

**A Biological Assessment of Impacts to Terrestrial Threatened,
Endangered and Candidate Species from the
Streelow Creek Trail Improvements, Tall Trees Trail Reroute and
Strawberry Creek Watershed Restoration Projects
In Redwood National and State Parks**

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I. INTRODUCTION

The purpose of this biological assessment (BA) is to review the proposed Redwood National and State Parks (RNSP or “park”) actions, Streeflow Creek Trail Improvements, Tall Trees Trail Reroute, and Strawberry Creek Restoration, in sufficient detail to determine if the proposed action may affect any non-anadromous endangered, threatened, or candidate 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 obtained a list from the Arcata Fish and Wildlife Service Office website, identifying the endangered, threatened, and candidate species that may be present or may be affected by park activities, dated 27 March 2009 (Document Number 696653301-14231). This list included 22 species currently listed as threatened or endangered, one listed as proposed threatened, one listed as proposed endangered and 4 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*) *
California Brown Pelican (*Pelecanus occidentalis californicus*)
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*) *
California Coastal Chinook Salmon (*Oncorhynchus tshawytscha*) *
Northern California Steelhead (*Oncorhynchus mykiss*) *
Southern Oregon/ Northern California 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*) *

Candidate

Mardon Skipper (*Polites mardon*)
Xantu’s Murrelet (*Synthliboramphus hypoleucus*)
Western Yellow-billed Cuckoo (*Coccyzus americanus*)
Fisher (*Martes pennanti*)

Proposed Endangered

Black Abalone (*Haliotis cracherodii*)

Proposed Threatened

Southern eulachon DPS (*Thaleichthys pacificus*)

Critical habitat has been designated for ten species on the list (asterisk). However, only critical habitat for coho salmon, chinook salmon, steelhead trout 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 within RNSP.

Possible effects from the Streelow Creek Trail Improvements and Strawberry Creek Restoration projects on Chinook and coho salmon, steelhead, and southern eulachon will be assessed through a separate consultation with NOAA Fisheries and will not be mentioned further in this document.

These projects were discussed at interagency consultation team (ICT) meetings. The Strawberry Creek restoration project was discussed initially on 21 August 2007. Due to additional information made available and project modifications this project was discussed again on 26 February and 20 November 2008 and 10 February 2009. The Streelow Creek and Tall Trees trails projects were presented at the 10 February 2009 meeting. A field review of the Streelow Creek Trail Improvements project occurred on 19 February 2009.

At the end of discussions with the ICT it was apparent that all three of these projects would have minor impacts on the northern spotted owl and marbled murrelet and no other terrestrial listed species. This document batches these three projects together in a biological assessment to further streamline the consultation process.

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.

Road to Trail Conversion and Trail Reroute

The parks' General Management Plan/General Plan (USDI and CDPR 1999) requires the parks to "support and facilitate appropriate public use and enjoyment of the parks...", to "provide opportunities for public access to the full range of RNSP resources and in a variety of locations", and "manage recreational activities and settings to protect resources, promote public safety, and minimize public use conflicts" (p. 65).

Wetland and Watershed Restoration

The parks' General Management Plan/General Plan (USDI and CDPR 1999) requires the parks to consider restoration of wetlands damaged or degraded by previous land use "...to mitigate adverse impacts or to meet the goals and intent of the NPS wetland protection guidelines. Original functions and values of each wetland would be restored to the greatest extent practicable" (p. 37).

Section 7(a)1 of the Endangered Species Act (ESA) of 1973, as amended, requires that federal agencies utilize their authorities in furtherance of the purposes of the ESA by carrying out programs for the conservation of endangered and threatened species. Section 7(a)2 of the ESA requires that a federal agency, in consultation with and with the assistance of the Secretary of the Interior, ensures that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any listed species or results in the destruction or adverse modification of critical habitat. Specific management direction for each of the listed threatened, endangered, or proposed species considered in this document is reviewed in Section V, "Status and Distribution of Listed Species".

IV. DESCRIPTION OF THE PROPOSED ACTIONS

A. Streelow Creek Trail Improvements

The primary purpose of this project is to replace a road surface that currently serves as the trail alignment, with a high standard, low maintenance trail along 0.9 miles of trail. In addition, three culverts will be replaced to improve drainage on another 0.9 miles of trail that will be retained as an administrative road. This project would diminish the potential for sediment delivery from the Streelow Creek Trail to Streelow Creek due to fill or crossing failure. Streelow Creek is currently occupied by CC chinook and SONCC coho salmon and NC steelhead trout and provides high quality spawning and rearing habitat for all three listed species.

