

**A Biological Assessment of Impacts
to Terrestrial Threatened and Endangered Species
from Port-Orford-cedar Management
in Redwood National and State Parks (RNSP)**

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I. INTRODUCTION

The purpose of this biological assessment (BA) is to review the on-going Redwood National and State Parks (RNSP or “park”) action, Port-Orford-cedar (POC) Management, in sufficient detail to determine if the action may affect any threatened or endangered species and/or their critical habitats. This biological assessment is prepared in accordance with legal requirements set forth under section 7 of the Endangered Species Act (19 U.S.C. 1536 (c), 50 CFR § 402), and meets the criteria for informal consultation with the United States Fish and Wildlife Service (USFWS).

II. CONSULTATION TO DATE

Redwood National and State Parks received a list from the Arcata Fish and Wildlife Service Office (AFWO) identifying the endangered, threatened, and candidate species that may be present or may be affected by park activities (Document Number 747835622-165544, dated December 7, 2009). This list included 22 species currently listed as threatened or endangered, one proposed endangered, one proposed threatened, and four species that are candidates for listing in Humboldt and Del Norte Counties:

Endangered

Western Lily (*Lilium occidentale*)
Beach Layia (*Layia carnosa*)
Tidewater Goby (*Eucyclobius newberryi*)
Leatherback Turtle (*Dermochelys coriacea*)
Short-tailed Albatross (*Phoebastria albatrus*)
Sperm Whale (*Physeter macrocephalus*)
Blue Whale (*Balaenoptera musculus*)
Humpback Whale (*Megaptera novaengliae*)
Fin Whale (*Balaenoptera physalus*)
Sei Whale (*Balaenoptera borealis*)

Threatened

Oregon Silverspot Butterfly (*Speyeria zerene hippolyta*)
Green Sturgeon (*Acipenser medirostris*)
California Coastal Chinook Salmon (*Oncorhynchus tshawytscha*)
Northern California Steelhead (*Oncorhynchus mykiss*)
Southern Oregon/ Northern California Coast Coho Salmon (*Oncorhynchus kisutch*)
Green Turtle (*Chelonia mydas*)
Olive Ridley Sea Turtle (*Lepidochelys olivacea*)
Loggerhead Turtle (*Caretta caretta*)
Northern Spotted Owl (*Strix occidentalis caurina*)
Marbled Murrelet (*Brachyramphus marmoratus*)
Western Snowy Plover (*Charadrius alexandrinus nivosus*)
Steller Sea Lion (*Eumetopias jubatus*)

Proposed Endangered

Black Abalone (*Haliotis cracherodii*)

Proposed Threatened

Southern Eulachon DPS (*Thaleichthys pacificus*)

Candidate

Fisher, West Coast DPS (*Martes pennant*)

Mardon Skipper (*Polites mardon*)

Xantu's Murrelet (*Synthliboramphus hypoleucus*)

Western Yellow-billed Cuckoo (*Coccyzus americanus*)

California state endangered species occurring in the parks include the Bald Eagle (*Haliaeetus leucocephalus*) and American Peregrine Falcon (*Falco peregrines anatum*).

Critical habitat was designated for 10 species on RNSP's list of threatened and endangered species. Critical habitat for coho and Chinook salmon, steelhead, and the marbled murrelet occurs within the park. Marbled murrelet critical habitat occurs in two units: unit CA-02-a includes Jedediah Smith Redwoods and Del Norte Coast Redwoods State Parks and unit CA-02-b includes Prairie Creek Redwoods State Park. Critical habitat for the marbled murrelet does not occur on federal parklands. Critical habitats for the tidewater goby, leatherback turtle, northern spotted owl, western snowy plover, and Steller sea lion are not designated within the park.

The actions originally proposed in the Port-Orford-cedar Management Plan were discussed on 19 August 2003 during an Interagency Consultation Team meeting held at South Operations Center in Orick. These actions were intended to address management actions associated with controlling the spread of Port-Orford-cedar root disease (*Phytophthora lateralis* [PHLA]). Many of the actions considered under the previous consultation, which expired at the end of 2009, have been completed. Thus, the program now is basically pro-active and outlines responses to a potential outbreak of the disease within the parks. Therefore, other than those previously considered actions that were implemented, the current action has changed very little, if it all, from what was described in the programmatic biological assessment dated 3 June 2004.

During the original consultation the main topic of discussion regarded the potential for the habitat within a project area to be suitable and occupied by spotted owls. Many areas in which POC may occur have not been surveyed for spotted owls.

III. CURRENT MANAGEMENT DIRECTION

Please refer to *A Conservation Strategy for Managing Threatened and Endangered Species in Redwood National and State Parks* (Sakai 2003) for a detailed summary of laws and policies that influence management direction in RNSP. Although NPS and CDPR signed a Memorandum of Understanding providing for joint management of the four parks as a partnership, each agency retains full and independent authority for determining and implementing management actions on their lands.

Port-Orford-cedar Management

Management of POC was not addressed specifically in the parks's General Management Plan/General Plan EIS/R [GMP/GP] (USDI and CDPR 1999). Therefore, a Port-Orford-cedar Management Plan was developed in 2004 to address potential for spread of PHLA. The primary action under the plan was to reroute the Little Bald Hills Trail out of a PHLA infection site. This project was subsequently completed. Additional POC management options were developed

because of other small infestations occurring in RNSP (also subsequently treated), the potential for additional infestations to occur or be discovered in the future, and the need to protect healthy POC inside and outside the park. PHLA disease experts from the USDA Forest Service assisted park staff in the development of management options which are similar to those options identified in the final supplemental environmental impact statement for managing POC in southwest Oregon (USDA and USDI 2004).

IV. DESCRIPTION OF THE PROPOSED ACTIONS

POC becomes infected by the fungal pathogen PHLA when tree roots come into contact with fungal spores in wet soil, or by root grafting of infected trees to uninfected trees. Infection by PHLA results in the death of approximately 75% of host trees. Vectors for the disease include humans that may transport PHLA spores when wet mud clings to vehicle tires, equipment, or footwear, or wildlife or domestic animals walking through infected areas. The activities described in this document were designed to prevent the transmission of PHLA within and outside of the parks, and reduce PHLA spore load where complete elimination of the disease from a site is not feasible.

