



United States Department of the Interior



FISH AND WILDLIFE SERVICE


Roseburg Field Office
2900 NW Stewart Parkway
Roseburg, Oregon 97471
Phone: (541) 957-3474 FAX: (541)957-3475

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Memorandum

To: District Manager, Medford District BLM, Medford, Oregon.

From: 
Field Supervisor, Roseburg Fish and Wildlife Office, Roseburg, Oregon.

Subject: Endangered Species Act Section 7 Consultation regarding Activities that may affect Listed Species on Public Lands administered by the Medford District of the Bureau of Land Management.

This responds to your request for the U.S. Fish and Wildlife Service's (Service) written concurrence on the Medford District of the Bureau of Land Management's (District) determination that implementation of a suite of management activities the District has determined *may affect, but are not likely to adversely affect*, the threatened northern spotted owl (*Strix occidentalis caurina*) (spotted owl) and its designated critical habitat; or the threatened marbled murrelet (*Brachyramphus marmoratus*) (murrelet). Those activities and the basis for your determination are discussed in your biological assessment (Assessment) (USDI BLM 2009), received in our office on November 25, 2009.

This response was prepared in accordance with the implementing regulations for section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1536 et seq.) (Act), as amended, and is based on information provided in the Assessment, phone discussions and meetings between Service and District staff.

DEFINITIONS

Activity Periods

Spotted Owl

The breeding period of the spotted owl is March 1 - September 30.

The critical breeding period of the spotted owl is March 1- June 30.

Murrelet

The breeding period of the murrelet is April 1 - September 15.

The critical breeding period of the murrelet is April 1 - August 5.

Detections and Sites

Spotted owl provincial home range: is defined by a circle located around an activity center, which represents the area owls are assumed to use. Provincial home radii vary in size based on the physiographic province in which the home range is located. Coast Range: 1.5 miles; Klamath Mountains: 1.3 miles; and Cascades West: 1.2 miles.

Known Owl Activity Center (KOAC): is a designated late Successional 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 lands managed by the District.

Murrelet Detection: is defined as the observation, either visual or auditory, of one or more marbled murrelets during a survey.

Murrelet Site: is a site where there has been at least one murrelet detection.

Occupied Murrelet Site: is where murrelets have been observed exhibiting behavior, such as circling at or above the forest canopy that strongly indicates the site has some importance for breeding of murrelets (Pacific Seabird Group [PSG] 2003).

Habitats

Spotted Owl

Dispersal habitat: for the spotted owl, consists of forest lands generally greater than 40 years of age with canopy cover of 40 percent or greater and an average diameter at breast height (dbh) of 11 inches or greater. Spotted owls use dispersal habitat to move between blocks of suitable habitat; juveniles use it to disperse from natal territories.

Suitable habitat (NRF): for the 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 80 years of age or older, multi-storied and has sufficient snags and down wood to provide opportunities for nesting, roosting and foraging. The canopy cover generally exceeds 60 percent. District wildlife biologists make site-specific determinations and delineations of suitable habitat.

Suitable habitat: for the marbled murrelet consists of habitat used by murrelets for nesting. Generally, this habitat is 80 years of age or older, contains multiple canopy layers, and contains platforms or nesting branches ≥ 5.9 inches (15 cm) in diameter (Burger 2002, Nelson & Wilson 2002: 24, 27, 42, 97, 100). District wildlife biologists make site-specific determinations and delineations of suitable habitat.

Capable (potential) murrelet habitat: includes any forested area within 50 miles of the ocean containing a residual tree component, small patches of residual trees, or one or more platforms

(PSG 2003). District wildlife biologists make site-specific determinations and delineations of potential suitable habitat.

Critical Habitat: includes the primary constituent elements necessary to support the nesting, roosting, foraging and dispersal of spotted owls. These physical and biological features that provide the essential life history requirements of the species include, but are not limited to, the following:

- Space for individual and population growth and for normal behavior;
- Food, water, air, light, minerals, or other nutritional or physiological requirements;
- Cover or shelter;
- Sites for breeding, reproduction, and rearing (or development) of offspring; and
- Habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

Murrelets

According to the Assessment, this proposed action is not planned to occur within suitable habitat for murrelets.

Effects

Disturbance: 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 that have the potential to disturb or disrupt the natural and essential behaviors of spotted owls or murrelets, such that harm or harassment may occur.

Habitat Modification

Spotted Owl

Treat and Maintain: Means to affect the quality of spotted owl suitable habitat by modifying the forest stand without altering the functionality of such habitat.

Treat and maintain spotted owl dispersal-only habitat: means retention of a canopy cover of greater than 40 percent along with other habitat elements, such as snags, down wood, tree-height class-diversity, and older hardwoods will be maintained post project implementation, which adequately provide for spotted owl dispersal and are in accordance with the District's Resource Management Plan (RMP) (USDI BLM 2008).

Treat and maintain spotted owl NRF habitat: means a canopy cover of greater than 60 percent along with other habitat elements, including snags, down wood, tree-height class-diversity, and older hardwoods. These habitat elements will be maintained post project implementation, in accordance with the District's RMP (USDI BLM 2008), and in a manner that adequately provides for spotted owl nesting, roosting, and foraging within the stand.

Murrelet

The Assessment states the proposed action will not modify any suitable habitat for the murrelet.

Effects Determinations

Spotted Owls

Habitat modification treatments that treat and maintain stands of spotted owl NRF or dispersal habitat *may affect, are not likely to adversely affect* spotted owls.

Habitat modification treatments that remove stands of spotted owl dispersal habitat outside of designated critical habitat units *may affect, are not likely to adversely affect* spotted owls.

Disturbance that occurs outside of the critical breeding seasons and/or beyond the recommended disruption distances *may affect, is not likely to adversely affect* spotted owls.

Murrelets

Disturbance that occurs outside of the critical breeding seasons as well as outside of daily timing restricted times *may affect, is not likely to adversely affect* murrelets.

