

Medford District Analysis of NLAA Biological Assessment in Forested Habitat

(Cite as 09 NLAA DA BA FH)

I. INTRODUCTION

This Biological Assessment (BA) evaluates projects that “may affect and are not likely to adversely affect” (NLAA) northern spotted owls, marbled murrelets, and spotted owl critical habitat. No projects occur in marbled murrelet critical habitat. We seek concurrence from the US Fish and Wildlife Service (Service), that these projects are not likely to adversely affect listed species or spotted owl designated critical habitat.

The projects described in the Proposed Action of this BA are proposed to commence in 2009 or 2010. We expect completion within 7 years. The effects of projects on plants through 2008 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 2008a). Listed fish are evaluated in separate project level consultations. Listed fish are consulted upon separately. No other listed species or designated critical habitat will be affected by the activities identified in this BA.

Description of the Action Area

The Action Area is defined as all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR 402), and includes all public lands managed by Medford BLM and all areas subject to increased ambient noise levels caused by activities associated with the proposed action. Habitat baseline in this document includes habitat on federal ownership on Medford BLM only.

The Medford District BLM encompasses approximately 862,964 acres of public land in a checkerboard pattern of mixed private and federal ownership acres (GIS calculations DA BA FH 11_2008, USDI 2008b). Not all of these lands are capable of providing owl or murrelet habitat. The proposed projects (actions) are located within the Oregon Klamath Mountains Physiographic Province.

Natural plant community types within the Action Area are diverse. In the lower elevations Oregon white oak woodlands and grasslands, chaparral, scattered ponderosa pine, and Douglas-fir occur up to about 2,400 feet in the interior valleys. Above this on the Klamath Mountain side of the valley is the mixed evergreen zone, dominated with Douglas-fir and madrone up to about 4,500 feet, and a mixed conifer zone on the Cascade side dominated by ponderosa pine, Douglas-fir, incense cedar, and white fir in more mesic sites. In both areas, dense, chaparral (sclerophyllous type) communities can occupy large patches of the landscape, composed primarily of wedge-leaf ceanothus (*Ceanothus cuneatus*) and manzanita (*Arctostaphylos* species). Above 4,500 feet is the white fir zone, grading into a Shasta red-fir zone up to about 6,500 feet. Above this, areas of mountain hemlock and whitebark pine can be found up to open rocky herbaceous grasslands on the highest peaks above timberline.

The ecological diversity of communities and species of the BLM is attributed to its physiographic setting at the confluence of the Klamath and the Cascade ecoregions. Many eastern Cascade and Great Basin species are on the periphery of their range in the Klamath sub-basin and spill into the southern edge of the Rogue valley from the east. The juxtaposition of these regions has led to a diverse array of species including species whose distributions are centered south into the Sierras of California, east into the Great Basin, or north up the Cascades and the Coast range.

The BLM recently revised land use allocations (LUA) and developed a new Resource Management Plan RMP. The Record of Decision (ROD) for that plan was signed December 30, 2008 (USDI 2008c). LUA categories in the ROD include Late Successional Management Area (LSMA), Riparian Management Area (RMA), Timber Management Area (TMA), Deferred Timber Management Area (DTMA) and Uneven-aged Management Area (UEM).

The Proposed Action in this BA proposes no adverse habitat treatments in former LSR or current LSMA and no adverse impacts to CHU. There is no owl or murrelet habitat removal or downgrade proposed in this BA. No project that reduces dominant, co-dominant, or intermediate canopy will occur within 300 meters of any owl site (See PDC). All projects were planned under the Northwest Forest Plan (NWFP), (USDA, USDI 1994a, 1994b) objectives and standards and guides. All projects will follow those NWFP guidelines. Although the ROD revised locations, acres and management direction of land use allocations, none of the projects proposed in this BA implement those changes. Subsequent formal consultations would evaluate any proposed removal of habitat from any NWFP RMP land use allocation specified in the ROD. Projects proposed in this BA will maintain all owl and murrelet habitat located in the former NWFP reserves, riparian areas and former critical habitat units. Any habitat changes to NWFP reserves will be evaluated in future consultations on projects developed under the Resource Management Plan (USDI 2008c).

Private lands within the Action Area

BLM-managed lands are generally intermingled with private lands. Human populations are centered on the cities of Medford, Grants Pass, and Ashland. Private lands comprise approximately 50 percent of the total Action Area. Private forested lands managed for timber production will typically be harvested between 40 and 60 years of age, in accordance with State Forest Practices Act standards. These lands are typically not expected to provide long-term spotted owl nesting, roosting and foraging habitat, or marbled murrelet habitat, although some habitat occurs in private ownership. The conversion of intact suitable habitat in the low elevation woodlands and grasslands into pastures, vineyards, orchards, and home sites is increasing throughout the Rogue Valley.

II. DEFINITIONS

NW Forest Plan Land Use Allocations (USDA USDI 1994b). All projects in this BA were planned under NWFP land use allocations and standards and guidelines and follow the guidelines in place at the time of planning. They comply with the new ROD and will be implemented as NWFP projects under the interim guidance of the ROD, which references former NWFP projects that were in planning when the ROD was finalized (ROD pg 3 USDI 2008c).

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.

Riparian Reserves are areas along all streams, wetlands, ponds, lakes, and unstable and potentially unstable areas where riparian-dependent resources receive primary emphasis.

Matrix consists of those federal lands not in the categories above. For the BLM this is the general direction for Matrix lands.

Medford Resource Management Plan (RMP) Land Use Allocations (USDI 2008c). **Note:** Projects in this BA were planned under the previous land use allocations (listed above) and follow Standards and Guides of the previous RMP. Under the current RMP (USDI 2008c), they are considered transition projects. This BA describes how treatments affect former LSR units, as well as how projects affect the CHU/current Late-Successional Management Areas.

Late-Successional Management Areas (LSMAs) are managed to maintain and develop habitat for the northern spotted owl and marbled murrelet. These areas are designed to recover economic value from timber harvested after a stand-replacement disturbance. Thinning and other silvicultural treatments would be applied to promote development of mature or structurally complex forests, and reduce the potential for uncharacteristic wild fire (USDI 2008c).