This BA would cover implementation of actions addressed under the POC management plan from 2010 through calendar year 2014. The affected area would include all of RNSP lands within the range of POC, but not California State Parks' Mill Creek Watershed addition to Del Norte Coast Redwoods State Park. Methods that would be used to manage POC are described below and would apply to POC infection sites discovered in the future.

Any POC infection sites discovered in or within 500 ft of suitable spotted owl, marbled murrelet, or fisher habitat would be subject to the minimization measures described below under the various forms of treatment.

Trail and Road Improvements

Trail improvements would be implemented where there is a moderate to high risk of trail users moving PHLA spores between infected and uninfected areas. Trail improvements would include one or more of the following:

- Trail armoring- the trail surface would be modified with rock or other material to minimize mud production and prevent surface water concentration.
- Water bypass structures- sewer pipes (small culverts) would be installed in wet areas to direct water beneath or away from trails.
- Raised crossings- raised crossings or bridges would be constructed where trails cross streams and other watercourses.

At this time there are no known sites requiring improvements. The known site considered in the previous BA adjacent to the Hatton Trail in Jedediah Smith state park, was improved. The Mill Creek Trail is the only trail that may require minor trail improvements in the future due to the occurrence of POC along that trail.

Road improvements would include culvert installation or upgrades along roads with POC where water is diverted over the road bed during storm events. A road improvement may be necessary at Pacamo Road due to a nearby infection site.

It is anticipated that minimal vegetation removal (e.g., on the order of 0.1 ac or less) would be required to implement any trail or road improvements. A backhoe and dump truck may be needed for improvements but much of the work would most likely be done manually by crews with hand tools. The POC risk key (Appendix A) would be used to ensure that project activities do not exacerbate the spread of disease.

Measures to Minimize Impacts on the Northern Spotted Owl

To ensure that nesting spotted owls would not be disturbed by trail or road improvement, all activities in or within 500 ft of suitable habitat that would generate noise above ambient background levels would not occur from 1 February through 9 July. At some locations on-going annual compliance surveys (with negative results) would allow road or trail improvement activities to proceed without a seasonal restriction. This would include the infection site at Pacamo Road.

Vegetation to be removed from sites requiring sewer pipe installation or bridge construction would be limited to herbs, small shrubs, and saplings growing in the immediate vicinity of the work site. No potential nest trees would be removed.

Measures to Minimize Impacts on the Marbled Murrelet

To ensure that nesting marbled murrelets would not be disturbed by trail or road improvement, all activities in or within 500 ft of suitable habitat that would generate noise above ambient background levels would not occur from 24 March through 15 September.

Vegetation to be removed from sites requiring sewer pipe installation or bridge construction would be limited to herbs, small shrubs, and saplings growing in the immediate vicinity of the work site. No potential nest trees or trees meeting the one-half site potential tree height criterion of critical habitat would be removed.

Measures to Minimize Impacts on the Fisher

To ensure that denning female fishers would not be impacted by noise disturbance from road and trail improvements, all noise generating activities in or within 500 ft of suitable habitat that are above ambient background levels would not occur from 1 March through 31 May.

Host Tree Eradication

This eradication technique entails the cutting or girdling of infected and healthy POC trees $\leq 15''$ dbh within a localized area of infection with a high potential for disease spread due to close proximity to a road or trail. The intent of this method is to control small infections while they are still small and not to create large gaps in the canopy. Localized host tree eradication would

only be used in areas meeting some or all of the following criteria:

- Trees are less than or equal to fifteen inches in diameter.
- The infestation covers less than 5 acres.
- Healthy trees have a high probability of being killed by the disease in the absence of treatment due to their close proximity to diseased trees. This distance is generally 25 to 50 ft, depending on crown characteristics, slope characteristics, and drainage situation. Healthy POC trees that are more than 50 ft from an infected tree would not be removed.
- The infestation site is close to a trail, road, or park facility that encourages human use and therefore increases the potential for spread of the disease.

A maximum of 5 acres would be treated at any particular location. Trees less than 15 inches in diameter would be cut, limbed, and bucked and the debris placed in contact with the ground for faster decomposition. Girdling would be used in place of cutting when possible. Once the hosts and potential hosts are removed or girdled the disease spore load in the soil will slowly decrease until it eventually dies out. Spore die-off can take up to seven years and would require continued removal of POC seedlings for that period. Seedlings would be pulled by hand or with hand tools as necessary.

Appendix B describes in greater detail the criteria for girdling or tree removal.

Interrelated or Interdependent Actions

Debris piles generated from tree cutting would be burned during the winter (from 16 September through 31 January or 23 March depending on habitat and spotted owl surveys) if it was determined this was necessary to reduce fuel loadings and avoid hazardous fuel build-ups.

Measures to Minimize Impacts on the Northern Spotted Owl

To ensure that juvenile spotted owls would not be harmed by host tree eradication, no work would occur in unsurveyed suitable nesting and roosting habitat from 1 February through 15 September.

Trees to be removed from eradication sites would be limited to POC trees $\leq 15''$ dbh. No potential nest trees would be removed. Any pile burning to reduce fuels generated by tree cutting in or within 0.25 mi of unsurveyed suitable habitat would be done in the winter, prior to 1 February.

Measures to Minimize Impacts on the Marbled Murrelet

To ensure that nesting marbled murrelets would not be disturbed by host tree eradication, chainsaw use in or within 500 ft of suitable habitat that would generate noise above ambient background levels would not occur from 24 March through 15 September.

Trees to be removed from eradication sites would be limited to POC trees $\leq 15''$ dbh. No potential nest trees or trees meeting the one-half site potential tree height criterion of critical

element would be removed. Any pile burning to reduce fuels generated by tree cutting in or within 0.25 mi of suitable habitat would be done in the winter, prior to 24 March.

Measures to Minimize Impacts on the Fisher

To ensure that denning female fishers would not be impacted by noise disturbance from host tree eradication, all noise generating activities within 500 ft of suitable habitat that are above ambient background levels would not occur from 1 March through 31 May.

Measures to Minimize Impacts on the Bald Eagle

To ensure nesting eagles would not be disturbed by host tree eradication or other POC management actions no work would be conducted in line within 0.5 mi or within direct line of sight of an active eagle nest until fledglings were out of the nest or 31 August, whichever comes first.