DESCRIPTION OF THE ACTION AREA

The Action Area is defined in the implementing regulations for section 7 of the Act 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 this consultation, the action area includes all project units, as well as all areas subject to increased ambient noise levels caused by activities associated with the proposed action. Activities associated with this proposed action will be implemented in both the Klamath Mountains and Cascades West physiographic provinces.

As described in the Assessment, federal lands managed by the District encompass approximately 862,964 acres of public land, which generally occur in a checkerboard pattern of alternating sections of private and federal lands (based on District geographic information system calculations).

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

DESCRIPTION OF THE PROPOSED ACTION

The Assessment includes a detailed description of the proposed action, and is herein incorporated by reference. According to the Assessment, all projects were planned and comply with the standards and guidelines of the Northwest Forest Plan (NWFP), (USDA FS/USDI BLM 1994a,

1994b). The District plans to commence the projects included in the proposed action during fiscal years 2010 and 2011, and expects completion within seven years of implementation.

As displayed in a spreadsheet provided by the District (Appendix A), the proposed action consists of a suite of forest management activities, including the following:

East McMullin Road Right of Way (ROW)

The East McMullin ROW application involves construction of an access road across federal lands managed by the District in Township 39 South, Range 07 West, Section 5 (NE of SE) in the Grants Pass Resource Area. According to the Assessment, this discretionary ROW was requested on behalf of Indian Hill to access a portion of their private land holdings. The ROW permit would authorize construction of 1,337 linear feet of natural surface road, approximately 20 feet in width. This project does not occur in spotted owl critical habitat or murrelet suitable habitat.

Timber Harvest-Thinning

As described in the Assessment, proposed timber harvest projects included in the proposed action include the following timber sales: Wagner Anderson, Fallback, Shale City Salvage, Shale Divide C, MC Thin (in the Ashland Resource Area); Reeves Creek Thin (in the Grants Pass Resource area); Farout, Glendale Silviculture Density Management/Commercial Thin. According to the Assessment, prescriptions for these timber harvest activities direct the thinning of affected forest stands. The majority of trees removed would be less than 12 inches dbh. Some larger trees may be removed in areas of root rot, mistletoe, or other forest pathogen infestation, and in areas where restoration to pine dominance is desired.

In the Wagner Anderson, Shale City Salvage, Shale City Divide C, and MC Thin projects, some areas of mistletoe infestation up to one quarter acre in size may be removed. The Farout project occurs in marbled murrelet survey Zone A and B. This project will remove some trees from the understory. According to the Assessment, this project was designed to treat and maintain murrelet suitable habitat, which consists of treating trees in the understory, not potential murrelet nest trees.

As described in the Assessment, all timber harvest projects included in the proposed action have been planned to include the following design features:

- Treatments that occur within stands of spotted owl NRF habitat will retain at least 60 percent canopy closure post treatment.
- Treatments that occur within stands of spotted owl dispersal habitat will retain at least 40 percent canopy closure post treatment.
- Habitat mid-story will reflect pre-treatment composition and diversity. All tree species and age classes will be retained post-treatment, but at a lower density.
- Snags will be retained post treatment.
- Post-treatment amounts of down wood will be retained at t levels consistent with the guidance of the NWFP (USDA FS/USDI BLM 1994a).

Stewardship Projects

As detailed in the Assessment, “stewardship” is a contracting method that authorizes the value of commercial vegetative material to be applied as an offset against the cost of services received. Stewardship projects may be entered into with public or private entities, by contract or by agreement, to perform services designed to achieve land management goals for public lands that meet local and rural community needs. Stewardship projects included in this proposed action, a subset of the proposed timber harvest activities, will thin conifers and remove shrubs from the forest understory. Thinning and shrub removal will follow spacing guidelines developed to ensure retention of a diverse mosaic of habitat post treatment. The following stewardship projects included in the proposed action will be implemented using the design features identified above for timber harvest projects.

The Farout project generally includes the removal of conifers less than eight inches dbh. However, less than two percent of trees harvested may be 20 inches dbh or greater. Large tree removal would be limited to areas immediately surrounding dominant pines. In these cases, Douglas-fir trees greater than 20-inch dbh may be removed to facilitate regeneration of pine species (Appendix A).

The Ranch Stew II stewardship project would thin approximately 1,530 acres of dense forest stands within two-storied ponderosa pine plantations and dense small diameter mixed conifer stands. The project would occur in forest stands that are 40-60 years old. The majority of the proposed treatment area does not consist of spotted owl NRF or dispersal habitats. Up to 64 acres of thinning is planned to occur within spotted owl NRF habitat, and an additional, 149 acres of treatment are planned to occur within stands of spotted owl dispersal habitat. In addition to the design features common to all timber harvest activities included in this proposed action, the following design features apply to the implementation of the Ranch Stew II stewardship project;

- Thin conifers less than eight inches dbh to 200 trees per acre.
- Remove shrubs greater than one foot high within eight feet of a leave tree when the shrubs are more than one half the height of the tree.
- Leave all shrubs greater than one foot high within eight feet of a leave tree when the shrubs are less than one half the height of the leave tree.

Special Forest Products

According to the Assessment, the proposed action includes Special Forest Products projects, planned to occur in the Butte Falls and Grants Pass Resource Area of the District. Special Forest Products is a District program that encompasses an assortment of projects, including the removal of hazard trees for public safety, commercial firewood, small pole harvest, salvage of small areas of disease or insect damage, and other specialty wood products. These projects represent a subset of the proposed timber harvest activities, and, according to the Assessment, will be designed to “treat and maintain” existing spotted owl NRF and dispersal habitats. The Proposed Action includes special forest products activities that may occur on up to 300 acres. According to the Assessment, these activities have been designed to treat and maintain spotted owl NRF and

dispersal habitats, and will not occur in northern spotted owl critical habitat or marbled murrelet habitat.