Existing Environment

Foot traffic (hiking, backpacking) and bike riding are permitted on the Streelow Creek Trail. The trail is a small portion of a larger biking loop trail. The natural ambient noise along the trail is low, with moderate background noise along the far eastern section from traffic on US Highway 101, and low noise levels associated with visitors hiking and biking along the entire length of the trail.

The Streelow Creek Trail is located on the former 240 and 400 roads that are old abandoned logging roads approximately 1.8 miles in length. The trail is bisected by the north fork of Streelow Creek where a new pedestrian foot bridge was installed during the summer of 2008. From the north fork east, the 240 Road would be upgraded to maintain vehicular access into the Streelow Creek watershed. From the north fork west, the 400 Road would be permanently converted to a trail (please see Appendix, Map1). Work on these projects would begin in 2010.

The entire project area is within suitable, unsurveyed spotted owl and Pacific fisher

habitat and is assumed occupied. The eastern portion of the project area (the 240 Road section) is suitable foraging spotted owl habitat only while the western portion (the 400 Road section) is suitable nesting, roosting and foraging habitat. No suitable marbled murrelet habitat exists in the eastern portion of the project area but the western portion of the project area has a handful of residual old growth redwood trees and there is a sparse residual stand of old growth on the opposite bank of Streelow Creek that contains suitable murrelet nesting trees (Appendix, Map 1).

Eastern Portion of Streelow Creek Trail/Road Upgrade

This project would upgrade the 0.9-mile-long section of the 240 Road which is the eastern part of the Streelow Creek Trail (Appendix, Map 1). It would include the installation of new culverts, improving surface drainage, and rocking the road surface with a six-inch layer of compacted base material. The desired end result would be a 14-foot wide road surface. Work would begin and be completed in 2010. All work would occur from 10 July to 15 October in order to avoid the spotted owl noise restriction period and to stay within the “normal operating period” to avoid the time of the year when soils are normally saturated. The only exception to this work timing would be any work that would occur within 0.25 miles of the suitable marbled murrelet habitat on the far western portion of the 240 Road portion of the trail which would occur between 16 September and 15 October.

This portion of the 240 Road has four road stream-crossings. Of these, two have existing culverts. It is not clear whether the other two crossings, likely Humboldt crossings, have culverts. Of the two existing culverts, a new culvert was installed in 2007 and would not be replaced. New culverts would be installed in the other three crossings. During culvert installation, the crossings will be reduced in size. This would be accomplished by removing the outboard edge of the fill prisms and dishing down the road prism to form a permanent rolling dip. The excavation volumes would range from 100-1000 cubic yards.

There are seven ditch relief culverts along this stretch of the 240 Road which has a relatively flat grade that results in poor surface drainage. Replacing the existing ditch relief culverts or installing more would not provide good surface drainage. Therefore, a mild outslope is proposed for this road, where needed, to improve surface drainage. Outsloping would be achieved by pulling back a modest amount of fill from the outboard edge of the road and placing this along the existing inboard ditch and cut bank.

Ground and canopy disturbance would vary depending on the amount of excavation needed to replace culverts and outslope the road, but disturbance would be minimized as much as possible. For culvert installation, excavation would be limited to the crossing or ditch relief site. Outsloping the road would require the removal of an average 15 feet of brush from both the outboard edge and the cut bank of the road. The average width of ground disturbance, including the existing road surface, is about 50 feet. Most of the disturbance would be restricted to low lying brush and shrubs but an occasional tree would be removed. Trees removed would be less than 12” DBH, with most of the removed trees being less than 6” DBH. Most of the trees removed would be along the cutbank of the road and would be removed for fill placement. No residual old-growth

trees would be affected because none exist along this portion of the 240 Road. It is estimated that less than 100 trees would be removed. The removed trees would be predominately alder but would also include both redwood and spruce. If outcropping occurred over the entire 0.9-mile of road, which is unlikely, habitat removal from the project would be about 5.5 acres.