V. EXISTING ENVIRONMENT

A. Port-Orford-cedar in RNSP

POC in RNSP is most often found as a component of coast redwood (*Sequoia sempervirens*) forests in the Smith River watershed and on ultramafic soils in Douglas-fir (*Pseudotsuga menziesii*) and tanoak (*Lithocarpus densiflorus*) dominated second-growth forests in the Little Bald Hills. There also are pockets of native POC in Prairie Creek Redwoods State Park and along Coastal Drive, just south of the Klamath River (Jimerson and Jones 2001). Any POC in second growth south of the Klamath River is considered non-native due to introduction in post-timber harvest seed mixes (L. Arguello pers. comm.).

Stands of native POC in RNSP were mapped and ground-truthed by staff from Six Rivers National Forest. A stand polygon was mapped (to the vegetation subseries level) as POC if it contained $\geq 10\%$ POC in the canopy. A POC stand was mapped as infested if one or more trees in the polygon was infected with PHLA (T. Jimerson pers. comm.).

The mapping effort in RNSP identified 1,095 ac in the POC subseries. Of that, 313 ac (28%) were determined to be infected with the disease and 100% of the 1,095 ac were classified as “high risk” for contracting the disease, based on their proximity to roads and trails (T. Jimerson pers. comm.).

The site at Pacamo Road consists of a number of dead and dying POC in the drainage below the road. The area around the potential road improvement site is older second growth, mixed conifer forest.

VI. STATUS AND DISTRIBUTION OF LISTED SPECIES

Potentially suitable habitat for northern spotted owl, marbled murrelet, bald eagle, and fisher

occurs within the area potentially requiring POC management. These species will be considered in this document. Please refer to *A Conservation Strategy for Managing Threatened and Endangered Species in Redwood National and State Parks* (Sakai 2003) for detailed marbled murrelet and bald eagle species accounts, habitat status backgrounds, and literature summaries. Since preparation of the conservation strategy we have obtained new information on the spotted owl that is presented here. The fisher was not considered a candidate species in 2003 and was not included in the conservation strategy.

1. Northern Spotted Owl (*Strix occidentalis caurina*), Threatened

A. Species Account

The northern spotted owl historically was distributed throughout mature and old-growth conifer forests of western Washington and Oregon, and northwestern California from sea level to approximately 5,000 feet. Since 1850, the amount of mature and old growth forest in this region has been significantly reduced, primarily by logging in recent decades (Thomas et al. 1990). As a result, the spotted owl has been extirpated or is uncommon in certain portions of its historic range, particularly in areas in Washington and Oregon where federal and state lands are intermingled with private lands. Habitat loss due to timber harvest, exacerbated by natural events such as fire and windstorms, was cited as the primary reason for which this species was listed as threatened in 1990 (USDI 1990).

Critical habitat for this species was designated on 15 January 1992 (USDI 1992). No RNSP lands were designated as critical habitat for the northern spotted owl. A final recovery plan for the northern spotted owl was published in 2008 (USFWS 2008). The foundation of the recovery plan is a network of Managed Owl Conservation Areas (MOCAs) on federal lands supported by Conservation Support Areas (CSAs) on adjacent non-federal lands. MOCAs are intended to support stable and well-distributed populations of spotted owls over time and allow for movement of spotted owls across the network. Two types of MOCAs were identified by the plan. MOCA 1s have enough suitable habitat to support 20 or more breeding pairs now or in the future and MOCA 2s have habitat to support 1-19 breeding pairs. Redwood National Park south of Prairie Creek Redwoods State Park is designated a MOCA 1. The small portions of Redwood National Park in Del Norte County are designated MOCA 2s. The three state parks in RNSP are designated CSAs.

The first parks'-wide inventory of suitable habitat was conducted between 1993 and 1995 (Tanner 1999). Thirty-seven spotted owl territories were identified in RNSP during that original inventory. We currently track 39 territories (including three that were not part of the original inventory) in our spotted owl database. After 1995 park staff continued to survey some portion of the suitable habitat in the parks annually. Each year from 2001- 2004, approximately 50% of all suitable spotted owl habitat within the parks was surveyed, with approximately 65% of the habitat in old growth and 35% in second growth forests. The amount of suitable habitat surveyed declined beginning in 2005, in 2007 only 10% of the suitable habitat in the parks was surveyed. The reasons for the decline in surveyed acres include indications from previous surveys that many of the historic owl territories are no longer occupied by spotted owls, or we are no longer able to detect them in their territories, and many of the historic spotted owl

territories are now occupied by one or more barred owl pairs or resident singles.

Surveys of suitable habitat in the vicinity of annual facility maintenance projects have been conducted annually since 1998. These surveys have detected a few “floater” spotted owls, individuals that could not be relocated during daytime follow up visits.

In 2002, territory-wide inventories of “inactive” sites (activity centers where no owls were detected in ≥ 3 consecutive years) were begun. Inventories include a thorough survey of all suitable habitat within 1.0 mi of the historic activity center to the standards in the two-year protocol (USFWS 1992, RNSP 2003). As of 2008, twenty of 39 territories were inventoried. Spotted owls were relocated in five of these historic sites.

Survey results from the home range inventories indicate that spotted owls no longer occur within the majority of territories with persistently unoccupied activity centers. We have documented high levels of barred owl (*Strix varia*) activity at all but two of the inventoried territories. At four of these sites we have evidence that spotted owls may be remaining in the territories, however, we have been able to confirm pair occupancy in only one of these sites. Territories with completed inventories and no spotted owls detected are classified as “extirpated”. As long as barred owls persist at these sites, we believe it is unlikely that spotted owls will re-occupy their former territories.

Although barred owl records in the parks pre-date 1993 the initial spotted owl inventory began documenting barred owls in RNSP with regularity. By 1995 barred owls were documented at or near ten of the newly located spotted owl activity centers (Tanner unpub. data). As of 2008 barred owls have been observed in 28 (72%) of the known spotted owl territories within the parks. An additional 17 barred owl sites have been located away from any known historic spotted owl activity centers. Barred owls routinely out-reproduce spotted owls, with numerous sites producing 2-3 fledglings each year compared to a few spotted owl sites producing 1 or occasionally 2 fledglings.

