

**Revised
BIOLOGICAL ASSESSMENT**

**FY 2006-2008 Programmatic Biological Assessment
For the Reinitiation of Consultation on
Activities that May Affect Listed Species in the
Rogue River/South Coast Province**

**MEDFORD DISTRICT BUREAU OF LAND MANAGEMENT
and
ROGUE RIVER-SISKIYOU NATIONAL FORESTS**

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DEFINITIONS

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

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.

North General Forest Management Area

Retain on average 6-8 trees per acre (modified even-aged systems)
Retain on average of 12-15 trees per acre (for shelterwood)
Retain on average 16-25 trees per acre (structural retention systems)
in scattered or clumped distribution

Southern General Forest Management Area

Retain on average 16-25 trees per acre in scattered or clumped
distribution

Further details on management in land use allocations are located in Medford District Record of Decision (ROD) and Resource Management Plan (RMP) USDI (1995).

There is no specific Forest direction for Matrix lands other than the NW Forest Plan ROD and Land and Resource Management Plan (LRMP), direction (USDA 1990, 1989).

AMA (Adaptive management Areas)

Generally follows Matrix guidance, but encourages adaptive management approaches to forest management. Specifically, for the Applegate AMA, the direction is to develop and test forest management practices, including partial cutting, prescribed burning, and low impact approaches to forest harvest (e.g., aerial systems), that provides for a broad range of forest values, including late-successional forest and high-quality riparian habitat.

Activity Periods

- The breeding period of the marbled murrelet is April 1 - September 15.
- The critical breeding period of the marbled murrelet is April 1 - August 5.
- The breeding period of the northern spotted owl is March 1 - September 30.
- The critical-breeding period of the northern spotted owl is March 1 - June 30.

Streamlined Consultation

This BA was developed under the Streamlined Consultation Procedures for Section 7 of the Endangered Species Act (ESA) (USDA, USDC, USDI, 1999) by the Rogue River/South Coast Province Terrestrial Wildlife Level 1 team in coordination with the Level 2 Team, and complies with all procedures under that process. The **Level 1 team** includes the USFS Forest Biologist, the Medford BLM District Biologist and the Roseburg Office USFWS Biologist. The **Level 2 team** includes the USFS Forest Supervisor, the Medford BLM District Manager, and the Roseburg Office USFWS Supervisor.

Species Sites

A **spotted owl site** is defined as a location with evidence of continued use by spotted owls, including: breeding, repeated location of a pair or single birds during a single season and /or over several years, presence of young before dispersal, or some other strong indication of continued occupation. A spotted owl site may include one or more **activity centers** (i.e., nest site).

A **Known Spotted Owl Activity Center (KOAC)** or Pair Activity Center (PAC) for the **northern spotted owl** is a designated reserve protecting approximately 100 acres of the best habitat adjacent to a nest site or activity center for all spotted owl sites known prior to January 1, 1994 on Federal Matrix and AMA lands. Although not required by the NWFP (Northwest Forest Plan, USDA, USDI 1994), Medford BLM also identified 100 acre core areas for historic owl sites in LSR (Late Successional Reserves). The Forest Service does not identify cores areas for owl in LSR. By definition, LSRs are already identified as reserves for northern spotted owls and other late-successional related species.

Murrelet Detection is defined as the observation, either visual or auditory, of one or more marbled murrelets during a survey. A site with marbled murrelet **presence** is a site where there has been at least one murrelet detection. An **occupied site** is where **marbled murrelets** have been observed exhibiting behavior at or below the forest canopy and that strongly indicate that the site has some importance for breeding (Pacific Seabird Group [PSG] 2003).

Habitats

Capable habitat for the **marbled murrelet** or **northern spotted owl** is habitat that is either currently suitable or that can become suitable in the future, as trees mature.

Dispersal-only habitat (northern spotted owl) is a subcategory of dispersal habitat for northern spotted owls. This term is used throughout this document to refer to habitat that doesn't meet the criteria to be NRF (nesting, roosting or foraging) habitat, but has

adequate cover to facilitate movement between blocks of suitable NRF habitat. Generally, dispersal-only habitat is defined as forested habitat greater than 40 years old, with canopy closure 40-59%, and average diameters greater than 11 inches, and that has flying space for owls in the understory. It provides temporary shelter for owls moving through the area between NRF habitat, may offer some opportunities for owls to find prey, but does not provide all of the requirements to support an owl throughout its life. Medford BLM defines dispersal-only habitat as Habitat 5 and 6. These classifications were part of the 1991-1992 Resource Management Plan. Habitat 5 lacks NRF structure, provides dispersal-only function and has the potential to develop into NRF habitat. Habitat 6 lacks NRF structure, provides dispersal-only function and does not have the potential to develop into NRF habitat. The Rogue River-Siskiyou defines dispersal-only habitat as forest that is at least 11 inches DBH at the stand level and having a minimum of 40 percent canopy closure (USDI 1992a).

Suitable habitat for the **northern spotted owl** consists of habitat used by owls for nesting, roosting *and* foraging (NRF). Suitable habitat also functions as dispersal habitat. Generally this habitat is at least 80 years of age or older (depending on stand type and structural condition), is multi-storied and has sufficient snags and down wood to provide opportunities for nesting, roosting and foraging. The canopy closure generally exceeds 60 percent. The best quality suitable habitat has large old trees with cavities, broken tops or mistletoe platforms branches, dead standing and fallen decayed trees, and multiple canopies of shade-tolerant hardwoods and conifers that support prey base. NRF habitat in SW Oregon is typified by mixed-conifer habitats, recurrent fire history, patchy habitat components, and has an higher incidence of wood rats, which is a high quality spotted owl prey species. NRF in SW Oregon varies greatly. It may consist of somewhat smaller tree sizes yet tree species are more diverse within each stand than owl habitat in the northern Westside Oregon BLM Districts and Forests. One or more important habitat components such as dead down wood, snags, dense canopy or multi-storied stands, mid-canopy habitat might be lacking or even absent in portions of SW Oregon NRF. However, SW Oregon NRF can support nesting owls if those components are available across the immediate landscape. Mistletoe is often used as a nesting substrate in SW Oregon, which makes smaller trees suitable as nest trees. The unit wildlife biologist makes site-specific determinations and delineations of suitable habitat.

Medford BLM classifies suitable NRF habitat as McKelvey Habitat 1 and Habitat 2. These classifications were part of the 1991-1992 Resource Management Plan. Habitat 1 are those lands that provide nesting, roosting and foraging. Habitat 2 are those lands that lack obvious nesting structure but provide foraging and/or roosting characteristics at varying degrees of quality. The Forest Service defines spotted owl NRF generally as stands with an average of 21 inches DBH with a minimum canopy closure of 60 percent.

Critical Habitat for the **northern spotted owl** was designated in *Federal Register 57* and includes the primary constituent elements that support nesting, roosting, foraging, and dispersal. Designated Critical Habitat also includes forest land that is currently unsuitable, but has the capability of becoming suitable habitat in the future (FR57 (10):1796-1837).

Primary constituent elements of spotted owl critical habitat *are those physical and biological attributes that are essential to species conservation. In addition, the Act stipulates that the areas containing these elements may require special management consideration or protection. Such physical and biological features, as stated in 50 DFR 4.2.4.1.2 includes, but are not limited to the following:*

- Space for individual and population growth, and for normal behavior;*
- Food, water, or other nutritional or physiological requirements;*
- Cover or shelter;*
- Sites for breeding, reproduction, rearing of offspring; and*
- Habitats that are protected from disturbance or are representatives of the historic geographical and ecological distribution of the species.*

For spotted owls, features that support nesting and roosting habitat typically include a moderate to high canopy (60-90 percent), a multi-storied multi-species canopy with large overstory trees (>30 inch 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).

Suitable habitat for the **marbled murrelet** consists of habitat used by murrelets for nesting. Generally this habitat is 80 years of age or older, is a minimum of 36 inches DBH at the stand level, contains multiple canopy layers, and contains platforms or nesting branches \geq 5.9 inches (15 cm) in diameter (Burger 2002, Nelson & Wilson 2002: 24, 27, 42, 97, 100).

Critical Habitat for the **marbled murrelet** was designated in *Federal Register 61* and includes the primary constituent elements that support nesting, roosting, and other normal behaviors that are essential to the conservation of the marbled murrelet. The primary constituent elements include: 1) individual trees with potential nesting platforms, and 2) forested areas within 0.8 kilometers (0.5 miles) of individual trees with potential nesting platforms, and with a canopy height of at least one-half the site-potential tree height. Designated Critical Habitat also includes habitat that is currently unsuitable, but has the capability of becoming suitable habitat in the future (FR 61:26256-26320).

Treatment Types

Forest stands in southwest Oregon are often multiple-aged with multiple canopy levels that result from past natural stand disturbance such as historic frequent low intensity fire or from previous partial-cut harvesting (Draft Medford MFP and EIS Vol II, p 2-37 (USDI 1992). The actual interpretation of treatment impacts to owls will be defined by the Unit Biologist in collaboration with their Unit Interdisciplinary Team and Unit Manager or Line Officer. Interpretation issues will also be coordinated with the Level 1 Team.

Regeneration Harvest is the harvest of an entire stand or part of a stand in a single entry with the exception of leaving designated wildlife trees and snags. (Draft Medford RMP and EIS, Volume II, USDI 1992). Regeneration on Forest Service lands follows this same description.

Regeneration harvest in NRF would constitute NRF removal. Regeneration harvest in dispersal habitat it would be considered dispersal removal. Following regeneration harvest, the stand would be managed as described in the Medford RMP (USDI 1992), and the Forest Plan (Rogue River-Siskiyou NF LRMP USDA 1990, 1989). Regeneration harvested stands would theoretically meet the NRF standards no sooner than 100 years following harvest, assuming important NRF components were retained in the harvest prescription. Regeneration harvest would occur mainly on matrix lands, occasionally in AMA. Some limited regeneration harvest may occur in Critical Habitat Units (CHU). Project Design Criteria (PDC) would reduce disturbance concerns in most cases.

Selection Harvest/Thinning is the reduction of tree density in the overstory and/or understory to allow more space and light for desired retention trees to grow at an accelerated rate once competing trees are harvested. Silvicultural prescriptions can be formulated for many different outcomes. The prescription may guide removal across all ages of trees in the stand, or may focus on a particular understory or overstory tree cohort, or may focus on a certain spacing guideline. Pre-treatment stand conditions help define the owl habitat classification. The post-thinning treatment generally retains some percentage of large trees, standing and down dead wood, reduces overstory canopy coverage, and may reduce understory densities in an even or patchy pattern. Selection harvest or thinning is often designed to reduce understory fuels and fuel ladders and is considered the proactive treatment to reduce wild fire risks, and improve the ecological sustainability of an overly-dense stand. Post-treatment fuels reduction of brush and understory are usually implemented within 10 years in many stands to maintain fuels benefits. Fuels treatments may incorporate prescriptions that would reduce impacts to prey, or may have adverse impacts on prey habitat.

Thinning may “degrade” the stand if all components important to owl habitat are retained post-treatment. Thinning removes or downgrades the stand if NRF habitat is changed or reduced such that the stand no longer functions as NRF. Selection Harvest or thinning could occur across all land use allocations, including riparian zones and CHU. PDCs would reduce disturbance concerns in most cases.

Recovery of NRF habitat following selection harvest or thinning depends on the intensity of the initial treatment, site potential and other factors such as slope, aspect and previous stand history. Based on Organon Modeling of the Draft Medford RMP/EIS (USDI 1992), a closed canopy stand thinned to less than 40% canopy would require from 15-30 years to regain 60 percent canopy closure. The reduced risk of crown fire would follow a similar timeline. Understory fuels usually receive an initial treatment (reduction) within two years of selection harvest or thinning, and followup treatments (such as underburning three to five years following an initial handpile and burn) are also planned. The timing of followup treatments is highly variable, and depends on a number of factors such as slope, aspect, elevation, plant series, soil type, etc.

Individual tree removal is the harvest of single trees from a stand. This may occur as a result of road building or maintenance, hazard tree removal to reduce safety concerns, cutting individual trees to create other habitat (stream structure or down wood), tail holds, or other specific situations. In most cases, the removal of an individual tree or two would not change the function of the stand or be measurable to the extent it could be reported in

the monitoring report as acres changed. If enough individual trees are removed that habitat change would be “measurable”, the activity would more properly be described as regeneration or selective harvest, and addressed as impacts under those categories.

Individual tree removal could occur across all land use allocations and CHUs. PDCs would reduce disturbance concerns in most cases. Isolated tree removal in most situations would be considered habitat degrade.

Fuels treatments listed in the proposed action table include thinning of overstory and understory trees within owl habitat. BLM and USFS also implement mechanical or prescribed-fire fuel treatments to control brush in non-habitat for northern spotted owls and marbled murrelets. These treatments might occur near occupied habitat, or unsurveyed potential habitat during the critical period. Understory fuels treatments are typically scheduled to occur within two years following overstory treatments to help control brush, and maintain or improve the fire condition class. Depending on plant series, and other variables such as aspect and elevation, brush and other herbaceous plants can quickly dominate a site unless it is controlled through mechanical means or prescribed fire. Depending on the intensity of fuels treatment in northern spotted owl habitat, this may have a positive, negative or neutral impact on prey (see effects) and spotted owl use.

Habitat Modification

The following definitions describe the categories of effects to habitat within the action area by species. Effects of individual activities will be determined by the action agency biologist following these descriptions.

Spotted Owl

Degrade NRF or dispersal habitat means to affect the quality of spotted owl suitable or dispersal habitat *without* altering its function. The stand retains large trees, multi-storied canopy, standing and down dead wood, diverse understory adequate to support prey, and may have some mistletoe or other decay. Dispersal retains its function as dispersal habitat.

The effects determination for degradation of habitat is may affect not likely to adversely affect the spotted owl because spotted owls will be able to use the stand as before.

Downgrading NRF habitat means to alter the function of spotted owl suitable habitat so that the habitat no longer supports nesting, roosting, *and* foraging behavior. Downgraded suitable habitat will support spotted owl dispersal.

The effects determination for downgrading of habitat is may affect, likely to adversely affect the spotted owl because spotted owls would not use the stand as before.

Removal of habitat means to alter spotted owl suitable or dispersal habitat, so that the habitat no longer supports nesting, roosting, foraging, or dispersal.

The effects determination for removal of NRF habitat is may affect, likely to adversely affect the spotted owl.

Spotted Owl Critical Habitat

Critical habitat degradation means that primary constituent elements are removed or reduced in quantity or quality but would continue to provide all primary constituent elements of CH.

The effects determination for degradation of critical habitat is may affect, not likely to adversely affect the spotted owl critical habitat.

Critical Habitat removal means that primary constituent elements are removed or reduced in quantity or quality such that the stand (as the species would use it) is no longer NRF or dispersal.

The effects determination for removal of critical habitat is may affect, likely to adversely affect spotted owl critical habitat.

Marbled Murrelet

Degradation of marbled murrelet suitable habitat means to affect the quality of spotted owl suitable or dispersal habitat *without* altering its function. The stand retains large trees for nesting and multi-storied canopy that contributes to the nesting structure.

INTRODUCTION

This is a programmatic biological assessment of forest management activities on affected listed species, within lands managed by the Rogue River-Siskiyou National Forest, and the Medford District of the Bureau of Land Management. Each Action Agency has a separate proposed action. The Action Agencies request separate consultation response from the Service. The combined agencies will hereafter be collectively referred to as the Action Agencies. Resources on the two units are described in the Land and Resource Management Plan(s) (LRMP) for the Rogue River-Siskiyou National Forest (USDA Forest Service 1989 and 1990), and the Medford District Bureau of Land Management Resource Management Plan (RMP) (USDI Bureau of Land Management 1994). These three plans were amended by the Record of Decision (ROD) for Amendments to Planning Documents within the Range of the Northern Spotted Owl (USDA Forest Service and USDI Bureau of Land Management 1994). The area of consideration includes the Rogue River/South Coast and Smith River portions of the OR Klamath, and the Rogue River and Umpqua River portions of the OR Western Cascades Physiographic Provinces. Small portions of the Rogue River Basin are included in the CA Klamath

Physiographic Provinces and a small portion of the Klamath River drainage is in the OR Eastern Cascades Physiographic Provinces.

All ownerships encompass 5,052,000 in the Action Area. Medford BLM manages approximately 890,000 acres of public land in Jackson, Josephine, Klamath, and Douglas Counties in Oregon. The Rogue River-Siskiyou National Forest manages 1,650,000 acres in Jackson, Josephine, Douglas, Coos, Curry, and Josephine Counties in Oregon and Del Norte and Siskiyou Counties in California. Most of the BLM-managed land is distributed in a checkerboard pattern consisting of alternating sections of public and private land. National Forest land is more contiguous. Approximately 2,480,000 acres of private or other non-federal ownership exists within the action area.

The purpose of this biological assessment, hereafter referred to as BA, is to describe and evaluate the effects of proposed federal land management activities from Fiscal Year (FY) 06 through FY 08 on listed Threatened (T) and Endangered (E) species and designated critical habitat to meet requirements of the Endangered Species Act of 1973, as amended (ESA). Wildlife species addressed in this BA are: northern spotted owl (T) (*Strix occidentalis caurina*) (spotted owl) and marbled murrelet (T) (*Brachyramphus marmoratus*) (murrelet). Also included are effects to designated critical habitat units (CHU) for the spotted owl and marbled murrelet. All other listed species and critical habitats are considered under the current Biological Opinion (FWS-1-15-03-F-511), except as mentioned below.

CONSULTATION HISTORY

On February 10, 1994, the Service issued the Forest Service and the BLM a non-jeopardy biological opinion (FWS log#1-7-94-F-14) addressing the adoption of the NWFP and its effect on all listed species within the range of the spotted owl. This opinion did not address any incidental take of spotted owls or murrelets because the proposed action lacked sufficient details to do so. Such analyses were deferred to future project-scale consultations where more specific information would be available on baseline (Action Area) conditions and project-related activities.

In 1996, the Service followed up the NWFP-scale consultation with a sub-provincial scale consultation (1-7-96-F-392) that addressed the entire forest management program for the SW Oregon administrative units. This regional consultation effort addressed the impacts associated with a 2-year timber sale program and a 10-year program for all other forest management activities that may affect listed species and critical habitat.

In September 1998, a second consultation (1-7-98-F-321) for two years of timber sales was completed to cover activities on the SW Oregon administrative units in FYs 1999 and 2000.

On October 12, 2001, a third consultation (1-7-01-F-032) was completed to cover 22,227 acres of timber sale activities on the SW Oregon administrative units in FYs 2001, 2002, and 2003.

In April, May and June of 2003, the Level 1 interagency team, as well as other staff from the Forest Service, BLM and the Service, prepared several drafts of the Assessment addressing the FY 04-08 program of forest management activities on the SW Oregon administrative units.

In early June 2003, the Service received a draft Assessment for review; an edited draft Assessment was provided to the SW Oregon administrative units in mid-June 2003.

The action agencies sent the final Assessment for the proposed actions on July 15, 2003. The SW Oregon administrative units and the Service continued to work together on the formulation of the BO throughout August and September and the units continued to provide additional information to the Service during that time in order to fine tune their proposed action.

On September 12, 2003, a draft of that Opinion was provided to the SW Oregon administrative units for their review. On October 20, 2003, the Service provided a final Opinion to the action agencies (FWS #1-15-03-F-511).

On August 6, 2004, the US Court of Appeals for the Ninth Circuit issued an opinion (No. 03-35279 D.C. No. CV-00-05462-FDB Opinion) in response to the Gifford Pinchot Task Force et al. v US Fish and Wildlife Service et al. {378 F.3d 1059, 1069-71 (9th Cir.2004)}, hereafter referred to as the Gifford Pinchot lawsuit. That opinion found the Service used inappropriate regulatory definitions of destruction or adverse modification of critical habitat to make the finding of no adverse modification in that biological opinion.