Riparian Management Areas (RMAs) are areas along all streams, wetlands, ponds, lakes Managed for conservation of special status fish species, riparian and aquatic conditions that supply stream channels with shade, sediment, filtering, leaf litter and large down wood, managed to maintain and restore water quality and maintain and restore access to stream channels for all life stages of fish species. Thinning and other silvicultural treatments would be applied to speed development of large trees and to reduce the potential for characteristic wildfire. No thinning would occur within 60 feet of high water mark for perennial and intermittent fish bearing and perennial non-fish bearing and up to 50% canopy could be removed, and no thinning would occur within 35 feet of high water line of intermittent non-fish bearing streams. Harvested trees would be available for sale.

National Landscape Conservation System include the Cascade-Siskiyou National Monument, Pacific Crest National Scenic Trail, and the Rogue Wild and Scenic River. Management

direction is to maintain the conditions consistent with the designation of these areas. Specifics are summarized in FEIS Pgs 2-25-26 (USDI 2008c)

Administratively withdrawn areas include Areas of Critical Environmental Concern and Research Natural areas, roads, buildings and quarries or other infrastructure and facilities, recreational sites, areas identified as withdrawn in the timber production capability classification system (TPCC). Other than ACEC's, there are no specific management objectives or directions. They may be managed similarly to the adjacent or surrounding land use allocations if those uses are not incompatible with the reason for which those lands were withdrawn.

Deferred Timber Management Area is managed for permanent forest production under sustained yield principles. Deferred areas are mapped on Map 2-2 (*Land use allocations under the PRMP*) of the FEIS (USDI 2008c). Within deferred, timber harvest would be deferred on these areas until after 2023. Fire and fuels treatments would be applied to vegetation under 8 inches diameter breast height. Trees could be removed for safety and operational reasons, including road construction and maintenance. After stand-replacement disturbance, these lands would revert back to the underlying land use allocation: either Uneven age Timber Management Area or the Timber Management Area.

Timber Management Area (TMA) consists of those federal lands not in the categories above. For the BLM this is the general direction for Matrix lands: All merchantable material would be removed from the harvest units. Minimum age class of harvest areas is 40 year age class. Commercial thinning would recover anticipated mortality and would maintain stand densities necessary to occupy the site, but below densities that would reduce stand vigor and health. Historic conifer stands that are currently producing brush or hardwoods will be converted to conifer unless hardwoods would produce a higher net monetary gain. Fertilizer and pruning would be applied where enhanced timber value would result.

Uneven-Aged Management Area (UEM) are established as shown on Map 2-2C of the FEIS (USDI 2008c) and would be managed by harvest methods including thinning, single tree selection and group selection to support the removal and sale of timber and biomass designed to promote growth and vigor of the stand, to adjust stand composition or dominance; to recover anticipated mortality; to reduce stand susceptibility to natural disturbance; to improve merchantability and value and to promote multi-structural conditions in stands. An overstory component would be retained to promote the development of fire-resilient forests, in an approximate relative density between 25 and 55. (*Appendix R of FEIS Vegetation Modeling provides assumptions for modeled Relative Density, Curtis, 1982*) (USDI 2008c).

Northern Spotted Owls

Documented Spotted Owl Sites are defined as locations with evidence of continued use by spotted owls, including breeding, repeated location of a pair or single birds during a single season or over several years, presence of young before dispersal, or some other strong indication of continued occupation. Documented spotted owl sites are tracked in the BLM's northern spotted owl database. The majority of the known sites were established through protocol surveys

completed in the late 1980s and early 1990s. Protocol surveys are currently conducted only in demographic study areas. Protocol surveys are no longer required outside of the demographic study areas, but owl sites and survey data are recorded in an opportunistic manner. All documented sites receive seasonal protection, unless shown to be non-nesting as described in the Project Design Criteria (see Appendix A, PDC).

Generated (“G”) Sites were created by the use of a methodology developed by an interagency team in order to estimate take in areas where sufficient survey information is not available. The entire set of owl sites used for OEM (Owl Estimation Methodology) analysis includes the generated sites and documented sites. *Methodology for Estimating the Number of Northern Spotted Owls Affected by Proposed Federal Actions* (USDA et al. 2007, Version 2.0 9/2008, Appendix B of DA BA FH USDI 2008b) was used to provide a reasonable basis for estimating potentially-occupied spotted owl nest sites on a given landscape. The OEM aids the Service in estimating of the number of northern spotted owls likely to occur within the area affected by “may affect Likely to Adversely Affect” (LAA) proposed Federal actions. There are no LAA projects in this BA.

Provincial Home Range is defined as the circle around an activity center and represents the area owls are assumed to use for nesting and foraging in any given year. The home ranges of several owl pairs may overlap. Provincial home range radii vary based on the physiographic province in which they are located: Klamath Mountains Province = 1.3 miles (approximately 3,400 acres), and Cascades West Province = 1.2 miles (approximately 2,900 acres).

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. Recent evaluation of owl telemetry literature indicates most spotted owl activities are focused within the 0.5-mile radius around the nest tree (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. Disturbance or treatments that reduce canopy of habitat within this area could potentially affect the reproductive success of nesting birds. Exceptions to this are noted in some site-specific situations.

Owl Activity Periods

Table 1. Northern Spotted Owl Breeding Periods (see also PDC, Appendix A)		
Entire Breeding Period	Critical Breeding Period	Extended Breeding Period
March 1-September 30	March 1-June 30	July 1-September 30

Northern Spotted Owl Habitats

We defined four categories of forest land in this BA. These categories are distinct and non overlapping.

Non-habitat

Capable

Dispersal

NRF (Nesting, Roosting and Foraging)

Nesting, Roosting, and Foraging (NRF) Habitat for the northern spotted owl consists of habitat used by owls for nesting, roosting, *and* foraging. NRF habitat also functions as dispersal habitat. Generally, this habitat is multistoried, 80 years old or more (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). NRF habitat in southwest Oregon is typified by mixed-conifer habitat, recurrent fire history, patchy habitat components, and a higher incidence of woodrats, a high quality spotted owl prey species in our area.