Historically one spotted owl territory, Cedar Creek, occurred in the vicinity of previously known infection sites. The activity center was in old growth, redwood-dominated forest. Spotted owls have not been detected at Cedar Creek since 1995; this pair’s core area became occupied by a reproductive pair of barred owls (*S. varia*) in 2002. All suitable nesting and roosting habitat within a one-mile radius of this historic activity center was surveyed to protocol in 2002 and 2003. These surveys along with compliance surveys at Jedediah Smith campground have effectively covered two localized POC infection sites. Spotted owl surveys also have been completed along Howland Hill Road in Jedediah Smith Redwoods State Park and at the Howland Hill Outdoor School. Surveys also have been completed around three historic spotted owl activity centers in the Mill Creek acquisition.

B. Habitat Status

Suitable northern spotted owl nesting, roosting, and foraging habitat has been well described in the literature (e.g., Forsman et al. 1984, Carey et al. 1990, Solis and Gutierrez 1990, Ripple et al. 1991, Blakesley et al. 1992, Hunter et al. 1995). Spotted owl home ranges are known to include

structurally complex mature and old growth (>200 year old) conifer forest in greater amounts and with less fragmentation than that available over the landscape (Hunter et al. 1995). Likewise, spotted owl nest, roost, and foraging sites show the same trend of being in the largest patches of old forest available (e.g., Solis and Guitierrez 1990 and Ripple et al. 1997). Dominant and codominant overstory canopy closure in suitable spotted owl habitat tends to be >60% with well-developed intermediate and shrub canopy layers.

In the coast redwood (*Sequoia sempervirens*) forests of northern California spotted owls show a similar pattern of using mature and old forests. The RNSP FEIS/R GMP/GP (USDI and CDPR 1999) defined suitable spotted owl nesting and roosting habitat as old-growth forested stands with canopy closures $\geq 70\%$, with at least 40% of the canopy contributed by trees ≥ 21 inches diameter at breast height (dbh). Stands with conifers ≥ 18 inches dbh or with less than 40% overstory canopy may be suitable if large hardwoods fill in the canopy to 60% total closure. Second growth stands >40 years of age are considered suitable habitat, especially if large residual trees occur in the stand.

In the original inventory of spotted owl habitat in RNSP spotted owls were found roosting in old growth forests more often than expected, and second growth less often than expected, when compared to the proportional availability of these cover types (Tanner 1999). Spotted owl roost sites also were shown to have greater structural complexity and a higher basal area of old growth redwood relative to random sites. All but two spotted owl nests in RNSP have been located in large old redwood trees, while the remaining nests were in a large Douglas-fir (*Pseudotsuga menziesii*) tree and Douglas-fir snag (both in the same territory). Spotted owls in RNSP have used cavities, platforms on tree limbs, tree deformities, and other animal nests for nesting (Tanner 1999).

Within RNSP there are an estimated 41,000 ac (16,600 ha) of old growth forest, all of which is considered suitable nesting, roosting, and foraging habitat. An additional 35,000 ac (14,164 ha) of second growth forest is now ≥ 40 yrs old and may be suitable nesting, roosting, and foraging habitat. Two hundred and seventy acres (109 ha) of second growth forest contain residual old growth trees in patches between 1 and 5 ac. Some of these stands qualify as suitable nesting, roosting, and foraging habitat. Some of the remaining 30,000 ac (12,140 ha) of second growth <40 yrs of age may be suitable for spotted owl foraging.

It should be noted that spotted owls also are known to successfully nest in previously harvested 30-80 year-old redwood forests. Redwood stands are believed to develop characteristics of mature forests (thus, suitable spotted owl habitat) more rapidly than other stand types due to a variety of species-specific and coastal environment conditions (USDI 1990 and Thomas et al. 1990). In precommercially thinned forests on Green Diamond Resource Company (GDRC) land, including land adjacent to RNSP, spotted owls nested in stands with a median age of 59 years, with 83% of nesting pairs using stands between 30 and 80 years old. Conifer-dominated nest stands tended to have more basal area of large (>35 in dbh) conifers and more vertical vegetation layers than in randomly sampled stands. Likewise, nest trees in GDRC stands were usually dominant trees in the canopy or residual trees that were very large and older than the surrounding stand (Foliard 1993). In contrast, spotted owls are not known to use second growth stands for nesting in RNSP. Second growth in the parks differs from that on GDRC land in that

almost none of the previously harvested stands within the parks have been thinned. Many of the second growth redwood stands in RNSP are extremely dense, and may be passing through a stem exclusion stage which causes mortality of smaller overstory trees and suppression of most understory regeneration and shrub communities (Bailey and Tappeiner 1998). These stands may not support spotted owl prey, supply adequate roost and nest sites, or allow for easy flight due to their high stem densities.

Twenty (55%) of the original 36 RNSP owl territories have >1336 ac and >500 ac (minimum “threshold” acres believed necessary to sustain spotted owls in a territory) of suitable nesting and roosting habitat within the 1.3 mi and 0.7 mi radius home range circles, respectively. An additional five (14%) territories are above threshold in the 1.3 mi radius circle but below in the 0.7 mi radius circle. The amount of old growth within these territories ranges from 36-100% of the suitable habitat acres; 12 territories have >80% of the suitable habitat acres in old growth.

POC trees are scattered throughout potentially suitable spotted owl habitat, and future PHLA infestations may occur in suitable old growth nesting, roosting, and foraging (NRF) habitat. , There are 52 acres of second growth habitat > 40 yr old within 0.25 mi of the Pacamo Road site that may be suitable spotted owl nesting and roosting habitat

In total there are approximately 8,625 ac (3,490 ha) of old growth habitat and 773 ac (313 ha) of second growth forest that is suitable spotted owl nesting, roosting, and foraging habitat within the action area of the POC management plan.

2. Marbled Murrelet (*Brachyramphus marmoratus*)

A. Species Account

It is assumed that all old growth redwood stands within the park have the potential to be occupied by marbled murrelets. Therefore, habitat in or within 500 ft of occurrences of infection in the future will be assumed to be occupied by marbled murrelets.

B. Habitat Status (and Critical Habitat)

With the exception of the infection site in the Little Bald Hills, all previously known PHLA infection sites have been within a marbled murrelet critical habitat unit.