The Gifford Pinchot lawsuit also generated the need to reinitiate on the FY 02-03 BA and BO (1-7-01-F-032) because it was recently ruled partially invalid with respect to the analysis of adverse modification to spotted owl critical habitat in the appellate Gifford Pinchot Task Force decision (378 F.3d 1059). In a letter dated December 13, 2004, the Service requested that the Forest Service and the BLM reinitiate consultation on any planned or ongoing timber sales affecting spotted owl critical habitat that were addressed in the biological opinions listed in the Gifford Pinchot Task Force decision. In a letter dated April 14, 2005, the Service requested that the Forest and the Medford BLM reinitiate consultation on on-going or yet to be implemented portions of projects, that occur within designated spotted owl critical habitat, addressed in the Service's October 12, 2001, biological opinion (1-7-01-F-032). The Forest and Medford BLM submitted a request for reinitiation of consultation, pursuant to section 7 of the Act and their biological assessment (Assessment) dated June 29, 2005. The Service responded with a BO on August 31, 2005 (FWS 1-15-05-F-0581).

On November 2, 2005, the Service sent a letter recommending that the Rogue River-Siskiyou National Forest and the Medford BLM should reinitiate and re-evaluate critical habitat impacts using correct critical habitat definitions of the Act, rather than the Service's regulations (50 CFR Part 402). Although the FWS 1-15-03-F 511 wasn't a biological opinion mentioned in the initial Gifford Pinchot lawsuit, it had similar language in the Biological Opinion (BO) with respect to adverse modification in critical

habitat. Under the lawsuit, the Court recommended evaluation of critical habitat based on the statutory concepts in ESA Section 3 and 7 (a)(2). Section 3 defines conservation as measures *necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act (ESA) are no longer necessary*. Section 7 (a)(2) states that federal agencies shall ensure that *any action authorized, funded, or carried out by such agency...is not likely to result in the destruction or adverse modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with affected States, to be critical.. Each agency shall use the best scientific and commercial data available*.

In this Biological Assessment (BA), in addition to providing information of the Action Agencies' program of work for FY06-08, BLM and Forest Service will provide information to help meet the Court's concerns by evaluating the impacts to northern spotted owl conservation resulting from changes to critical habitat, independent of protections provided by Late-Successional Reserve (LSR) management under the Northwest Forest Plan (USDA & USDI 1994).

DESCRIPTION OF THE ACTION AREA

The Action Area has been 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). For the purposes of this BA, the Action Area includes all lands managed by the Medford District BLM, and the Rogue River and Siskiyou National Forests.

The proposed projects (actions) are located mostly within the Oregon Klamath and Oregon Western Cascades Physiographic Provinces. A small area on the Medford BLM lies within the Eastern Cascade Province. All federal forested lands in the Rogue and South Coast Basins are included in this Assessment, except for minor areas managed by the US Army Corps of Engineers, Bureau of Indian Affairs, Bureau of Reclamation, and National Park Service, and 27,132 acres managed by the Coos Bay District of the BLM. The Action Area includes some acreage outside the Rogue River Basin, including minor portions of the Smith, Klamath, and Umpqua River Basins. All management actions have been grouped and displayed within fourteen Section 7 Watersheds (major sub-basins which combine several HUC 5 watersheds).

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 Action Agencies 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 Sierra's of California, east into the Great Basin, or north up the Cascades and the Coast range.

The Action Agencies have allocated the lands under their jurisdiction into several land use allocations (LUAs). Land use allocations common to both agencies include Late Successional Reserve (LSR), Riparian Reserves, Matrix, and Adaptive Management Areas (AMA). Other important allocations are Wilderness, Wilderness Study Areas, Botanical Areas, Back County Recreation Areas, Areas of Critical Environmental Concern (ACECs), Research Natural Areas (RNAs) and botanical areas.

Private lands: BLM-managed lands are generally intermingled with private lands, while the Rogue River and Siskiyou National Forests are in nearly complete blocks of federal ownership. 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 spotted owl nesting, roosting and foraging habitat, nor marbled murrelet nesting habitat. 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.

PROPOSED ACTION

Many of the proposed projects analyzed in this BA were originally analyzed in the FY 2004-2008 BA (USDA, USDI 2003). This FY 06-08 BA will evaluate all projects subsequent to the date of this BA in northern spotted owl critical habitat units (CHU) scheduled to sell or be otherwise implemented from 2006 through 2008 regardless of which BO they were previously addressed. The fiscal year for the Action Agencies begins October 1 and ends September 30. For purposes of this BA, the implementation date of a project will define the fiscal year of non-commercial projects, and use "sale" date for timber sales. Harvest of timber sales often occurs several years after the sale date.

The Action Agencies have also made changes to the unsold 2004-2008 proposed action both inside and outside CHU. These additional projects will be combined with those projects yet unsold (or NEPA decisions yet unsigned for non-timber actions) as of the date of this BA/BO.

This BA addresses activities over three years (FY 06-08) that will be implemented under the Medford District RMP and the Rogue River-Siskiyou Land and Resource Management Plans (LRMP). Projects are grouped into the general categories described

below. These categories are not necessarily distinct and may have considerable overlap. Predicted scope and amount (acres, miles, number of projects, etc) of these activities are reported under only one category. This reporting of projects avoids duplication or overestimation of miles of impact. Projects include:

- A. **Timber harvest** includes various levels of: regeneration harvest, commercial thinning, selective harvest, density management, commercial firewood, hazard tree removal, salvage, and roads related to the timber sale;
- B. **Vegetation management** includes silvicultural activities consisting, but not limited to, stand density management, conversion, fertilization, pruning, pre-commercial thinning, Port-Orford-cedar sanitation, riparian thinning, animal damage control (gopher baiting), slash piling, and burning.
- C. **Watershed restoration** includes culvert repair/replacement, road restoration or decommissioning, slope stabilization, habitat improvement projects, stream improvement projects, including tree lining/felling, down wood, and snag creation. (See also Road Maintenance/Construction).
- D. **Fuels management and Wildfire Suppression** includes fuel breaks, piling and prescribed burning, thinning, and brush treatments.
- E. **Recreation** includes trail construction and maintenance, campground maintenance and development, facilities maintenance and development.
- F. **Road Maintenance/Construction** includes maintenance, restoration or decommissioning, culvert replacement and repair, bridge maintenance and repair, road re-alignment.
- G. **Road Use Permits** for specific current applications for right-of-way agreements and road use permits across federal lands.
- H. **Mining and Quarry Operations** include: casual use, notice and plan level permits and operations, and commercial quarries on BLM lands.

The following activities will require separate consultation if they affect listed species. Impacts resulting from these activities are too variable to predict, or impacts too broad in a programmatic assessment:

1. New Road Use Permits (other than existing applications)
2. Off-highway vehicle authorizations
3. Land Exchange/Realty Actions
4. Research projects with LAA potential
5. Wildland fire control efforts

The activities described above will be evaluated for significant impacts to listed species, habitat, and critical habitat over the 3-year period of this BA. The Action Agencies

practice adaptive management as described in the NWFP. 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 over the 3-year life span of this BA. This consultation will address these minor alterations in project activities if the following conditions are met:

1. Project complies with the NWFP.
2. Project complies with the RMP or LRMP to which it is tiered.
3. Impacts and extent of the project are within parameters of described activities in this BA.
4. 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
5. Minimization measures proposed for the project are consistent with the intent and impacts of actions described in this BA
6. Project impacts are reported to Service in annual monitoring reports

Separate consultation will be required to meet ESA compliance if the project cannot be revised to comply with this consultation or if the Level 1 team cannot reach consensus that the project deviation meets the intent, extent and impacts addressed in the BA and subsequent BO.

Project activities are described, as appropriate, in terms of type of activity, acres of impacts or changes to significant habitat(s), and acres of disturbance, extent, duration, timing (Table 1). Determination of effects of these projects is displayed in effects section of this document. The combined acres of habitat impacts are summarized and evaluated in the Effects section of this BA, without further repeating individual project descriptions. Except where noted, the described activities can occur in any land use allocation.

Project design criteria (PDCs) are conservation measures developed to reduce impacts to listed species (Appendix D). Mandatory PDCs will be incorporated into all activities as integral to the proposed action, unless exempted by Level 1 team consensus. The Level 1 team will evaluate any deviations in mandatory PDCs or proposed projects to ensure the deviations are consistent with the scope, extent, and effects of projects and PDCs analyzed in this BA. PDCs involving seasonal restrictions will be implemented unless surveys, following approved protocols, indicate either non-occupancy or non-nesting of target species. Recommended PDCs will be incorporated during project implementation when practical. If recommended PDCs cannot be incorporated, the project will still be in compliance with this BA. Project design criteria help the Action Agencies comply with their responsibilities to conserve listed species under the ESA Section 7 (a) 1.

| Table 1. Proposed Action | | | | | | | |
|---|---|----------------|---------------|------------------|---------------|-------------------------|----------|
| Project Category | Estimated Scope—Acres, Land Use Allocations | | | | | | |
| All Activities 06-08 (see Proposed Action spreadsheet for details) | Total Acres, and estimate of how much disturbance could occur | | | | | | |
| | Northern Spotted Owls | | | | | Marbled Murrelet | |
| | NRF | | | Dispersal | | Degraded | |
| | Remove | Down- grade | Degrade | Remove | Degrade | Area A | Area B |
| | 11,322 | 20,718 | 31,959 | 4,017 | 67,626 | 951 | 0 |
| <i>BLM subset</i> | 10,988 | 20,229 | 20,205 | 3,260 | 30,458 | 0 | 0 |
| <i>FS subset</i> | 334 | 489 | 11,754 | 757 | 37,168 | 951 | 0 |
| <i>LSR subset</i> | 133 | 1,086 | 9,654 | 321 | 19,083 | | |
| <i>FS LSR subset</i> | 133 | 106 | 3,044 | 286 | 15,198 | | |
| <i>BLM LSR subset</i> | 0 | 980 | 6,610 | 35 | 3,885 | | |
| Vegetation management including silviculture | <p>Pre-commercial thinning, brushing, site preparation: BLM 12,700 acres/year; FS 8,000 acres/year.</p> <p>Up to 50% in LSR. Some riparian thinning.</p> <p>Planting: BLM 6,150 acres/year: FS 5,000 acres/year</p> <p>Fertilization: BLM No more than 35,500 acres of fertilizer applied over the life of the BA (approximately 11,000 acres/year). FS does little, if any, fertilization.</p> <p>Gopher control: BLM 500 acres/year, trapping. FS 500 acres/year: trapping and poison.</p> <p>Seed orchards involve treatments not used on all lands. These actions are covered under separate consultation. See USDI BLM 2003-Draft ES Integrated Pest Management, Provolt Seed Orchard, Charles A. Sprague Seed Orchard. Medford BLM. June 2003.</p> <p>Could occur across all land use allocations. Matrix would be emphasized for planting and site preparation following timber sales. Treatments in LSR would be designed to improve LSR conditions. Some would occur in CHU.</p> | | | | | | |
| Watershed/ riparian restoration | <p>BLM stream structures: 15/ year. Culvert replacement/repair: 12 large fish passage culverts/ year; 50 cross-culverts/year.</p> <p>FS Fish habitat restoration, 300 acres/year; 20 miles/year. Road drainage improvement 320 acres/year</p> <p>Restore native plants: 2000 acres/year. Riparian restoration 300 acres/year.</p> <p>Wildlife habitat meadow restoration 500 acres/ year (see also Tree harvest for meadow restoration).</p> <p>Fish habitat improvement: 25 miles/ year</p> <p>BLM/FS: General wildlife enhancement/ year: Tree top blasting; snag development: 200 trees</p> <p>Brushing: 200 acres.</p> <p>See also road restoration below.</p> | | | | | | |

| | |
|--|--|
| | <p>Could occur across all land allocations, with emphasis in riparian reserves and LSR. Most, if not all work would avoid or reduce impacts through implementation of PDCs and distance buffers from known sites (and occupied habitat). Some would occur in CHU.</p> |
| Fuels management | <p>BLM: 15,000 acres of mechanical or hand fuels reduction/ year. FS 10,000 acres/year. BLM: 10,000 acres of prescribed burning/year: FS 10,000 acres/year. Some acres are treated in subsequent steps: pile construction in one year, pile burning in subsequent year, and acres are counted in each year. Could occur across all land allocations, with emphasis in matrix and AMA. Strong emphasis of fuels reduction in the Wildlands Urban Interface (WUI). Some fuels reduction occurs outside of habitat, but could have some disturbance effects if adjacent to occupied habitat or unsurveyed suitable habitat during the critical nesting period. PDCs will be followed to the extent possible and known site information will be incorporated into fuels planning exercises. Some would occur in CHU and could occur in dispersal-only or NRF habitat.</p> |
| Recreation | <p>Facility development—construction or reconstruction could occur on up to 50 acres/year, BLM and 60 acres/year FS. Estimate no more than 10 projects per year. BLM Maintenance: 100 trail miles; 50 acres of campgrounds and other facilities; FS 100 miles and 250 acres per year. BLM 30 recreational projects/year with noise disturbance potential. FS 10 acres/year. BLM: 10 miles of new trail construction/year; FS: 5 miles/ year. Could occur across all land use allocations. PDCs will be implemented to avoid/reduce impacts. Some trail maintenance must occur in occupied habitat during critical habitats due to elevation, and some disturbance may occur. This would be expected to be short duration and small areas. Some could occur in CHU.</p> |
| Road use permits (private lands) | <p>Glendale Resource Area: Jackpot Mine perpetual ROW. T 33S R 5W Sec. 20 . $\frac{3}{4}$ mile construction CHU OR-32, Matrix land use allocation. Josephine County.</p> |
| Road maintenance and construction (outside of timbersales) | <p>BLM: up to 500 miles of road maintenance/ year. Some potential of hazard tree removal. FS up to 900 miles of road maintenance and repair a year. Some potential of hazard tree removal. BLM and FS construction up to 20 miles per year. Hazard trees are reported in monitoring reports as acres degraded. Any greater impacts would be reported under tree harvest. Could occur across all land use allocations and CHU.</p> |
| Mining and quarry operations | <p>BLM: Notice-level operations: 10/year less than 30 acres total. Plan-level operations: 3 /year no more than 40 acres. Rock permits (existing quarries): 50/year; New quarries-potential of 1. Mine reclamations 1-5/year; FS each year up to 240 small-scale suction dredge operations on FS. Other larger scale operations up to 2-3/annually. Could occur across all land use allocations and CHU.</p> |

DETAILED PROJECT DESCRIPTIONS

Detailed descriptions of these activities follow.

A. Tree Harvest

Tree harvest includes usually commercial and occasionally non-commercial removal of mature overstory and/or understory trees and can include regeneration harvest, seed-tree cuts, selective harvest, salvage, density management, commercial thinning, and individual tree removal. Tree harvest also covers miscellaneous projects, including the removal of hazard trees for public safety, commercial firewood, and salvage. Salvage may result from blowdown (other than hazard trees), disease, or small fires. Typically, a blowdown salvage project may cover 500 acres or more along at least 50 miles of roadway. However, based on past experience, salvage can occur on as much as 10,000 acres in a given year. This type of salvage may occur within LSRs and Riparian Reserves; providing the standards and guidelines in the Northwest Forest Plan and LSR Assessments are met.

Harvest can result in the removal of a few trees within a stand or can result in removal of the majority of trees within the project area. Openings may occur in an even or patchy distribution, depending on objectives of the treatment and constraints of the land use allocation. Trees are harvested by individual sawyers, or crews of people with chain saws or machine-mounted saws. Harvest includes the layout, marking, falling, limbing, yarding, and decking the trees to be removed from the site. In all cases but biomass removal, the limbs and needles/branches remain within the project area, and the bole of the harvested tree is removed. Trees are hauled to landings by cable or heavy equipment or helicopter. Trees are removed from decks or landings by logging trucks or helicopters. Access to the timber sale involves the use of existing roads in areas where roads already occur, and can also involve the design and development of new roads or redevelopment of old roads. New roads involve cutting trees from the road prism, occasional blasting, grading, hauling gravel, cutting into side banks, installing culverts and waterbars, stabilizing adjacent areas. Trees removed from road prisms are often decked for inclusion in the timber sale, or could be sold in unrelated sales, or could occasionally be used on-site or off-site for watershed restoration, down wood supplementation, or in-stream structures.

Regeneration harvests could occur in the Adaptive Management Area (AMA) and Matrix Land Use Allocations (LUAs), but do not occur in Late Successional Reserves (LSRs) or Riparian Reserves (RR). Meadow Restoration and pine ecosystem restoration projects in LSR will result in the removal of some suitable habitat (see Table 1). Timber sales within LSRs will comply with pre-approved LSR direction (*i.e.* completed LSR assessments, as per the NW Forest Plan ROD).

Timber harvest is seasonally restricted around known spotted owl nest sites (see PDCs for details). Some harvest could occur in suitable Matrix and AMA habitat that has not been surveyed for northern spotted owls, as the action Agencies are not required to survey these lands. Matrix and AMA lands are not surveyed to protocol standards across the Action Area. All timber sale contracts will contain special provision E-4 (BLM) or C6.25 (FS). These are standard contract provisions which require purchasers to discontinue operations upon receiving written notice from the BLM or FS that listed species may be affected by the action; an example situation might be when a previously unknown spotted owl nest is discovered in an active timber sale.

Various types of thinning, density management, or selective harvest can occur in all land use allocations, if the harvest meets the objective of the land use allocation, as specified in the NWFP. Selective harvest techniques can result in project areas that often cover large acreages (several thousand acres), and contain stands with 120 – 140 feet of basal area per acre, 40 – 50 trees per acre, and average canopy coverage of 40-60 percent.

B. Vegetation Management - including Silvicultural Projects

Silvicultural projects usually involve plantation maintenance and the removal of trees and shrubs to enhance growth, and can include maintenance brushing (release), precommercial thinning, prescribed burning for site preparation (see also fuels reduction), planting, Port-Orford-cedar clearing (sanitation) to control *Phytophthora lateralis*, animal damage control, fertilization, and pruning. Silvicultural activities are sometimes collectively referred to as TSI projects (Timber Stand Improvement). Thinning work is usually done with hand crews, but mechanical thinning can occur. Strychnine alkaloid treated grain is in use on Forest Service lands to control gophers where they have been identified as a cause of plantation failure or unacceptable conifer stocking. The Action Agencies also use underground traps. Fertilizer is applied to accelerate growth of young trees or to improve native plant restoration. Fertilizer is applied at a rate of no more than 200 lbs of nitrogen per acre. Fertilizer is usually aerially applied, but is hand applied in some habitat improvement projects on small acres (*e.g.* grass seeding in meadow habitat improvement projects).

C. Watershed Restoration

Watershed restoration projects anticipated in the Action Area include: road decommissioning, storm proofing of roads (see road maintenance/decommissioning below), upslope erosion rehabilitation, riparian silviculture, in-stream habitat improvement, large wood restoration, wildlife tree development, wildlife habitat restoration and enhancement (such as meadows), and prescribed burning (see fuels management). Some blasting (such as snag creation) may occur with watershed restoration projects.

Roads no longer essential for forest management may be gated, closed or decommissioned (put back to natural contours). Roads with the potential to fail or deliver large amounts of sediment to stream segments may be decommissioned or closed

or may be improved. Improvements include repairing road drainage facilities (culverts, drain dips, etc.) and surfacing (to reduce sediment). Restoration activities could include snag creation. Down wood development or placement could occur. Effects are similar to tree harvest or silviculture projects. Meadow restoration, fencing, native plant seeding and planting, and weed removal may occur to restore or repair healthy ecosystems. Most watershed restoration projects will take place in Key Watersheds identified in the Forest Plans. Other restoration work may be required as the result of future wind, snowstorms, rain, and flooding. Expected activities and effects specific to roads are evaluated under road construction and maintenance (below), although road construction, restoration, maintenance, and drainage work is interdependent and interrelated to most Action Agency activities. No ground disturbance will occur without an evaluation for habitat of listed species.