Western Portion of Streeelow Creek Trail/Road To Trail Conversion

This project is a road-to-trail conversion project that would convert the 0.9 mile long portion of the abandoned 400 Road to a six-foot-wide recreational trail (Appendix, Map 1). Road-to-trail conversion reduces mass wasting and surface erosion by eliminating the problems associated with roads and stream crossings. Treatments are designed to restore surface hydrology and increase the overall stability of the converted road. When completed, the converted road would have a stable geometry, blend well into the surrounding natural topography, and provide improved recreational opportunities. The project would begin in 2010 and be completed in 2012.

Work would be conducted in three phases. Phase I would begin in 2010 between September 16th and January 31st. This phase would include the manual clearing of the construction corridor. Heavy equipment would not be used. All brush and trees would be cut, piled and burned on site. Ground and canopy disturbance would vary depending on the amount of excavation needed to fully excavate stream crossings, and reduce the size and outslope the road. Tree removal would be minimized as much as possible. The average width of disturbance would be about 35 feet, and the total area of tree removal would be about 4 acres. All trees to be removed are less than 18 inches DBH with the majority less than 12 inches DBH. None of the trees slated for removal contain suitable spotted nest platforms or cavities. Also, none of the trees slated for removal contribute to marbled murrelet habitat suitability (i.e. none of the trees are one half the site capacity in height) and none of the trees slated for removal that are immediately adjacent to the residual old growth trees provide cover for suitably sized marbled murrelet nesting platforms.

Phase II would begin on September 16, 2011. This phase would include the heavy equipment operations to physically convert the road to a narrow trail. The conversion would require the use of two excavators, one dozer, and one small trail dozer. Fill would be excavated from the outboard portion of the road and placed into the cutbank to narrow the road corridor. Phase III would begin immediately following the heavy equipment phase and would continue through March, 2012. This phase would include trail finishing work and construction of trail structures, which would be completed prior to February 1, 2012. After February 1st only trail shaping work would be conducted and no power tools would be used.

There are three small to moderately sized road-stream crossings and two swale features along this portion of the 400 Road. The crossings are culverted Humboldt crossings and are in a state of disrepair. Crossings would be fully excavated and pedestrian bridges would be installed at two of the crossings. Minimum excavation would occur at swales, but trail structures such as drain lenses would be constructed to provide safe recreational

use and improved drainage.

The intervening sections of the 400 Road between drainages would be reduced in size, and outsloped to blend into the natural topography. A trail about six feet wide would be constructed across the finished surface. Outsloping is achieved by pulling back material from the outboard edge of the road and placing it into the existing cut bank either at the excavation site or further down the road. Excavated material would be “balanced” along the entire project site.

B. Tall Trees Trail Reroute

The primary purpose of this project is to reroute the Tall Trees Trail off of its current route that follows an old fire road that is too steep to meet NPS trail standards and that is difficult to maintain. The new route will be a narrower footpath with a gentler grade.

Existing Environment

Only foot traffic (hiking, backpacking) is permitted on the Tall Trees Trail. The trail connects to the Redwood Creek Trail and is relatively popular. The natural ambient noise along the trail is low along the entire length of the trail.

The entire project area is within suitable, partially surveyed spotted owl habitat. The area near the top or eastern end of the trail is occupied by a pair of barred owls (Schmidt 2008) while the lower portion of the trail is unsurveyed. All of the project area is suitable Pacific fisher habitat and is assumed to be occupied. The entire project area is also suitable, unsurveyed marbled murrelet habitat and is assumed occupied (Appendix, Map 2).

Reroute Work

The new trail route will roughly parallel the existing trail route and will cover approximately one mile. The completed trail will be four feet wide with grades of seven to ten percent and a vegetation clearance of six feet by eight feet. The alignment of the new trail will be laid out in such away as to avoid removal of all but a small number of the smaller trees (<6” DBH) and less than five trees of moderate size (<18” DBH) in an effort to limit as much subcanopy removal as possible. The project would start in June 2009 and be completed in September 2011. Some trail construction will occur using hand tools only during the months of spotted owl and marbled murrelet noise restriction period (1 February to 15 September), but the majority of the construction will be done during the unrestricted period (16 September to 31 January) using a trail dozer which can accomplish a large amount of work in a short period of time.

The trail dozer will also be required for the restoration of the old trail which will need rolling dips installed, a small amount of the outer fill pulled back, one very small crossing removed and the top layer scarified and then covered with organic debris. Only shrubs and pole sized trees will be removed during the restoration of the old trail route.