3. Fisher (*Martes pennanti*), Candidate

A. Species Account

Prior to European settlement, fishers occurred throughout most conifer forest habitats in the Pacific states (Grinnell et al. 1937), including commercially valuable and easily accessible timber in low-mid elevations. These forests have relatively continuous canopy and complex structure near the forest floor (Aubry and Houston 1992, Powell and Zielinski 1994). Since 1850, the amount of mature and old growth forest in the Pacific states has been significantly reduced, primarily by logging in recent decades (Thomas et al. 1990). Grinnell et al. (1937)

determined that overtrapping was the primary initial cause of fisher population decline. Even though fisher trapping was regulated or prohibited in the 1930s and 1940s, populations were probably prevented from recovering due to the loss and fragmentation of habitat over a large portion of the range in Washington, Oregon, and California (Aubry and Houston 1992, Powell and Zielinski 1994). As a result, the fisher has most likely been extirpated, or is uncommon, in much of its historic range (Aubry and Lewis 2003, Powell and Zielinski 1994).

Results of standardized fisher surveys show that the geographic distribution in the west is limited to several relatively small disjunct populations. There have been 50 verifiable records of fishers from Oregon between 1954 and 2001, most from southwest Oregon in the vicinity of the Siskiyou Mountains near the California border, and in the vicinity of 1977-1981 translocation sites in the southern Cascades (Aubry and Lewis 2003). Fishers occur in two areas in California: the north coast ranges and Klamath Mountains, and the southern Sierra Nevada (Zielinski et al. 1995). This contrasts with Grinnell et al.'s (1937) assertion that fishers occurred around Mt. Shasta and Mt. Lassen and throughout the Sierra Nevada. In Del Norte and Humboldt counties, fisher populations are consistent with their historic distribution (Zielinski et al. 1995). The fisher population in northwest California is probably the largest in the western United States, although it is isolated (Aubry and Lewis 2003).

To date there have been four separate surveys for forest carnivores in RNSP. Two were U.S. Forest Service surveys in areas of proposed highway construction at Cushing Creek (Gellman et al. 1993) and Wilson Creek (McKenzie et al. 1994), both in Del Norte county and both within a few of miles of the coast. In a state-sponsored distribution study, habitats were surveyed within 50 air km of the coast between the Oregon border and southern Humboldt County (Beyer and Golightly 1995). A park-sponsored survey took place in 2002 with the main objective of determining presence of the Humboldt marten (*M. americana* ssp. *humboldtensis*) in the parks (Slauson et al. 2003). Fishers were detected in all four of these surveys. Beyer and Golightly (1995) reported a "...high detection ratio...in an area of...[Redwood] National Park...". Slauson et al. (2003) detected fishers in old growth, older second growth, and along the edges of these two types. Sample units with detections were distributed throughout the park, from Jedediah Smith State Park in the north to Devil's Creek (a tributary of Redwood Creek) in the south. There are relatively few fisher observations in the park's wildlife observations database, but reliable sightings are recorded from the Lost Man Creek, Prairie Creek, Wolf Creek Education Center, and Newton B. Drury parkway areas as well as from the A-9 Road, C-9 Road, Bald Hills Road, and Maneze Prairie. The survey results coupled with the reliable database records indicate that fishers are probably well-distributed throughout the park.

There are no records of fishers breeding within RNSP, although they are known to reproduce in private managed timberlands adjacent to the park (J. Thompson pers. comm.), and it is likely that RNSP harbors a breeding population. Data from studies in the western U.S. indicate fishers give birth in mid-March to early April, and breed shortly after. For example, 26 wild caught captive fishers from British Columbia showed a mean parturition date of 31 March (range 23 March- 7 April) and a mean date of 12 April for mating (range 5 April – 27 April) (Hall 1942). Seglund (1995) documented a female entering a natal den on 10 April and moving to a maternal den on 26 April where she remained until 2 June. On managed forests in the redwood and redwood/Douglas-fir transition zone it appeared that parturition was occurring in late March (J. Thompson

unpub. data). Raley (2002) documented similar dates for radio-collared fishers in the southern Oregon Cascades. In that study females gave birth in late March, bred between late March and early April, and remained in natal dens until kits were about 8 weeks old. Other studies have documented kits remaining in natal dens until 6-10 weeks of age (citations in Powell and Zielinski 1994, Seglund 1995).

Fishers are known to avoid areas of human disturbance. Seglund's (1995) study showed that fisher rest sites occurred >100 m (328 ft) from roads, homes, and campgrounds. However, fishers are frequently observed near roads in the park (RNSP unpub. data). Slauson et al. (2003) detected fishers at road-side track plate stations, including those near Newton B. Drury parkway, and near Alder Camp, Howland Hill Road, and Bald Hills Road. Conversely, Beyer and Golightly (1995) attributed low and high detection ratios at certain sites to proximity of a major highway and limited human access, respectively. From a management standpoint, disturbance to females with young kits is of primary importance. Seglund (1995) indicated that denning females may be especially vulnerable when disturbed by loud noise near a natal den site. However, the mere presence of humans, for example walking on a trail in suitable denning or resting habitat, under most circumstances would not warrant concern (B. Zielinski pers. comm.).

Fishers consume a wide variety of foods. In the southern Sierra Nevada, Zielinski and Duncan (2004) noted fisher diets included mammals (mainly sciurids and cricetids), birds, lizards, insects, and plants (including fungi and fruit). Golightly (unpub. data) found gray squirrel, Douglas-squirrel, ground squirrel, chipmunk, woodrat, and voles in the genera *Microtus* and *Clethrionomys* in fisher scats from northwest California. In addition to the prey items mentioned above, Raley (2002) reported brush rabbit, opossum, striped skunk, porcupine, deer, elk, berries, and yellowjackets in scats from den and rest sites in the southern Oregon Cascades.

Fishers are assumed to have the potential to occupy all of the area considered within the proposed POC management area.

B. Habitat Status

Fishers have generally been associated with large unfragmented blocks of late successional conifer forest. Buskirk and Powell (1994) described it as one of the most habitat-specialized mammals in western North America. Fisher home ranges are large; in northwest California female home ranges covered between 5.8 and 10 mi² (1,498 - 2,612 ha) and male home ranges covered between 7.8 and 22 mi² (2,020 - 5,806 ha) (Mullis 1985, Seglund 1995, Zielinski et al. 2004a). In one study (Zielinski et al. 2004a) mid and late seral Douglas-fir composed 24.5% and 14% of mean proportions of forest cover, respectively, in home ranges of both sexes. White oak and grassland types were poorly represented in these home ranges. Buskirk and Powell (1994) suggested that the species contributing to vegetation cover were not as important as the successional stages and structure of cover; fishers show preference for low and closed but not uniform canopies, and structural complexity near the forest floor. Fishers are known to occur in commercially managed forests in the redwood/ redwood-Douglas-fir zone where stand heterogeneity remained post-harvest, including the presence of residual trees, logs, and hardwoods (L. Diller pers.comm., J. Thompson unpub. data).

