**	
GL	Susan's Dad	Cow Upper	TS	400		200	
Timber Harvest Subtotal				**400**	**0.9**	**200**	**2.2**
GL	Healthy Murph	Cow Upper	FHT	100		100	
GL	Lawson Fire Resiliency	Cow Upper	FHT	500		20	
GL	Rattlesnake Fire Resiliency	Cow Upper	FHT	100		400	
Forest Health Treatment Subtotal				**700**	**1.5**	**520**	**5.7**
GL	Shively Stew	Cow Upper	ST	100		100	
GL	300 Stew	Cow Upper	ST	100		200	
Stewardship Subtotal				**200**	**0.4**	**300**	**3.3**
Section 7 Watershed Total				**1300**	**2.8**	**1020**	**11.2**

[1]Baseline from GIS Assali 7/2/2010 BLM only

Little Butte				**Total NRF**		**Total Dispersal**	
				15,935[1]	Percent treated	2,011[1]	Percent treated
RA	**Project**	**Section 7 Watershed**	**Project Type**	**NRF T&M**		**Disp T&M**	
AS	Antelope Salvage	Little Butte Creek	SAL	20		0	
AS	Chuck Salvage*	Little Butte Creek	SAL	{Miles}	NA	NA	See 3.1.3.1
Salvage and Section 7 Watershed Total				**20**	**0.1**	**0**	**0**

[1]Baseline from Post-harvest Acres Summer 2010 LAA with no harm BA (USDI 2010b)

Illinois				**Total NRF**		**Total Dispersal**	
				26,564[1]	Percent treated	9,912[1]	Percent treated
RA	**Project**	**Section 7 Watershed**	**Project Type**	**NRF T&M**		**Disp T&M**	
GP	Deer North non-timber	Illinois	FHT	110		285	
GP	East West non-timber	Illinois	FHT	155		420	
Forest Health Treatment Subtotal				**265**	**1.0**	**705**	**7.1**
GP	Hazard Tree Removal	Illinois	SAL	5		5	
Salvage Subtotal				**5**	**<0.1**	**5**	**0.1**
GP	Special Forest Products	Illinois	SFP	10		20	
Special Forest Products Subtotal				**10**	**<0.1**	**20**	**0.2**
Section 7 Watershed Total				**280**	**1.1**	**725**	**7.3**

[1]Baseline from Post-harvest Acres Summer 2010 LAA with no harm BA (USDI 2010b)

Klamath				**Total NRF**		**Total Dispersal**	
				18,048[1]	Percent treated	3,741[1]	Percent treated
RA	**Project**	Section 7 Watershed	**Project Type**	**NRF T&M**		**Disp T&M**	
AS	Cottonwood	Klamath	TS	1130		720	
Timber Harvest Subtotal				**1130**	**6.3**		**19.2**
AS	Howard Prairie Fuels	Klamath	FHT	380		160	
Forest Health Treatment Subtotal				**380**	**2.1**	**160**	**4.3**
Section 7 Watershed Total				**1510**	**8.4**	**880**	**23.5**

[1]Baseline from Post-harvest Acres Summer 2010 LAA with no harm BA (USDI 2010b)

Rogue Upper				**Total NRF**		**Total Dispersal**	
				41,295[1]	Percent treated	22,906[1]	Percent treated
RA	Project	Section 7 Watershed	Project Type	NRF T&M		Disp T&M	
BF	Cascade Silv	Rogue Upper	FHT	0	0	50	
Forest Health Treatment Subtotal				**0**	**0**	**50**	**0.2**
BF	Hazard Tree Removal*	Rogue Upper	SAL	5	0	15	
Salvage Subtotal				**5**	**<0.1**	**15**	**0.1**
BF	Special Forest Products	Rogue Upper	SFP	0		100	
Special Forest Products Subtotal				**0**		**100**	**0.4**
Section 7 Watershed Total				**5**	**<0.1**	**165**	**0.7**

1Baseline from Summer 2010 LAA with no harm BA (USDI, 2010b)