Forsman et al. (1984) described some of the differences in the Klamath Mountains Province, typical of large parts of the Medford District,

“Eighty-one percent of all nests in northwestern Oregon were in cavities, compared to only 50 percent in the Klamath Mountains. These differences appeared to reflect regional differences in availability of the different nest types. Dwarf mistletoe infections in Douglas-fir (and numerous debris platforms that were associated with dwarf mistletoe infections) were common in the mixed coniferous forests of the Klamath Mountains and the east slopes of the Cascades, but did not occur in western Oregon.”

NRF in southwest Oregon varies greatly. It may consist of somewhat smaller tree sizes. Tree species are more diverse within each stand than owl habitat in the BLM Districts and National Forests located on the west side of the Cascade Mountains in northern Oregon. 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. However, southwest Oregon NRF can support nesting owls if those components are available across the immediate landscape. Forsman et al. (1984) documented the range of nest trees for platform nests (from table) (n=47) range equals 36 to 179 centimeters (cm) (14.2 to 70.5 inches) in diameter at breast height (dbh) averaging 106 cm (41.7 inches) dbh. Mistletoe is occasionally used as a nesting substrate in southwest Oregon, which makes smaller trees suitable as nest trees. The BLM Resource Area wildlife biologists make site-specific determinations and

delineations of NRF habitat at the project level. Site-specific determinations are incorporated into the Medford District NRF habitat layer.

For spotted owls, features that support nesting and roosting habitat typically include a moderate to high canopy (60 to 90 percent); a multistoried, multi-species canopy with large overstory trees (greater than 30 inches in diameter); a high incidence of larger trees with various deformities, including mistletoe, large snags, large accumulations of fallen trees and wood on the ground; and flying space (Thomas et al. 1990).

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

Dispersal 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. The term “all-dispersal” will be used when both dispersal and NRF are intended.

Spotted Owl Habitat Treatment Types

Forest stands in southwest Oregon are often multiple-aged with multiple canopy levels that have resulted from previous harvesting or from past natural stand disturbance such as repeated historic low intensity fire (USDI 1992a, Vol. II, 2-37). The actual interpretation of treatment impacts to owls will be defined by the Resource Area wildlife biologists in collaboration with their Interdisciplinary Team and Field and District Managers. Effects of individual activities will be determined by the BLM following these descriptions.

Medford BLM mapped suitable NRF habitat on the Owl Habitat Baseline (Appendix A of DA BA FH, USDI 2008b). Resource Area biologists will continue to improve and refine this habitat layer as projects are proposed and field/photo evaluations can be conducted. Acres changed due to fire or harvest activities have been incorporated in the Environmental Baseline (USDA, USDI, 2008b). We also corrected the environmental baseline acres for this NLAA BA by changing the habitat proposed for harvest in the District Analysis and Biological Assessment of Forest Habitat, (DA BA FH), completed in October, 2008 (USDI 2008b).

Treat and Maintain NRF or Dispersal Habitat means an action or activity will occur within NRF or dispersal habitat that will not change the owl habitat function. The NRF stand retains large trees, multistoried canopy, standing and down dead wood, diverse understory adequate to

support prey, and may have some mistletoe or other decay. Dispersal stands continue to function as dispersal habitat.

The effects determination for treating and maintaining habitat is “may affect, not likely to adversely affect” (NLAA) the spotted owl because the treated stand will retain the characteristics that qualify it as the pre-treatment habitat and spotted owls will be able to use the stand as before. Some change to understory vegetation and dense trees may occur. NRF habitat will retain 60 percent canopy cover, large trees and snags, large down wood, and structural diversity important to northern spotted owls. Dispersal habitat will continue to provide at least 40 percent canopy, flying space, and trees 11 inches dbh or greater, on average, following treatment. The habitat classification of the stand following treatment will be the same as the pre-treatment habitat classification. Many NLAA fuels, silviculture, and timber projects may have a long-term benefit because they reduce the unnaturally high brush and dense trees that have resulted from years of wildfire suppression. Resulting treated stands are more ecologically sustainable for high fire return interval ecosystems. The OEM suggests any NRF habitat treatment, including NRF maintenance, in the nest patch may be an adverse effect (LAA). This Biological Assessment (BA) will offer site-specific information to explain situations when NRF maintenance at the nest patch is an NLAA.

No potential disturbance to nesting owls or murrelets is anticipated with any of these proposed projects. (Appendix A) will ensure that no potentially disturbing noise or activity would occur within sensitive distances of nesting owls or murrelets, by implementing one or more of the following:

- avoiding activities during the nesting period,
- by spacing projects outside sensitive distances,
- by conducting protocol surveys to ensure birds are not nesting at the location or time of the activity.

Spotted Owl Designated Critical Habitat

The final rule for Revised Designation of Critical Habitat for the northern spotted owl was published by the US Fish and Wildlife Service (the Service) in the *Federal Register* and became effective on September 12, 2008. Critical Habitat includes the primary constituent elements that support nesting, roosting, foraging, and dispersal. Designated critical habitat also includes forest land that is currently unsuitable, but has the capability of becoming NRF habitat in the future (57 FR 10:1796-1837).

Treat and Maintain Critical Habitat means no primary constituent elements are removed or reduced and primary constituent elements of critical habitat are retained. The Endangered Species Act (ESA) consultation handbook (USDI, 2002, 4-33), as amended, provides the following information regarding designated critical habitat:

Primary Constituent Elements

The physical and biological features of designated or proposed critical habitat essential to the conservation and recovery (amendment due to *Gifford Pinchot* lawsuit¹) of the species, including, but not limited to the following:

- 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, rearing of offspring, germination, or seed dispersal; and
- habitats that are protected from disturbance or are representative of the historic geographic and ecological distributions of a species [50 CFR 424.12(b)].

It further defines critical habitat for listed species as “(1) the specific areas within the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of the Act, on which are found those physical or biological features [constituent elements] (I) essential to the conservation of the species and (II) which may require special management considerations or protection ; and (2) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of the Act, upon a determination by the Secretary that such areas are essential for the conservation of the species” [16 U.S.C. § 1532(5)(A)]. Designated critical habitats are described in 50 CFR part 17 and part 226.

In the final CHU rule specifically for owl critical habitat, the Service defined the following elements of Primary Constituent Elements (PCE), as described in the proposed ruling: **(32458 Federal Register** / Vol. 72, No. 112, June 12, 2007 / Proposed Rules).