Connectivity between preferred habitat patches also is important. Unsuitable forest habitat may be used for travel, and suitable forest patches separated by openings may not be used (Buskirk and Powell 1994). Stand use in northwestern California was determined to be negatively correlated with the amount of stand edge (Rosenburg and Raphael 1986). However, Aubry (pers. comm.) and Diller (pers. comm.) reported instances of rest sites near the edges of clearcuts and indicated that the presence of a structure may be more important than “where” that structure is located. Riparian areas also have been noted as important components of fisher home ranges, and may be used as travel routes (Buck et al. 1994, Seglund 1995, L. Diller pers. comm.).

Fishers require large structures well-distributed throughout the home range for denning and resting; reuse of rest sites is rare (Seglund 1995, Zielinski et al. 2004b). In northwestern California 46% of rest sites were in large live trees and 44% were in large snags and logs, with females using snags more often than males (32% of the time for females versus 18% of the time for males). Large black oaks were often used when available. Zielinski et al. (2004b) determined the best predictors of suitable resting habitat include the presence of large trees (averaging 148 cm dbh), high canopy closure (95%), and the presence of one or more large snags >100 cm dbh. Rest sites in Seglund’s (1995) study area on the Shasta-Trinity National Forest were within 100 m of perennial, annual, or ephemeral streams, associated with large amounts of down woody debris <12 cm in diameter, had up to four vertical vegetation layers, and were >100 m from human disturbance (a road, house, clearcut, or campground).

The only information on fisher habitat use in RNSP has been in association with detections at track plates. These sites may represent foraging locations, and in some instances may be in proximity to rest sites (Zielinski et al. 2004b). Beyer and Golightly (1996) found that canopy closure at detection sites in coastal habitats averaged 86.8% and tree diameters averaged 52.3 cm at breast height. Slauson et al. (2003) placed track plate sample units throughout RNSP in old growth and second growth forest and at the edges of these two types. Fishers visited track plates in 39-72 year old second growth more often than expected and stations in old growth less often than expected; most of the sites in second growth appeared to lack any residual old growth trees. However, many of the detections in second growth were within 0.5 mi of old growth. Fishers often were detected at stations on the edge of second growth and old growth. Detection sites in old growth had combined mean over- and understory tree canopy closures of approximately 60% and nearly 100% combined large and small shrub cover. A mean of 11 snags >90 cm dbh per ha occurred at these sites along with a mean number of 55 logs >90 cm diam per ha. Detection sites in second growth had a mean of almost 100% combined over- and understory tree canopy closure and an equally high amount of large and small shrub cover. A mean of 4.3 snags >90 cm dbh per ha occurred at second growth sites along with a mean number of 12 logs >90 cm diam per ha. Large stumps >90 cm also were present near detection sites in both old growth and second growth.

Within RNSP there are an estimated 41,000 ac (16,600 ha) of old growth forest, all of which may be considered suitable for fishers for denning, resting, and foraging. There are 24,364 ac (9,860 ha) of second growth forest ≥ 40 yrs old that also may be suitable for fisher occupancy. Stands >40 years old with a legacy component (e.g., residual old growth, large snags and downed logs) may provide structures that could be used for resting and denning. Second growth stands <40 yrs of age may be suitable for fishers if they contain residual habitat sufficient to provide

structure and habitat heterogeneity.

In total there are approximately 8,625 ac (3,490 ha) of old growth habitat and 773 ac (313 ha) of second growth forest that is suitable for denning, resting, and foraging habitat within the action area of the POC management plan.

4. Bald Eagle (*Haliaeetus leucocephalus*) State Endangered

A. Species Account

There is one known bald eagle nest in the action area, above the main fork of Mill Creek. POC could be present in the vicinity of this nest site. Eagles also use the Smith River for foraging and trees along the river bank may be used as perches.

B. Habitat Status

Large trees providing nest sites are located throughout many areas of action area along with roost trees providing foraging vantage points.

VII. IMPACTS TO THREATENED AND ENDANGERED SPECIES

Northern Spotted Owl

Disturbance

Trail and Road Improvements

A known site that would require a road improvement occurs along Pacamo Road in Jedediah Smith Redwoods State Park. Surveys to protocol have been conducted regularly at this location since 1999 and no spotted owls have been detected. Due to the presence of a barred owl territory in this vicinity it is unlikely that spotted owls will be detected here in the near future. There would be no impacts from activities at this site.

There may be POC infection sites discovered in the future that require road or trail improvement that fall in areas of suitable habitat without surveys. If a noise-generating activity would be needed to manage these sites, work would not occur from 1 February through 9 July in or within 500 ft of unsurveyed suitable habitat.

Host Tree Eradication

There may be POC infection sites discovered in the future that require small tree removal that fall in areas of suitable habitat without surveys. If a noise-generating activity would be needed to manage these sites, work would not occur from 1 February through 9 July in or within 500 ft of unsurveyed suitable habitat.

POC management activities would not result in the risk of direct injury to spotted owls.

Loss and Modification of Suitable Habitat

No potentially suitable nesting, roosting, or foraging (NRF) habitat would be removed by any of the proposed POC management actions.

Trail and road improvements could remove small amounts of herbaceous and understory vegetation in suitable habitat. Potential impacts would be limited to a maximum of 0.1 acre of vegetation removed in association with improvement activities.

POC trees may be managed by girdling and/or cutting. Only trees $\leq 15''$ dbh would be cut or girdled. Girdled trees would become snags that could be used by spotted owl prey. Treating such sites for PHLA spore load reduction could result in a maximum of five acres of habitat degradation.

Under a worst case scenario, where road and/or trail improvements would require vegetation removal along with individual infected tree removal, it is estimated that no more than 5.5 ac per year, or 27.5 ac over a five year period, would be impacted from POC management activities. This is a small portion (0.3%) of the total suitable NRF habitat in the POC management plan area.

Marbled Murrelet**Disturbance**

The project area in the Little Bald Hills and the road improvement site on Pacamo Road are not in or within 500 ft of suitable marbled murrelet habitat, therefore potential disturbance is not an issue at these sites.

If infection sites are discovered in the future in areas with low ambient background noise all work would either occur outside of the breeding season (16 September through 23 March) or would be done with hand tools.