Fuels Reduction Projects

The following fuels reduction projects are included in the proposed action: Cascade Silviculture, Evans Silviculture, Ranch Stew II, Butte Falls Fuels Hazard Reduction (Butte Falls Resource Area); and Scattered Apples Roadside Fuels, Lucky Boy Roadside Fuels, O'Brien Fuels, Takilma Fuels (Grants Pass Resource Area). According to the Assessment, these projects are planned to occur in spotted owl habitat, spotted owl critical habitat as well as within late successional reserves designated in the NWFP (USDA FS/USDI BLM 1994a). Fuels projects included in the proposed action will not occur in murrelet suitable habitat.

As detailed in the Assessment, fuels reduction projects associated with the proposed action include piling and prescribed burning, thinning, pruning, slashing, biomass removal, underburning, hand-piling, and shrub treatments via manual and mechanical methods. These activities usually consist of the removal of surface fuels, shrubs or small trees, and the removal of ladder fuels or crowded conifers or hardwoods. Actual prescriptions vary by project. As described in the Assessment, these fuel treatments are generally implemented over a period of years. The acres in the proposed action represent the acres of the fuels treatment "footprint", and impacts are assessed for the entire treatment period.

The Assessment included a description of the general types of fuels projects included in the proposed action, a summary of which is provided here:

General Roadside Fuel Hazard Reduction Project Description (Grants Pass Resource Area) (Scattered Apples and Lucky Boy Roadside Fuels reduction projects; see spreadsheet in Appendix A):

These projects will thin vegetation within 200 feet of roads for fuel hazard reduction as well as the development of strategic fuel modification zones along strategic ridges. The total area covered by this project will not exceed 700 acres. Fuel hazard reduction may be extended further than 200 feet from roads where it is reasonable to extend to the top of strategic ridge systems. Treatments would include a mix of thinning, slashing, biomass removal, underburning and handpile burning, depending on site specific conditions. Understory vegetation would be thinned using manual and mechanical techniques (slashing, pruning) to the desired tree densities and stocking levels. Understory vegetation density would be reduced by cutting and spacing of conifers less than 12 inch dbh and hardwoods less than 12 inch dbh. Retained vegetation would be spaced 14 to 45 feet apart. Within this range, wider spacing would be used for larger leaf trees or for species such as pine or oak which thrive in less dense conditions. Vegetation diversity would be obtained by maintaining species occurring at low frequencies in the stand (i.e. Pacific yew, pine, vine maple). Untreated vegetation groups ranging in size from 0.1 to two acres would be retained in each treatment unit.

General Fuel Hazard Reduction Project Description (Grants Pass Resource Area) (O'Brien and Takilma fuels reduction projects):

These projects will reduce fuel loads using hand-tools, chainsaws, all-terrain vehicles (ATV)s, trucks, and chippers on approximately 200 acres of private property that occurs adjacent to federal lands managed by the District. Up to 400 additional acres of fuels reduction treatments are planned to occur on federal lands managed by the District. Small trees and shrubs would be thinned, and trees would be limbed to reduce ladder fuels. Slash would be hand piled, covered and burned, lopped and scattered, or removed from the sites. The intensity and nature of the treatments could vary based on individual landowner preference but would be consistent with the following project design features:

- Trees and other vegetation thinned /cut would be less than 12 dbh.
- Residual hardwood and conifer trees would be spaced approximately 14 feet by 30 feet.
- Thinning would be limited to 100 feet around structures.
- Thinning along roads would be limited to 30 feet from road bed edge. Conifers would be limbed from six to 14 feet high.
- No vegetation would be cut within 50 feet any stream.

Mechanized equipment that may be utilized to implement fuels reduction treatments off established roads would include chain saws and ATVs. Vehicles and heavy equipment would remain on established roads.

Hazardous Fuels Reduction (Butte Falls Resource Area)

These projects would reduce hazardous fuels by thinning noncommercial-size vegetation on federal lands managed by the District. Total acres treated by these projects will not exceed 4,301. Initial fuels reduction will be accomplished utilizing manual treatments (slashing, hand piling, and burning). Subsequent treatments may include prescribed burning for maintaining treated areas. Specific project design features include the following:

- Cut conifers more than one foot tall and less than eight inches dbh on a 25 by 25 foot spacing.
- Cut shrub species more than one foot tall and less than 12 inches dbh.
- Prune conifers ranging six to 13 inch dbh.
- Retain an average of ten percent of the piles unburned.
- Cut and broadcast burn material in shrub fields.
- Remove some cut materials by hand to use as woody fuel (biomass) or special forest products.
- Retain all dominant or co-dominant trees.

Restoration/Road Maintenance

Upper Cow Roadside: as described in the Assessment, the District has planned this project to remove conifer and hardwood vegetation that is shading approximately 34 miles of roadways on District maintained roads in the Glendale Resource Area. Conifers and hardwoods with diameters up to 24 inches would be targeted for removal within approximately ten (10) feet of the road with a feller buncher. Open canopy conditions along roadsides have promoted vigorous second growth trees. The District has determined these stands do not meet the definitions of

spotted owl NRF or dispersal habitat because they lack potential nest structures, possess excessive density, and consist of impenetrable branch structure. According to the Assessment, the project will be designed to retain trees in buffered riparian areas, trees greater than 24 inch dbh, and old-growth trees that remain from the period of initial road construction. Treatment adjacent to the road returns the roadside to its former, more open condition. This activity may take place adjacent to spotted owl NRF and dispersal habitats, in spotted owl critical habitat unit # OR 32, as well as within late successional reserve RO 223 and individual spotted owl 100 acre reserves, but will not take place in murrelet suitable habitat.