Sites for habitats that are representative of the historical geographical and ecological distributions of the northern spotted owl for:

- (1) Forest types known to support the northern spotted owl across its geographic range
- (2) Forest types as described in PCE 1 of sufficient area, quality, and configuration, or that have the ability to develop these characteristics, to meet the home range needs of territorial pairs of northern spotted owls throughout the year
 - Nesting Habitat: breeding, reproduction, and rearing of offspring
 - Roosting Habitat: cover, or shelter
 - Foraging Habitat: food, or other nutritional or physiological requirements

(3) Dispersal habitat

¹ *Gifford Pinchot Task Force et al. v U.S. Fish and Wildlife Service et al.*, 378 F.3d 1059, 1069-71

Northern Spotted Owl Recovery Plan

The Service finalized the Recovery Plan for the northern spotted owl on May 13, 2008. *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. The Recovery Plan has 33 Recovery Actions. BLM is a participant in the inter-organizational spotted owl working group (Recovery Action 1), and will continue demographic monitoring to address Recovery Actions 2 and 3. The revised RMP addressed Recovery Actions 4 and 5 by evaluating the establishment of a network of MOCA's and their management. The proposed action included in this BA does not remove or downgrade habitat in any MOCA. In the Oregon and California Klamath Provinces, this Plan calls for an adaptive management approach to fire management and spotted owl recovery. BLM is participating with others to address the fire-related Recovery Actions 8-10, to better understand spotted owl habitat and prey relationships (Recovery Action 11) and to standardize habitat definitions (Recovery Action 12). BLM is also a collaborator in the many of the Recovery Actions that address barred owl issues.

Marbled Murrelets

Marbled Murrelet Suitable Habitat

The proposed action is not scheduled to occur within suitable habitat for murrelets.

Marbled Murrelet Treatment Types

One project, Anaktuvik, occurs within the marbled murrelet Zone B and does not alter the habitat itself, but might have the potential to disturb marbled murrelets in potential murrelet habitat that may be nesting nearby. No marbled murrelets have been documented in the Medford District, although many years of surveys have been conducted. PDC (see Appendix A, PDC) will be implemented.

Marbled Murrelet Activity Period

Table 2. Marbled Murrelet Breeding Period (see also PDC, Appendix A)		
Entire Breeding Period	Critical Breeding Period	Extended Breeding Period
April 1-September 15	April 1-August 5	August 6-September 15

III. DESCRIPTION OF THE PROPOSED ACTION

All projects described in this BA avoid any removal of dominant, co-dominant or intermediate canopy trees within 300 meters of a nesting owl to comply with NLAA determinations described in the OEM process for activities in the nest patch (USDI et al 2008). If protocol surveys have not been conducted to confirm the birds are non-nesting that season, activities will be curtailed to avoid the potential of in-season disturbance. PDCs and nest patch protection will also apply to sites located through the OEM process in areas where field surveys have not documented actual owl sites. Lacking field surveys, these areas indicate the highest likelihood of owl occupancy, and provide a conservative approach to protect birds during the sensitive breeding period. Projects all comply with the PDC (project design criteria) below that are designed to avoid adverse disturbance impacts to owls and murrelets. Recommended PDCs will be followed when possible.

Project Design Criteria

PDC are conservation measures developed to reduce impacts to listed species. PDC include three general components:

- Retention and protection of known nesting trees
and
- Seasonal protection during the critical or extended breeding periods of nesting species
and/or
- Establishing distance protection around active nesting sites to reduce the potential of
disturbance effects.

Murrelet PDC also includes litter control measures around nest sites to avoid attracting corvids, which can kill murrelet chicks.

Mandatory PDC will be applied to all activities associated with this proposed action. Recommended PDC will be incorporated during project implementation when practical. Detailed descriptions of the PDC are provided in Appendix A.

Treatment-Activity Types

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, density management, and roads.

Forest Health: Forest health activities are designed to make treated stands more ecologically sustainable by providing growing space for retained trees, reduce competition for resources, and

will reduce the risk of large, stand replacement fires by reducing surface and ladder fuels. Large, down wood will be retained consistent with the NWFP standard and guidelines.

Road Use Permits and Rights-of-Way: Landowners or their agents are required to obtain Road Use Permits to build roads across BLM managed land for commercial purposes or to haul commercial products on BLM maintained road systems. Federal discretion to influence the implementation of recovery efforts for threatened or endangered species may be limited where certain Road Use or Reciprocal Right-of-Way agreements already exist between private landowners and the Medford BLM. Reciprocal Right-of-Ways with private parties already cover most existing road activities in the Action Area and the Medford BLM no longer has discretion. This BA does not address nondiscretionary activities. For the purpose of this BA, private lands refer to privately-owned or other non-Federal government parcels located as inholdings or adjoining property through which access is traditionally granted across federally-managed lands.

On January 30, 2003, a multi-agency Road Use Permit policy (*Application of the Endangered Species Act to Proposals for Access to Non-Federal Lands across Lands Administered by the Bureau of Land Management and the Forest Service*) was instituted. The BLM, Forest Service, Fish and Wildlife Service, and NOAA (National Oceanic and Atmospheric Administration) Fisheries are signatories to this policy. The provisions of this agreement apply only when a Forest Service special use authorization or a BLM right-of-way (ROW) grant is required for the reconstruction or construction of a road, for either private or commercial purposes, to secure access to a parcel of non-Federal land. The key components of the interagency agreement are:

The agreement applies to grants of ROW across National Forest System and/or public lands administered by the BLM, under their respective authorities, for purposes of access to non-Federal lands.

The “proposed federal action” to which the agreement applies is the authorization for access across Federal land and subsequent activities on Federal land – it does not include any actions on non-Federal lands.

At the applicant’s discretion, the agreement provides applicants an option to include the effects of those activities that will be facilitated by the proposed access and conducted on the applicant’s non-Federal lands as part of a Federal agency ESA consultation on the access application.

ESA sections 9 and 10 still apply to all activities on non-Federal land.

The agreement applies to applications for new authorizations for access that are processed by the Forest Service and BLM after January 30, 2003.

Road building (construction or reconstruction) will be authorized on federally-managed land under the terms of individual road use permits. Road construction, maintenance, and restoration activities were described under “Road Maintenance.” Harvest of private lands normally consists of clear-cut or salvage operations, or removal of individual large diameter trees in young stands.