Rogue Middle				**Total NRF**		**Total Dispersal**	
				105,183[1]	Percent treated	41,027[1]	Percent treated
RA	Project	Section 7 Watershed	Project Type	NRF T&M		Disp T&M	
GL	Regor Thin	Rogue Middle	TS	110		60	
GL	Lower Graves	Rogue Middle	TS	300		300	
Timber Harvest Subtotal				**410**	**0.4**	**360**	**0.9**
BF	Brushy Battle	Rogue Middle	FHT	102		418	
BF	Rogue Middle Silv	Rogue Middle	FHT	0		50	
BF	Recreation Maint.	Rogue Middle	FHT	0		5	
Forest Health Treatment Subtotal				**102**	**0.1**	**473**	**1.2**
BF	Hazard Tree Removal*	Rogue Middle	SAL	5		15	
GP	Hazard Tree Removal	Rogue Middle	SAL	5		5	
AS	Galls Creek Salvage*	Rogue Middle	SAL	{ (Miles)}	NA	NA	See 3.1.3.1
Salvage Subtotal				**10**	**<0.1**	**20**	**<0.1**
BF	Special Forest Products	Rogue Middle	SFP	0		100	
GP	Special Forest Products	Rogue Middle	SFP	10		20	
Special Forest Products Subtotal				**10**	**<0.1**	**120**	**0.3**
GL	McKnabe Stew	Rogue Middle	ST	100		100	
Stewardship Subtotal				**100**	**0.1**	**100**	**0.2**
Section 7 Watershed Subtotal				**632**	**0.6**	**1073**	**2.6**

[1]Baseline from GIS, Assali, 7/2/201
*Units are miles. See 3.1.3.1

3.1.7.1 NRF

The BLM has determined that treating and maintain NRF habitat associated with these projects would avoid adverse impacts to northern spotted owls because conditions that qualified the NRF stand as NRF prior to the project are maintained throughout treatment and would remain post-project.

Specifically, these conditions include:

- Canopy cover in treated stands will be maintained at or above 60 percent;
- Decadent woody material, such as large snags and down wood;
- Large nesting structures, including big snags, trees with cavities, large mistletoe clumps will be retained in each treated stand;
- The proposed treatments will be distributed throughout the Section Seven watersheds to minimize the potential for adversely affecting spotted owl. Scattered untreated areas in or adjacent to treatment will provide habitat for prey or refugia for spotted owls that may be seeking cover from barred owls;
- All NRF in nest patches of historic or generated owl sites would be maintained; and
- PDC would ensure no potentially disturbing activity would occur within disturbance thresholds during the critical breeding period.

Treatment within NRF would benefit owls and prey post-project because:

- Treatments would reduce tree density to increase individual tree vigor, leading to increased stand resistance to insects, diseases, and wildfire. This would make the residual habitat healthier and more ecologically-sustainable over time. Multi-storied stands and several canopy heights would be retained; and
- Habitat would be maintained or improved for prey because treat and maintain prescriptions in mixed conifer forests will, at the stand level, maintain the stand density and structural conditions known to be used by flying squirrels and also open up the stand to improve habitat for woodrats. (See Effects to Spotted Owl Prey 3.4).

3.1.7.2 Dispersal

The BLM has determined that the maintenance 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
- Decadent woody material, such as large snags and down wood will be retained.
- Maintenance activities within dispersal would not remove the components important to owls: trees 11 inch diameter or greater, flying space, and some prey habitat. Large standing and down dead wood would be maintained.
- Dispersal (and NRF) in riparian areas, which are effective dispersal habitats, will be maintained (Courtney et al. 2004, pg 12).

- The proposed treatments will be dispersed throughout the Section Seven watersheds to minimize the potential for adversely affecting spotted owl dispersal.
- In addition to the dispersal habitat that will be maintained (or improved), all pre-project NRF (Table 3) will be maintained. NRF provides high quality habitat for dispersing owls.

Treatment within dispersal would benefit owls and prey post-project because:

- Treatments would reduce tree density to increase individual tree vigor, leading to increased stand resistance to insects, diseases, and wildfire. This would make the residual habitat healthier and more ecologically-sustainable over time. Multi-storied stands and several canopy heights would be retained
- NRF development would be accelerated in treated stands. NRF is superior habitat for dispersing owls.
- Flying space post project would be improved. Many pre-treatment stands are so dense prior to treatment, that owls may find movement difficult. Dense stands would have improved flying space for spotted owls, gliding space for flying squirrels, and improved forage conditions for woodrats, while concurrently maintaining conditions that qualify these stands as dispersal (and prey habitat).