Rogue Culvert Replacement (East and West)

Culverts would be replaced as part of the normal road maintenance regime in the Glendale Resource Area. In most cases, no habitat would be altered. In some instances, it would be necessary to remove select trees for safety or project logistics reasons. These activities may take place in spotted owl NRF and dispersal habitats, spotted owl critical habitat unit OR 32 and OR 65, late successional reserve, as well as within murrelet critical habitat unit OR-07-f.

Recreation Maintenance

Up to five acres in and near recreation sites in the Butte Falls Resource Area would be treated. Recreation management includes trail construction and maintenance, campground and physical facilities maintenance, signing. The District intends to implement mandatory project design criteria (PDC) (Appendix B), designed to avoid the disturbance of listed species. Occasional heavy equipment use could cause high noise levels for less than a week, 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. According to the Assessment, this project may take place in spotted owl dispersal habitat, but not within stands of spotted owl NRF habitat, critical habitat, Late Successional Reserve, or murrelet suitable habitat.

Hazard Trees

Hazard tree removal is difficult to anticipate, but safety concerns require them to be dealt with promptly. Hazard trees can occur along active roadways, may result from localized wind or snow break damage, or may be existing trees considered hazardous by contractors working in adjacent areas. Most hazard tree removal will occur along the road prism and will involve individual trees. The District sells most hazard trees that are located in matrix land use allocation (USDA FS/USDI BLM 1994a). Some hazard trees that are felled within LSRs and other reserves may be left on site to contribute to down wood or may be used for stream improvement projects. The amount of hazard tree removal analyzed in the Assessment was estimated from widely variable hazard tree treatments in prior years and will not exceed 200 acres across the entire Medford District. Hazard tree removal may take place in all resource areas, in spotted owl NRF and dispersal habitats, spotted owl critical habitat, and late successional reserves, but would not take place in murrelet suitable habitat.

Adaptive Management

Adaptive management allows minor project variations to meet site-specific conditions or landscape objectives. Therefore, there may be minor deviations in the description of projects. The District considered these minor deviations in the Assessment, and has determined deviations consistent with the following guidelines are consistent with the effects determinations made in the Assessment:

- Project complies with the Districts RMP (USDI BLM 2008) to which it is tiered, and with the Plan.
- Impacts and extent of the project are within parameters of described activities in the Assessment.
- Deviations will be reviewed by the Level 1 team to ensure impacts to listed species remain the same or less than those described within the Assessment.
- Minimization measures proposed for the project are consistent with the intent and impacts of actions described in the Assessment.

Separate consultation will be required to meet Endangered Species Act compliance if the project cannot be revised to comply with the effects analyzed in this consultation, or if site-specific evaluations cause the District to change their effects determination for any activities associated with the proposed action.

Project Design Criteria (PDC)

PDC are conservation measures developed to reduce or avoid impacts to listed species. Conservation measures may include implementation of seasonal restrictions to reduce impacts during critical breeding seasons, retention of known nest trees and/or restricting activities within a certain distance of known sites to reduce impacts of disturbance. The District plans to apply mandatory PDC, to all activities associated with this proposed action. The District will apply recommended PDC during project implementation when practical. Detailed descriptions of the PDC, as provided by the District, are provided in Appendix B.

The Recovery Plan for the Northern Spotted Owl (USDI FWS 2008a) consists of 34 recovery actions. Recovery action number 32 relates to maintaining structurally complex habitat outside of the Managed Owl Conservation Areas (MOCA), and recommends federal land management agencies “maintain substantially all of the older and more structurally complex multi-layered conifer forests on Federal lands outside of MOCAs These forests are characterized as having large diameter trees, high amounts of canopy cover, and decadence components such as broken-topped live trees, mistletoe, cavities, large snags, and fallen trees.”

Currently, the District and the Service are developing a process for identifying structurally complex stands. As stated in the Assessment, the proposed activities included in the proposed action will not occur in any stand the District believes could be considered older, structurally-complex, and multi-storied.

EFFECTS OF THE ACTION

Effects to Spotted Owl NRF Habitat

According to the Assessment, the District proposes to implement activities that will treat and maintain up to 3,026 acres (Table 1) of spotted owl NRF habitat in association with the proposed action. All projects have been designed to maintain existing spotted owl NRF habitat amounts.

Table 1. Effects to Spotted Owl NRF Habitat.

Treatment Type	Spotted Owl NRF Habitat Baseline	Number of Treatment Acres	Percent of Spotted Owl NRF Habitat Affected
Klamath Mountains Physiographic Province			
Timber Harvest		1,260	0.41
Fuels Management		1,302	0.42
Hazard Tree Removal		30	0.01
Sub-total	308,612	2,592	0.84
Cascades West Physiographic Province			
Timber Harvest		300	0.40
Fuels Management		114	0.15
Hazard Tree Removal		20	0.03
Sub-total	74,832	434	0.58
Total	383,444	3,026	0.79

¹ From the Biological Assessment (USDI BLM 2009).

According to the Assessment, implementation of the proposed action will treat and maintain up to 3,026 acres of spotted owl NRF habitat. Collectively, implementation of all projects included in the proposed action will result in the treatment of less than one percent of extant spotted owl NRF habitat within each physiographic province (Table 1). The Assessment states that the quality of spotted owl NRF habitat, in some cases, will improve because the post-treatment stand will allow more space for residual trees to develop spotted owl NRF habitat characteristics. Treated stands are designed to be more resilient to stand-replacement fire, disease and suppression mortality.

Light to moderate thinning will reduce the average canopy cover of the stand to no less than 60 percent. Selective harvest may affect NRF habitat by removing some horizontal and vertical structure. Components important to spotted owls such as nest trees, multi-layered canopies, and dead and down wood that support prey species habitat will remain within a given project area post-harvest, retaining the ability to provide for the nesting, roosting, foraging and dispersal of spotted owls. The District has determined effects to spotted owls as a result of treating and maintaining up to 3,026 acres of spotted owl NRF habitat will be insignificant and *may affect, are not likely to adversely affect* spotted owls for the following reasons:

- Canopy cover will be maintained at 60 percent or greater at the stand level, a value important to for the continued use of stands by spotted owls.
- Decadent woody material, such as large snags and down wood which provide habitat for spotted owl prey species, will remain post-treatment.