Each discretionary ROW activity has distinct characteristics and effects. These projects are described as Rights-of-Way in Table 3, Proposed Action Summary. We include the following specific ROW proposals:

The Indian Hill China Garden ROW application involves construction of an access road on Medford BLM land in T40S, R7W, section 13 (NE of NE) in the Grants Pass Resource Area. The ROW grant would allow construction of 428 feet of natural surface road with a 50-foot clearing width. The ROW construction on BLM occurs in spotted owl dispersal habitat.

The Josephine County Waterbrook ROW application involves construction of an access road on Medford BLM land in T35S, R5W, section 3 (NE of NE) in the Grants Pass Resource Area. The ROW grant would authorize construction of 225 feet of natural surface road with a 50-foot clearing width. The ROW construction on BLM occurs in spotted owl dispersal habitat.

The Josephine County Brass Joe ROW application involves construction of an access road on Medford BLM land in T34S, R5W, section 23 (SE of SE and NE of NE) on the Grants Pass Resource Area. The ROW grant would allow construction of 2 separate natural surface road spurs totaling 359 feet long with a 50-foot clearing width. The ROW construction on BLM occurs in spotted owl dispersal habitat.

Adaptive Management

Adaptive management allows minor project variations to meet site-specific conditions or landscape objectives. Therefore, there may be minor deviations in the description of projects. This consultation will address these minor alterations in project activities if the following conditions are met:

- Project complies with the RMP or LRMP to which it is tiered. In this BA, projects comply with the NWFP as well as the current RMP.
- Impacts and extent of the project are within parameters of described activities in this BA.
- Minor deviations are reviewed by the Level 1 team to ensure impacts to listed species remain the same or less than those described within this BA
- Minimization measures proposed for the project are consistent with the intent and impacts of actions described in this BA

Separate consultation will be required to meet ESA compliance if the project cannot be revised to comply with this consultation, if site-specific NEPA evaluations indicate the project may affect and will likely adversely affect the northern spotted owl or its critical habitat, or if the Level 1/Level 2 teams cannot reach consensus that the project deviation meets the intent, extent and impacts addressed in the BA and subsequent Letter of Concurrence (LOC).

Table 3. Proposed Action by General Objective “Types”

Project Category (Units of measure)	Scope
Treatment Type	Amount
Harvest Activities (Acres)	1,033
CHU/LSMA subset	0
Forest Health Treatments (Acres).	4,800
CHU/LSMA subset	475
Road Permits and Rights-of Way	4
CHU/LSMA subset	0
BA TOTAL	5,837
CHU/LSMA subset	475
Noise would be kept to an insignificant level through implementation of seasonal and distance PDC.	

IV. EFFECTS OF THE ACTION

Effects to NRF Habitat

Treat and Maintain

Table 3 shows that no more than 1,373 acres of NRF habitat are proposed to be treated and maintained by any treatment as a result of implementation of this proposed action. There will be no change to the amount of NRF habitat as a result of any of these treatments. Quality, in many cases, will improve because the post-treatment stand will allow more space for residual trees to develop NRF characteristics. Treated stands are designed to be more resilient to stand-replacement fire, disease, and suppression mortality. This maintenance of NRF habitat will occur in the Klamath Mountains province (Table 4).

Table 4: NRF Habitat that will be treated and maintained, depicted by Physiographic Province

Physiographic Province	Medford BLM NRF Acres in Province*	Acres of Treatment (treat and maintain)	Percent of total BLM NRF treated and maintained
Klamath Mountains	306,406	1,373	0.4% No change
<p>* Baseline was updated to include habitat changes due to a wildfire in Butte Falls since the DA BA FH baseline was completed.</p> <p>**The Service requested project objective breakouts based on the primary objective of the project, although most projects meet more than one objective. Acres depicted are associated with only one category and do not overlap, but the distinction between types of projects are not definitive. Project objectives do not change effects to habitat.</p>			

Projects within NRF include thinning, density management, and some stewardship projects that are designed to ensure NRF habitat will retain at least 60% canopy cover, and large trees and snags, large down wood, and structural diversity important to northern spotted owls will be retained. Light to moderate thinning will reduce the average canopy cover of the stand to no less than 60 percent. Selective harvest may affect NRF habitat by removing some horizontal and vertical structure. Components important to spotted owls such as nest trees, multi-layered canopies, and dead and down wood that support prey species habitat will remain within a given project area post-harvest, retaining the ability to provide for the nesting, roosting, foraging and dispersal of spotted owls. Hazard trees are usually sold, and acres where hazard trees are removed are included in the harvest treatment table above. Effects to spotted owls as a result of the implementation of harvest treatments within spotted owl NRF habitat will be insignificant to spotted owls for the following reasons:

- Canopy cover will be maintained at 60 percent or greater at the stand level.
- Decadent woody material, such as large snags and down wood will remain post-treatment.
- All multi-canopy, uneven aged tree structure that was present pre-treatment will remain post-treatment.
- NRF habitat treatments will be distributed both spatially and temporally throughout the two affected Physiographic provinces.
- Activities will be distributed both spatially and temporally across BLM.
- No nest trees will be removed.
- PDC will avoid adverse disturbance.

Treatments will improve ecological health of the stand, stimulate forage plants important to spotted owl prey, reduce the chance of tree loss due to suppression mortality because the stand

has more trees than the site can support over the long-term, and will reduce the intensity and risk of wildfire by removing excess fuels.

Effects to Dispersal Habitat

Treat and Maintain

The projects analyzed in this BA are designed to maintain dispersal habitat characteristics post-project. Table 5 shows that up to 455 acres of dispersal habitat will be treated and maintained under the proposed action in the Klamath Mountains Physiographic Province. Trees over 11 inches dbh will retain 40 percent canopy cover, a value widely used as dispersal function threshold (Thomas *et al.* 1990). Flying space will be maintained or improved. Selective harvest in spotted owl dispersal habitat is not anticipated to diminish the ability of spotted owls to move through treated stands. Treatments in dispersal will help restore a more ecologically-sustainable density in these stands. Residual young trees rapidly respond to increased space and light following treatment and develop increased bole and crowns. Suppression mortality, a condition where unnaturally crowded trees suppress growth and viability of those trees, will be avoided. Wild fire resiliency will be improved. Remaining trees will have more water, space and light to be healthier and grow faster, and develop more structural diversity. The results of these treatments could have long-term beneficial effects to spotted owls by reducing the risks of loss to fire or suppression mortality of the stand, and setting the stand to a trajectory more favorable to use by spotted owls.