3.2 Effects to CHU

We include an analysis of spotted owl critical habitat designated in 1992 and in 2008 due to on-going litigation, which may result in vacating the 2008 designation and reinstatement of the 1992 designation. All treatments in 2008 CHU and 1992 Ex-CHU were designed to maintain or improve the primary constituent elements of Critical Habitat:

These include, but are not limited to, space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing (or development) of offspring; and habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

The specific primary constituent elements required for the northern spotted owl are derived from the biological needs of the species:…

> *Space for Population Growth and for Normal Behavior…*
> *Sites for Breeding, Reproduction, and Rearing of Offspring (Nesting)…*
> *Cover or Shelter (Roosting)…*
> *Food or Other Nutritional or Physiological Requirements (Foraging)*
> *(FR 72 (112) 32456-23457)*

3.2.1 Effects to 2008 CHU

The 1992 Critical Habitat Federal Register states: The term "conservation," as defined in section 3(3) of the Act, means to use and the use of all methods and procedures which are necessary to bring an endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary," …Critical habitat also identifies areas that may require special management or Protection. (**Federal Register** /Vol. 57, No. 10/ January 15, 1992 /Rules and Regulations **1796**). All projects in 2008 CHU and 1992 Ex-CHU are designed to maintain or improve the primary constituent elements of CHU and will result in post-treatment stands that have characteristics more suited to high quality owl habitat and comply with the statement about timber management in the proposed rule for the 2008 CHU, which stated:

> *Timber management within critical habitat units should maintain or enhance the individual habitat components important to nesting, roosting, foraging, and dispersal, as well as provide adequate amounts and juxtapositions of nesting, roosting, foraging, and dispersal habitat. In general, timber management in critical habitat units should seek to maintain or enhance the characteristics of older forest, and provide large blocks of older forest and associated interior forest conditions. In southern portions of the range, harvest plans should carefully consider the mix of prey production habitat, interior old forest, and the edges between them (Courtney et al. 2004, p. 5–23). Any timber management intended to maintain or enhance northern spotted owl habitat must take into account regional variation in habitat use and associations across the range.* (**Federal Register** / Vol. 72, No. 112 / Tuesday, June 12, 2007 / Proposed Rules **32459)**

NRF stands will retain at least 60 percent canopy cover, but will also have residual trees more favorable to late seral species, more resilient to wildfire, and less likely to die from suppression mortality and disease (see 3.1.6). Standing and down large dead wood will be maintained or enhanced, and the post-treatment stand will have fewer ground fuels. The larger dead wood will be more likely to avoid loss in wildfire. Densely-vegetated dispersal stands will have more flying space post-treatment, while concurrently maintaining the 40 percent canopy cover thought necessary for dispersal and short-term holding habitat. Post-treatment dispersal stands would have stand densities that will facilitate the faster development of NRF or late-seral conditions important to spotted owls and flying squirrels. Small patches would improve foraging habitat for other prey species such as woodrats and mice. NRF provides a higher quality of all-dispersal habitat than stands that only qualify as dispersal, because it also provides opportunities for nesting, roosting and foraging for birds moving between protected habitats and finding protection from competitors such as barred owls.

2008 CHU treatment acres are compared to Medford BLM acres. All Federal NRF within CHU and within Medford District Boundaries are noted where present. Dispersal acres on non-BLM Federal lands are not available.

Table 4 Effects to 2008 CHU

2008 CHU 16 Klamath Intra province						
RA	**Project ID (12 characters)**	**Treatment type**	**NRF Treat and Maintain**	**Percent Treated**	**Dispersal Treat and Maintain**	**Percent Treated**
BLM Acres (All Federal Acres)			17326[1] (15475)		6,264[1]	
GP	Hazard Tree Removal	SAL	5	<0.1	5	<0.1
GP	Special Forest Products	SFP	10	<0.1	20	0.3
2008 CHU 16 Klamath Intra province Total			**15**	**<0.1**	**25**	**0.4**

[1]Baseline from GIS, Assali 7/2/2010

2008 CHU 14 Rogue Umpqua						
RA	**Project ID (12 characters)**	**Treatment type**	**NRF Treat and Maintain**	**Percent Treated**	**Dispersal Treat and Maintain**	**Percent Treated**
BLM Acres			59,515[1]		13,278[1]	
GL	Regor Thin	TS	60		60	
GL	Susan's Dad	TS	225		75	
Timber Harvest Subtotal			**285**	**0.5**	**135**	**1.1**
GL	Shively Stew	ST	100		100	
GL	McKnabe Stew	ST	100		0	
GL	300 Stew	ST	100		200	
Stewardship Subtotal			**300**	**0.5**	**300**	**2.3**
2008 CHU 14 Rogue Umpqua Total			**585**	**1.0**	**435**	**3.3**