- All multi-canopy, uneven aged tree structure that was present pre-treatment will remain post-treatment.
- Treatments within stands of spotted owl NRF habitat will be distributed both spatially and temporally throughout the two affected physiographic provinces.
- No nest trees will be removed.
- Treatments are expected to improve the ecological health of treated stands, stimulate forage plants important to spotted owl prey species, reduce the chance of tree loss due to suppression mortality because the stand has more trees than the site can support over the long-term, and will reduce the intensity and risk of wildfire by removing excess fuels.
- Implementation of mandatory PDC that restrict activities within the critical breeding season (March 1 through June 30) as well as beyond the recommended disturbance/disruption thresholds (Appendix B) will avoid adverse disturbance to spotted owls.

For the above reasons, the Service concurs with the District’s finding that these proposed treatments *may affect, are not likely to adversely affect* the spotted owl.

Effects to Spotted Owl Dispersal Habitat

Spotted owl dispersal habitat is comprised of both spotted owl NRF habitat and spotted owl dispersal-only habitat. The analysis below reflects an analysis of the effects to spotted owl dispersal-only habitat (referred to as dispersal habitat for the purposed of this analysis).

Treat and Maintain

The proposed action includes timber harvest, fuels reduction, special forest products, recreation and hazard tree removal activities that, collectively, will result in the treatment and maintenance of up to 6,395 acres (Table 2) of spotted owl dispersal habitat.

Table 2. Effects to Spotted Owl Dispersal Habitat.

Treatment Type	Spotted Owl Dispersal Habitat Baseline	Number of Treatment Acres	Percent of Spotted Owl Dispersal Habitat Affected
Klamath Mountains Physiographic Province			
Timber Harvest		1,280	1.28
Fuels Management		3,786	3.80
Special Forest Products		300	0.30
Recreation		5	0.01
Hazard Tree Removal		90	0.09
Sub-total	99,602	5,461	5.48
Cascades West Physiographic Province			
Timber Harvest		525	1.72
Fuels Management		199	0.65
Special Forest Products		150	0.49
Hazard Tree Removal		60	0.19
Sub-total	30,462	934	3.07
Total	130,064	6,395	4.91

As detailed in the Assessment, trees over 11 inches dba will retain 40 percent canopy cover, a value widely used in assessing dispersal function (Thomas et al. 1990). Implementation of the proposed action within spotted owl dispersal habitat is not anticipated to diminish the ability of spotted owls to move through treated stands. The District anticipates these treatments will cause an indirect beneficial effect for spotted owls by accelerating the development of late-successional elements, such as large diameter trees, multiple canopy layers, flying space and hunting perches in the long term. The additional light in the stand improves vigor of residual trees, but can also provides light to some of the forage plants important to spotted owl prey, if structural components are retained to provide prey cover habitat.

Additionally, snag and coarse woody debris remaining in treated stands post-treatment will help minimize impacts to spotted owl prey species that utilize these features. Residual young trees rapidly respond to increased space and light following treatment and develop increased bole and crowns. Suppression mortality, a condition where unnaturally crowded trees suppress growth and viability of those trees, will be avoided. Wildfire resiliency will be improved. Remaining trees will have more water, space and light to be healthier and grow faster, and develop more structural diversity.

The District has determined the effects to spotted owls, as a result of the implementation of up to 6,395 acres of timber harvest, fuels reduction treatments, special forest products and hazard tree removal within spotted owl dispersal habitat will be insignificant and *may affect, are not likely to adversely affect* spotted owls for the following reasons:

- Canopy cover in treated stands will be maintained at 40 percent.
- Decadent woody material, such as large snags and down wood will be maintained during these treatments.
- Very dense stands will be opened by thinning, thereby improving conditions for dispersing spotted owls.
- Thinning treatments are designed to reduce the rate of spread and intensity of wildland fires common to the action area.
- No nest trees will be removed.
- All spotted owl nest patches will be avoided.
- Implementation of mandatory PDC will avoid adverse disturbance to spotted owls.

For the above reasons, the Service concurs with the District's finding that these proposed treatments *may affect, are not likely to adversely affect* the spotted owl.

Removal

As described in the Assessment, up to one acre of spotted owl dispersal habitat may be removed in association with the East McMullin road right-of-way (ROW) permit. The removal of one acre represents 0.001 percent of the 99,602 acres of dispersal habitat in the Klamath Mountains Physiographic Province. The District believes the removal of this small amount of spotted owl dispersal habitat will be insignificant to the ability of spotted owls to disperse within the action area, and *may affect, is not likely to adversely affect* spotted owls for the following reasons:

- The road right of way does not occur within the nest patch of any known, or predicted spotted owl sites.
- The District anticipates spotted owls would be able to disperse through the area after road construction, because the road prism is a narrow linear opening, not usually considered a barrier to spotted owl movement.
- No spotted owl nest trees would be removed.
- The District anticipates the treated area will continue to provide flying space and prey species for dispersing spotted owls post-treatment.

The Service concurs with the District's finding that the removal of up to one acre of spotted owl dispersal habitat associated with the East McMullin ROW *may affect, is not likely to adversely affect* the spotted owl.

Effects to Spotted Owl Prey Species

The Assessment presents a finding that the proposed harvest and vegetation treatments are likely to maintain or improve foraging habitat conditions for spotted owl prey species. Lemkuhl et al. (2006) confirmed the importance of maintaining snags, down wood, canopy cover, and mistletoe to support populations of spotted owl prey species. 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, an important prey species for spotted owls. Gomez et al. (2005) also noted the importance of fungal sporocarps, which were positively associated with large down wood.