C. Strawberry Creek Watershed Restoration

This project proposes to implement restoration treatments within the Strawberry Creek

watershed that include reconstruction of a stable channel form, establishment of a shaded riparian zone along specific reaches of Strawberry Creek within the Orick Valley bottom, and replacement of two culverts on tributaries to Strawberry Creek. Treatment goals are to restore suitable habitat for fish, improve fish passage and hydrologic conditions, and prevent propagation of reed canary grass (*Phalaris arundinacea*). Four unstable stream crossings on the hillslope area of the watershed also will be excavated.

Existing Environment

Strawberry Creek drains about 2000 acres of hillslope and valley bottom on the south side of the Orick Valley. It discharges into the South Slough of Redwood Creek estuary. The upstream 1200 acres (approx.) of the watershed is within RNSP. The project area encompasses about 600 acres in the western portion of the watershed that is within RNSP. This portion of the watershed was managed for agriculture on the bottom lands until park acquisition. The forested hillslopes were logged mostly prior to the early 1960s, although logging appears to have continued on a smaller less formal basis into the 1970s.

Habitat of the project area can be grossly clumped into three general types – the valley bottom land is ‘transitional’ pasture grasses. The pasture lands have not been used for domestic use since park acquisition in 1978. The hillslopes are second growth mixed conifer forest with some residual old growth redwoods, Sitka spruce, and hardwoods (mostly alder). The riparian is generally composed of tree and shrubs on the hillslopes and grasses and shrubs on the valley bottom.

Stream channel restoration

Treatment would be within the riparian zone of Strawberry Creek in the valley bottom from behind old South Operations Center (SOC) downstream to the private land/NPS boundary. This portion of the creek is about 1600 ft long. The lower-most 200 ft of the West Fork tributary also would be treated. The channel and riparian treatments would not likely exceed a 75 ft width centered on the channel. The main stem Strawberry Creek portion is characterized by two distinct reaches. The upper reach is about 300 ft long and begins behind the buildings at old SOC until it reaches the old SOC access road. This upper reach flows through a mix of alder, willow and shrubs. The channel is a constructed channel with small levees presumably built by the previous landowner to contain the stream flow and prevent flooding of the farm house at old SOC. The lower reach is about 1300 ft long and flows through the old pasture lands downstream of old SOC. The riparian in this reach lacks trees and has been variously channelized, graded, excavated and otherwise manipulated across the old pasture lands (Appendix, Map 3).

The West Fork portion encompasses the lower-most 200 ft of the tributary, extending about 100 ft upstream and downstream of old SOC Road.

Both channels would be excavated to restore more natural channel cross-sections. The main stem channel is currently deep and narrow due to repeated ditching. Channel structure would be created by placing the channel excavated materials along the banks to develop gentle meanders and topographic high areas for tree planting. Large woody

debris may be placed in some areas for additional structure and habitat.

Vegetation that would be impacted by stream channel restoration includes exotic Himalaya berry and native *Rubus* species. Revegetation along the channel would consist of planting spruce and other trees and shrubs to a width of 75 ft centered on the channel.

Heavy equipment work on this part of the project would begin in the summer of 2010 when flows are the lowest, and after the SOC bald eagles fledge young if they are nesting the year of project implementation.

Culvert replacements

Three culverts on old SOC road are undersized and poorly aligned (sites 19, 20, and 20a; Appendix, Map 3). They are barriers to fish, impede storm flow and create deposition areas for sediment. Preliminary engineering designs were completed in spring 2008 and recommend realignment and installation of pipe arch culverts. The culvert closest to old SOC (#19) is proposed for replacement with an 11' 10" wide x 7' 7" high, 36 ft long pipe-arch (squashed-pipe) culvert embedded 2.5 feet below the finished channel grade. One of the culverts (#20 or 20a) on the West Fork tributary is proposed for replacement with a 6' 9" wide x 4' 11" high, 32 ft long pipe-arch culvert embedded 1.5 ft below the finished channel grade. The other culvert would be removed after channel realignment.

Roadside vegetation at both of these culverts that would be impacted by culvert replacement include grasses, native and exotic berries, and reed canary grass.

Heavy equipment work on the culvert closest to old SOC would begin in the summer of 2010 when flows are the lowest, and after the SOC bald eagles fledge young if they are nesting the year of project implementation. Work on the West Fork tributary could begin any time when flows are at a low level.