[1]Baseline from GIS, Assali 7/2/2010

2008 CHU 17 Southern Cascades						
RA	**Project ID (12 characters)**	**Treatment type**	**NRF Treat and Maintain**	**Percent Treated**	**Dispersal Treat and Maintain**	**Percent Treated**
BLM Acres			14,000[1]		2,468[1]	
AS	Cottonwood	TS	90	0.6	45	1.8
AS	Howard Prairie Fuels	FHT	70	0.5	70	2.8
2008 CHU 17 Southern Cascades Total			**160**	**1.1**	**115**	**4.7**

[1]Baseline from GIS, Assali 7/2/2010

- No primary constituent elements will be reduced in quantity or quality.
- There will be no change in the amount of spotted owl NRF or dispersal habitat in the three affected 2008 CHUs.
- Canopy cover within treated stands of spotted owl NRF habitat will be retained at 60 percent or greater, allowing for the continued nesting, roosting and foraging of spotted owls within treated stands.
- Canopy cover within treated stands of spotted owl dispersal will be retained at 40 percent or greater, allowing birds to disperse through the area, and occasionally feed.
- Decadent woody material in the treatment areas, such as large snags and down wood, will remain post-treatment, providing habitat for spotted owl prey species.
- Multi-canopy, uneven-aged tree structure present prior to treatments will remain post-treatment, providing important habitat features of spotted owl NRF habitat.
- Post treatment structural conditions will maintain habitat conditions for spotted owl prey species, particularly woodrats, in treatment areas.
- Spacing treatments among reserved areas and leaving multiple canopies, assorted tree sizes and horizontal/vertical canopies within the treatment area will reduce potential adverse affects to flying squirrels, a secondary prey species in the area.
- No spotted owl nest trees will be removed; with the exception of Howard Junction owl site, no nest patches would be treated. In the Howard Junction site, the treatment in dispersal is designed to protect the NRF patches from fire, and make the entire home range more functional over the long term. No adverse impact to areas currently used by owls is expected in this case.

- Mistletoe will be removed in areas where it threatens the survival of affected trees. Spacing treatment areas
- Treatments will be distributed both spatially and temporally within the affected CHUs .

Anticipated beneficial effects which may result from the implementation of thinning and fuels reduction treatments include:

- Improved ecological condition of treated stands;
- Residual trees will be more resilient to loss from suppression mortality;
- Residual trees will gain girth, height and thicker bark, improving resistance to fire ;
- Reduced risk of stand loss due to wild land fires;
- Post-treatment stands would retain components important to spotted owls and would rapidly continue towards improved late seral development over time;
- Increase in the amount of forage plants important to spotted owl prey species; and
- Improve growth (height and girth) over time post harvest to create better flying squirrel habitat, an important prey species, while concurrently reducing potential adverse affects to prey species.

3.2.2 Effects to 1992 ex-CHU

All Baseline acres are BLM NRF and Dispersal, cut to the Medford District Boundary. Other Federal NRF is noted where available, but calculations are done to Medford BLM habitat only.

1992 CHU OR 32			**NRF Acres**	**Percent Treated**	**Dispersal Acres**	**Percent Treated**
BLM Acres (All Federal Acres)			24,623[1] (24997)		5,709[1] (NA)	
GL	Lower Graves	Timber Harvest Subtotal	100	0.4	100	1.8
GL	Shively Stew	Stewardship Subtotal	100	0.4	100	1.8
GL	Healthy Murph	Forest Health Subtotal	100	0.4	0	0
1992 CHU OR 32 Total			**300**	**1.2**	**200**	**3.5**

[1]Baseline Acres from GIS, Assali 7/2/2010. NA: Dispersal acres for non-BLM Federal: Not available

1992 CHU OR 38			**NRF Acres**	**Percent Treated**	**Dispersal Acres**	**Percent Treated**
BLM Acres (All Federal Acres)			13,699[1]		2,436[1]	
AS	Cottonwood	Timber Harvest Subtotal	1,060	7.7 percent	720	29.6 percent
1992 CHU OR 38 Total			1,060	7.7 percent	720	29.6 percent