Residual trees, snags and down wood that are retained in the thinned stands will provide some cover for prey species over time, and will help minimize harvest impacts to some prey species. Some arboreal prey species will venture into harvest units a short distance for food. 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 spotted owls) (Zabel et al. 1995). The retained trees may respond favorably to more light and resources and gain height and canopy over time.

The proposed projects considered herein are designed to maintain existing spotted owl habitat at the stand level, while improving ecological sustainability and reducing fire risks. Treatments are also designed to retain habitat for spotted owl prey, such as retention of snags and understory development. However, spotted owl prey animals may be more exposed in treatment areas, or may move away from the area over the short term. As prey move around in response to the proposed treatments they may become more vulnerable and exposed to predation by spotted owls. The disturbance might attract other predators such as other owls, hawks and mammalian predators, which may increase competition for spotted owls in the treatment area.

Some changes to habitat features caused by the proposed action may improve forage conditions for spotted owls, 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 close in the stand.

Overall, the spacing, timing and standards and guidelines for proposed projects described in the Assessment are likely to avoid adverse impacts to spotted owls with respect to prey availability by retaining habitat features in treated stands that support prey species populations although localized, short-term changes in prey species distribution and abundance are likely to occur within a treated stand. The dispersion of treatment sites over a large area is especially important in maintaining spotted owl prey populations within the action area. On this basis, the District has determined effects to spotted owls, as described here, would be insignificant.

Effects to Spotted Owl Critical Habitat

Due to on-going litigation regarding designated critical habitat for the spotted owl, the District analyzed potential impacts to spotted owl critical habitat designated in 2008 (USDI FWS 2008b) as well as that previously designated in 1992 (USDI FWS 1992).

Effects to Spotted Owl NRF Habitat

The District plans to treat and maintain up to 685 acres of spotted owl NRF habitat, within several designated 1992 critical habitat units. Activities planned include timber harvest (through light thinning), fuels reduction and hazard tree removal activities (Table 3). According to the Assessment, implementation of these activities will not decrease the primary constituent elements of spotted owl NRF habitat because the function of the treated stands will be maintained. The District anticipates nesting, feeding, sheltering and dispersal conditions of pre-treatment spotted owl NRF habitat will be retained, and, in many cases, improved.

Table 3. Effects to Spotted Owl NRF Habitat within Designated Critical Habitat Units (1992).

Critical Habitat Unit Number	District Spotted Owl NRF Habitat Baseline	Number of Treatment Acres	Treatment Type	Percent of Spotted Owl NRF Habitat Affected
Spotted Owl Critical Habitat Designated in 2008				
14 (KM ¹)	59,800	150	Timber Harvest	0.25
Spotted Owl Critical Habitat Designated in 1992				
32 (CW ²)	24,543	200	Timber Harvest	0.81
36 (CW ²)	1,650	5	Hazard Tree	0.30
38 (CW ²)	13,698	5	Hazard Tree	0.04
65 (KM ¹)	49,717	5	Hazard Tree	0.01
		300	Fuels Hazard	0.60
72 (KM ¹)	22,178	10	Hazard Tree	0.04
75 (KM ¹)	9,507	10	Hazard Tree	0.10
Total	121,293	685		0.56

¹ Klamath Mountains Physiographic Province

² Cascades West Physiographic Province

As described in the Assessment, the District has determined implementation of the proposed action will be insignificant and *may affect, is not likely to adversely affect* spotted owl NRF habitat within designated critical habitat because:

- No primary constituent elements will be reduced in quantity or quality.
- There will be no change in the amount of spotted owl NRF habitat in the four affected critical habitat units (CHU)s.
- Canopy cover within treated stands of spotted owl NRF habitat will be retained at 60 percent or greater, allowing for the continued nesting, roosting and foraging of spotted owls within treated stands.
- Decadent woody material in the treatment areas, such as large snags and down wood, will remain post-treatment, providing habitat for spotted owl prey species.
- Multi-canopy, uneven-aged tree structure present prior to treatments will remain post-treatment, providing important habitat features of spotted owl NRF habitat.
- Post treatment structural conditions will maintain habitat conditions for spotted owl prey species, particularly woodrats, in treatment areas.
- No spotted owl nest trees will be removed.
- Treatments will be distributed both spatially and temporally within the affected CHUs (Table 3).
- Treatments will not occur within the nest patch of any known or predicted spotted owl site.

As described in the Assessment, anticipated beneficial effects which may result from the implementation of thinning and fuels reduction treatments include:

- Improved ecological condition of treated stands.
- Reduction in the chance of tree loss due to suppression mortality.
- Reduced risk of stand loss due to wild land fires.
- Increase in the amount of forage plants important to spotted owl prey species.

For the above reasons, the Service concurs with the District's finding that implementation of thinning and fuels reduction treatments, as displayed in Table 3, *may affect, are not likely to adversely affect* spotted owl NRF habitat within designated critical habitat.

Spotted Owl Dispersal Habitat

According to the Assessment, up to 855 acres of spotted owl dispersal-only habitat will be treated and maintained as a result of timber harvest (through light thinning), fuels reduction treatments and hazard tree removal activities (Table 4).

Table 4. Effects to Spotted Owl Dispersal Habitat within Designated Critical Habitat (1992).