Table 5 Dispersal habitat that will be treated and maintained depicted by Physiographic Province

Physiographic Province	Medford BLM Dispersal Acres in Province	Acres of Dispersal Treat and Maintain	Total % dispersal treated and maintained
Klamath Mountains	99,186	4,460	4.5 %
Project Objective Type**			
Forest health		4,005	
Road Right of Way		0	
Timber		455	
* Baseline was updated to include habitat changes due to a wildfire in Butte Falls since the DA BA FH baseline was completed.			

Proposed forest health and timber projects within dense forest stands, classified as dispersal habitat, will continue to provide dispersal habitat for spotted owls post-project implementation. The additional light in the stand improves vigor of residual trees, but can also provides light to some of the forage plants important to spotted owl prey, if structural components are retained to provide prey cover habitat. Additionally, post-project snag and coarse woody debris standards will help minimize impacts to spotted owl prey species that utilize these features. Effects to

spotted owls as a result of the implementation of the proposed action within spotted owl dispersal habitat will be insignificant to spotted owls for the following reasons:

- There will be no change in the amount of spotted owl dispersal habitat in the Action Area as a result of these proposed activities.
- Canopy cover will be maintained at 40 percent.
- Decadent woody material, such as large snags and down wood will be maintained during these treatments.
- If thinned stands are allowed to develop into late-seral conditions, they will develop structural diversity more rapidly than an unthinned stand because residual trees will grow faster in more ecologically-sustainable conditions.
- Very dense stands will be opened by thinning, thereby improving conditions for dispersing spotted owls.
- Thinning dispersal habitat could reduce the rate of spread and intensity of wildland fires common to Medford BLM.
- No nest trees will be removed.
- PDC will avoid adverse disturbance impacts
- Necessary components of spotted owl dispersal habitat will be retained.

Dispersal Habitat Removal

Up to four acres of dispersal habitat may be removed in association with three road right-of-way permits. The removal of these four acres represents 0.004 percent of the 99,186 acres (Table 5) of dispersal habitat in the action area, which the District believes will be insignificant to the ability of spotted owls to disperse within the action area. The three individual road rights-of-way occur in three separate geographic areas, are linear in nature and unlikely to affect the ability of spotted owls to disperse across treated areas.

Effects to Prey

Harvest and Forest health treatment treatments may improve foraging habitat conditions for prey. Lemkuhl et al (2006) confirmed the importance of maintaining snags, down wood and mistletoe. Gomez et al (2005) noted that commercial thinning in young stands of Coastal Oregon Douglas-fir (35-45 yr) did not have a measurable short-term effect on density, survival or body mass of northern flying squirrels, another important prey species for spotted owls. Gomez et al (2005) also noted the importance of fungal sporocarps, which were positively associated with large down wood.

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. Some arboreal prey species will venture into harvest units a short distance for food. Northern spotted owls seldom venture far into non-forested stands to hunt. However, edges can be areas of good prey availability and potentially increased vulnerability (i.e. better hunting for owls) (Zabel 1995). The retained trees may respond favorably to more light and resources and gain height and canopy over time.

Projects described in this BA are designed to maintain existing owl habitat, and in many cases improve it by opening the stand, improving ecological sustainability and reducing fire risks.

Treatments will retain habitat for prey. Prey animals may be more exposed in the disturbed area or may move away from the disturbed area over 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 other owls, hawks 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. The spacing, timing and standards and guidelines of the projects described in this BA, are designed to ensure there will be no adverse impacts on spotted owls.

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

Effects to Owls due to Disturbance

Some treatments may occur in non-owl habitat, but could result in some insignificant noise that could carry into adjacent stands. PDC will protect known owl sites. Activities along the edge of habitat will be short duration and low intensity. Only activities that have no adverse impacts are included in this BA. Standards and guides from the NWFP and the current Medford RMP will be applied. Additional conservation measures may be implemented at the site specific project level by the ID teams reviewing these projects, and projects will be designed to ensure the project won't cause adverse affects. Some owls may notice noise or activity, but due to the PDC, these noises and activities will not cause "*significant impairment to feeding, breeding and sheltering such that harm would occur.*" (USFWS ESA Handbook, version 3).

BLM biologists evaluated all projects in this biological assessment against the known and potential 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. Only those projects that would occur outside the critical breeding period (Mar 1 to June 30) or outside the appropriate disturbance distance (Appendix A), or both, are included in this BA. Any other situation could have the potential of adverse disturbance effects to spotted owls, and will be evaluated under a separate consultation for "may affect, likely to adversely affect" projects.

Proving "no effect" is a very high bar and modeling is an imperfect science. Each owl has individual behavioral traits. ESA guides us to evaluate our impacts conservatively in favor of the owl. Therefore, we are including portions of these projects as "may affect, not likely to adversely affect" in terms of disturbance, as depicted in Table 3. This approach may over-estimate the NLAA activities in owl habitat, but is consistent with ESA and the USFWS Consultation Handbook (USDI 2002).

Project Effects to Spotted Owl Critical Habitat (and LSMA)

The LSMA land use allocation under the ROD (USDI 2008c) was delineated to match the spotted owl critical habitat boundaries. No decrease in any primary constituent element of critical habitat will occur as a result of implementing the projects in this proposed action. Nesting, feeding, sheltering and dispersal conditions of the pre-treatment habitat would be retained, and in many cases, improved. BLM will maintain the characteristics that classify a stand as NRF or dispersal habitat throughout the treatments for no loss of NRF or dispersal habitat. No primary constituent elements of critical habitat will be compromised as a result of any or all of these treatments, by design. Treatments would retain the canopy percentages, structural components and species diversity important to owls and their recovery habitat, as defined in the literature (see pages 6-8). All treatments have been designed to cause only insignificant changes to canopy cover percentages and understory vegetation for NRF (Table 6) or Dispersal (Table 7) as indicated below.