D. Fuels Management

The Action Area has short natural fire return intervals, but years of fire suppression and management actions have resulted in habitat conditions much brushier and denser than would occur under natural burn regimes. Fuels management has three primary purposes: fuels reduction to reduce wildfire hazard, site preparation/slash reduction for improving conifer planting (covered in silviculture above), and restoration of ecosystem function where wildfire has been suppressed.

Fuels management includes manual and/or mechanical treatments using chainsaws or mechanical equipment such as slash busters, 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 convert abnormally high amounts of shrubs and ladder fuels so that subsequent prescribed burning or wildfire won't be as severe. The material (piled) with manual treatment is usually burned once that material dries out. A small portion of the acres treated by mechanical equipment may also be later burned to remove treated material.

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. The effects of prescribed natural fire, when limited to the prescription, can usually be controlled or manipulated.

Prescribed burning is generally restricted to spring or a small window in the fall, due to risks of escapes, smoke concerns, and weather. When successful understory treatments have been completed, and risks of escape are reduced, more burning during late summer or fall could be anticipated. Mechanical treatments can occur at any time of the year.

Natural and created fuel breaks across the landscape may be developed to help with the suppression of large-scale wildfires. In this case, treatment of fuels along a ridge or topographic break would occur to reduce the fuels and facilitate suppression activities. Fire line construction and blasting may occur as a tool to help create fire lines. No treatments will occur without an evaluation for habitat of listed species.

E. Recreation

Recreation management includes trail construction and maintenance, campground and physical facilities maintenance, boat landing maintenance, observation decks and guard rails, signing, foot bridges, and permits for rafting and boating (see special use permits). Ground or habitat disturbing actions will not occur without an evaluation for habitat of listed species. Occasional heavy equipment use could cause short-term (less than one week) high noise levels, and occasional groups of people may be concentrated along short sections of a trail or river for various periods of time. Trees may be felled in developed areas or along trails where public safety is a concern (this is generally an annual activity).

F. Road Maintenance/construction

Road construction involves ground disturbance, removal of vegetation, use of heavy equipment, occasional blasting, and periods of high noise and activity, and would be tied to tree harvest, recreation, and several other project categories. Road maintenance consists of grading, brushing, culvert maintenance and repair, installing and repairing waterbars, minor resurfacing, and hazard tree removal or minor re-routing. The Action Agencies maintain roads on a schedule, but also respond to unanticipated repairs due to weather, accident, or landslide. Most activity is limited to short periods of time (*i.e.*, one or two passes with a grader). Road grading generally affects the ditch and a foot or so of the cut-slope; some loose material is spilled over the fill-slope. Maintenance brushing generally entails mechanically cutting brush down to less than a foot high within four feet of the edge of road tread. Brush more than four feet from the edge of the road tread is not treated. Heavy trucks and heavy equipment such as graders, gravel trucks, backhoes, and chainsaws and/or brush removal machinery, can increase noise in the area of activity for short, but intense, periods of time, and can occur for up to one week in time. Most activities would require a few hours of work or less within any 0.25-mile road segment in a 24-hour period. Some blasting may be required with road projects removing unstable portions of the cut-slope, often at rockfaces.

Road decommissioning is tied to Watershed Restoration and covers activities that reduce or eliminate traffic use on the road by installing gates, barriers, rocks, ripping the tread, pulling culverts, and seeding grass and herbs. Full obliteration of the road returns the road back to natural contour levels using excavators. Full obliteration can remove vegetation along the top of the cut slope to create a stable slope.

G. Road Use Permits

Landowners or their agents are required to obtain Road Use Permits to build roads across BLM/FS managed land for commercial purposes and/or to haul commercial products on BLM/FS maintained road systems if these permits are not already in place. Federal

discretion to influence the implementation of recovery efforts for threatened or endangered species may be limited where certain pre-existing Road Use or Reciprocal Right-of-Way agreements exist between private landowners and the Action Agencies. Reciprocal rights of ways already cover most existing road activities in the Action Area with private parties and the Action Agencies no longer have discretion. This BA does not address non-discretionary activities. For the purpose of this BA, private lands refer to privately-owned or other government non-federal parcels located as inholdings or adjoining property through which access is traditionally granted across federally managed lands.

On 30 January 2003, a new 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 Bureau of Land Management, 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 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 rights-of-way 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.
- The agreement does not apply to use of National Forest System roads for access to non-federal lands in situations where the use is already authorized. Such use is governed by the authorization in 36 CFR 212.6(c) and implementing procedures in Forest Service Manual (FSM) 7730 (*i.e.*, Road Use Permits).
- ESA sections 9 and 10 still applies to all activities on non-federal land.
- The agreement applies to applications for new authorizations for access that are processed by the FS and BLM after January 30, 2003.

For the Forest Service, Interim Directive Number 7709.59-2003-1 (22 May 2003) covers those Road Use Permits (RUPs) requested for use of existing roads open to the public. In these situations, “NEPA and ESA procedures are not applicable when a road permit is issued for commercial use of an existing road that is generally available to public use and suitable for planned commercial use without reconstruction.”

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/construction above. Use of

National Forest roads to haul timber from private land (inholdings and adjoining property) will be the greatest part of this proposed action. Harvest of private lands normally consists of clear-cut or salvage operations, or removal of individual large diameter trees in young stands.

Each right of way road activity has distinct characteristics and effects that cannot be adequately anticipated in a programmatic analysis. RUP proposals which require consultation are included in this programmatic BA only if we have specific information to assess impacts: In this BA, only one RUP application meets this test.

Jackpot Mine application from Perpetua Company involves construction of approximately 0.7 miles of access road on Bureau of Land Management land in T33S R5W, Section 17 SW of the SE; section 20 NW of the NE and NE of the NW on the Glendale Resource Area of Medford BLM. The BLM portion of the new road would be 3600' long averaging 40' wide. The remainder of the ROW occurs in a young fire replacement stand and would remove 3 acres of trees 10"-18" in diameter. The project is defined under ROW in the proposed action table. (Table 1)

Subsequent applications during the life of the programmatic within the discretionary authority of the Action Agencies will be analyzed under separate consultations.

J. Mining and Quarry Operations

For all mining activities on BLM-managed land, operators must submit a Notice of Intent and get approval, if causing surface disturbance on 5 acres or less. Operators only have to file a plan of operations for activities that remove more than 1,000 tons of material, which is generally on more than 5 acres. A few special exceptions apply, for instance, mining activities within Areas of Critical Environmental Concern (ACECs), or areas known to contain proposed or listed species are required to have a plan of operations (BLM Manual Section 3809.11 part C(6)).

Plans of operations are required to comply with the ESA, and the operator must take such action as necessary to prevent adverse impacts to listed species. Habitat evaluation or surveys for new notice-level and plan-level operations will be done prior to commencement of operations.

Each year many small-scale suction dredge operations are conducted on the Siskiyou and Rogue River National Forests. Few miners are likely to notify District Rangers of their intent to operate, since regulations authorize most small-scale, low impact operations such as these, and do not require notification or approval. Field inspection, however, will be conducted and where actions are likely to significantly affect surface resources, a Plan of Operations will be required and site-specific NEPA and consultation will result. In many of these cases, the miner will choose to simply minimize or cease their operations to protect the resource and avoid the paperwork. Other, larger-scale operations are likely and the operator will provide a Notice of Intent or a Plan of Operations. Where actions are likely to significantly affect surface resources, a Plan of Operations will be required and site-specific NEPA and consultation will result.

Most mining operations presently operating on federal lands use suction dredges to sort streambed materials in search of gold. Much of the suction dredge mining is in key watersheds, e.g., Palmer Creek, Little Applegate River, Taylor Creek, Dunn Creek, East Fork Illinois River, Sucker Creek, Silver Creek, Elk River and South Fork Coquille River. Other watersheds with suction dredge activities on Federal lands include Briggs Creek, Evans Creek, and the Chetco River. Except for a few large dredge operations, most suction dredging is performed with small (intake hose of less than four inches) portable dredge equipment. Suction dredging is widespread throughout the summer operating season - June 15th to September 15th – but operations vary from an occasional weekend to two weeks.

Most rock crushing operations take place in existing quarries. We often authorize an increase in quarry boundaries for timber sales. All actions take place within the developed quarry limits. Standard operations include drilling; which takes approximately 2-3 weeks; blasting which is quick (less than one minute) but may extend over several days; and crushing which takes 2-3 weeks.

ENVIRONMENTAL BASELINE

Regulations implementing Section 7 of the ESA (50 CFR 402.02) define the environmental baseline as the past and present impacts of all federal, state, or private actions and other human activities in the Action Area. Also included in the environmental baseline are the anticipated impacts of all proposed federal projects in the Action Area that have undergone Section 7 consultation, and the impacts of state and private actions which are contemporaneous with the consultation in progress. Such actions include, but are not limited to, previous timber harvests and other land management activities. The Forest Ecosystem Management Assessment Team (FEMAT) (USDA *et al.* 1993), the Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl (USDA & USDI 1994a), and the Record of Decision for Amendments to Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (USDA & USDI 1994b) are relevant to addressing the environmental baseline for this action.

The NWFP, USFWS Critical Habitat Designation, and listing determinations for the murrelet and spotted owl, identified habitat considered necessary for the long-term conservation and recovery of owls and murrelets and the Critical Habitat baseline is described for each species below. Under the NWFP, Late-successional reserves (LSR), riparian reserves, and other protected habitats will be managed for long-term recovery. The baseline information (Environmental Baseline Tables) shows that not all reserved habitat is currently functioning as suitable late-successional habitat. The NWFP guides the Action Agencies to develop lands in LSR that are capable of producing old growth characteristics into those conditions over time. Projects in the late successional reserves are limited to those activities neutral or beneficial (C-16 NW Forest Plan ROD, 1994) to the objectives of late- successional reserves.

Northern Spotted Owl Likelihood of Occupancy

Northern spotted owl surveys are routinely not conducted to protocol standards, except in demographic study areas and for project disturbance clearances. The Action Area has one demographic study area, approximately 110,000 acres, within the Glendale Resource Area on BLM lands and on the Rogue-Siskiyou National Forest in the south Cascade Mountains. Other owl sites that were known as of 1994, receive seasonal protection when occupied during the nesting season. Any new owls that have moved into the area, or any existing owls that have changed location from the “known” site documented in 1994 may not be located except opportunistically. Biologists attempt to locate new owl sites on an opportunistic basis, as funding allows, but the Action Agencies cannot guarantee that all spotted owl sites are found.

Surveys for owls, such as those in demographic study areas, are reliable methods to indicate population trends when consistently conducted according to protocols over multi years and across large areas. They are designed to smooth out annual fluctuations in spotted owl breeding patterns. Fluctuations can include the tendency for many owls to successfully nest every other year, regional or local weather influences such as (cold or rain that can kill nestlings, prey fluctuations, or individual (site behavior such as older owls that may attempt to nest but cannot produce viable nestlings. The long term trend data that is obtained from demographic studies (or other owl site surveys) are valuable as population trends; they are not adequate to assess the reasons for those trends. Cause-effect studies requires much more rigorous research, very large sample size and quantitative analysis of factors that are known or suspected to affect spotted owl productivity.

Site-specific surveys can indicate contradictory patterns to the demographic trend studies because they are more highly influenced by local conditions, behavior of individual owls, and other factors that cannot be documented. Therefore, site-specific surveys cannot be used for trend indication. Occupancy data alone cannot adequately describe cause-effect relationships. The relationship between owl habitat and owl occupancy has not been quantitatively established because of the many other factors influencing wildlife populations, but has been documented to be a major contributing factor to owl trends (Duggar et al. 2005, Olson et al. 2004).

Action Agencies track habitat, and habitat changes, in terms of forest inventory data, according to strict data standards. The Environmental Baseline Tables, (Appendix A), demonstrate changes to owl habitat since the owl was listed. The Action Agencies believe that habitat is the best and most scientifically valid method to track and report potential impacts to owls. Therefore, we present the environmental baseline information in terms of habitat, and predict effects using habitat. Information from the demographic study areas, across the range of the spotted owl, help support the relationship between owls and habitat.

Individual site information is used to the extent possible to avoid harvest of nest sites, or removing habitat from nest cores during the nesting season. Project Design Criteria that protect nesting owls allows young owls an opportunity to fledge undisturbed. Once they fledge they have the opportunity to move away from disturbance, which presumably reduces the risk of harm.

Harvest in Matrix or AMA is not delayed by seasonal restrictions, unless a historic owl site is known. Since project related protocol surveys are no longer required, there may be situations where occupied suitable matrix or AMA owl habitat could be treated, and an unknown nesting owl adversely impacted. There are instances where other activities, such as roadwork, quarry activity, and recreation sometimes cannot be restricted during the nesting season, and often must occur prior to conducting nesting clearances.

Long-term spotted owl survey efforts in southwest Oregon and throughout the Pacific Northwest have shown that spotted owl pairs exhibit high site fidelity but often utilize multiple activity centers or “alternate nest sites” over the course of several years Anthony (2005). Survey results have shown that when a group of alternate sites is vacated or when one member of a spotted owl pair leaves or dies another individual usually fills the void and the new pair continues to use the cluster of alternate nest sites. These alternate sites can be as much as a mile apart but are usually closer to each other. These long-term survey efforts have also shown that non-resident or “floater” spotted owls often occupy habitat patches peripheral to sites occupied by paired birds and that pairs are often located in habitat patches where occupancy has not previously been documented.

In 2005, an annual report of spotted owl surveys conducted in the South Cascades demography study area was released (Anthony 2005). During that year, 162 spotted owl locations in both Matrix and LSR land allocations were surveyed to protocol, and spotted owls occupied 65 percent of the sites visited. The report showed that in the Matrix allocation, the percentage of occupied sites increased in 2005 (63 percent) compared to 2004 (55 percent). Between 2004 and 2005, the percentage of occupied sites in the LSRs increased from 53 to 66 percent and the percentage of sites occupied by owl pairs increased (44 to 53 percent).

The majority of other spotted owl surveys that have been conducted throughout western Oregon have not been of this long-term type. Most have been one or two-year protocol surveys designed to determine if a project area (e.g., a timber sale) was occupied by spotted owls at the time the surveys were conducted. Such short-term studies generally have not lasted long enough to document alternate nest sites or to determine which peripheral habitat patches are important to floaters. And, they were not designed to document the habitat patches in a given landscape that are likely to be occupied by spotted owls in the future; the long-term studies have born out this limitation.

Because of the manner in which spotted owls appear to utilize habitat patches at the landscape scale (high site fidelity, frequent use of alternate nest sites, the tendency for vacancies to be filled and the occurrence of “new” sites) the action agencies assume that most sizable patches of unsurveyed (i.e., never surveyed or not surveyed in the past two or perhaps three years) suitable spotted owl nesting, roosting, foraging habitat are likely to be occupied by pairs of spotted owls attempting to nest, or by floaters attempting to

attract mates at some point during the implementation period of the majority of forest management activities, especially multiple year projects. For these reasons, the Action Agencies assume it is likely that the suitable owl habitat throughout and adjacent to the proposed project sites is occupied by the spotted owl.

Spotted Owl Suitable Habitat (NRF)

Bart and Forsman (1992) generalized that the greater the amount of forest over 80 years old, the greater the probability of finding spotted owls within these forests. The environmental baseline for suitable habitat at the time of the NWFP has been periodically updated in programmatic biological assessments. There are minor differences in the calculations used for the Service' baseline information in the Alternative 9 biological opinion for the NWFP and the Action Agencies' information calculated since then. The Action Agencies have improved their mapping and plotting ability and refined some estimates that were used in the original Alternative 9 analysis. Better information has been incorporated into the data layers.

The current spotted owl habitat baseline for the Action Area is approximately 915,000 acres of spotted owl suitable habitat and approximately 490,000 acres of spotted owl dispersal habitat within the Rogue River and South Coast drainages (Appendix A and F, Appendix G).

For FY04-08 BO, the BLM and Forest Service estimated habitat reduction was 31,621 acres; to date the actual reduction has been 1,783 acres (Appendix H). Tree harvest, vegetation management and wildfire changes to suitable habitat that have occurred to April, 2006, were calculated from annual monitoring reports and the updated information is depicted by Section 7 watersheds in the Environmental Baseline Tables. The breakdown of NRF acres removed, downgraded; and Dispersal removed are reported in Appendix H. See definitions for descriptions of these categories.

Timber harvest (and related projects that removed or degraded suitable or dispersal habitat) across all watersheds in the Action Area by the Action Agencies since the October 2003 BO reduced suitable habitat by 1,783 acres, degraded 1,459 acres, and increased dispersal-only habitat by 328 acres, (Appendix H). Some gains of dispersal-only resulted from suitable habitat that was thinned and downgraded to dispersal-only.

Wildfire changes in habitat since 1994 are also reported in the Environmental Baseline Tables (Appendix A). The Action Agencies calculated wildfire changes through a combination of satellite evaluation, photo interpretation, and field exam. Although intensity and severity are different evaluation methods, for purposes of owl habitat, moderate to high fire intensity (and soil severity) was considered hot enough to kill overstory trees. Habitat that burned with moderate to high intensity/severity was classified as removed. Light intensity (severity) was considered an understory burn with no habitat loss. Fire estimates did not attempt to break out intermittent fire behavior (a few trees burned and some green trees retained). Fire acres reported in the Environmental Baseline Tables erred on the side of habitat lost, for analysis of impacts to owls in this BA. Wildfires removed 188 acres and degraded 1,148 acres of suitable

habitat since 2004. For the time period of 2004 to present, wildfires and timber harvest reduced spotted owl suitable habitat by less than one percent.

Late-Successional Reserves

The intent of LSRs is to protect and enhance conditions of old-growth forest ecosystems, which serve as habitat for old-growth related species including the northern spotted owl (USDA 1994b). The federal management strategy for the conservation of the spotted owl was planned to provide a system of large, interconnected reserves that support sustainable, intermixing populations of owls. This strategy was identified by the ISC (Thomas *et al.* 1990) and then adopted and refined by the Draft Recovery Plan for spotted owl, FEMAT, and the ROD for the Northwest Forest Plan. The action agencies manage all or part of 20 LSRs as a portion of the network of reserves designed for the conservation of the spotted owl within the Action Area. These reserves theoretically either currently provide sufficient amounts of habitat and numbers of spotted owls to maintain local populations, or, if deficient in habitat or owls, should provide sufficient habitat and owls in the future. All LSRs are to be managed to improve late-successional forest conditions, therefore habitat for northern spotted owls should improve accordingly over time.

LSRs cover 878,407 acres within the 2,539,760 acres of Federal Land within the Action Area, not including the 100-acre cores and unmapped LSRs. LSRs make up 35 percent of the Federal Lands within the Action Area. The Late-successional Reserve Network in the Pacific Northwest roughly covers three major mountain ranges: the Cascades, the Klamaths, and the Coast Ranges of California and Oregon. Together they roughly form an “H.” One “leg” joins the Sierras in California to the Siskiyou, and north to the Cascades. The other “leg” joins the California and Oregon coastal mountains, and the Siskiyou. The Cascade crest, except for the Klamath and Columbia River gorges, forms a continuous north-south “backbone,” and the Siskiyou form the “cross-bar”. Appendix C contains a descriptive narrative of each LSR; Table 4 and Appendix C shows 466,036 of suitable habitat for spotted owl in LSRs, as of May 2006. Wildfires since 1996 have reduced the suitable habitat for spotted owls by almost 52,000 acres in LSRs in the Action Area (10%); habitat removal through timber sales in LSRs is inconsequential. The NWFP proposed the management of capable LSRs into functional late successional habitat over time. There has been some minor tree harvest (light thinning) within LSRs since 1994, designed to improve late successional habitat by expediting large tree establishment and structure over the long term.