Critical Habitat Unit Number	District Spotted Owl Dispersal Habitat Baseline	Number of Treatment Acres	Treatment Type	Percent of Spotted Owl Dispersal Habitat Affected
Spotted Owl Critical Habitat Designated in 2008				
14 (KM ¹)	13,277	200	Timber Harvest	1.51
Spotted Owl Critical Habitat Designated in 1992				
32 (CW ²)	5,702	30	Timber Harvest	0.53
		450	Fuel Hazard	7.89
36 (CW ²)	2,984	5	Hazard Tree	0.17
38 (CW ²)	2,427	5	Hazard Tree	0.21
62 (KM ²)	354	40	Timber Harvest	11.30
65 (KM ¹)	11,267	5	Hazard Tree	0.01
		300	Roadside Fuels	0.60
72 (KM ¹)	7,555	10	Hazard Tree	0.13
75 (KM ¹)	1,789	10	Hazard Tree	0.56
Total	45,355	855		1.89

¹ Klamath Mountains Physiographic Province

² Cascades West Physiographic Province

As described in the Assessment, the District has determined the effects of this proposed action will be insignificant and *may affect, is not likely to adversely affect* spotted owl dispersal habitat within designated critical habitat because:

- No primary constituent elements will be reduced in quantity or quality.
- There will be no change in the amount of spotted owl dispersal habitat in the affected CHUs (Table 4).
- Canopy cover within treated stands of spotted owl dispersal habitat will be retained at 40 percent or greater, allowing for the continued dispersal of spotted owls throughout treated stands.
- Very dense stands will be opened by thinning, improving conditions for dispersing spotted owls.
- Decadent woody material in the treatment areas, such as large snags and down wood, will remain post-treatment, providing benefits to spotted owl prey species.
- Multi-canopy, uneven-aged tree structure present prior to treatments will remain post-treatment, providing important habitat features of spotted owl habitat.
- Post treatment structural conditions will maintain habitat conditions for spotted owl prey species, particularly woodrats, in treatment areas.
- Treatments will not occur within the nest patch of any known or predicted spotted owl sites.
- Implementation of mandatory PDC will avoid adverse disturbance to spotted owls.

For the above reasons, the Service concurs with the District’s finding that the implementation of up to 855 acres of timber harvest, fuels reduction and hazard tree removal planned to occur within spotted owl dispersal habitat within the affected CHUs (Table 4) *may affect, are not likely to adversely affect* spotted owl dispersal habitat within designated critical habitat.

Effects to Late Successional Reserves

The District analyzed the potential impacts to late successional reserves, as a result of the implementation of the proposed action. Table 5 displays the amounts of spotted owl NRF habitat that may be affected due to the implementation of timber harvest (through light thinning), fuels reduction and hazard tree removal activities planned to occur among five individual late successional reserves. Table 6 displays the anticipated effects to spotted owl dispersal habitat. All treatment acres planned to occur within LSRs represent a subset of the total amounts of spotted owl NRF and dispersal habitats that may be affected. The anticipated effects to LSRs are the same as the effects to spotted owl NRF and dispersal habitats, as detailed above.

Table 5. Effects to Spotted Owl NRF Habitat within Late Successional Reserves.

Late Successional Reserve Number	District Spotted Owl NRF Habitat Baseline	Number of Treatment Acres	Treatment Type	Percent of Spotted Owl NRF Habitat Affected
RO 249	8,575	10	Hazard Tree	0.12
RO 258	47,177	5	Hazard Tree	0.01
		300	Fuel Hazard	0.63
RO 223	15,307	200	Timber Harvest	1.31
RO 224	10,854	5	Hazard Tree	0.05
Total	81,913	520		0.63

Table 6. Effects to Spotted Owl Dispersal Habitat within Late Successional Reserves.

Late Successional Reserve Number	District Spotted Owl Dispersal Habitat Baseline	Number of Treatment Acres	Treatment Type	Percent of Spotted Owl Dispersal Habitat Affected
RO 249	2,793	10	Hazard Tree	0.36
RO 258	10,827	5	Hazard Tree	0.05
RO 223	3,019	450	Timber Harvest	14.90
RO 224	2,300	5	Hazard Tree	0.22
Total	18,939	470		2.48

Spotted Owl Recovery Plan

The Recovery plan for the spotted owl (USDI FWS 2008a) includes 34 recovery actions. The Assessment describes how the District is implementing the recovery plan with the implementation of the proposed action as follows.

Recovery Action 8

Recovery Action 8 directs the management of federally managed forests in the Klamath Mountains Physiographic Province in Oregon and California to meet spotted owl recovery while creating more fire-resilient forests. Fuel hazard reduction and thinning activities included in the proposed action will be compatible with reducing risk of wildfire while maintaining spotted owl NRF and dispersal habitats. Much of the forest in the Klamath Mountains Physiographic Province experiences a frequent fire return interval, and it is understood that spotted owls have evolved and adapted to these landscapes.

Recovery Action 32

Recovery Action 32 relates to maintaining structurally complex habitat outside of the Managed Owl Conservation Areas (MOCA), and recommends federal land management agencies “maintain substantially all of the older and more structurally complex multi-layered conifer forests on Federal lands outside of MOCAs These forests are characterized as having large diameter trees, high amounts of canopy cover, and decadence components such as broken-topped live trees, mistletoe, cavities, large snags, and fallen trees.”

Currently, the District and the Service are developing a process for identifying structurally complex stands. For the purposes of the proposed action, the District has specifically avoided treating stands that could meet the description of Recovery Action 32.

Effects to Spotted Owls due to Disturbance

As detailed in the Assessment, portions of this proposed action may occur in non-habitat for spotted owls, yet have the potential to result in noise which could carry into occupied spotted owl habitat. The application of mandatory PDC by is anticipated to result in the avoidance of adverse noise disturbance to spotted owls. Additional conservation measures may be implemented at the site specific, project level by interdisciplinary teams during project reviews.

According to the Assessment, the District has planned the projects included in the proposed action in a manner that avoids adverse impacts from noise and disturbance to spotted owls. The District plans to implement mandatory PDC (Appendix A), which require distance and timing restrictions designed to reduce disturbance to spotted owls. The opportunistic application of recommended PDC will provide additional conservation benefits to spotted owls. District biologists evaluated all projects included in the proposed action against known and predicted spotted owl sites (USDI/USDA 2008). Only those projects that would occur outside the critical breeding period (March 1 to June 30) or outside the appropriate disturbance distance (Appendix A), or both, were included in the proposed action. Therefore, the District has determined effects to spotted owls due to disturbance associated with the implementation of the proposed action *may affect, are not likely to adversely affect* spotted owls.