[1]Baseline Acres from GIS, Assali 7/2/2010. NA: Dispersal acres for non-BLM Federal: Not available

1992 CHU OR 62			**NRF Acres**	**Percent Treated**	**Dispersal Acres**	**Percent Treated**
BLM Acres (All Federal Acres)			3,812[1]		356[1]	
GL	Susan's Dad	Timber Harvest Subtotal	225	5.9	75	21.1
GL	300 Stew	Stewardship Subtotal	70	1.8	0	0
1992 CHU OR 62 Total			**295**	**7.7**	**75**	**21.1**

[1]Baseline Acres from GIS, Assali 7/2/2010. NA: Dispersal acres for non-BLM Federal: Not available

1992 CHU OR 64			**NRF Acres**	**Percent Treated**	**Dispersal Acres**	**Percent Treated**
BLM Acres (All Federal Acres)			3232[1]		424[1]	
GL	Regor Thin	Timber Harvest Subtotal	50	1.5	0	0
GL	Rattlesnake Fire Resiliency	Forest Health Subtotal	100	3.1	35	8.2
1992 CHU OR 64 Total			**150**	**4.6**	**35**	**8.2**

[1]Baseline Acres from GIS, Assali 7/2/2010. NA: Dispersal acres for non-BLM Federal: Not available

1992 CHU OR 72			**NRF Acres**	**Percent Treated**	**Dispersal Acres**	**Percent Treated**
BLM Acres (All Federal Acres)			22,059[1] (24158)		7,536[1]	
GP	Hazard Tree Removal	Salvage Subtotal	5	<0.1	5	<0.1
GP	Special Forest Products	Special Forest Product Subtotal	10	<0.1	20	0.2
1992 CHU OR 72 Total			**15**	**0.1**	**25**	**0.3**

[1]Baseline Acres from GIS, Assali 7/2/2010. NA: Dispersal acres for non-BLM Federal: Not available

1992 CHU OR 74			**NRF Acres**	**Percent Treated**	**Dispersal Acres**	**Percent Treated**
BLM Acres (All Federal Acres)			15,053[1] (16,367)		3524[1]	
AS	Can Stew	Stewardship Subtotal	360	2.6	70	2.0
AS	Burton Ben	Timber Harvest Subtotal	200	1.3	95	2.7
1992 CHU OR 74 Total			**560**	**3.7**	**165**	**4.7**

[1]Baseline Acres from GIS, Assali 7/2/2010. NA: Dispersal acres for non-BLM Federal: Not available

1992 CHU OR 75			**NRF Acres**	**Percent Treated**	**Dispersal Acres**	**Percent Treated**
BLM Acres (All Federal Acres)			9.461[1]		1,783[1]	
AS	Lick Stew	ST	265		40	
AS	O'Lickety	TS	400		175	
Timber Total and 1992 CHU OR 75 Total			**665**	**7.0**	**215**	**12.1**

[1]Baseline Acres from GIS, Assali 7/2/2010. NA: Dispersal acres for non-BLM Federal: Not available

- There will be no change in the amount of spotted owl dispersal habitat in the seven (7) affected ex-CHUs.
- Canopy cover within treated stands of spotted owl dispersal habitat will be retained at 40 percent or greater, allowing for the continued dispersal of spotted owls throughout treated stands.
- Very dense stands will be opened by thinning, improving conditions for dispersing spotted owls.
- Decadent woody material in the treatment areas, such as large snags and down wood, will remain post-treatment, providing benefits to spotted owl prey species.
- Multi-canopy, uneven-aged tree structure present prior to treatments will remain post-treatment, providing important habitat features of spotted owl habitat.
- Post treatment structural conditions will maintain habitat conditions for spotted owl prey species, particularly woodrats, in treatment areas.
- Treatments will not occur within the nest patch of any known or predicted spotted owl sites.

Anticipated beneficial effects in both NRF and dispersal may result from the implementation of thinning and fuels reduction treatments:

- Improved ecological condition of treated stands. Residual trees would develop larger size and thicker bark to make them more likely to survive wildfire;
- Treated dispersal stands would more rapidly develop NRF characteristics;
- Reduction in the chance of tree loss due to suppression mortality;
- Reduced risk of stand loss due to wild land fires; and
- Increase in the amount of forage plants important to spotted owl prey species.