Spotted Owl Dispersal Habitat

Spotted owl dispersal habitat consists of those stands capable of providing for the safe movement of spotted owls across the landscape. The NWFP identifies several habitats that serve as dispersal habitat for spotted owls, in addition to matrix, AMA and LSR lands that meet canopy conditions: riparian reserves, 15 percent leave trees in harvest units, 100 acre LSRs (known spotted owl activity centers), and 15 percent LS/OG

retention guideline. Dispersing owls use habitats classified as NRF and dispersal-only habitat.

Dispersal-only habitat provides cover, food, and protection on a temporary basis to non-nesting owls moving between and among patches of suitable habitat. Dispersal-only habitat must be adequate both spatially and structurally to protect northern spotted owls from predation as they move through these less than optimal habitats. Genetic interchange among physiographic provinces is important to maintain a diverse and healthy gene pool. Small amounts of genetic interchange in terms of a few successful breeding individuals, can significantly add to the genetic variability of a population. Theoretically, a diverse genetic make-up allows greater resilience of a population to disease, climate change, and provides more robust response to changing conditions. Owl dispersal between LSRs is also necessary to provide for the interchange and replacement of individuals due to death or the loss of habitat within an LSR. The more closely the dispersal vegetation resembles suitable habitat, the more likely spotted owls will successfully complete the journey (Thomas et al. 1990).

Thomas et al. (1990) described dispersal habitat as stands averaging at least 11 inches DBH with a 40 percent canopy cover. Thomas et al. (1990) also described a landscape (quarter-townships) with at least 50 percent dispersal habitat (suitable PLUS the dispersal only habitat) as being adequate for the movement of dispersing NSO across the landscape. These dispersal parameters are often referred to as "50-11-40". Only lands ecologically capable of producing owl habitat are considered in the 50 percent calculation. Incapable lands, such as serpentine or natural shallow-soil meadows, are not included in the calculation.

An estimated 1,400,000 acres of dispersal habitat is currently available on federal lands within the Action Area. The Action Agencies report dispersal habitat by Section 7 watershed (see Appendix F). Appendix G depicts dispersal habitat for each public land section in the Action Area.

Biologists characterize habitat using timber stand conditions, photo interpretation, field experience, and post-treatment modeling. Actual dispersal habitat may vary considerably depending on the agency data used. The Dispersal map (Appendix G) was developed as a GIS map, using interpretation of satellite data (FS) and stand information (BLM). This was calculated by a GIS exercise on a formula-driven map. Acreage figures represented by the dispersal map are depicted in Appendix F. Each section and watershed were evaluated by 1) dispersal, 2) capable but too young to provide dispersal or suitable habitat, and 4) non-capable. Total dispersal includes suitable and dispersal-only combined. The dispersal map incorporates habitat removed due to timber sales or fires since the listing of the northern spotted owl. All data used to generate these tables is based upon GIS information available through June 2003. BLM has changed the software system housing the Forest Inventory (FOI) data upon which this map was originally calculated. A new GIS map would be incomparable to the baseline. However, changes to those original acres reported through monitoring reports are reliable and presented in the updated baseline tables Appendix 1.

In 2003, on BLM administered lands, the Forest Operations Inventory (FOI) data were overlaid with post-fire and post-timber sale data to depict the current dispersal habitat condition (Map G-1). On FS administered lands, the current dispersal habitat was evaluated with Landsat photography to depict post-fire information. In general, FS-administered lands in the Action Area have a higher percentage of owl-capable lands.

Areas of Concern for Dispersal

Dispersal of owls across areas of sparse or poor habitat is a concern. The Kalmiopsis Wilderness has large areas of serpentine soils that do not support conifer stands dense enough for spotted owl dispersal. The low elevation area along Interstate Highway 5 is predominantly private residential ownership and lacks the type of forest cover conducive to owl dispersal. Dispersal habitat is generally not a limiting factor to spotted owls, but two areas have been identified in the Action Area for special scrutiny. One is the forested area that joins the Siskiyou, Cascades, and the Coast Range across the Interstate 5 corridor (Klamath, Bear, Applegate Section 7 watersheds). The other is the Galesville area of concern (also referred to as the Rogue-Umpqua area of concern). The draft Recovery Plan for the Northern Spotted Owl (USDI 1992 a) recommended that non-Federal lands in the Galesville area of dispersal concern, and areas to the west, be managed to provide spotted owl dispersal habitat to facilitate movement between the Klamath and adjacent provinces. Spotted owls have been documented to traverse both these areas (Forsman 2002), but the prospect for long-term viability of movement in these areas is uncertain. The map of dispersal habitat (Appendix F, Appendix G) reflects the wildfires since 1994 that have further reduced the dispersal habitat availability across the southern range of the northern spotted owl.

In 2001, the Level 1 team identified a specific area of dispersal concern in the lower portion of the Applegate Section 7 Watershed. The Service indicated the Slate-Cheney area in the Applegate drainage was a specific area where spotted owl dispersal might be at risk due to a bottleneck almost surrounded by low elevation lands that did not seem to provide many dispersal opportunities for spotted owls. The Biscuit Fire of 2002 had an effect on the approach to the habitat “bridge” across Slate-Cheney, but the Fire did not affect the “bridge” itself. The approach to the “bridge” from the north, through unburned area, is still functioning.

Since 2003, dispersal-only habitat has increased in the Action Area by approximately 325 acres due to downgrading of suitable (NRF) habitat. Suitable habitat was thinned and downgraded and dispersal increased. All of the Section Seven watersheds in the Action Area currently are above fifty percent threshold for dispersal habitat. See Appendix F, Appendix G

NORTHERN SPOTTED OWL CRITICAL HABITAT

Designated Critical Habitat for the Spotted Owl Range-Wide

Designation of critical habitat serves to identify lands that are considered essential for the conservation and recovery of listed species. The functional value of critical habitat is to preserve options for the species eventual recovery. On January 15, 1992, the Fish and Wildlife Service designated critical habitat for the spotted owl within 190 CHUs encompassing 6.9 million acres across Washington, Oregon, and California (USDI 1992). The Service's primary objective in designating critical habitat was to identify existing spotted owl habitat and highlight specific areas where management considerations or protections may be required. Based upon the Interagency Scientific Committee conservation strategy (Thomas et al. 1990), the Service designated CHUs to protect clusters of reproductively capable spotted owls. CHUs were distributed in a manner that would facilitate demographic interchange.

The Service has determined that the physical and biological habitat features, referred to as the primary constituent elements that support nesting, roosting, foraging, and dispersal are essential to the conservation of the northern spotted owl (50 CFR 1710: 1797.

The attributes of nesting and roosting habitat typically include a moderate to high canopy closure (60 to 80 percent); a multilayered, multi-species canopy with large (>30 inches diameter at breast height (dbh)) overstory trees; 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 (cited from Thomas et al. 1990).

Spotted owls use a wider array of forest types for foraging and dispersal including more open and fragmented habitat, although less is known about the characteristics of foraging and dispersal habitat. Habitat that meets the species' needs for nesting and roosting also provides for foraging and dispersal...the term "dispersal" frequently refers to post fledgling movements of juveniles, for the purposes of this rule the Service is using the term to include all movement and to encompass important concepts of linkage and connectivity among owl subpopulations

Spotted Owl Critical Habitat in the Action Area

Appendix B shows 761,037 acres designated as critical habitat for the spotted owl in 22 Critical Habitat Units (CHU), of which 319,293 acres are suitable nesting, roosting or foraging habitat and 489,806 acres is at least dispersal habitat. CHU changes are depicted in two ways. In Appendix B, changes are displayed by CHU. CHUs on the

boundary of the Action Area may include overlap onto other Federal lands not actually within the Action Area, which explains the difference in the acreage of CHU in Table B-1. Changes to critical habitat resulting from fires and timber sales up to April 2006 are depicted in the CHU Appendix B. From FY 2003 to FY 2005 there was no NRF loss that occurred in CH and only minor amounts of dispersal habitat loss.

MARBLED MURRELET - Threatened

The marbled murrelet is a small seabird (*Alcidae*) that nests along the Pacific coast from Alaska to central California, and winter as far south as Baja California, Mexico. Murrelets forage at sea, but nest on large limbs in old-growth coniferous forests, sometimes up to 50 miles from the coast. Murrelets require large trees with nesting platforms at least four inches in diameter, which are usually formed on large branches and may incorporate moss or debris piles. Murrelets are associated with late-successional and old-growth conifer forests for reproduction in this area (USDI Fish and Wildlife Service 1996).

Range-wide habitat loss is by far the greatest terrestrial threat to murrelets. Timber harvest has reduced the amount of old-growth forested habitat within western Oregon and Washington by greater than 80 percent and it is likely that disproportionate harvesting has occurred within the range of the murrelet compared with further inland forests (USDI Fish and Wildlife Service 1992b). The NWFP establishes all murrelet occupied stands on Federal lands as LSRs, which greatly restricts the habitat modification activities that can occur. In 1996, the USDI Fish and Wildlife Service (1996) designated murrelet critical habitat, which largely overlaps mapped LSRs within the murrelet range on Federal lands.

Of primary concern in the Action Area is the potential for disturbance to breeding murrelets. The majority of information on disturbance to nesting marbled murrelets has been from anecdotal observations and inferred from studies on other seabird species (Long and Ralph 1997). Professional opinions vary on the subject but it is the Service's and the Forest's positions to approach the issue cautiously until such data exist to support a less restrictive approach to disturbance issues. The sensitivity of an individual to disturbance is likely related to the baseline level of disturbance the bird is accustomed to, the level and proximity of disturbance (Hamer and Nelson 1998), and the timing of the disturbance within the nesting cycle and daily activity periods. Many bird species, including murrelets, can habituate to relatively high levels of disturbance over time (Long and Ralph, 1997; Hamer and Nelson 1998). However, for murrelets, the adverse effects of disturbance may also lead to nest abandonment by adults, reduced nest attentiveness (leading to increased vulnerability of predation), aborted feeding visits, premature fledging, and avoidance of otherwise suitable habitat (Hamer and Nelson 1998).

An account of the taxonomy, ecology, and reproductive characteristics of the marbled murrelet can be found in the 1988 species status review (Marshall 1988), the final rule designating the species as threatened (USDI Fish and Wildlife Service 1992b), the final rule designating critical habitat for the species (USDI Fish and Wildlife Service 1996), the Ecology and Conservation of the Marbled Murrelet (Ralph et al. 1995) the Recovery plan for the marbled murrelet (USDI Fish and Wildlife Service 1997) and the Service's

biological opinion for Alternative 9 (USDI 1994) of the Final Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl (USDA Forest Service/USDA Bureau of Land Management 1994a) (FSEIS). For a detailed discussion of the life history of the marbled murrelet, see the *Rogue River/South Coast Biological Assessment 18 July/27 September 2001, FY 01/02/03 Timber Sale Projects for the Medford District, Bureau Of Land Management Rogue River And Siskiyou National Forests*.

In 1995, it was estimated that approximately 1,077 occupied murrelet sites occurred within Washington, Oregon, and California. In 1995, suitable habitat for the murrelet was estimated at 2,561,500 acres of Federal lands in the listed range of this species (Ralph et al. 1995). Murrelet habitat is protected on Federal land under the NWFP. No new timber sales will be planned in forested stands known to be occupied by murrelets regardless of whether these stands occur in reserves, AMAs, or matrix areas (USDA & USDI 1994). The system of LSRs on Federal land will not only protect habitat currently suitable to murrelets and also develop future habitat in larger blocks.

Survey data collected by the FS and BLM in southwestern Oregon (9,795 survey visits for murrelets between 1988 and 2001) indicate that murrelets inhabit forested areas relatively close to the ocean. Approximately 82,400 acres of suitable habitat are located in Area A, which is the known range for the species in the Action Area (90 percent of the suitable habitat in Area A is in the NWFP LSRs and other reserved areas, and any stands of suitable habitat in Matrix subsequently found to be occupied are designated as additional "Murrelet" LSR). Occupied behaviors have been observed on the Siskiyou National Forest during 221 surveys from 1988 through 2001, and presence has been observed during an additional 491 surveys. These 221 observations of occupied behaviors may represent 125 or more distinct forest stands. Murrelets were not detected on the Medford BLM or the Rogue River National Forest. See Environmental Baseline Tables for a summary of the baseline data for marbled murrelets by Section 7 Watershed.

Murrelets have not been located more than 51.5 km (32 mi) inland on the Powers Ranger District or more than 25.7 km (16 mi) inland in the Gold Beach or Chetco Ranger Districts (Dillingham et al. 1995; USDA Forest Service and USDA Bureau of Land Management 1996; Appendix I). The Forest Service and BLM completed a study to better quantify the likelihood of murrelet occurrence beyond the eastern boundary of the western hemlock/tanoak vegetation zone in SW Oregon (USDA Forest Service and USDI Bureau of Land Management 2001). This study refined the existing survey zone boundaries to better reflect known murrelet occurrence. Area A encompasses the known range of the marbled murrelet. Area B is a "buffer" to area A and includes all land 10 km east of Area A. Surveys are conducted only in Areas A and B. Federal Land east of B is assumed to not be murrelet habitat, and is no longer surveyed. The project area is within Area B. To date, no murrelets have been found in Area B (other than in the transition zone between Areas A and B). See Appendix J, which includes a letter from the Service concurring with our study conclusions: *Technical Assistance on the Final Results of Landscape level Surveys for Marbled Murrelets in Southwest Oregon [USDI Fish and Wildlife Service reference: 1-7-02-TA-6401*

Likelihood of Murrelet Occupancy

The Rogue River-Siskiyou National Forest lands in the Coast Range portion of the Province contain 200 occupied murrelet sites and 491 sites were presence has been detected; all were detected within 32 miles of the coast and are well distributed within that zone. No murrelets have been detected beyond that distance during over 9,700 surveys that were conducted within the known murrelet range in the Province from 1998 through 2001. Within the 32-mile zone where murrelets have been detected there are 66,726 acres of suitable murrelet habitat which equates to approximately one detection for every 96 acres of suitable murrelet habitat within that zone.

MARBLED MURRELET CRITICAL HABITAT

Final critical habitat for the species was designated in May 1996 (Federal Register Vol. 61, No. 102 May 24, 1996). The Service has designated approximately 3.9 million acres of land as critical habitat, of which 78 percent (3.0 million acres) is located on Federal lands within the area covered by the Northwest Forest Plan boundary.

Within the Action Area, approximately 421,000 acres have been designated as critical habitat for the Marbled Murrelet (see map of critical habitat for murrelet in Appendix K). Of this total, 150,000 acres are suitable marbled murrelet habitat. Approximately 66,726 acres of suitable habitat are located within the known range (Area A) (most within LSR and CHU). Approximately 1,639 acres of suitable habitat in the known range was lost in the Biscuit Fire. An additional 7,000 acres of critical habitat within the Section 7 Watersheds included in this BA are managed by the Coos Bay District BLM.

The Service considers two components of marbled murrelet habitat to be biologically essential: (1) terrestrial nesting habitat and associated forest stands and (2) marine foraging habitat used during the breeding season. Within areas essential for successful marbled murrelet nesting, the Service has focused on the following primary constituent elements: (1) individual trees with potential nesting platforms and (2) forested areas within 0.8 kilometers (0.5 miles) of individual trees with potential nesting platforms, and with a canopy height of at least one-half the site potential tree height. Within the boundaries of designated critical habitat, only those areas that contain one or more primary constituent elements are, by definition, critical habitat.

Effects to marbled murrelet habitat and critical habitat has been minimal since 2003, to date no suitable habitat has been removed and no suitable habitat within critical habitat has been removed.

EFFECTS OF THE PROPOSED ACTION ON LISTED SPECIES AND CRITICAL HABITATS

Effects

Guidance on critical habitat from the ESA Handbook (USDI 2002) states:

***May affect** – the appropriate conclusion when a proposed action may pose **any** effects on listed species or designated critical habitat. When the Federal agency proposing the action determines that a “may affect” situation exists, then they must either initiate formal consultation or seek written concurrence that the action “is not likely to adversely affect” listed species.*

The Endangered Species Act Handbook (ESA Handbook), pg xv (draft USDI 2002) provides further guidance:

***Is not likely to adversely affect** is the appropriate conclusion when effects on listed species are expected to be discountable, insignificant, or completely beneficial. **Beneficial effects** are contemporaneous positive effects without any adverse effects to the species. **Insignificant effects** relate to the size of the impact and should never reach the scale where take occurs. **Discountable effects** are those extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur.*

The Action Agencies make the determination that the following types of activities may have these effects (Table 2):

Direct and Indirect Effects

Direct effects are those immediate impacts such as habitat removal or degradation, or impacts that cause immediate changes to a listed individual’s growth, reproduction, survival, and for wildlife: feeding or shelter. Indirect effects are impacts that occur later in time from the action.

For the listed wildlife species analyzed in this BA, direct effects are the removal, degradation or change in habitat, disturbance during the proposed activity, and indirect effects will be the later response of individuals to disturbance, primarily noise or smoke, that cause demonstrable changes in behavior. Other indirect effects include later habitat losses or impacts due to current project access or habitat changes that won’t impact the species during the current project. Those activities that result in changes to wildlife habitat or behavior that can cause significant impairment of reproduction, survival, feeding, breeding, or sheltering were determined to be “may affect, likely to adversely affect” (LAA) situations.