Based on the above information, the Service agrees with the determination disturbance associated with the proposed action *may affect, is not likely to adversely affect* spotted owls.

Effects to Marbled Murrelets

As described in the Assessment, the Farout timber sale will occur on approximately 90 acres of 70 to 90 year old forest in five forest stands within murrelet survey Zone A; and on approximately 40 acres of 70 to 90 year old age class in two forest stands within murrelet survey zone B. Murrelet suitable habitat will not be treated in the implementation of the proposed action. Field evaluations of proposed harvest stands within Zones A and B have been carried out to identify habitat patches that could support a murrelet nest tree. These habitat patches will not be treated. Large dominant trees with large branches and crowns, and adjacent trees within ½ site potential tree height, and moderate to high canopy cover of 40-60% will be retained to preserve murrelet habitat suitability. Treatment of younger (70-90 year old) stands will retain structural and species complexity. The District has determined implementation of the Farout timber sale will have *no effect* to murrelets.

Effects to Murrelet Critical Habitat

Six culvert replacements will occur within murrelet critical habitat unit OR-07-F. No habitat modification will occur. The District has determined there will be *no effect* to marbled murrelet critical habitat. Seasonal and daily PDC will be applied to these activities (see Appendix B).

Effects to Murrelets Due to Disturbance

The District has determined there will be *no effect* to murrelets due to disturbance because the District plans to implement seasonal and daily PDC (Appendix B), designed to reduce potential impacts, on up to 90 acres associated with the Farout timber harvest project.

Concurrence

This response is prepared in accordance with section 7(a)(2) and 7(c) of the Act, and concludes informal consultation on the project pursuant to 50 CFR 402. The Service concurs with the effects determination made by the District that the above Proposed Action, as detailed in the Assessment and in the Description of the Proposed Action and Effects section of this letter, *may affect, is not likely to adversely affect* the spotted owl and spotted owl critical habitat, and *may affect, is not likely to adversely affect* the murrelet. This concurrence is based on the fact that all projects, both individually and collectively, will implement the standards and guidelines of the NWFP (USDA FS/USDI BLM 1994a), comply with the District's RMP (USDI BLM 2008), and will incorporate the mandatory PDC described in Appendix A.

Incidental take is not expected and is not authorized for this consultation. Consultation on this action should be reinitiated if 1) new information reveals effects of the action that may affect listed species or designated critical habitat in a manner or to an extent not considered in this consultation; 2) the action is subsequently modified in a manner that causes an effect to a listed species or designated critical habitat that was not considered in this consultation; 3) a new species or critical habitat is designated that may be affected by this project.

Because the proposed action is not likely to adversely affect spotted owls, murrelets, or spotted owl designated critical habitat within the action area, it is not necessary to consider whether the action will jeopardize the species or adversely modify the value of their designated critical habitat.

If any questions arise concerning the contents of this concurrence letter, please contact Cynthia Donegan at 541-957-3469.

cc: Carole Jorgensen, BLM, Medford, OR (e)
Office Files, FWS-OFWO, Portland, OR (e)
Brendan White, FWS-OFWO, Portland, OR (e)
Larry Salata, FWS-RO, Portland, OR (e)

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Appendix B: Project Design Criteria

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

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

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

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

PDC for disturbance are intended to reduce disturbance to nesting spotted owls or marbled murrelets. For this consultation, potential disturbance could occur near either documented owl sites or projected owl sites. To estimate likely occupied habitat outside of known home ranges, nearest-neighbor distances and known spotted owl density estimates were utilized to “place” potential spotted owl occupied sites in suitable habitat. Marbled murrelets are difficult to locate. No murrelets have been documented on the District, but Medford remains within zone B. To ensure that activities that have the potential of disturbing marbled murrelets are reduced to not likely to adversely affect (NLAA) (or no effect (NE)), we (Medford BLM) will impose the PDC in or adjacent to marbled murrelet habitat.

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

Mandatory Project Design Criteria (spotted owls)

A. Activities (such as tree felling, yarding, road construction, hauling on roads not generally used by the public, prescribed fire, muffled blasting) that produce loud noises above ambient levels will not occur within specified distances (Table A-1) of any documented or projected owl site between March 1 and June 30 (or until two weeks after the fledging period) – unless protocol surveys have determined the activity center to be not occupied, non-nesting, or failed in their nesting attempt. The distances may be shortened if significant topographical breaks or blast blankets (or other devices) muffle sound traveling between the work location and nest sites.

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

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

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

- (I) Trees already on the ground in areas where large woody material is adequate;
- (II) Trees lacking suitable nesting structure for spotted owls.

Table A-1. Mandatory Restriction Distance to Avoid Disturbance to Spotted Owl Sites.

Activity	Documented Owl Site	Projected Owl Site**
Heavy Equipment (including non-blasting quarry operations)	105 feet	761 feet
Chain saws	195 feet	851 feet
Impact pile driver, jackhammer, rock drill	195 feet	851 feet
Small helicopter or plane	360 feet*	1016 feet
Type 1 or Type 2 helicopter	0.25 mile*	0.512 mile
Blasting; 2 lbs of explosive or less	360 feet	1016 feet
Blasting; more than 2 lbs of explosives	1 mile	1.12 miles

* If below 1,500 feet above ground level

** Radius distances were increased by 656 feet (200 meters) around estimated nest sites to provide additional protection, since the exact location of owls is unknown in these areas.

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

Recommended Project Design Criteria--Murrelets

Restrict operations from March 1 through September 30 (through the extended breeding period) within disturbance distances (unless protocol surveys demonstrate non-nesting).

Table B-2. Mandatory Marbled Murrelet Project Design Criteria

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

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