3.3 Effects to LSR

There are six (6) projects proposed in two (2) LSR's in two (2) Resource Areas, so project effects would not be concentrated in a small area. All LSR projects are designed to maintain or improve late seral conditions and improve spotted owl and prey habitat over the long term.

Table 6 Effects to LSR NRF: All Habitat Maintained				
Galesville South Umpqua, RO223		**NRF**		
Pre Project		BLM 15,307[1]		
RA	**Project Name**	**Project Type**	**Treat and maintain**	**Percent affected**
GL	Shively Stew	ST	100	0.7
GL	Healthy Murph	FHT	100	0.7
Total Treatment within RO223			200	1.4

East IV/Williams Deer, RO249		**NRF**		
Pre Project		BLM Total 23,247 (14672 AMR plus 8,575 LSR)		
RA	**Project Name**	**Project Type**	**Treat and maintain**	RA
GP	Hazard Tree Removal	SAL	5	<0.1
GP	Special Forest Products	SFP	10	<0.1
Total Treatment within RO249			15	<0.1

[1]Baseline from DA BA FH BA (USDI, 2008). DA BA FH indicates total 26,101 in this LSR (all habitat) on Medford BLM.

3.4 Effects to Spotted Owl Prey

Forsman et. al.(2004, pg 218) evaluated over 24,000 prey items from spotted owl pellets and found that birds in the proposed action (identified as the Interior Southwest geographic region in their paper), used approximately 28 percent each of flying squirrels and woodrats. Other prey items included western red-backed vole, birds, other small mammals (red tree voles, gophers, deer mice, shrews and moles, rabbits/hares) and insects, and bats. The larger- bodied woodrats contributed nearly 50 percent of the biomass in diets of owls in the Interior Southwest geographic region, followed by flying squirrels, rabbits, and other miscellaneous prey species (Forsman et. al.2004, pg 219).

Prey studies cited by Forsman et. al.2004 (Forsman et al. 1984, Ward 1990, Carey et. al.1992, Ward and Block 1995, Ward et. al.1998) document wide variability in prey populations. Predator behavior may cause spotted owls to switch to alternate prey when one prey species becomes more difficult to capture. Ward (1998) suggested that spotted owls sought out woodrats for their greater energetic reward, although to date, this theory hasn't been tested empirically.

Treatments that reduce tree density, reduce canopy cover, reduce shrubs and understory vegetation and open the stand to more light and nutrients will affect different prey species in various ways, depending on the condition of the prey habitat prior to treatment, the prey habitat post treatment and complex interactions among the prey/predator community. Suzuki and Hayes (2003) evaluated the response of ground-dwelling mammals to Oregon Coast Range forest thinning and found that thinning appeared to increase the abundance of small mammals, and maintains or enhances habitat quality in the long or short term. All species except Western red backed voles exhibited increases over a three year period following heavy and moderate thinning as compared to controls, presumably because these species were responding to the increased forage caused by the additional light in the stand. Habitat for western red backed voles was expected to improve in treated stands over the long term (Suzuki and Hayes 2003).

Arboreal prey species may respond to thinning differently than small ground mammals. Flying squirrels are largely arboreal, moving from tree-to-tree in the canopy. Gomez et. al.(2005) found that thinning in young (35-45 year old Douglas fir stands in the northern coast range did not have measureable short term effects on density, survival or body mass of flying squirrels. (Note: a 35-45- year old Douglas fir tree in the Coast range would be equivalent in diameter to a much older tree in the Action Area). Many of the stands treated in the proposed action are multi-aged, and mixed-conifer stands, which would leave more favorable structural conditions for flying squirrels after density management treatments than those evaluated by Gomez et. al.(2005). Wilson (2008), studying flying squirrels in Washington, found that forests with high squirrel abundances generally exhibited high amounts of multi-dimensional structure in the midstory and overstory layers, low to moderate amounts of understory, and few canopy gaps, conditions expected to occur post-project for projects in this BA. Wilson (2008) evaluated food, (fungi, lichens, catkins, and samaras in Washington), and presence of cavities as limiting factors for flying squirrels (Wilson 2008), Predation by owls and other predators (mustelids, other raptors etc) have been postulated as a limiting factor for some populations of flying squirrels. *The following conditions appear to be good for flying squirrels—(1) forest with a relatively even-aged dominant layer of trees (especially larger, older trees) and little understory where structural occlusion is high due to a closed canopy and high bole density, and (2) complex, multi-aged forest that provides crown-to-ground cover both vertically and horizontally through forested space. However, only the latter condition provides high-quality spotted owl habitat (Thomas et al. 1990) (Wilson, 2008, pg 140).*