Table 2 Summary of Direct and Indirect Effects of projects on Listed Species (see text also)

| Project category | Direct Effects | Indirect Effects |
|---|---|---|
| <p>Impacts to CHU are the same as to the species unless otherwise noted below. Disturbance is an effect to species, but is not a consideration in CHU.</p> | | |
| <p>A</p> | <p>Tree harvest</p> <p><i>Wildlife:</i> Seasonal restrictions or distance PDCs reduce impacts to species. Tree harvest involves the removal, degradation, or downgrade of suitable and/or dispersal habitat. In rare cases, tree harvest may occur during the reproductive season in suitable habitat where species presence is not documented, but undetected individuals may occur. Could result in a LAA or NLAA determination.</p> <p>Could result in a LAA or NLAA determination</p> <p>Regeneration Harvest While implementation of PDC may reduce the impacts to spotted owls, the removal of NRF habitat associated with regeneration harvest will remove habitat elements necessary for spotted owl nesting, roosting, foraging, and dispersal. Specific elements removed would include large-diameter trees with nesting cavities or platforms, multiple canopy layers, and hunting perches. Once these elements are removed, spotted owls remaining in project areas would be subject to reduced nesting, roosting, foraging, and dispersal opportunities, and increased predation risk. Therefore, regeneration harvest <i>may affect, is likely to adversely affect (LAA)</i> spotted owls. The removal of spotted owl dispersal habitat through regeneration harvest constitutes a loss of less than one percent of that available in the Action Area. The loss of this very small amount of dispersal-only habitat would not preclude spotted owl dispersal, regardless of project location. Additionally, the effect of the loss of this very small amount of dispersal habitat would be discountable because one would be unable to meaningfully measure, detect, or evaluate it. Therefore, the removal of spotted owl dispersal-only habitat through regeneration harvest <i>may affect, is not likely to adversely affect (NLAA)</i> spotted owls.</p> <p>Density Management Light/moderate thinning would reduce the average canopy cover of the stand to no less than 60 percent and heavy thinning would reduce the stand average canopy cover to no less than 40 percent. Density management <i>may affect</i> NRF and dispersal-only habitat by removing horizontal and vertical structure. If all components important to owl habitat are retained post-treatment, the</p> | <p><i>Wildlife:</i> Loss of habitat will reduce future reproduction and reduce survival of young. Tree removal and understory impacts may affect prey habitat for northern spotted owls. Depending on the intensity or extent of prey habitat affected, the effects could be LAA or NLAA on spotted owl adults, juveniles and future reproduction. In some cases, minor disturbance of prey habitat could make prey more vulnerable for a period of time, which could improve hunting conditions for owls. Most prescriptions include leaving some pockets of undisturbed prey habitat for refugia and source populations for spotted owl prey species. Disturbance from noise and activities may have some minor impacts to owls within prescribed distances. Up to 30% of these activities might occur during the critical breeding season in or adjacent to unsurveyed suitable habitat.</p> |

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| | | <p>thinning may “degrade” the stand. This would result in an NLAA determination. If enough habitat components are changed or reduced such that the stand functions in a different way post-treatment, the thinning may remove or downgrade NRF habitat. This would result in an LAA effect determination. Dispersal habitat is expected to retain dispersal function if post-project canopy cover does not fall below 40 percent, a value widely used as dispersal function threshold (Thomas et al. 1990). Consequently, any adverse effects of density management in spotted owl dispersal habitat would be extremely unlikely to occur and would therefore be discountable. Density management would cause an indirect beneficial effect by accelerating the development of late-successional elements used by spotted owls, such as large diameter trees, multiple canopy layers, and hunting perches in the long term. Additionally, post-project snag and coarse woody debris standards will help minimize adverse impacts to spotted owl prey species that utilize these features. Therefore, density management that maintains all primary elements of NRF or dispersal <i>may affect, is not likely to adversely affect</i> spotted owls. Density management that does not maintain all elements of NRF <i>may affect, likely to adversely affect</i> spotted owls.</p> <p><i>CHU</i> : The removal or modification of one or more primary constituent elements of critical habitat (see definitions), at the functional habitat scale (the stand as a species would use it). If the modification changes how the stand would be used by the listed species, a LAA call is appropriate. If the modification does not change how a listed species would use that habitat stand, the appropriate determination of effects would be NLAA.</p> <p>NE for <i>wildlife</i> and <i>CHU</i> would be appropriate only if the project occurs in non-habitat.</p> | |
| B | Vegetation Management | <p><i>Wildlife</i>: Silviculture projects such as per-commercial thinning usually occur outside of suitable habitat although some could degrade or disturb suitable habitat. Seasonal restrictions or distance PDCs reduce impacts to species. Some ground disturbance may occur outside sensitive reproductive periods. NLAA if degrade of habitat is insignificant or discountable. LAA only for disturbance in adjacent occupied suitable habitat. <i>CHU</i>: The removal or modification of one or more primary constituent elements of critical habitat (see definitions), at the functional habitat scale (the stand as a species would use it). If the modification changes how</p> | <p><i>Wildlife</i>: Most activities occur in habitats already disturbed due to previous tree harvest, and would be unlikely to be occupied by listed species. Some long-term prey and habitat restoration impacts could result over the long term. These impacts could have long-term beneficial impacts if structural diversity and important habitat elements are enhanced (bigger trees, increased canopy response to more light, development of understory canopy).</p> |

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| | | <p>the stand would be used by the listed species, a LAA call is appropriate. If the modification does not change how a listed species would use that habitat stand, the appropriate determination of effects would be NLAA.</p> <p>NE for <i>wildlife</i> and <i>CHU</i> would be appropriate only if the project occurs in non-habitat.</p> | <p>Up to 30% of these activities might occur during the critical breeding season in or adjacent to unsurveyed suitable habitat.</p> |
| C | Watershed restoration | <p><i>Wildlife</i>: Direct effects on listed species would be avoided by seasonal or spatial PDCs. Emergency restoration activities could occur within sensitive reproductive periods under certain conditions (see PDCs). Most projects would have NLAA impacts on the species.</p> <p>Some blasting (such as snag creation) may occur with watershed restoration projects. In-stream and riparian restoration projects may include placement of logs, boulders, rootwads, gravel, and logs from outside of the riparian zone, or rocks into streams to improve stream structure. Riparian restoration treatments may also include alder thinning, invasive plant removal, and tree planting. In-stream and riparian restoration projects may remove or modify spotted owl NRF or dispersal habitat, therefore, they May Effect spotted owls from habitat modification if the modification significantly changes suitable habitat, a LAA call is appropriate. If the modification does not significantly change suitable habitat, an NLAA call is appropriate.</p> <p>There could be some disturbance from activities during critical or non-critical breeding season.</p> <p><i>CHU</i> : The removal or modification of one or more primary constituent elements of critical habitat (see definitions), at the functional habitat scale (the stand as a species would use it). If the modification changes how the stand would be used by the listed species, a LAA call is appropriate. If the modification does not change how a listed species would use that habitat or stand, the appropriate determination of effects would be NLAA.</p> <p>NE is appropriate if no habitat is impacted or for wildlife, if the project occurs outside critical seasons.</p> | <p><i>Wildlife</i>: Some ground or indirect noise disturbance could occur during sensitive reproductive periods. Most projects would benefit over the long term by restoring important aspects of ecological function. Some short-term habitat changes may displace wildlife temporarily.</p> |
| D | Recreation | <p><i>Wildlife</i>: Little impact on listed species due to education, seasonal and spatial management. NE in most cases. Rare case of LAA for due to disturbance for activities adjacent to occupied NRF habitat if activity must occur during breeding season.</p> <p><i>CHU</i>: The removal or modification of one or more primary constituent elements of critical habitat (see definitions), at the functional habitat scale (the stand as</p> | <p><i>Wildlife</i>: Occasional use of chainsaws or other motorized equipment to remove blown down trees along a trail could disturb nesting spotted owls or some other listed species in unsurveyed habitat on a short-term basis. Up to 10% of these activities might occur during the critical breeding season in or</p> |

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|----------|------------------|--|--|
| | | <p>a species would use it). If the modification changes how the stand would be used by the listed species, a LAA call is appropriate. If the modification does not change how a listed species would use that habitat stand, the appropriate determination of effects would be NLAA. NE is appropriate if no primary constituent elements of critical habitat are impacted.</p> | <p>adjacent to unsurveyed suitable habitat. A small amount of suitable habitat might be removed during campground renovations, or trail construction or reconstruction. Site-specific PDCs would reduce impacts.</p> |
| E | Fuels Management | <p><i>Wildlife:</i> Some fuels activities would occur in habitats not currently suitable to listed species, or during non-sensitive periods, however there may be some fuels treatments in suitable habitats such as underburning, non- and commercial thinning specific to fuels reduction projects that could degrade suitable habitat – if done with PDCs an NLAA determination might occur. Rare case of LAA due to disturbance for activities adjacent to occupied NRF habitat if activity must occur during breeding season or could remove foraging habitat such that harm was likely to occur. NE in non-habitat.</p> <p><i>CHU:</i> The removal or modification of one or more primary constituent elements of critical habitat (see definitions), at the functional habitat scale (the stand as a species would use it). If the modification changes how the stand would be used by the listed species, a LAA call is appropriate. If the modification does not change how a listed species would use that habitat stand, the appropriate determination of effects would be NLAA. NE is appropriate if no primary constituent elements of critical habitat are impacted.</p> | <p><i>Wildlife:</i> Some indirect impacts could occur through smoke or noise during sensitive reproductive periods. Most impacts to known sites would be reduced due to spatial or seasonal PDCs. There may be displacement from sites of (wildlife/owl) species that occur in unsurveyed suitable habitat during sensitive periods. Up to 30% of these activities might occur during the critical breeding season in or adjacent to unsurveyed suitable habitat. Fuels reductions can have short-term adverse impacts on prey species and dispersal habitat under some circumstances, but in general, PDCs will avoid LAA activities over the short term. Reduction of understory fuels is designed to reduce long-term wildfire risks. These stands will be managed at lower stocking rates which more closely represent unmanaged stand conditions (prior to human fire suppression activities). Lower wildfire risk is a benefit to future owl habitat and recovery.</p> |
| F | Road maintenance | <p><i>Wildlife:</i> Negligible amounts of suitable or dispersal habitat (isolated individual trees may be removed or cut and left onsite), but PDCs will avoid direct impacts except under possible emergency situations. Road use is long-term displacement, but impacts have likely already occurred and any impacted wildlife already displaced. If conducted with PDCs an NLAA determination would occur NE in non-habitat.</p> <p>Hazard Tree Removal The removal of hazard trees may degrade spotted owl NRF or dispersal-only habitat by modifying habitat. Project design criteria will be applied to hazard tree removal within the described distances of known spotted owl site to minimize impacts to nesting spotted owls and pre-dispersal fledglings. Additionally, no nest trees will be removed unless they are immediate public safety</p> | <p><i>Wildlife:</i> Negligible amounts of dispersal or suitable habitat (isolated trees along roads) may be removed or cut and remain on site. Some projects on the coastal Districts of the Siskiyou National Forest may be within critical habitat for the marbled murrelet. Indirect impacts due to disturbance on listed wildlife species could occur. Some direct impacts during the reproductive season could occur in unsurveyed suitable owl habitat. Up to 10% of these activities might occur during the critical breeding season in or adjacent to unsurveyed suitable habitat.</p> |

| | | | |
|----------|---|---|---|
| | | <p>hazards. Emergency consultation with the Service will be implemented in all such cases. One would not be able to meaningfully measure, detect, or evaluate the effects of hazard tree removal because they are expected to occur as isolated, individual trees scattered across the District. Therefore, although hazard tree removal <i>may affect</i> spotted owls, the effects will be discountable and will <i>not likely adversely affect</i> spotted owls.</p> <p><i>CHU:</i> The removal or modification of one or more primary constituent elements of critical habitat (see definitions), at the functional habitat scale (the stand as a species would use it). If the modification changes how the stand would be used by the listed species, a LAA call is appropriate. If the modification does not change how a listed species would use that habitat stand, the appropriate determination of effects would be NLAA. NE is appropriate if no primary constituent elements of critical habitat is impacted.</p> | |
| G | <p>Roads Right of Way (existing and NLAA)</p> | <p><i>Wildlife:</i> Permits of use of roads already open to the public are unlikely to add additional impacts to listed species. Long term habitat loss resulted when road was originally built. Other than the ROWs included in this BA, new rights of way involving Inter-related and Interdependent will require separate formal consultation. NE for existing roads or new projects in non-habitat.</p> <p><i>CHU:</i> The removal or modification of one or more primary constituent elements of critical habitat (see definitions), at the functional habitat scale (the stand as a species would use it). If the modification changes how the stand would be used by the listed species, a LAA call is appropriate. If the modification does not change how a listed species would use that habitat stand, the appropriate determination of effects would be NLAA. NE is appropriate if no primary constituent elements of critical habitat are impacted.</p> | <p><i>Wildlife:</i> Access impacts are already occurring in existing roads. Existing displacement of wildlife likely to continue. No habitat removal or disturbance except for maintenance (see above). In some cases, wildlife may adapt (become accustomed) to disturbances of limited road use, if no harm results from that use, and their behavior will not be altered by the presence of the road. New ROW activities would be assessed on their impacts to habitat. The Action Agencies have included new Discretionary ROWs in this BA. Others will be consulted separately. Non-discretionary ROWs are the responsibility of the proposing party, not the BLM or USFS. For purposes of this BA, we assume no measurable contribution of private lands to NRF environmental baseline.</p> |
| H | <p>Mining/quarries</p> | <p><i>Wildlife:</i> New quarries and mines may remove habitat for listed species NE in non-habitat.</p> <p>Rock Quarry Operation and Expansion Rock quarry expansion may remove spotted owl NRF habitat. Project design criteria will be applied to quarry expansion activities that affect suitable owl habitat within 0.25 miles of unsurveyed suitable habitat or known spotted owl sites to minimize impacts to nesting spotted owls and pre-dispersal fledglings. Project</p> | <p><i>Wildlife:</i> Existing mines and quarries have already removed suitable habitat. Interrelated activities involved with hauling or blasting could further affect suitable habitat, but impacts would be reduced by seasonal and spatial PDCs.</p> |

| | | | |
|--|--|--|--|
| | | <p>design criteria may reduce the impacts to spotted owls, but rock quarry expansion may remove habitat elements necessary for spotted owl nesting, roosting, and foraging. Specific elements removed could include large-diameter trees with nesting cavities or platforms, multiple canopy layers, and hunting perches. Once these elements are removed, spotted owls remaining in project areas would be subject to reduced nesting, roosting, and foraging opportunities, and increased predation risk. Therefore, rock quarry expansion <i>may affect, is likely to adversely affect</i> spotted owls. Rare case of LAA due to disturbance for activities adjacent to occupied NRF habitat if activity must occur during breeding season.</p> | |
|--|--|--|--|

Effects to Spotted Owl Suitable Habitat

NRF Removal and downgrade are described in definitions (pages 4-10). Tables in the Effects Section show predicted changes of NRF and dispersal habitat from the Action Area by Section 7 Watershed, land use allocation, and administrative unit.

The Action Agencies anticipate the removal or downgrade of up to 32,040 acres of suitable spotted owl habitat over the next 3 years from the 910,800 acres of suitable habitat currently within the Action Area (Environmental Baseline Tables), or 3.5 percent of NRF currently in the environmental baseline. The Action Agencies anticipate 31,959 acres of degraded suitable habitat from FY 06-08 (Tables 3). The proposed action would also remove up to 4,017 acres of dispersal habitat and degrade up to 67,626 acres of dispersal habitat (Table 3).

Suitable habitat removal and downgrading is planned across several section 7 watersheds, and will be scattered in time over the 3-year period (Table 5). Therefore, habitat removal will not be concentrated in a few areas, although some watersheds and portions of the Action Area may experience higher suitable habitat loss than other areas. No more than 3.5 percent of the extant suitable habitat in the Action Area (all land allocations) will be removed or downgraded. No more than 13 percent of the suitable habitat will be removed from any one Section 7 Watershed under the proposed timber-planning schedule (Table 5). Actual removal will likely be much less. Many watersheds will not lose any suitable owl habitat.

Table 3- Proposed FY 06-08 spotted owl NRF Habitat Effects by Administrative Unit

| Administrative Unit | Sub Admin Unit | Spotted owl suitable habitat | | | Spotted owl dispersal | |
|-----------------------------|----------------|------------------------------|---------------|---------------|-----------------------|-------------------|
| | | NRF remove | NRF downgrade | NRF degrade | Dispersal remove | Dispersal degrade |
| Medford BLM | ASH | 3,860 | 6,345 | 5,955 | 2,435 | 4,625 |
| | BF | 3,543 | 4,679 | 550 | 0 | 0 |
| | GP | 816 | 4,850 | 4,100 | 782 | 22,328 |
| | GL | 2,769 | 4,355 | 9,600 | 43 | 3,505 |
| | | | | | | |
| Subtotal | | 10,988 | 20,229 | 20,205 | 3,260 | 30,458 |
| Rogue River/ Siskiyou NF | SISKIYOU | 0 | 0 | 3,238 | 0 | 772 |
| | CASCADE | 106 | 473 | 2,817 | 525 | 6,948 |
| | 2RIVERS | 5 | 5 | 3,610 | 0 | 882 |
| | PACIFIC | 223 | 16 | 1,157 | 203 | 13,065 |
| | PWRS | 0 | 0 | 932 | 29 | 15,501 |
| | | | | | | |
| Subtotal | | 334 | 489 | 11,754 | 757 | 37,168 |
| TOTAL | | 11,322 | 20,718 | 31,959 | 4,017 | 67,626 |

Most tree harvest and activities will occur in matrix or AMA lands and will impact spotted owl habitat (Table 3). The reduction of suitable habitat is within what was anticipated in the NWFP, and will be spaced in time and location over the Action Area to reduce significant range-wide adverse impacts to owls. Watershed restoration, vegetation treatments, fuels management, recreation, and other activities will occur across many land allocations, including matrix or AMA lands.

Over 60 percent of the degradation of suitable habitat in the proposed action is primarily associated with hazard tree removal along roads and other activities and typically consists of only single tree removal (10,960 acres, 1,600 from BLM) along many miles of roads. Fuels projects in suitable habitat (12,118 acres, 11,910 from BLM) may also degrade suitable habitat in the short term but may help to maintain the habitat over the long term. Degradation of dispersal-only habitat (67,000 acres 30,458 from BLM) is largely associated with thinning in young managed stands that will maintain dispersal and improve future spotted owl habitat.

Much of the southern portion lower-elevation habitat in the Action Area is dry forest with low site potential. Years of fire suppression have allowed unnaturally dense stands of trees to develop in these areas. NRF removal and downgrade in these areas would remove habitat for spotted owls for various periods of time (see above), but will also help set these stands on a more ecologically-sustainable progression. Stands treated in these areas would also be less likely to carry catastrophic crown fires, which will benefit other NRF habitat in the vicinity. For stands that are classified as pine plant association, the

dense habitat classified as NRF for owls may not be ecologically sustainable over the long term. The action agencies have identified pine plant associations to be managed for their ecological site potential, which may not meet NRF criteria.

Protocol owl surveys for pre-project clearances are not required in matrix or AMA lands under the NWFP, although field biologists occasionally locate nests during NEPA field evaluations. Nest sites found up to 1994 were protected as “unmapped” LSRs in the NWFP, with a 100-acre no harvest zone. The NWFP did not presume that these small patches would support viable owl nesting. Rather they were retained to serve, along with riparian areas and other reserve areas, as connectivity blocks and short-term habitat. Any owl that has transferred nesting location or moved into matrix or AMA lands since 1994 receives no mandatory protection, except protection of the nest tree and seasonal operating restrictions during the critical nesting period of active nest sites.

Effects to LSRs

Some tree harvest, silvicultural activities, watershed restoration, and other activities will occur in late-successional reserves, as proposed in Table 5. Less than 0.03 percent of the suitable habitat will be removed (133 acres; 0 acres for BLM) or downgraded (1,086 acres; 980 for BLM) in LSR, as the result of meadow or pine restoration projects. Watershed restoration, vegetation treatments, fuels management and other activities in the LSR may have short-term adverse impacts, but over the long-term will encourage the old growth characteristics important to long-term owl recovery, as defined in the NWFP. Up to 19,078 acres (3,885 for BLM) acres of dispersal habitat will be degraded in LSR. These stands are expected to continue to function as dispersal habitat and many of these stands may have improved dispersal capability due to opening of very dense stands. In addition, these activities are being conducted in LSR to speed the development of late-successional habitat that we anticipate becoming habitat within twenty to forty years.

The current plan of timber sales and project boundaries and acres, as well as type of harvest activity, may change over the three year period as a result of NEPA analysis, field review, watershed and other resource protection, and workload scheduling. Although individual project activities may vary, the overall projections of suitable habitat loss will be within the amounts predicted in this Biological Assessment. Should the predicted removal of suitable habitat exceed the rate or amount anticipated, the Action Agencies will discuss any potential changes well in advance of these activities, with the Service, to determine if amendment or reconsultation is required.