NRF Habitat

Up to 10 acres of spotted owl NRF habitat will be treated and maintained due to implementation forest health activities (Table 6). Implementation of this proposed action will be insignificant to spotted owl NRF habitat within designated critical habitat because:

- No primary constituent elements will be reduced in quantity or quality.
- There will be no change in the amount of spotted owl NRF habitat in the three affected CHUs.
- Canopy cover within treated stands of spotted owl NRF habitat will be retained at 60 percent or greater.
- Decadent woody material in the treatment areas, such as large snags and down wood, will remain post-treatment.
- Multi-canopy, uneven-aged tree structure present prior to treatments will remain post-treatment.
- Post treatment structural conditions will maintain habitat conditions for spotted owl prey species, particularly woodrats, in treatment areas.
- No spotted owl nest trees will be removed.

Anticipated beneficial effects which may result from the implementation of thinning and other forest health projects include:

- Improved condition of the primary constituent elements of spotted owl NRF habitat over time.
- Accelerated growth of residual trees, resulting in improved spotted owl NRF habitat.
- Treated stands would be healthier and less susceptible to severe losses from wildland fire or suppression-related diseases.
- Additional light in treated stands may improve forage for spotted owl prey species, including woodrats.

Table 6 Project Effects on Spotted Owl NRF Habitat within CHU 16.

CHU #	Medford BLM NRF Acres in Klamath Intra-Province CHU 16	Acres of NRF Treatment (treat and maintain)	Percent of total BLM NRF treated and maintained
Klamath Intra-Province 16	17,326	10	< 1%

Dispersal Habitat

Up to 465 acres of spotted owl dispersal habitat in CHU will be treated and maintained due to the implementation of forest health activities (Table 6).

Table 7. Project Effects on Spotted Owl Dispersal Habitat within Critical Habitat.

CHU #	Medford BLM Dispersal Acres in Klamath Intra-Province CHU 16	Acres of Dispersal Treatment (treat and maintain)	Percent of total BLM dispersal treated and maintained
Klamath Intra-province 16	6,269	465	<1%

Implementation of this proposed action will be insignificant to spotted owl dispersal habitat within designated critical habitat because:

- No primary constituent elements will be reduced in quantity or quality.
- There will be no change in the amount of spotted owl dispersal habitat in the three affected CHUs.
- Canopy cover within treated stands of spotted owl dispersal habitat will be retained at 40 percent or greater.
- Decadent woody material in the treatment areas, such as large snags and down wood, will remain post-treatment.
- Multi-canopy, uneven-aged tree structure present prior to treatments will remain post-treatment.
- Post treatment structural conditions will maintain habitat conditions for spotted owl prey species, particularly woodrats, in treatment areas.

Anticipated beneficial effects which may result from the implementation of thinning and other forest health projects include:

- Improved condition of the primary constituent elements of spotted owl dispersal habitat over time.
- Treatments in spotted owl dispersal habitat may result in more rapid development of spotted owl NRF habitat characteristics.

- Treated stands would be healthier and less susceptible to severe losses from wildland fire or suppression-related diseases.
- The condition of spotted owl dispersal habitat may improve with the reduction of densely stocked vegetation.

Collectively, less than one percent of the NRF habitat within CHU 16 will be treated and maintained and less than one percent dispersal habitat would be treated to accelerate owl habitat conditions over time.

Northern Spotted Owl Recovery Plan

BLM will support the Recovery Plan in several ways:

Recovery Action 2: Continue monitoring the population trend of spotted owls

BLM continues annual protocol owl monitoring in the Klamath demography study area and works with other agencies to compile data into regional population trends.

Recovery Action 4: Establish a network of Managed Owl conservation Areas (MOCAS).

The RMP (USDI 2008c) established land use allocations consistent with the MOCAs for long-term recovery of the spotted owl.

Recovery Action 5: Manage habitat-capable lands in MOCAS to produce high quality habitat

Light thinning of overstocked stands in CHU/LSMA (Tables 6 and 7) will avoid adverse change and improve future owl habitat over time. Risks to stand-replacing wildfires will be reduced.

Recovery Action 8: Manage the Klamath Provinces in Oregon and California to meet spotted owl recovery while creating more fire-resilient forests.

Much of the forest in the Klamath Province experiences a high fire return interval. Thinning stands in this area will restore stocking rates to healthier levels and reduce the chance of mortality suppression or wildfire losses. Risks to stand-replacing wildfires will be reduced. All stands are managed on a sustainable yield basis.

Recovery Action 10: In MOCAs and in all areas of the Dry-Forest Landscape strategy, post fire habitat modifications should focus on habitat restoration and conserving habitat elements that take the most time to develop or recover.

All projects in this BA will retain snags and down wood and green trees as specified under the NWFP. Long-term spotted owl habitat restoration would be expected from projects in CHU/LSMA (Tables 6 & 7) within the Klamath Province.

Recovery Action 32: Maintain substantially all of the older and more structurally complex multi-layered conifer forests on Federal lands outside of MOCAs.

The RMP (USDI 2008c) established the deferred management LUA to meet this need. None of the projects in this BA remove habitat from, or reduce the quality of any deferred habitat.

Although LSR is no longer a land use allocation under the ROD, this proposed action removes neither dispersal nor NRF owl habitat from the former LSR allocations under the NWFP. Up to 365 acres of spotted owl dispersal habitat may be treated and maintained due to implementation of this proposed action. These activities are scheduled to occur within RO 249.

Effects to Marbled Murrelets

Medford BLM conservatively evaluates marbled murrelet habitat at the programmatic level using spotted owl NRF criteria. No murrelets have been documented in the Medford District as of January 2009. One sale, Anaktuvik, occurs within the marbled murrelet Zone B in habitat that doesn't meet the definition of suitable for marbled murrelet. No projects occur within marbled murrelet critical habitat. PDC's for marbled murrelets will ensure there is no adverse disturbance impact to any suitable murrelet habitat in the vicinity. The District has determined that projects in this BA "may affect and are not likely to adversely affect" marbled murrelets.