Mistletoe is an important nest structure for red squirrels and northern flying squirrels. Bull et. al.(2004) noted that over half of the flying squirrel and red squirrel structures in a pre-treatment stand in NE Oregon occurred in mistletoe. After a heavy thing treatment (much greater harvest than proposed in this BA: similar to a NRF downgrade or removal project in our terminology), numbers of squirrels decreased, and their activity area increased. Patches of untreated mistletoe "islands" or leave patches were recommended to mitigate effects of mistletoe treatments on squirrels (Bull et al.2004, McComb et al. 2009).

The mistletoe salvage projects may remove some flying squirrel nest structures, and would reduce the number of mistletoe clumps in small areas in the Ashland Resource Area. The salvage areas would be small, would affect less than flying squirrels could be reduced in patches of mistletoe treatment, but overall mistletoe in those treatment areas is a small proportion of infested trees. Mistletoe removal would focus on patches of such high infestation that tree mortality may result without treatment. Lightly-infested trees (with less than 50 percent canopy infestation rate) would be retained throughout the treated area; untreated areas would occur within the project boundaries in all riparian areas (except Glendale where riparian areas would be included in the treatment footprint), in survey and manage sites protection buffers for red tree voles and great gray owls, and all areas outside the treatment area.

Timber harvest and associated fuels reduction projects may impact foraging by changing habitat conditions for prey. Sakai and Noon (1993) stated that dusky-footed woodrats, the primary prey of owls in our area, may benefit from some thinning or harvest which would increase shrub and pole stands. Bushy-tailed woodrat presence is more dependent on cover and food availability than on seral stage and often use areas previously disturbed by fire (Carey 1991).

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.

Reducing 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 to again close in the stand.

Small patches, such as those that might be created in small group selection or pine release, 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 province is 0.5 miles (or 500 acres) within the nest site. Therefore, effects to prey species are most critical at the nest patch and core areas. Effects to spotted owl sites at the nest patch and core areas are analyzed in Section 4.2 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 project 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. Woodrats and other prey species would respond favorably to light thinning in areas where flying squirrel numbers might decline slightly in mistletoe treatment areas. No measurable decrease in total prey availability would be expected in any of these treatments areas, and thinning is likely to improve habitat for overall prey habitat post treatment.

3.5 Effects to Northern Spotted Owls

Many of the projects in this BA are proposed to occur within the Provincial home range or 500 acre cores of historic or generated owl sites. All projects are designed to avoid adverse impacts and to maintain the habitat of owls before and after treatment, whether or not they occur within the vicinity of owl sites. Medford BLM determines that the projects in this BA may affect and will not likely adversely affect (NLAA) spotted owls because:

- The local field biologists have determined the proposed treatments are designed to maintain the pre-treatment habitat classification of the stand within the home range, core and nest patch. As stated in the OEM guidelines (USDI, 2008 pg. 14), these types of treatments would be considered NLAA.
- According to the OEM guidelines, light thinning treatments of dispersal habitat within the nest patch that maintain a similar stand function pre- and post- thinning, would likely warrant a NLAA determination.
- Treatments will ensure that NRF will retain the components important to owls: 60% canopy, large standing and down dead wood, multi-storied canopies and retention of many of the larger trees.
- Overall prey habitat will be maintained or improved because of the low percent removal, retention of most of the prey habitat characteristics important to flying squirrels and some short term improvement of food plants for wood rats and other small rodents (see Prey Effects, section 3.4).
- Treatments in dispersal will maintain or improve dispersal qualities including 40% canopy, retention of large trees and dead, and removal of some of the trees and brush will improve flying space for owls. Overall prey habitat will be maintained or improved. (See prey analysis 3.4).
- No nest patches will be treated, except where described. The one treatment in the nest patch is designed to avoid adverse impacts to that owl site and will improve habitat overall post project.
- PDC avoid the potential disturbance effects that could stress nesting owls during the critical breeding period.