Table 4. Proposed Action Effects to LSRs in Rogue and South Coast Basins.

| LSR | | FSEIS BASELINE | LSR EFFECTS PROPOSED ACTION | | | |
|-----------------------------|--------------------|------------------------|-----------------------------|---------|-----------------|---------|
| LSR Name | ID # | NRF ACRES ¹ | NRF REM | NRF DWN | PERCENT REM/DWN | NRF DEG |
| | ¹ RC352 | 51,521 | | | | 15 |
| BLM | | | 0 | 0 | 0 | 0 |
| FS | | | | | | 15 |
| Applegate_ Oak Knoll | ¹ RC354 | 23,270 | | | | 412 |
| BLM | | | 0 | 0 | 0 | 0 |
| FS | | | | | | 412 |
| Lookout Mt-Black Butte | ¹ RO222 | 310,629 | | | | 200 |
| BLM | | | 0 | 0 | 0 | 0 |
| FS | | | | | | 200 |
| Umpqua River- Galesville | RO223 | 33,804 | | 680 | 2 | 4055 |
| BLM | | | 0 | 680 | 2 | 4055 |
| FS | | | | 0 | 0 | 0 |
| Elk Creek | RO224 | 8,370 | | 300 | 3.5 | 300 |
| BLM | | | | 300 | 3.5 | 300 |
| FS | | | | 0 | 0 | 0 |
| Rogue-Umpqua Divide | RO225 | 19,848 | | 1 | 0 | 217 |
| BLM | | | | 0 | 0 | 0 |
| FS | | | | 1 | 0 | 217 |
| Middle Fork | RO226 | 22,762 | | 5 | 0.02 | 200 |
| BLM | | | | 0 | 0 | 0 |
| FS | | | | 5 | 0.02 | 200 |
| Dead Indian | RO227 | 47,049 | 0 | 0 | 0 | 397 |
| BLM | | | | 0 | 0 | 0 |
| FS | | | 0 | 0 | 0 | 397 |

| LSR Name | ID # | NRF ACRES¹ | NRF REM | NRF DWN | PERCENT REM/DWN | NRF DEG |
|------------------|-------------|------------------------------|--------------------|--------------------|----------------------------|----------------|
| Soda Mt. (CSNM) | RO247 | 9,647 | 0 | 0 | 0 | 0 |
| BLM | | | 0 | 0 | 0 | 0 |
| FS | | | 0 | 0 | 0 | 0 |
| Mt. Ashland | RO248 | 19,355 | 0 | 0 | 0 | 200 |
| BLM | | | 0 | 0 | 0 | 0 |
| FS | | | 0 | 0 | 0 | 200 |
| East IV-Williams | RO249 | 40,224 | 5 | 0 | 0.01 | 1,603 |
| BLM | | | 0 | 0 | 0 | 1300 |
| FS | | | 5 | 0 | 0.01 | 303 |
| South Chetco | RO250 | 23,108 | 0 | 0 | 0 | 200 |
| BLM | | | 0 | 0 | 0 | 0 |
| FS | | | 0 | 0 | 0 | 200 |
| | RO251 | 672 | 0 | 0 | 0 | 0 |
| BLM | | | 0 | 0 | 0 | 0 |
| FS | | | 0 | 0 | 0 | 0 |
| North Chetco | RO252 | 6,833 | 0 | 0 | 0 | 15 |
| BLM | | | 0 | 0 | 0 | 0 |
| FS | | | 0 | 0 | 0 | 15 |
| West IV | RO253 | 5,584 | 0 | 0 | 0 | 221 |
| BLM | | | 0 | 0 | 0 | 0 |
| FS | | | 0 | 0 | 0 | 221 |
| Taylor | RO254 | 3,163 | 0 | 0 | 0 | 0 |
| BLM | | | 0 | 0 | 0 | 0 |
| FS | | | 0 | 0 | 0 | 0 |
| NW Coast | RO255 | 107,343 | 128 | 100 | 0.21 | 364 |
| BLM | | | 0 | 0 | 0 | 0 |
| FS | | | 128 | 100 | 0.21 | 364 |

| LSR Name | ID # | NRF ACRES ¹ | NRF REM | NRF DWN | PERCENT REM/DWN | NRF DEG |
|------------------|-------|------------------------|------------|--------------|-----------------|--------------|
| | RO256 | 1,977 | 0 | 0 | 0 | 100 |
| BLM | | | 0 | 0 | 0 | 0 |
| FS | | | 0 | 0 | 0 | 100 |
| Fish Hook Galice | RO258 | 33,641 | 0 | 0 | 0 | 1455 |
| BLM | | | 0 | 0 | 0 | 1255 |
| FS | | | 0 | 0 | 0 | 200 |
| | RO259 | 21,350 | 0 | 0 | 0 | 0 |
| BLM | | | 0 | 0 | 0 | 0 |
| FS | | | 0 | 0 | 0 | 0 |
| BLM | | | 0 | 980 | | 9,654 |
| FS | | | 133 | 106 | | 3,044 |
| TOTAL | | 466,036 | 133 | 1,086 | 0.3 | 6,610 |

1-Only a small portion of this LSR lies within the Action Area and none of the NRF loss from fire occurred within the Action Area. 1-Reported percentages of NRF are relative to the total LSR acreage. Many LSRs extend outside the Action Area.

Dispersal habitat

The Action Agencies predict the removal of 4,017 acres (3,260 BLM) of dispersal-only habitat from the Action Area from FY06-08 (Table 5). The removal of suitable habitat (which also functions as dispersal), will reduce dispersal-only habitat by another 11,322 (10,988 BLM) acres, for a total of 15,339 acres. The downgrade of suitable habitat to dispersal-only will result in an increase in dispersal-only habitat of 20,718 (20,229 BLM) acres.

The action agencies are proposing tree harvest in 11 of the 14 Section 7 Watersheds. The proposed timber sales would not reduce any of the 11 Watersheds to less than 50 percent dispersal habitat on federal lands (meets 50-11-40) (Table 5). The loss of dispersal habitat due to density management is temporary. Dispersal habitat will recover when canopy closure exceeds 40 percent and flying space in the understory is retained. In the Action Area, this is expected to take 10-20 years, depending on the extent of tree removal, precipitation, and elevation of the treatment area. Commercial thinning activities will degrade dispersal habitat by reducing canopy closure in 60,517 acres of dispersal habitat. These stands are expected to continue to function as dispersal habitat. In fact, many of these stands may have improved dispersal capability due to opening of very dense stands and increased structure. In the interior region of the Action Area, thinning in dispersal may also reduce the rate of spread and intensity of fire or risk of disease which could significantly reduce dispersal across the Action Area.

Table 5. Effects by Section 7 Watershed

| Section 7 Watershed | 2006 Baseline NRF acres | NRF remove | NRF downgrade | Percentage NRF each watershed removed /downgrade | Watershed NRF acres post harvest | NRF degrade | Dispersal remove | Dispersal degrade | all watershed acres affected |
|----------------------------|-------------------------|------------|---------------|--|----------------------------------|-------------|------------------|-------------------|------------------------------|
| Applegate | 114,362 | 1,220 | 3,475 | 4 | 109,667 | 8,546 | 1,230 | 10,984 | 25,635 |
| USFS | | | | | | 3,021 | | 864 | 4,065 |
| BLM | | 1,220 | 3,475 | | | 5,525 | 1,230 | 10,120 | 21570 |
| Bear | 21,175 | 670 | 1,160 | 9 | 19,345 | 820 | 280 | 320 | 3,250 |
| USFS | | 0 | 0 | | | 350 | | | 350 |
| BLM | | 670 | 1,160 | | | 470 | 280 | 320 | 2900 |
| Cow Upper | 43,242 | 2,204 | 3,480 | 13 | 37,558 | 4,825 | 40 | 3,135 | 13,684 |
| USFS | | | | | | | | | |
| BLM | | 2,204 | 3,480 | | | 4825 | 40 | 3,135 | 13684 |
| Illinois | 135,772 | 180 | 1,805 | 2 | 133,787 | 4,030 | 389 | 7,658 | 14,062 |
| USFS | | 9 | | | | 3,130 | 7 | 810 | 3,947 |
| BLM | | 171 | 1,800 | | | 900 | 382 | 6848 | 10101 |
| Klamath | 16,820 | 525 | 970 | 9 | 15,325 | 655 | 265 | 435 | 4,075 |
| USFS | | | | | | 0 | 0 | 0 | |
| BLM | | 525 | 970 | | | 655 | 265 | 435 | 4075 |
| Little Butte | | 880 | 295 | | | 722 | 50 | | |
| | 39,719 | | | 3 | 38,544 | | | 175 | 2,122 |
| USFS | | | | | | 547 | | | 547 |
| BLM | | 880 | 295 | | | 175 | 50 | 175 | 1575 |
| Rogue Lower Wild | 105,073 | 384 | 754 | 1 | 103,935 | 2,829 | 8 | 1,121 | 5,439 |
| USFS | | 1 | | | | 554 | 5 | 345 | 904 |
| BLM | | 383 | 754 | | | 2275 | 3 | 1120 | 4535 |
| Rogue Lower Lobster | | | | | | 204 | | | |
| | 31,076 | 86 | 16 | 0.3 | 30,974 | | 138 | 3,176 | 3,620 |
| USFS | | 86 | 16 | | | 204 | 138 | 3,176 | |
| BLM | | 0 | 0 | | | 0 | 0 | 0 | 0 |
| Rogue Middle | 88,774 | 3,967 | 5,434 | 11 | 79,373 | 5,180 | 1,010 | | |
| USFS | | | | | | | | | |
| BLM | | 3,967 | 5,434 | | | 5180 | 1010 | 8305 | 23896 |
| Rogue Upper | 180,071 | 1,074 | 3,334 | 2 | 175,663 | 2,820 | 525 | 6,948 | 14,701 |
| USFS | | 106 | 473 | | | 2,620 | 525 | 6,948 | |
| BLM | | 968 | 2,861 | | | 200 | 0 | 0 | 4029 |

| Section 7 Watershed | 2006 Baseline NRF acres | NRF remove | NRF downgrade | Percentage NRF each watershed removed /downgrade | Watershed NRF acres post harvest | NRF degrade | Dispersal remove | Dispersal degrade | all watershed acres affected |
|-----------------------------|-------------------------|---------------|---------------|--|----------------------------------|---------------|------------------|-------------------|------------------------------|
| Chetco and South | 68,916 | 132 | | 0.1 | 68,784 | 400 | 53 | 9,651 | 10,368 |
| USFS | | | | | | 400 | 53 | 9,651 | |
| BLM | | 0 | 0 | | | 0 | 0 | 0 | |
| Coquille/Sixes | 40,713 | 0 | 0 | 0 | 40,713 | 922 | 19 | 11,607 | 12,548 |
| USFS | | | | | | 922 | 19 | 11,607 | |
| BLM | | 0 | 0 | | | 0 | 0 | 0 | |
| Elk River | 22,533 | 0 | 0 | 0 | 22,533 | 0 | 10 | 3,894 | 3,904 |
| USFS | | | | | | | 10 | 3,894 | |
| BLM | | 0 | 0 | | | 0 | 0 | 0 | |
| Smith | 6,186 | 0 | 0 | 0 | 6,186 | 0 | 0 | 217 | 217 |
| USFS | | | | | | | | 217 | |
| BLM | | 0 | 0 | | | 0 | 0 | 0 | |
| | | | | | | | | | |
| Total all watersheds | 914,432 | 11,322 | 20,718 | 3.5 | 882,387 | 31,959 | 4,017 | 67,626 | 137,522 |

Dispersal Areas of Concern

The NWFP identified two areas of dispersal concern in the Action Area. One is the forested area that joins the Siskiyou, Cascades, and the Coast Range across the Interstate 5 corridor (Klamath, Bear, Applegate Section 7 watersheds). The Service indicated the Slate-Cheney area in the Applegate drainage was a specific area where spotted owl dispersal might be at risk. The Biscuit Fire of 2002 had an effect on the approach to the habitat “bridge” across Slate-Cheney, but the Fire did not affect the “bridge” itself. The approach to the “bridge” from the north, thru unburned area, is still believed to be functioning. The action agencies expect to remove 200 acres dispersal habitat on National Forest land in this area over the next three years. In the Illinois Section Seven watershed, 69 percent of the Federal Land (percent of total capable) is currently Dispersal habitat. The proposed action would reduce dispersal in this watershed by 0.1 percent. The potential impacts are minimal within the area and our proposed actions would not preclude dispersal across the watershed.

The other is the Galesville area of concern. Tweten (USDI US Fish and Wildlife Service unpublished document, Appendix B) described the importance of the Federal as well as the non-Federal lands in the Galesville area of dispersal concern, and areas to the west, which were needed to provide spotted owl dispersal habitat that would facilitate movement between the Klamath and adjacent provinces. Spotted owls have been documented to traverse both the Galesville and Ashland-I 5 areas of concern (Forsman et al. 2002), but the prospect for long-term owl movement across these areas is uncertain.

Riparian area, unmapped LSRs, connectivity blocks and other timber retentions, combined with spaced entries of timber harvest and the predominance of thinning over regeneration harvests in the Action Area, combine to maintain adequate dispersal habitat for northern spotted owls, so they may move between physiographic regions and contribute to healthy genetic interchange.

Spotted Owl Critical Habitat

Timber sales (regeneration, commercial thinning, density management) and other proposed activities are proposed in 19 of 22 CHUs in the Action Area (CA-15, OR-30, 32,34, 35, 37, 38, 62, 65, 66, 67, 68, 70, 71, 72, 73, 74, 75), (BLM will affect 8 CHUs) although future NEPA and site-specific timber sale planning may change this prediction slightly (Table 6). The Action Agencies anticipate the removal or downgrade of up to 4,442 acres of suitable habitat from these CHUs over the next three years, and the removal of up to 425 acres of dispersal-only habitat (Table 6). The downgrade of some of the suitable habitat will be added to the dispersal-only category, and will likely negate the overall loss of 425 acres of dispersal-only habitat currently predicted. The degradation of suitable habitat in CHUs is primarily associated with hazard tree removal along roads and typically consists of only single tree removal (3,100 acres), as well as fuels projects which may underburn suitable habitat to remove surface fuels (5,200 acres). The degradation of dispersal habitat (17,321 acres) is all associated with thinning in young managed stands that will maintain dispersal and improve future spotted owl habitat.

Should these predictions change, the Level 1 team will evaluate the situation and reinitiate consultation as needed. The Action Agencies are not planning to remove suitable or dispersal habitat from the remaining CHUs in the next three years.

Table 6. Proposed Action in Spotted Owl Critical Habitat

| Critical Habitat Units | 2003 Dispersal Baseline | 2006 NRF Baseline | NRF remove | NRF downgrade | Percentage of NRF in CHU (2003) removed /downgrade | CHU NRF acres post harvest | NRF degrade | Dispersal remove | Dispersal degrade | all CHU acres affected |
|------------------------|-------------------------|-------------------|------------|---------------|--|----------------------------|-------------|------------------|-------------------|------------------------|
| CA-15 | 4,313 | 8559 | 0 | 0 | 0 | 8559 | 49 | 0 | 55 | 112 |
| OR-30 | 6206 | 4857 | 0 | 0 | 0 | 4857 | 200 | 0 | 0 | 0 |
| OR-32 | 24585 | 35165 | 504 | 1186 | 4.8 | 33475 | 5205 | 35 | 1905 | 8835 |
| BLM | | | 504 | 1186 | 4.8 | | 5205 | 35 | 1905 | 8835 |
| OR-34 | 28361 | 20595 | 62 | 489 | 2.7 | 20344 | 450 | 0 | 50 | 751 |
| BLM | | | 62 | 489 | 2.7 | | 0 | 0 | 0 | |
| OR-35 | 46680 | 26595 | 35 | 30 | 0.2 | 26530 | 400 | 8 | 1890 | 2363 |
| OR-36 | 3823 | 2914 | 0 | 0 | 0 | 2914 | 0 | 0 | 0 | 0 |
| OR-37 | 53239 | 36424 | 0 | 0 | 0 | 36424 | 400 | 0 | 0 | 400 |
| OR-38 | 23669 | 13911 | 205 | 410 | 4.4 | 13296 | | 15 | | |
| BLM | | | 205 | 410 | 4.4 | | 405 | 15 | 130 | 1165 |

| | | | | | | | | | | |
|-------|-------|-------|-----|-----|-----|-------|------|-----|------|------|
| OR-62 | 4038 | 24047 | 70 | 30 | 0.4 | 23947 | 75 | 15 | 25 | 215 |
| BLM | | | 70 | 30 | 0.4 | | 75 | 0 | 25 | 200 |
| OR-64 | 3408 | 36424 | 0 | 0 | 0 | 36424 | 0 | 0 | 0 | 0 |
| OR-65 | 65783 | 52633 | 498 | 682 | 2.2 | 51453 | 1600 | 3 | 1650 | 4433 |
| BLM | | | 498 | 682 | 2.2 | | 1600 | 3 | 1650 | 4433 |
| OR-66 | 1514 | 36424 | 0 | 0 | 0 | 36424 | 0 | 0 | 234 | 234 |
| OR-67 | 66481 | 49406 | 0 | 9 | 0 | 49397 | 450 | 0 | 5984 | 6434 |
| BLM | | | 0 | 9 | | | 75 | | 190 | 274 |
| OR-68 | 9538 | 5522 | 2 | 0 | 0 | 5520 | 112 | 14 | 107 | 235 |
| OR-69 | 10283 | 3627 | 0 | 0 | 0 | 3627 | 0 | 0 | 0 | 0 |
| OR-70 | 38581 | 9695 | 0 | 0 | 0 | 9695 | 121 | 0 | 5 | 126 |
| OR-71 | 37499 | 16473 | 0 | 0 | 0 | 16473 | 200 | 0 | 2317 | 2517 |
| OR-72 | 20618 | 18465 | 0 | 0 | 0 | 18465 | 1622 | 0 | 1989 | 3611 |
| BLM | | | 0 | 0 | 0 | | 1400 | 0 | 1950 | 3350 |
| OR-73 | 7555 | 4568 | 5 | 0 | 0.1 | 4568 | 154 | 0 | 17 | 176 |
| OR-74 | 19597 | 12772 | 10 | 325 | 2.6 | 12437 | 1705 | 240 | 755 | 3035 |
| BLM | | | 10 | 325 | 2.6 | | 1675 | 240 | 560 | 2810 |
| OR-75 | 9531 | 5014 | 75 | 115 | 3.8 | 4824 | 235 | 95 | 265 | 785 |
| BLM | | | 75 | 115 | 3.8 | | 235 | 95 | 265 | 785 |
| OR-76 | 22471 | 18087 | 0 | 0 | 0 | 18087 | 347 | 0 | 43 | 390 |

TOTAL 503,460 442,177 1,466 2,976 1.2 437,740 13,730 425 17,321 35,758

FS

BLM 1,424 3246 1.2 10,670 388 6,675 22,403

Effects determinations for CHU. REM/DWN of suitable habitat=LAA, DEG of suitable habitat=NLAA, Dispersal removal=acres=LAA DEG. Dispersal= NLAA

Activities proposed during the life of this programmatic BA are will remove primary constituent elements of spotted owl CH and are expected to may affect, adversely affect spotted owl CH.

Impacts to Prey

Timber harvest and fuels reduction projects may impact foraging by changing habitat conditions for prey. Sakai and Noon (1993) stated that dusky-footed wood rats, 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 upon cover and food availability than on seral stage, and they often use areas previously disturbed by fire (Carey 1991). Bushy tailed woodrats are most abundant along streams, and riparian areas may serve as the principal avenue for woodrat recolonization (Carey et al 1992).

Lemkuhl et al (2006) found that fuels projects in eastern Washington could have impacts on bushy-tailed woodrats, but confirmed the importance of maintaining snags, down wood and mistletoe. 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. Regeneration harvest areas will remove suitable habitat for arboreal prey species (flying squirrels, red tree voles), but may improve habitat for non arboreal species (western red backed voles and deer mice). 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. 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.

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 would increase over the next few years, until shrubs and residual trees respond to again close in the stand.

A dispersal stand which resulted from the downgrade of NRF habitat would begin to reclaim the pre-treatment canopy cover within 25-40 years, depending on treatment type, plant association, and location. Treatment areas are small enough and dispersed enough that many resident prey species could move to adjacent patches until the stand recovers. At the provincial level, impacts would be difficult to separate from normal fluctuations in prey availability.

Several projects in LSR are covered by this BA, including hazard tree removal, meadow restoration, Port-Orford-cedar (POC) Sanitation and Arrow Wood sales, plus density management projects which may degrade suitable habitat for spotted owl and murrelet over the short term. Mid-age stands (less than 80 years old) in LSRs which currently serve as foraging or dispersal habitat for spotted owls may be temporarily degraded, as a result of stand density management projects; the stands will continue to function as roosting, foraging, and dispersal habitat and in many cases will improve dispersal conditions for spotted owls. These stands will likely attain late-successional characteristics (including nest sites for spotted owl and marbled murrelet) sooner than under the “no management” option.

The removal of suitable habitat for owls reduces the amount of habitat available for nesting, roosting and impacts habitat available for flying squirrels, red tree voles, and wood rats, the primary prey species of the owl in this area. Opening a stand through tree harvest can also provide more light to the ground and increase understory trees and shrubs. The results of this treatment on owl habitat depends on the current stand condition (and how close it approximates old-growth characteristics considered important to owls), how many trees are removed, the residual overstory, the aerial extent of the treatment, the time of year the treatment occurs, and the type of yarding/tree removal. PDCs and normal operating procedures by the Action Agencies reduce the impacts to the extent possible, while still facilitating tree harvest and other projects.