Port-Orford-cedar management activities would not cause a risk of direct injury to marbled murrelets.

Loss and Modification of Suitable Habitat

No potentially suitable marbled murrelet nest trees would be removed or modified by any of the proposed POC management actions. Road and trail improvements would remove only herbs and shrubs and host tree eradication would only eliminate (by cutting or girdling) trees $\leq 15''$ dbh.

Marbled Murrelet Critical Habitat

No primary constituent elements of critical habitat would be impacted by any of the proposed POC management actions. Road and trail improvements would remove only herbs and shrubs and host tree eradication would only eliminate trees $\leq 15''$ dbh. Trees of this size are less than one-half site potential tree height, and do not provide nesting opportunities.

Fisher

Disturbance

Trail and Road Improvements

A known site that would require a road improvement occurs along Pacamo Road. The habitat within 500 ft of this site is older second growth that is of questionable suitability for the fisher.

There may be POC infection sites discovered in the future that require road or trail improvements that fall in areas of potentially suitable fisher habitat. In the event noise-generating activity would be needed to manage these sites, and a seasonal restriction is not already in place for the spotted owl or marbled murrelet, work would not occur from 1 March through 31 May.

Host Tree Eradication

There may be POC infection sites discovered in the future that require small tree removal that fall in areas of suitable habitat without surveys. In the event noise-generating activity would be needed to manage these sites, and a seasonal restriction is not already in place for the spotted owl or marbled murrelet, work would not occur from 1 March through 31 May.

POC management activities would not cause a risk of direct injury to fishers. No trees large enough to contain a fisher rest site would be removed by POC management activities.

Loss and Modification of Suitable Habitat

No potentially suitable fisher habitat would be removed by any of the proposed POC management actions.

Trail and road improvements could remove small amounts of herbaceous and understory vegetation to be removed in suitable habitat. Potential impacts would be limited to a maximum of 0.1 acre of vegetation removed in association with improvement activities.

There may be POC infection sites discovered in the future that would require these types of management; however, no more than 5.0 ac per year or 31.0 ac over a five year period would be impacted from POC management activities. This is a small portion (0.3%) of the total suitable fisher habitat in the POC management action area. Under a worst case scenario, where road and/or trail improvements would require vegetation removal along with individual infected tree removal, it is estimated that no more than 5.5 ac per year, or 27.5 ac over a five year period, would be impacted from POC management activities. This is a small portion (0.3%) of the total suitable NRF habitat in the POC management plan area.

Bald Eagle

Disturbance

Trail and Road Improvements

A known nest site occurs above Mill Creek in Jedediah Smith Redwoods State Park. No PHLA has been detected in this area to date and there have not been any recognized needs to improve this trail.

There may be POC infection sites in this area discovered in the future that require trail improvement. If a noise-generating activity would be needed to manage these sites within 0.5 mi of the nest, or people would be visible within line of sight of an active nest, work would not occur from 1 January until eaglets have fledged and are no longer present near the nest or 31 August whichever comes first.

Host Tree Eradication

There may be POC infection sites discovered in the future that require small tree removal that fall in areas with known bald eagle nests or other activity. If a noise-generating activity would be needed to manage these sites within 0.5 mi of the nest, or people would be visible within line of sight of an active nest, work would not occur from 1 January until eaglets have fledged and are no longer present near the nest or 31 August whichever comes first.

Loss and Modification of Suitable Habitat

No potentially suitable nesting, roosting, or foraging (NRF) habitat would be removed by any of the proposed POC management actions.

Cumulative Impacts

The only non-federal action that may be associated with POC management would be by conducted by California Department of Parks and Recreation in the Mill Creek property of Del Norte Coast Redwoods State Park. Four sites infected with POC were treated in the last few years and are now being monitored for the occurrence of POC seedlings. If seedlings are discovered at any of these sites they would be removed, either by hand-pulling or with hand tools. No additional impacts on listed species would occur due to this activity.

VIII. DETERMINATION

Based on the nature and timing of the proposed action, it is my determination that the Port-Orford-cedar Management in RNSP will have the following effects on the endangered, threatened or candidate species addressed in this document:

Due to a slight amount of habitat degradation and noise-generating activities after 9 July in unsurveyed suitable habitat, this project may affect, but is not likely to adversely affect, the northern spotted owl.

Due to a slight amount of habitat degradation and the potential for noise-generating activities to disturb fishers at rest sites, this project may affect, but is not likely to adversely affect, the fisher.

This project would not affect the marbled murrelet, marbled murrelet critical habitat, or the bald eagle.

IX. MANAGEMENT RECOMMENDATIONS

There are no management recommendations.

X. CONTRIBUTORS

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Judy Wartella, Computer Specialist

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PERSONAL COMMUNICATIONS

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Appendix A. Port-Orford-cedar Risk Key

This is modified from the Risk Key found in the USFS and BLM Supplemental Environmental Impact Statement Management of Port-Orford-cedar in Southwest Oregon, pages 2-18 through 2-22. It will be further clarified in the final RNSP EA.

Port-Orford-cedar Risk Key

Site-specific analysis to help determine where risk reduction management practices would be applied.

- 1a. Are there uninfected POC within, near, or downstream of the activity area whose ecological function measurably contributes to meeting resource management plan objectives?
- 1b. Are there uninfected POC within, near or downstream of the activity area that, were they to become infected, would likely spread infections to trees whose ecological function measurably contributes to meeting resource management objectives?

If the answer is no to both questions, then risk is low and no POC management practices are required.

If the answer is yes to EITHER question, then continue.

1. Will the proposed project introduce appreciable additional risk of infection to these uninfected POC?

If yes, apply management practices from the list below to reduce the risk to the point it is no longer appreciable, or meet the disease control objectives by other means, such as redesigning the project so that uninfected POC are no longer near or downstream of the activity area. If the risk cannot be reduced to the point it is no longer appreciable through practicable and cost-effective treatments or design changes, the project may proceed if the analysis supports a finding that the value or need for the proposed activity outweighs the additional risk to POC created by the project.

Management practices are designed to:

- Prevent/reduce the import of disease into uninfested areas (offsite spores picked-up and carried into an uninfested project area);
- Prevent/reduce the export of disease to uninfested areas (onsite spores moved to offsite, uninfested area); and
- Minimize increases in the level of inoculum or minimize the rate of spread in areas where the disease is localized or infection is intermittent.