Nesting owls stay close to the nest to feed and protect their young during the critical nesting period (Table 1). Activity close to the nest during that period of time is thought to influence feeding behavior and increase stress levels of adult birds. Mandatory PDC will be incorporated into all proposed action activities to reduce the chance of adverse affects. Activities would be restricted within disturbance distance thresholds or would occur outside of the breeding season (Appendix B). No harm to nesting owls or their young is expected from project related noise or activities.

3.6 Recovery

The Medford BLM complies with the conservation and recovery of owls as required under ESA Section 7(a)(1) by managing LSR to maintain and improve late seral conditions important to owls and prey. Riparian areas will similarly be managed to enhance late seral conditions that will help support nesting habitat, feeding and resting areas, and facilitate connection between LSRs.

KSOCAs of historic owl sites found prior to 1994 will be maintained. Project units will avoid nest patches of historic and generated owl sites, or in the case of Howard Junction (**Howard Prairie Fuels),** will be managed to benefit and protect owls that may be using that area. Survey and manage sites, particularly for great gray owls (approximately 120 acres per site) and red tree

voles (ten (10) acres per sites) will be reserved and will provide patches of unmanaged habitat for owls and prey.

The Proposed Actions in this BA will not remove any NRF or dispersal habitat. All projects are designed to maintain or improve existing habitat by reducing competitive vegetation, and encouraging the development of healthier, more-resilient stands, taller and larger trees and greater structural diversity. Timber, forest health, stewardship, and fuels that threaten the future habitat. The salvage sales are designed to remove dead, dying or diseased trees that threaten the stand (or human safety) while concurrently maintaining the large standing dead and down decadent material important to owls. Forest health treatments (and most of the timber and stewardship projects) would reduce the risk of losses to fire by reducing ladder and excessive understory fuels, encouraging remaining trees to grow faster and larger, and develop thicker bark that would improve their ability to survive wildfire.

BLM will continue to manage for the conservation of listed species, including recovery efforts for the northern spotted owl. BLM will continue to participate in Recovery Plan actions (See 1.1). Informal agreements with the Service set forth some justifiable activities within RA 32 stands, including small scale operational access to treatment units. RA 32 evaluations have not been conducted for project proposed in this BA with the exception of Lawson Fire Resiliency. RA 32 stands may have adjacent timber sale units that will need cable yarding and/or tractor skidtrails through the stands in order to access the sale unit. Access corridors will be designed to maintain the conditions which qualify the RA 32 stand as “older and more structurally complex multi-layered conifer forests” and maintain the structural complexity and decadent wood in that stand. Yarding corridors and skid trails may be up to 12 feet wide to facilitate yarding operations. These corridors will have a few trees (removed or cut and left on site) and the habitat outside of the corridor will remain unchanged in habitat characteristics. Tractor skidtrails are typically less than 12 feet wide and will not involve the cutting of trees. Tractor skidtrails will be placed in such a manner to maintain the decadence and structure of the RA 32 stand.

3.7 Cumulative Effects

Cumulative effects under ESA are “those effects of future State or private activities, not involving Federal activities, that are reasonable 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 under ESA. Cumulative effects analysis of foreseeable state and private actions provide the Service and the Medford BLM an accurate environmental baseline to assess impacts of federal actions.

The land base in the action area has a checker board pattern of ownership of private land interspersed with BLM lands. A range of management practices occur on private lands from residential home site development to intensive industrial timber management. In the Biological Opinion for the NWFP (USDA and USDI 1994b, Appendix G, 44-45), the Service concluded, “Non-federal landowner compliance with the take prohibition of the [Endangered Species] Act does not assure the maintenance of spotted owl dispersal habitat within Areas of Concern and

checkerboard ownership nor provide for improvement of existing populations. Consequently, it is likely that a reduction in dispersal habitat would occur on non-federal lands in certain areas."

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 forest lands 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, during the development of the DA BA FH (USDI 2008a) data was requested from Oregon Department of Forestry and the Pacific Northwest Inventory and Analysis team to help determine harvest rates in the past decade on private lands within the District. These records indicated 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, or the specific location of harvest.

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

4. Biological Assessment Conclusions

We request concurrence with the determination of this biological assessment that the proposed actions described in this BA "*may affect and is not likely to adversely affect the northern spotted owl or northern spotted owl critical habitat*" (NLAA).

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Appendix B: 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 which 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 which 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 USFWS 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 B-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 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 B-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 towards the noise, hiding, assuming a defensive stance, etc. (USFWS 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.