Disturbance

General Discussion on Disturbance to Wildlife

Disturbance of listed wildlife species occurs when noise, smoke, vibration, or visual stimuli cause impairment of normal behavior. In rare situations where these activities cause significant impairment such that reproduction or survival is compromised, a Likely to Adversely Affect situation could occur. Wildlife species are most vulnerable during the reproductive period. Adults have expended their energy into finding mates, building nests (in the case of marbled murrelets, bald eagles and northern spotted owls), and females have invested considerable energy reserves into egg production. While nesting and feeding/sheltering young, adults are less mobile than at other times of the year and less able to hunt. The demand for food for young increases. Young are most vulnerable during the reproduction period and during the period of learning to survive on their own (pre-fledging in birds). They are less mobile, less experienced, and less able to defend themselves than they will be as they are older and have developed flight ability and hunting experience. In the case of fairy shrimp, the non-cyst stage of adults and young is the most vulnerable time and coincides with the reproductive season. Disturbance during the reproductive period is most likely to have adverse impacts on listed species.

Seasonal and distance PDCs can be effective at eliminating or reducing disturbance during this sensitive period. The Action Agencies have incorporated all reasonable protections during this period of time to reduce disturbance effects to listed species. There are some situations where PDCs may be inadequate to reduce impacts or the lack of knowledge about the presence of listed species may lead to PDCs not being

implemented. In those situations, adverse effects can result to undetected individuals if activities occur during sensitive periods of their life cycle – usually the reproductive season, and early young development.

Disturbance from the Proposed Action

Disturbance is difficult to evaluate. The combination of ambient noise levels, timing, duration, and intensity of noise, smoke or vibrations, and human presence associated with heavy equipment and management activities may risk disturbing or disrupting the natural and essential behaviors of owls such that harm may occur. Individual owls may respond to such activities with varying degrees of tolerance. Field observations suggest that some owls apparently exhibit no adverse response to management activities. However, since we have no way to quantify owl tolerances, nor can we ensure we know where all nesting owls occur during project activities, we presume a higher level of disturbance than probably occurs, as required by ESA. The following excerpt of disturbance is from the North Coast Province Biological Opinion for disturbance activities (FWS ref. # 1-7-02-F-422, 4 April 2002) and illustrates disturbance impacts to the northern spotted owl:

Although there is little detailed information concerning the vulnerability of spotted owls to disturbance effects, research on a variety of other bird species suggest that such effects are possible (Henson and Grant 1991, Reijnen et al. 1995, Rodgers and Smith 1995). Activities that may result in above ambient noise levels include the use of mechanized tree harvest equipment, road hauling, aircraft/helicopters, heavy equipment, and hydraulic hammers. In some instances, noise levels produced by these activities can remain above ambient levels out to 0.25 mile and may affect spotted owls. If potentially disturbing activities are implemented during the spotted owl critical nesting season, those activities may adversely affect spotted owls by causing adults to flush from their nest site, nest abandonment (SIC), causing juveniles to prematurely fledge or could interrupt foraging activity. After 30 June, it is presumed that most fledgling spotted owls are capable of sustained flight and can avoid harmful disturbances.

The Action Agencies will utilize mitigation measures to avoid or reduce the risks of adverse impact to nesting spotted owls wherever they occur, but acknowledge that some adverse impact is likely to occur to owls due to disturbance in unsurveyed suitable habitat adjacent to project areas. Seasonal restriction of all Matrix or AMA projects in suitable habitat during the critical breeding period could preclude many harvest activities. In addition, clearance of potential adjacent spotted owl habitat is not required, therefore some disturbance to adjacent suitable habitat could occur.

The Action Agencies estimated that no more than 40 percent of the area within the prescribed disturbance distances around a standard project unit (assumed to be a 50 acre project unit) would be suitable owl habitat (as determined by the percentage of suitable habitat in the Matrix or AMA according to the Environmental Baseline Tables—Appendix A), and that it might occur during the critical breeding season. The disturbance resulting from the timber activities over the life of the programmatic (06-08) was estimated to be 20,000 acres (12,500 acres FS, 8,000 acres BLM) of potential impact to

northern spotted owls. An additional 32,000 acres of potential disturbance could occur because of other activities listed in the proposed action table (Table 1) to nesting northern spotted owls. This estimate probably exceeds the actual disturbance impact to nesting spotted owls because:

- Many Action Area project areas are larger than 50 acres (larger acreage would mean fewer perimeter impact areas along potentially occupied adjacent suitable habitat):
- Action Agencies attempt to locate nesting owls within the vicinity of project areas, and if sites are found, will impose seasonal protection during the critical nesting period to avoid impact—or may impose seasonal protection unless sites are confirmed to be inactive. Complete surveys are unlikely and not all sites may be located;
- Suitable habitat was generously estimated around project areas
- Many matrix or AMA projects would normally occur outside the nesting season for other reasons (silviculture, workload planning, weather and fire restrictions, or other seasonal protections for non-listed species)
- Many individual animals inherently tolerate or develop tolerance to disturbing activities that cause them no direct harm
- Noise, smoke and visual disturbances may be less than predicted because they are often screened by topographic features, vegetation, or are otherwise buffered due to reasons other than threatened and endangered species protection

Disturbance could affect individual adult spotted owls or young such that their normal behavior, survival, and /or reproduction might be compromised. Disturbance to no more than 52,000 acres is likely to adversely affect northern spotted owls, although the Action Agencies will implement mandatory PDCs and when possible recommended PDCs to minimize disturbance adverse effects.

Impacts to Spotted owl habitat from activities other than timber harvest

ROW: The Jackpot Mine application from Perpetua Company Board Tree Right of Way does not occur within ¼ mile of known owl sites. The area is surveyed yearly as part of a NSO demographic study area. The nearest known site has not been occupied for the last 5 years. Up to three acres of NRF habitat in CHU OR-32 would be removed in a from a narrow linear line in the Rogue Middle Section 7 Watershed and may affect and could likely be an adverse effect because of the removal of habitat components from owl habitat and primary constituent elements from spotted owl CHU.

Hazard tree removal. There is potential that some hazard trees could serve as nesting or roosting trees for spotted owls. However, no nest trees will be removed unless they are immediate public safety hazards. Emergency consultation with the Service will be

implemented in all such cases. Approximately 10,960 (800 on BLM) acres of spotted owl habitat could be slightly degraded, however, the effect of the degradation of this habitat would be insignificant because one would be unable to meaningfully measure, detect, or evaluate it. Therefore, the degradation of NRF habitat from hazard tree removal **may affect, is not likely to adversely affect** spotted owls. Removal of hazard trees during the nesting season may disturb nearby spotted owls; potential nest trees may be removed.

Watershed Restoration

Watershed restoration projects anticipated in the Action Area include: road decommissioning, storm proofing of roads (see road maintenance/decommissioning below), upslope erosion rehabilitation, riparian silviculture, in-stream habitat improvement, large wood restoration, wildlife tree development, wildlife habitat restoration and enhancement (such as meadows), and prescribed burning (see fuels management). Some blasting (such as snag creation) may occur with watershed restoration projects. These activities may degrade up to 1,500 acres of spotted owl habitat and may affect, not likely to adversely affect spotted owls.

Mining

This activity has the potential to remove up to 5 acres of NRF in the Illinois River Section Seven watershed and LSR RO-249 and **may affect, likely to adversely affect** the spotted owl and spotted owl CHU OR-73.

Application of PDCs to all activities will minimize the effects of the activities on spotted owls.

Effects to Marbled Murrelet

The loss of significant amounts of suitable, unoccupied murrelet habitat may hamper efforts to stabilize and recover this species. The Federal listing of the murrelet as Threatened was primarily based upon the loss of late-successional forest and subsequent reduction in the number of nest sites available to murrelets (USDA Forest Service/USDI Bureau of Land Management 1994a; Carter and Erickson 1992; SOWLS et al. 1980). This loss of habitat may also explain gaps in their inland distribution. The implementation of the Northwest Forest Plan is expected to increase the amount of late successional forest habitat for the long term; however, suitable habitat takes a very long period of time to develop. The FEMAT identified the next 50-100 years as critical for stabilizing murrelet population levels (USDA Forest Service et al. 1994).

There may be several circumstances that result in currently suitable habitat remaining unoccupied [*i.e.* differences in offshore conditions that may result in changes in food abundance and breeding frequency (Ralph et al. 1995)]. The availability of fish to murrelets may be influenced by human fisheries activities as well as short- and long-term natural fluctuations in marine productivity (such as El Niño or La Niña events). In addition, life history requirements may require wide spacing of nests in some areas, thus

leading to unused suitable habitat between nests (Ralph et al. 1995). Also, behavioral characteristics, such as site fidelity and nesting colonies, may influence stand occupation and the colonization rate between the destruction of a nest stand and the occupancy of the new stand.

A final concern with loss of unoccupied murrelet habitat is the continued fragmentation of suitable stands. Ralph et al. (1995a) suggests that fragmentation may result in a higher susceptibility of murrelets to predation through increased predator populations, increased access to a stand by predators, and a decrease in hiding cover for murrelet nests. Research on murrelet nesting success indicated that successful nests were farther from forest edges and were better concealed than unsuccessful nests (Nelson and Hamer 1995b).

Effects of Proposed Action

The proposed action could degrade up to 951 acres of suitable, but unoccupied, murrelet habitat from Area A (Known Range). The degraded acreage in Area A represents approximately 1.5 percent of the approximately 67,000 acres of suitable murrelet habitat occurring within the known range.

We conclude the degradation of 951 acres of habitat in the known range (Area A) should not significantly preclude recovery of the murrelet because the Action Agencies are currently protecting over 80 - 90 percent of the current murrelet habitat under their management. Further, the Northwest Forest Plan hypothetically provides for the regeneration of nearly twice the amount of the currently suitable murrelet habitat through the protection of capable acres within LSRs and other lands with no-harvest allocations. This may be an optimistic projection, as growing conditions, wildfire, insect infestations, and other factors may affect growth rates.

Disturbance effects

The Action Agencies will utilize all possible mitigation measures to avoid adverse impact to nesting marbled murrelets wherever they occur, but acknowledge that some adverse impact is likely to occur to murrelets due to disturbance in unsurveyed suitable habitat adjacent to project areas. To assess this impact, the Action Agencies estimated that 40 percent of the described disturbance zone around a standard project area (presumed to be 50 acres) would be suitable murrelet habitat (as determined by the percentage of suitable habitat in the matrix according to the Environmental Baseline Tables). The analysis also assumes that activities would only occur one-third of the time during the critical breeding season. Area A habitat disturbance for all proposed activities was 9,100 acres and Area B habitat disturbance was anticipated to be 250. This estimate probably exceeds the actual disturbance impact to nesting murrelets because

- Area B is less likely to harbor nesting murrelets than Area A.
- Many BLM project areas (all BLM projects are in Area B) are larger than 50 acres (larger perimeters would mean fewer impact areas and less total acres

disturbed) (BLM has no projects planned that may affect marbled murrelets in this area)

- Action Agencies attempt to locate nesting murrelets within the vicinity of project areas to avoid impact during the nesting season
- Suitable habitat was generously estimated around project areas
- Many matrix projects would normally occur outside the nesting season for other reasons (silviculture, workload planning, weather and fire restrictions, or other seasonal protections for non-listed species)
- Many individual animals inherently tolerate or develop tolerance to disturbing activities that cause them no direct harm
- Noise, smoke and visual impacts are often much less because they are inherently screened by topographic features or vegetation or otherwise buffered due to reasons other than threatened and endangered species protection

Disturbance could affect individual adult murrelets or young such that their normal behavior, survival, and /or reproduction might be compromised. Disturbance on no more than 9,350 acres is likely to adversely affect marbled murrelets, although the Action Agencies will implement mandatory PDCs and when possible recommended PDCs to keep disturbance adverse effects to a minimum.

Noises associated with the proposed actions could disturb nesting murrelets and negatively affect productivity. Although little detailed information is available concerning the vulnerability of murrelets to disturbance effects, research on a variety of other bird species suggest such effects are possible (Henson and Grant 1991, Rodgers and Smith 1995). Such studies have shown that disturbance can affect productivity by; nest abandonment; egg and hatchling mortality due to exposure and predation; longer periods of incubation; premature fledgling or nest evacuation; depressed feeding rates of adults and offspring; reduced body mass or slower growth of nestlings; and avoidance of otherwise suitable habitat.

In 1999, sound-reducing techniques were applied to the 164 Salvage timber sale on the Powers Ranger District (occupied murrelet habitat was within 0.25 miles of the logging site). The logger (a sub-contractor) developed several techniques, including the use of a hydraulic chain saw, and muffling his yarder into a 500-gallon tank of water. Noise levels at the logging site were reduced significantly, and most logging noise had dropped to 40 decibels or less when measured 0.1 miles from the landing. These techniques merit further study.

Murrelets may be sensitive to disturbance due to their secretive nature and their perceived vulnerability to predation. Due to the significant lack of disturbance-related information on this species, we assume any amount of disturbance would result in negative impacts. Where surveys for presence of marbled murrelet have not yet been completed, the Action

Agencies are treating these project areas as if murrelets are occupying the stand (until surveys are finished).

Projects are implemented after most birds have completed incubation and if daily work occurs two hours after sunrise until two hours before sunset, impacts to nesting murrelets will be reduced. Research on murrelets, for example, has demonstrated that in the first days after eggs hatch, adult murrelets tend to concentrate their nest visits during the crepuscular hours and that nestlings are left unattended for most of the diurnal period (however, adults do increase diurnal visits to the nest as the chicks develop) (see Ralph et al. 1995 for a more detailed discussion). A daily timing restriction will minimize the potential that adult murrelets will be disturbed when visiting the nest to feed offspring.

Projects planned for FY06-08 within the known range of the species could disturb up to 9,164 acres of murrelet habitat (LAA).

Disturbance effects to murrelets from activities other than timber harvest

Hazard tree removal. Nesting platforms for marbled murrelet, may be present in some hazard trees. Removal of hazard trees during the nesting season may disturb nearby marbled murrelets; potential nest trees may be removed. However, no nest trees will be removed unless they are immediate public safety hazards. Emergency consultation with the Service will be implemented in all such cases. The effects determination for hazard tree removal is may effect, net likely to adversely effect.

Firewood Cutting. These sites do not contain suitable nest sites for marbled murrelet; however, removal of firewood during the nesting season may disturb nearby marbled murrelets. *Burl Removal.* Marbled murrelet do not use these trees species for nest sites; however, removal of burls during the nesting season may disturb nearby marbled murrelets.

Arrow Wood sales. If POC projects occur during the nesting season this could disturb nearby marbled murrelets. Application of PDCs these activities will minimize the effects of the activities on marbled murrelet.

Other project types. Occasionally, another project type, such as campground construction, could result in the removal of suitable habitat. These projects would be rare, and any suitable habitat would be surveyed. Many projects within the known range could result in disturbance that may affect marbled murrelets, because of presence of unsurveyed suitable habitat within ¼ mile of the projects. Disturbance effects would be minimized by implementation of the appropriate PDCs.

Summary. Most murrelet sighting locations and occupied sites have been found within approximately 16 - 32 miles of the coastline (16 miles inland south of the Rogue River drainage, 32 miles inland north of the Rogue River drainage). As a result of survey work from 1988 – 2002 (Appendix J), it has been determined that potential marbled murrelet habitat within the Medford District or Rogue River National Forest, or on the east side of the Siskiyou National Forest, does not contribute to the recovery of marbled murrelets.

Accordingly, the probability is limited that proposed projects outside of the known range will have any notable impact on the recovery of the species. Projects planned for FY 06-08 within the known range of the species will degrade 951 acres of murrelet habitat (NLAA) and disturb up to 9,164 acres of murrelet habitat (LAA). Some activities related to timber sales are NLAA (such as disturbance of nesting marbled murrelets from road traffic between 6 August and 31 March).

Effects to Marbled Murrelet Critical Habitat

Critical habitat for Marbled Murrelet coincides with Late Successional Reserve boundaries (see Appendix K). CHU outside of Areas A and B are moot, because very low likelihood of murrelet occurrence in Areas C and D – any impacts to the species from projects in Areas C and D would be negligible. Proposed projects that result in the modification or removal of constituent elements of critical habitat or influence the growth and/or structure of future habitat do not generally occur in critical habitat.

The proposed action would degrade up to 387 acres of suitable unoccupied, murrelet habitat from Area A (Known Range) in CH for murrelets (Table 7). The degraded acreage in Area A represents approximately 0.4 percent of the approximately 150,000 acres of suitable murrelet critical habitat occurring within the known range. The degradation of this habitat is not likely to adversely affect murrelet critical habitat.

Table 7. Murrelet Habitat Degradation by CHU

| MAMU CHU # | Habitat Remove | Habitat Degrade |
|------------|----------------|-----------------|
| OR-7a | 0 | 213 |
| OR-7b | 0 | 160 |
| OR-7c | 0 | 8 |
| OR-7f | 0 | 2 |

Other actions that may affect critical habitat are tail holds (anchor trees) for cable yarders, and hazard tree removal (many of these trees will be snags, and not potential nesting habitat). The effects of these projects will be scattered throughout the critical habitat designated in the Action Area. Projects located in critical habitat would adversely affect the primary constituent elements through the modification of forested areas within 0.5 miles of suitable nest trees, where these removed trees have a canopy height of one-half the suitable nest tree height. Habitat removal associated with recreation projects, right-of-way clearing on federal land, and timber harvest on mining claims may also adversely affect critical habitat due to the removal of constituent elements. However, the small acreage estimated to be harvested by these activities, even if it all occurred in critical habitat, is negligible and would not affect the functioning of critical habitat.

Rarely, a potentially suitable nest tree may be removed, because it is a safety hazard. However, the small numbers of trees estimated to be cut by this activity (several acres per year, at most), even if it all occurred in critical habitat, is negligible and would not affect the functioning of critical habitat.

Activities proposed during the life of this programmatic BA are not expected to significantly reduce the ability of the constituent elements of critical habitat for marbled murrelets to function as intended.

Interrelated and Interdependent Actions for all listed or proposed species

Timber harvest projects often have activities directly or indirectly associated with their completion. For example, timber harvest necessitates site surveys for wildlife, archeology, fisheries, botanical, etc.; road construction or hauling on existing system roads; and post harvest treatment for site preparation for planting, fuels reduction, and restoration efforts. Timber harvest can fragment existing late-successional stands, and interior forest habitat may be impacted. All timber harvest will have interrelated and interdependent effects.

Road construction has the most significant effects on spotted owls, marbled murrelets, and their habitats. Clearing for the road right-of-way removes suitable habitat and has the potential to disturb nesting pairs in close proximity. Road construction under the timber sale program consists of two categories: new construction and re-construction. The number of miles in each category varies considerably due to terrain, previous management activities, or size and type of sale. Acres logged as part of road building are included in the totals for the timber sale.

Other interrelated and interdependent actions include brush disposal (lop and scatter, pile, pile and burn), site preparation, reforestation (planting and seeding), release (brush control), fertilization, and precommercial thinning (PCT). Brush disposal activities vary by timber sale due to fuels management objectives, requirements for retention of down woody material, and other resource management goals. Brush disposal abates the slash created by the timber sale. Typical activities associated with this program include: burning of piles, broadcast burning of cutting units, re-arranging of fuels by crushing, mulching, lopping and scattering, etc. These activities are conducted for the most part in areas not considered habitat for any of the other listed or proposed species discussed in this document. These activities could cause disturbance to listed or proposed species.

Pile and broadcast burning would occur normally within portions of the proposed harvest areas after harvest. Some acres may be planted post-harvest. Burning and planting operations that utilize power equipment may affect any owls or murrelets that might be present in surveyed and unsurveyed suitable habitat, through noise disturbance. The PDCs described in this document would be implemented for the activities.