V. CONCLUSION

Medford BLM has determined that the combined treatments described in the BA will not reduce the amount of spotted owl habitat. No murrelet habitat will be affected. The disturbance related to the projects in this BA will incorporate distance and/or seasonal PDC to avoid adverse effects from noise. Medford BLM seeks concurrence from the Service that the projects described in this BA may affect and will not likely affect (NLAA) spotted owls or designated critical habitat and projects within the potential range of the marbled murrelet may affect and will not adversely affect (NLAA) marbled murrelets. There will be no effect to marbled murrelet critical habitat.

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APPENDIX A: PROJECT DESIGN CRITERIA

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 or marbled murrelets. 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. Marbled murrelets are difficult to locate. No murrelets have been documented on the District, but Medford remains within zone B. To ensure that activities that have the potential of disturbing marbled murrelets are reduced to NLAA (or NE), we will impose the PDC in or adjacent to marbled murrelet 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 (owls)

A. Activities (such as tree felling, yarding, road construction, hauling on roads not generally used by the public, prescribed fire, muffled blasting) that produce loud noises above ambient levels will not occur within specified distances (Appendix A-1) of any documented or projected owl site between March 1 and June 30 (or until two weeks after the fledging period) – unless protocol surveys have determined the activity center to be not occupied, 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 A-1. Mandatory Restriction Distances to Avoid Disturbance to Spotted Owl Sites

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

* If below 1,500 feet above ground level

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

Recommended Project Design Criteria--Murrelets

Restrict operations from March 1 through September 15 (through the extended breeding period) within disturbance distances (unless protocol surveys demonstrate non-nesting).

Protocol surveys are conducted according to: Evans Mack, D., W. P. Ritchie, S. K. Nelson, E. Kuo-Harrison, and T. E. Hamer. 2003. Methods for surveying Marbled Murrelets in forests: a revised protocol for land management and research. Pacific Seabird Group Technical Publication Number 2. Available from <http://www.pacificseabirdgroup.org>

Appendix A-2 Mandatory Marbled Murrelet Project Design Criteria

Impacts	Species: Marbled Murrelet
Disturbance	(II) Mandatory -For Survey Areas A and B work activities (such as tree felling, yarding, road and other construction activities, hauling on roads not generally used by the public, muffled blasting) which produce noises above ambient levels will not occur within specified distances (see table below) of any occupied stand or unsurveyed suitable habitat between April 1 – August 5. For the period between August 6 – September 15, work activities will be confined to between 2 hours after sunrise to 2 hours before sunset. See Fuels management PDCs for direction regarding site preparation and prescribed fire.
Disturbance	(III) Mandatory -Clean up trash and garbage daily at all construction and logging sites. Keep food out of sight so as to not attract crows and ravens (predators on eggs or young murrelets).
Disturbance	(IV) Mandatory- Blasting (open air/unmuffled) – No blasting activities during the critical breeding period (1 April through 15 August) within 1.0 mile of occupied stands or unsurveyed suitable habitat. This distance may be shortened if significant topographical breaks or blast blankets (or other devices) muffle sound traveling between the blast and nest sites or less than 2 lbs of explosives are used If so, then use described distance.
Disturbance	1) Recommended Delay project implementation until after September 15 where possible
Disturbance	2) Recommended Between 1 April and 15 September, concentrate disturbance activities spatially and temporally as much as possible (e.g., get in and get out, in as small an area as possible; avoid spreading the impacts over time and space).

Disturbance	(IV) Mandatory - Blasting (open air/unmuffled) – No blasting activities 1 April through 15 September within 1.0 mile of occupied stands or unsurveyed suitable habitat. This distance may be shortened if significant topographical breaks or blast blankets (or other devices) muffle sound traveling between the blast and nest sites or less than 2 lbs of explosives are used If so, then use described distance.
Disturbance	1) Recommended Delay project implementation until after September 15 where possible
Disturbance	2) Recommended Between 1 April and 15 September, concentrate disturbance activities spatially and temporally as much as possible (e.g., get in and get out, in as small an area as possible; avoid spreading the impacts over time and space).
Restoration projects	<p>Mandatory</p> <p>To minimize the number of potential spotted owl or murrelet nest trees used for instream structures, only the following sources shall be used:</p> <p>(I) Trees already on the ground in areas where large woody material is adequate;</p> <p>(II) Trees lacking suitable nesting structure for spotted owls or murrelets or contributing to trees with suitable nesting structure, as determined by an action agency wildlife biologist.</p>

Fuels	<p>Mandatory</p> <p>(I) Burning would not take place within 0.25 mile of known occupied marbled murrelet sites, or unsurveyed marbled murrelet habitat between April 1 and August 6 unless substantial smoke will not drift into the occupied site or suitable habitat.</p> <p>(II) All broadcast and under-burning operations (except for residual “smokes”) will be completed in the period from two hours after sunrise to two hours before sunset.</p> <p>(IV) During helicopter operations, flights over suitable habitat will be restricted (helicopter should be a least 1,500 feet above ground level); if not possible, fly a minimum of 500 feet above suitable habitat (above canopy).</p>
Wildfire	<p>Mandatory</p> <p>Whenever possible, protect known nest sites of any listed species from high intensity fire. Update Resource Information Book annually; incorporate new nests or sites as soon as possible.</p>
Wildfire	<p>Mandatory</p> <p>(I) From 1 April - 5 August noise disturbance should be minimized inside occupied stands and within 0.25 mile of the edge of these stands. In order to accomplish this objective, minimize repeated aircraft flights that are less than 1,500 feet Above Ground Level (AGL). Also, minimize the use of fire line explosives within 1 air mile of occupied stands during the protection period.</p>
	<p>Light Hand Tactics or Minimize Impact Suppression Tactics (MIST) should receive consideration for use within the protection zones for northern spotted owls and murrelets.</p>
Quarries	<p>Mandatory</p> <p>For any occupied stands or unsurveyed suitable habitat within 0.25 miles of the quarry operation, restrict operation of the quarry from April 1 to August 5. Agency biologists also have the discretion to modify the 0.25-mile zone depending on topography and the level of noise - what equipment will be present (crusher or dozer/ripper or only loading of existing stockpiled rock).</p> <p>Recommended</p> <p>2) For active nest stands or unsurveyed suitable habitat within 0.25 mile of the quarry operation, restrict operation of the quarry from April 1 through September 15 (unless protocol surveys demonstrate non-nesting).</p>