One to several of the management practices from the list below would be selected and implemented when there is a management need indicated by the POC Risk Key. No priority is assumed by the order listed below; the one or combination of specific practices best fitting the nature of the risk and the site-specific conditions would be applied when indicated by the risk key. Practices can be modified or partially implemented if such changes still meet risk reduction objectives and/or better fit site conditions. A combination of practices may be more effective than single practices, depending on site-specific circumstances.

- 1 Project Scheduling
- 2 Utilization of uninfested water
- 3 Access: Designate access and egress routes to minimize exposure to PL
- 4 Public Information:
- 5 Washing project equipment

Appendix B. Criteria for girdling or removing diseased or potentially diseased POC.

POC trees $\leq 6''$ dbh may be removed or POC trees $\leq 15''$ dbh may be girdled when the following conditions are met:

- Targeted trees are already infected with PHLA, or have a very high probability of becoming infected as a result of their proximity (25' or closer) to other infected trees, AND
- The location is within 25' uphill or 50' downhill of a trail or road that is used regularly by staff or the public, AND
- The girdling of the trees is very likely to reduce the spore load in the soil adjacent to the road or trail and thus reduce the potential for vehicles or foot traffic to pick up infested soil, AND
- Trees to be girdled in this size range are few in number and the extent of the infection site is relatively small.

Disposal of the resulting debris will depend on the amount and size of material generated and the specific project location. Debris will be disposed of in a manner consistent with other management objectives such as fuels management and cultural resource protection. Individual projects will go through a project clearance procedure to ensure that management objectives are met and environmental compliance requirements are satisfied.



United States Department of the Interior



FISH AND WILDLIFE SERVICE

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In Reply Refer To:
8-14-2004-2134
81331-2010-I-0038

MAR 31 2010

Memorandum

To: Park Superintendents, Redwood National and State Parks
Crescent City, California

From: Field Supervisor 
Arcata, California

Subject: Informal Consultation on Port-Orford-Cedar Management in Redwood National and State Parks, Del Norte and Humboldt Counties, California

This memorandum responds to your February 12, 2010, letter requesting the Fish and Wildlife Service's (Service) concurrence with your determination of effects for Port-Orford-cedar (*Chamaecyparis lawsoniana*) management in Redwood National and State Parks (Parks). You determined the action may affect, but is not likely to adversely affect the federally threatened northern spotted owl (*Strix occidentalis caurina*). This response is prepared in accordance with the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act) and its implementing regulations (50 CFR §402).

This consultation is based on information provided in your February 10, 2010, biological assessment and other sources of information. The biological assessment contains a complete description of the proposed action and its effects on the northern spotted owl and is hereby incorporated by reference. Documents related to this consultation are on file in this office.

The proposed project is designed to prevent the transmission of Port-Orford-cedar root disease (*Phytophthora lateralis*) (PHLA) within and outside of the Parks. Potential treatment areas do not



include the California State Parks' Mill Creek Watershed addition to Del Norte Coast Redwoods State Park. The proposed management will include the following types of actions:

1. Trail and road improvements will include armoring trails with rock or other material, installing small culverts on trails, constructing raised crossings or bridges on trails, and installing culverts on roads. These actions will occur in locations where there is a moderate to high risk of users moving PHLA spores into uninfected areas.
2. Host tree eradication will involve cutting or girdling infected and healthy Port-Orford-cedar trees in small localized areas of infection, less than 5 acres in size, close to trails, roads, or facilities. Trees to be cut or girdled will be less than or equal to 15 inches diameter-at-breast-height (dbh). Debris piles generated during the tree cutting will be burned.

This consultation is valid until December 31, 2014.

Concurrence

Northern Spotted Owl

The Service concurs with your determination that the project may affect, but is not likely to adversely affect the northern spotted owl, based on the following factors:

Disturbance

1. Project generated noise above ambient levels will not occur within 500 feet of occupied or unsurveyed suitable northern spotted owl nesting and roosting habitat during the period February 1 through July 9. The period from July 10 through July 31 is after the period when the majority of young northern spotted owls have fledged from the nest. As a result, we anticipate some change in northern spotted owl behavior, but do not expect the proposed management to result in abandonment of the breeding effort, disruption of nesting activities, or premature dispersal of juveniles.
2. Burning of debris piles will only occur from September 16 through January 31 in or within 0.25 mile of occupied or unsurveyed suitable northern spotted owl nesting and roosting habitat, precluding disturbance of nesting northern spotted owls caused by smoke.

Habitat Removal

No suitable nesting, roosting, or foraging habitat will be removed by any of the proposed actions.

Habitat Degradation

1. Trail and road improvement projects could remove small amounts of vegetation in suitable northern spotted owl habitat. Vegetation removal would be limited to herbaceous vegetation, small shrubs and saplings growing in the immediate vicinity of the work site. Vegetation removal would be limited to a maximum of 0.1 acre.

2. Port-Orford-cedar trees less than or equal to 15 inches dbh may be cut or girdled. Girdled trees will become snags which may benefit northern spotted owl prey species. A maximum of 5 acres will be treated at any one location.
3. The removal of small trees, brush, and herbaceous vegetation may result in a slight degradation of no more than 27.5 acres of suitable northern spotted owl habitat over a 5-year period or no more than 5.5 acres per year. These effects are considered to be insignificant for the following reasons: 1) the small trees, brush, and herbaceous vegetation to be removed represent a minor component of the northern spotted owl's habitat; 2) Port-Orford-cedar trees removed will be less than or equal to 15 inches dbh; 3) no potential nest trees will be removed; 4) down logs will remain on-site; and 5) habitat suitability and function will be maintained.

Injury or Harm

Injury or harm to northern spotted owls is not anticipated because no trees will be cut in occupied or unsurveyed suitable nesting and roosting habitat from February 1 through September 15.

This concludes informal consultation on Port-Orford-cedar management in the Parks. Unless new information reveals that the proposed actions: (1) may affect listed species in a manner, or to an extent, not considered in your correspondence; (2) the actions are modified in a manner that causes an effect on the listed species or critical habitat not considered in your correspondence; or (3) a new species is listed or critical habitat is designated that may be affected by the proposed actions no further action pursuant to the Act is necessary.

If you have any questions or concerns about this consultation or the consultation process in general, please feel free to contact Robin Hamlin at (707) 822-7201.

cc:

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