Pile and broadcast burning would occur annually on approximately 13,800 acres (BLM 3,800, ROR 5,000, and SIS 5,000) of the proposed harvest area. Planting would also occur annually on as much as 6,150 acres (5,000 BLM, ROR 350, and SIS 800), and because it is routinely accomplished with hand tools (no power equipment), it would have no effect on owls or murrelets.

In most cases, reforestation is completed within 1 to 3 years after harvest and timber stand improvement (TSI) activities are usually completed within 5 to 7 years after planting. Much of the TSI activities are designed to promote the health of young stands by controlling stocking basal area and maintaining growth rates sufficient to resist insect and disease infestations. Some harvested stands may need treatment up to 30 years after harvest, as a result of reforestation failures or natural agents such as fire or windstorms.

CUMULATIVE EFFECTS

Cumulative effects under ESA are those effects of future tribal, county, state or private activities, not involving a Federal nexus, that are reasonable certain to occur within the Action Area of the federal action subject to consultation (50 CFR 402.2). 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 Action Agencies an accurate environmental baseline to assess impacts of federal actions.

Several known spotted owl activity centers within the Action Area are located partially on private or other non-federal ownerships (state, county, etc). Under Oregon Forest Practices Rules (629-665-0210), owl nest sites (70 acre core areas) are protected for at least three years following the last year of occupation. Timber Harvest Plans (THP) on Private lands in the state of California State are governed under the California Environmental Quality Act; each THP goes through an extensive review process, including a review by NOAA Fisheries and USDI Fish and Wildlife Service (Rich Klug, pers. comm.).

The amount of suitable habitat for spotted owls or marbled murrelets on private land is unknown, though it is likely to be relatively low. Although private lands may provide some dispersal habitat for spotted owls due to the selective harvest regimes typically carried out in the Rouge Valley and surrounding area, under the typical rotation age of 40 to 60 years, the amount of dispersal habitat for spotted owls on private land would be expected to decline. The Service concluded in the Biological Opinion for the NWFP (p. 44-45, Appendix G in USDA Forest Service and USDI Bureau of Land Management 1994):

A 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.

Known occupied marbled murrelet sites and the majority of suitable habitat is located on the Siskiyou National Forest lands within the Action Area. Private land within the Action Area is unlikely to provide significant amounts of marbled murrelet habitat. Current forest practice regulations for private lands do not address marbled murrelets. The Service concluded in the Biological Opinion for the NWFP (p. 46, Appendix G in USDA and USDI 1994):

...because a significant portion of this species' range is on non-federal lands, it may not be possible to provide for the recovery of this species without contribution from these areas. Therefore, timber harvest that is currently occurring on non-federal lands in all three states may be contributing to a future inability to recover the marbled murrelet.

Habitat for the northern spotted owl, marbled murrelet, and bald eagles has not been comprehensively classified or surveyed on state and private lands. Private rural residential tracts of land generally range in size from 10 to 60 acres. State and private timber company holdings cover many thousand acres within the Action Area. Most state and private holdings have been harvested within the last 50 years and are now either in woodland residential, agricultural, or as managed shrub, pole, or large pole condition classes. Some mature forested stands exist on county, state, or private land, but these stands represent a small proportion of private land ownership. The mature stands provide limited amounts of suitable habitat for listed forest species. Mature and large pole stands are presently being logged at an accelerated rate due to economic/market conditions. Managed private and state timberlands are likely to be maintained in younger seral stages throughout their harvest rotation. The conversion of timberland to rural residential/non-timber agriculture has accelerated throughout the lower elevations and foothills of the Action Area, and this trend is expected to continue into the foreseeable future. As an example, data provided by the Oregon Department of Forestry's SW Oregon office shows that in 2002, they received 531 notifications of harvest that encompassed 94,469 acres in Jackson County and 553 notifications of harvest on 17,910 acres in Josephine County. There are approximately 2.5 million acres of non-federal land in the Action Area and while it is unknown how much of that land is currently capable of growing harvestable forest, even if all of it was forested and the rate of harvest in Jackson and Josephine Counties 2002 was typical for the last ten years, all of the non-federal lands could potentially be harvested in approximately 20 years.

The majority of state and private forests in Washington, Oregon, and Northern California is managed for timber production (Thomas et al. 1990, USDA Forest Service/USDA Bureau of Land Management 1994a). Historically, non-federal landowners practiced even-aged management (clear cutting) of timber over extensive acreages. The Action Agencies assume that these past management practices will continue and reduce the amount of suitable habitat for spotted owl and marbled murrelets on non-federal lands over time. Harvest activities on state and private lands can be expected to impact spotted owls and marbled murrelets located within adjacent federal lands by removing and fragmenting habitat and through disturbance activities adjacent to occupied sites during sensitive periods.

Federal lands will make significant contributions to the recovery of spotted owls and marbled murrelets through the implementation of the NWFP. However, non-federal lands are important where federal lands are absent or where suitable habitat on federal lands is believed insufficient to maintain local populations. In the case of the spotted owl, non-federal lands are not expected to provide demographic support across and between physiographic provinces (Thomas et al. 1990, USDA Forest Service 1990b,

USDI Fish and Wildlife Service 1992a, USDA Forest Service/USDI Bureau of Land Management 1994a). Contributions in certain regions (including the Ashland I-5 corridor and the Cheney-Slate watershed between Medford BLM and Siskiyou National Forest) may provide important habitat to LSRs with poor reproductive potential or with poor connection to adjacent LSRs. Over 60 percent of the land within the boundary of the Medford District BLM is private. Tweton (Appendix B) mentioned the importance of non-federal lands in the Galesville and the Ashland-I 5 areas of dispersal concern, and areas to the west, in providing spotted owl dispersal habitat to facilitate movement between the Klamath and adjacent provinces.

BIOLOGICAL ASSESSMENT CONCLUSIONS

The determination of effects table (Table 8) reflects the entire project, including the direct, indirect, interrelated and interdependent and cumulative effects. There will be situations where “may affect, not likely to adversely affect” (NLAA) determinations will be made on specific projects, if adverse affects can be avoided, even if the determination on the table is a “may affect, likely to adversely affect” (LAA).

| Table 8. Species Effects Determinations by Activity Type for habitat alteration only. Where LAA is shown, No Effect, Not Likely to Adversely Affect, and Beneficial Effect determinations are also implied. CHU=Critical Habitat Unit. | | | | |
|---|--------------------|------------------------|-------------------------|-----------------------------|
| Activity Type | Spotted Owl | Spotted Owl CHU | Marbled Murrelet | Marbled Murrelet CHU |
| Tree Harvest | LAA | LAA | LAA | NLAA |
| Vegetation Management | LAA | NLAA | LAA | NLAA |
| Watershed Restoration | LAA | NLAA | LAA | NLAA |
| Recreation | LAA | NLAA | LAA | NLAA |
| Fuels Management | *NLAA | LAA | *NLAA | N LAA |
| Road Maintenance /Construction | LAA | LAA | LAA | NLAA |
| Road Use Permits | LAA | LAA | LAA | NE |
| Mining And Quarry Operation | LAA | LAA | LAA | NE |

* Fuel breaks could be LAA in some situations.

It is the conclusion of this biological assessment that proposed actions may affect listed species or their designated critical habitat as documented above. In addition, disturbance from some of the activities above “may affect and likely adversely affect” (LAA) adjacent undetected individual spotted owls or marbled murrelets. This is true for the “excepted” projects listed in Table 2. Formal consultation is requested on the actions “may affect and likely to adversely affect” (LAA) listed species or designated critical habitat. We also request concurrence on “may affect, not likely to adversely affect” (NLAA) determinations made relative to all actions included in this assessment.

LITERATURE CITED

Anthony, R.G., E.D. Forsman, A.B. Franklin, D.R. Anderson, K.P. Bingham, G.C. White, C.J. Schwartz, J. Nichols, J.E. Hines, G.S. Olson, S.H. Ackers, S. Andrews, B.L. Biswell, P.C. Carlson, L.V. Diller, K.M. Dugger, K.E. Fehring, T. L. Fleming, R.P. Gerhardt, S.A. Gremel, R.J. Gutierrez, P.J. Heppe, D.R. Herter, J.M. Higley, R.B. Horn, L.L. Irwin, P.J. Loschl, J.A. Reid, And S. G. Sovern. 2004. Status and trends in demography of northern spotted owls. 1985-2003. Final Report to the Interagency Regional Monitoring Program. Portland, OR.

Anthony, R.G. 2005. Demographic characteristics of spotted owls (*Strix occidentalis caurina*) in the southern Cascades; Annual Research Report-Unpublished. Oregon State University.

Bart J. and E. Forsman. 1992. Dependence of northern spotted owls (*Strix occidentalis caurina*) on old-growth forests in the western USA. *Biological Conservation* 1992: 95-100.

Burger, A.E. 2002. Conservation assessment of marbled murrelets in British Columbia, a review of biology, populations, habitat associations and conservation. Pacific and Yukon Region, Canadian Wildlife Service.

Burnham, K.P., D.R. Anderson, and G.C. White. 1994. Estimation of vital rates of the northern spotted owl. pp. 1-44 (Appendix J) in Final supplemental environmental impact statement, on management of habitat for late-successional and old-growth forest related species within the range of the northern spotted owl. Vol. 2. USDA Forest Service. Portland Oregon.

Carey, A. B. 1991. The biology of arboreal rodents in Douglas-fir forests. US Forest Service General Technical Report PNW-276, Portland, Oregon.

Carey, A. B., S.P. Horton, and B.L. Biswell. 1992. Northern spotted owls: influence of prey base and landscape character. *Ecological Monographs* 62:223-250.

Carter, H.R. and R.A. Erickson. 1992. Status and conservation of the marbled murrelet in California, 1892 - 1987. In Carter, H.R. and M.L. Morrison (eds.). Status and conservation of the marbled murrelet in North America. Proceedings Western Foundation Vertebrate Zoology 5.

Courtney, S.P., J. A. Blakesley, R.E. Bigley, M.L. Cody, J.P. Dumbacher, R.C. Fleischer, A.B. Franklin, J.F. Franklin, R. J. Gutierrez, J.M. Marzluff, and L Sztukowski. 2004. Scientific evaluation of the status of the northern spotted owl. Sustainable Ecosystems Institute. Portland, OR.

Dillingham, C.P., R.C. Miller, and L.O. Webb. 1995. Marbled murrelet distribution in the Siskiyou National Forest of Southwestern Oregon. *Northwest Naturalist* 76:33-39.

Dugger, K.M., F. Wagner, R.G. Anthony, and G.S. Olson. 2005. The relationship between habitat characteristics and demographic performance of northern spotted owls in southern Oregon. *The Condor* 107:863-878.

Forsman, E. and R. Anthony. 1999. Analysis of demographic rates of the northern spotted owl: Executive Summary. Oregon Cooperative Fish and Wildlife Research Unit. Corvallis, Oregon.

Forsman, E.D., R.G. Anthony, J.A. Reid, P.J. Loschl, S.G. Sovern, M. Taylor, B.L. Biswell, A. Ellingson, E.C. Meslow, G.S. Miller, K.A. Swindle, J.A. Thraillkill, F.F. Wagner, D.E. Seaman. 2002. Natal and breeding dispersal of northern spotted owls. *Wildlife Monographs*. No 149.

Franklin, A.B., K.P. Burnham, G.C. White, R.B. Anthony, E.D. Forsman, C. Schwarz, J.D. Nichols, and J. Hines. 1999. Range-wide status and trends in northern spotted owl populations. Colorado Cooperative Fish and Wildlife Research Unit, Fort Collins, Colorado.

Gomez, D., R G. Anthony, and J.P. Hayes. 2005. Influence of thinning of douglas-fir forests on population parameters and diet of northern flying squirrels. *Journal of Wildlife Management* 69(4):1670–1682.

Hamer, T. and S.K. Nelson. 1998. Effects of disturbance on nesting marbled murrelets: summary of preliminary results (preliminary report). Prepared for the US Fish and Wildlife Service, Portland, Oregon.

Henson, P., and T. A. Grant. 1991. The effects of human disturbances on trumpeter swan breeding behavior. *Wildlife Society Bulletin* 19:248-257.

Lande, R. 1988. Demographic models of the northern spotted owl. *Oecologia* 75:601-607.

Lemkuhl, J , K.D. Kistler and J.S. Begley. 2006. Bushy-tailed woodrat abundance in dry forests of eastern Washington. *Journal of Mammalogy* 87(2).

Long, L.L. and C.J. Ralph. 1997. Effect of human disturbance on nesting marbled murrelets, Alcids, and other seabirds. Unpublished Report. U.S. Department of Agriculture, Forest Service. Pacific Southwest Research Station, Arcata, California. 29 pp.

Marshall, D.B. 1988. Status of the marbled murrelet in North America: with special emphasis on populations in California, Oregon, and Washington. *Biological Report* 88(30). US Fish and Wildlife Service.

Nelson, S.K. and T.E. Hamer. 1995. Nest success and the effects of predation on marbled murrelets. *In* Ralph, C.J., G.L. Hunt jr., M.G. Raphael, J.F. Piatt, technical editors. *Ecology and conservation of the marbled murrelet*. General Technical Report

PSW-GTR-152. Albany, California: Pacific Southwest Research Station, Forest Service, US Department of Agriculture.

Nelson, S.K., A.K. Wilson. 2002. Marbled murrelet characteristics on state lands in western Oregon. OR Cooperative Wildlife Research Unit. OSU, Corvallis, OR.

Olson, G.S., R.G. Anthony, E.D. Forsman, S.H. Ackers, P.J. Loschl, J.A. Reid, K.M. Dugger, E.M. Glenn, and W.J. Ripple. 2005. Modeling of site occupancy dynamics for northern spotted owls, with emphasis on the effects of barred owls. *Journal of Wildlife Management* 69(3):918-932.

Ralph, C.J., G.L. Hunt, M.G. Raphael, and J.F. Piatt, eds. 1995. Ecology and conservation of the marbled murrelet. General Technical Report PSW-GTR-152. Pacific Southwest Research Station, US Forest Service. 420 pp.

Reijnen, T., R. Foppen., C. Ter Braak, and J. Thissen. 1995. The effects of car traffic on breeding bird populations in woodland. III. Reduction of density in relation to the proximity of main roads. *Journal of Applied Ecology* 32: 187-202.

Rodgers, J.A. Jr., and H. T. Smith. 1995. Set-back distances to protect nesting bird colonies from human disturbances in Florida. *Conservation Biology* 9:89-99.

Sakai, H. F., and B. R. Noon. 1993. Dusky-footed woodrat abundance in different-aged forests in northwestern California. *Journal of Wildlife Management* 57:373–382.

Sowls, A.L., A.R. DeGange, J.W. Nelson and G.S. Lester. 1980. Catalog of California seabird colonies. USDI Fish and Wildlife Service Biological Service Program, Fish and Wildlife Service OBS-80/37.

Thomas, J.W., E.D., Forsman, J.B. Lint, E.C. Meslow, B.R. Noon, and J. Verner. April 1990. A conservation strategy for the northern spotted owl: A report of the Interagency Scientific Committee to address the conservation of the northern spotted owl. USDA Forest Service, USDI Bureau of Land Management. Portland, Oregon. 427 pp.

USDA Forest Service. 1989. Land and Resource Management Plan, Siskiyou National Forest. Region 6, Portland, Oregon.

USDA Forest Service. 1990. Land and Resource Management Plan, Rogue River National Forest. Region 6, Portland, Oregon.

USDA Forest Service, USDI Bureau of Land Management, USDI Fish and Wildlife Service, USDC National Marine Fisheries Services and the Environmental Protection Agency. 1993. Forest ecosystem management: an ecological, economic, and social assessment. Report of the Forest Ecosystem Management Assessment Team. U.S. Forest Service, U.S. Fish and Wildlife Service, National Marine Fisheries Service, National Park Service, Bureau of Land Management, and the Environmental Protection Agency, Portland, OR.

USDA Forest Service, USDI Bureau of Land Management, USDI Fish and Wildlife Service, USDC National Marine Fisheries Services. 1999. Streamlined Consultation Processes for Section 7 of the ESA.

USDA Forest Service, USDI Bureau of Land Management, USDI Fish and Wildlife Service, USDC National Marine Fisheries Services. 2002. Endangered Species Act Consultation Handbook (abridged). July 2002.

USDA Forest Service and USDI Bureau of Land Management. 1994a. Final supplemental environmental impact statement on management of habitat for late-successional and old-growth forest related species within the range of the northern spotted owl (NWFP). US Government Printing Office, Portland, Oregon.

USDA Forest Service and USDI Bureau of Land Management. 1994b. Record of decision for amendments to Forest Service and Bureau of Land Management planning documents within the range of the northern spotted owl. Portland, OR. Includes standards and guidelines for management of late-successional – old-growth dependent species within the range of the northern spotted owl. US Government Printing Office, Portland, Oregon.

USDA Forest Service and USDI Bureau of Land Management. 1995. Southwest Oregon Late Successional Reserve Assessment. Siskiyou National Forest, Grants Pass, Oregon.

USDA Forest Service and USDI Bureau of Land Management. 1996. Rogue River/South Coast biological assessment; FY 97/98 timber sale projects. FY 97/05 for all other projects. US Forest Service and Bureau of Land Management, Grants Pass, Oregon

USDA Forest Service and USDI Bureau of Land Management. 2001. Rogue River/South Coast FY01/02/03 Timber sale projects biological assessment and biological opinion #1-7-01-F-032. Medford District Bureau of Land Management, Rogue River and Siskiyou National Forests, Portland Field Office of the US Fish and Wildlife Service.

USDA Forest Service and USDI Bureau of Land Management, USDI Fish and Wildlife Service, USDI National Park Service, Environmental Protection Agency, USDC National Oceanic and Atmospheric Administration. 1994. Forest Ecosystem Management: An ecological, economic, and social assessment. Report of the forest ecosystem management assessment team. July 1993. Portland, OR.

USDI Bureau of Land Management. 1994. Medford District. Record of Decision and Resource Management Plan. Medford, Oregon.

USDI Bureau of Land Management. 2002. Western Oregon districts transportation management plan. Portland, Oregon.

USDI Fish and Wildlife Service. 1987. The northern spotted owl: a status review. Portland, Oregon.

USDI Fish and Wildlife Service. 1990a. 1990 status review of the northern spotted owl. Portland, Oregon

USDI Fish and Wildlife Service. 1990b. Endangered and threatened wildlife and plants: determination of threatened status for the northern spotted owl. Federal Register 55:26114-26194.

USDI Fish and Wildlife Service. 1992a. Final draft recovery plan for the northern spotted owl, December 1992. Portland, Oregon.

USDI Fish and Wildlife Service. 1992b. Final rule listing the marbled murrelet as threatened in Washington, Oregon, and California. United States Federal Register, October 1, 1992.

USDI Fish and Wildlife Service. 1992c. Endangered Species and Threatened Wildlife and Plants: determination of critical habitat for the northern spotted owl. FR 57:1796-1838.

USDI Fish and Wildlife Service. 1994. Biological Opinion on Alternative 9 of the Final Environmental Impact Statement on management of habitat for late-successional and old-growth forest related species within the range of the northern spotted owl. Portland, Oregon.

USDI Fish and Wildlife Service. 1996. Endangered and threatened wildlife and plants; determination of critical habitat for the marbled murrelet; Final Rule. 50 CFR Part 17, Federal Register, Vol. 61, No. 102. May 24, 1996.

USDI Fish and Wildlife Service. 1997. Recovery plan for the threatened marbled murrelet (*Brachyramphus marmoratus*) in Washington, Oregon, and California. Portland, Oregon.

Zabel, C. J., J.R. Dunk, H.B. Stauffer, L.M. Roberts, B.S. Mulder, and A. Wright. 2003. Northern spotted owl habitat models for research and management application in California (USA). Ecological Applications 13(4):1027-1040.