Hillslope treatments

Treatments on the hillslope would reduce potential for sediment delivery from abandoned logging haul roads. All four sites were evaluated to ensure that impacts of treating a site would result in potential net benefits. These sites occur on roads that are, or originally were, about 25 ft wide. The channels are about 30 – 45% grade. Crossings are estimated to have been built in the late 1950s to early 1960s and are generally composed of a mix of wood debris and earthen fill. Only one contains a culvert. No haul road excavation is planned. Due to the presence of large residual old growth redwood and Sitka spruce scattered across the hillslope, some within 500 ft of the stream crossings, a limited operating period would be placed on this portion of the project, from September 16 through March 23. However, it is expected that all work would be completed within 2-3 weeks post- September 15.

Work for these three different project activities would be accomplished using medium sized heavy equipment consisting of an excavator and dozer. Dump trucks may also be used.

Detailed descriptions of stream crossing work

Crossing #13. This crossing is on the McArthur Horse Trail access road. Full excavation of the stream channel is proposed, resulting in 6000 ft² area of ground disturbance. About ½ dozen red alder trees ~50 cm dbh would be removed around the site. The road (not used for vehicle traffic, but as a wide trail) presently creates an opening so there would be no need to remove additional vegetation for equipment access.

Crossing #14. This crossing is on the West Fork Strawberry Creek approximately 0.25 mi from the road's junction with the SOC road. Approximately 500 cy of sediment would be excavated, resulting in 6000 ft² area of ground disturbance. The vegetation around this site is red alder, small Sitka spruce, and shrubs (*Rubus*, and some type of *Prunus*). The haul road is grown in with berries and other shrubs which would be removed to access the site.

Crossing #24. This crossing is on an old haul road approximately 1,000 ft from the road's junction with the West Side Access Road. An estimated 300 cy of sediment would be excavated from the channel, and would be placed on the road on the inside edge of the cutbank. A few red alder trees would need to be removed from site. The haul road is grown in with berries and other shrubs which would be removed to access the site.

Crossing #25. This crossing is on the same road as #24 approximately 300 ft from #24, closer to the West Side Access junction. There is a 6" culvert that would be removed. An estimated 300 cy of sediment would be excavated from the channel. Red alder trees presently growing on the road would be removed. The haul road is grown in with berries and other shrubs which would also be removed to access the site.

V. STATUS AND DISTRIBUTION OF LISTED SPECIES

Only the northern spotted owl, marbled murrelet and fisher could potentially be impacted by the proposed action. Please refer to A Conservation Strategy for Managing Threatened and Endangered Species in Redwood National and State parks (Sakai 2003, as amended) for detailed species account, habitat status, and literature summaries for the two listed species.

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

A. Species Account

The areas that these projects occur in have not been surveyed for spotted owls, although surveys have taken place recently in areas immediately adjacent to two of the projects, the Tall Trees Trail Reroute and Strawberry Creek Restoration. Barred owls have been detected in both cases, and a long-term barred owl territory occurs in the vicinity of the Tall Trees Trail project. We also suspect a barred owl territory occurs near the ridge above Strawberry Creek. The likelihood of spotted owls occurring at least in these two project areas is low. The barred owl telemetry study captured and radio marked two

barred owls that ultimately were tracked in the vicinity of the Streelow Creek Trail project. However, both of these birds died and it is unknown whether they were “replaced” by additional barred owls. It is less likely that spotted owls would have replaced these two birds based on the parks monitoring, inventory and research data (unpublished).

B. Habitat Status

Suitable spotted owl nesting, roosting and foraging habitat of variable quality occurs in all three project areas.

Streelow Creek Trail Improvements

Approximately 575 acres of suitable spotted owl habitat occurs within the project area. Habitat is of variable quality along the project corridor and exists as an approximately 15 acre old growth redwood/spruce linear fragment suitable for nesting, roosting and foraging with the rest of the area composed of densely stocked 45 – 50 year old second growth mixed conifer forest that would mainly be suitable foraging habitat with small areas of nesting and roosting habitat scattered along stream courses.

Tall Trees Trail Reroute

The entire trail reroute and project area (approximately 130 acres) occurs in a large (i.e. >5,000 acres), contiguous old growth redwood stand and is thus all high quality spotted owl nesting, roosting and foraging habitat.

Strawberry Creek Restoration

The 600 acre project area contains suitable spotted owl habitat that is of fairly low quality for nesting and roosting, but could be used as foraging habitat. The second growth stands have regenerated primarily as spruce and alder, in size classes that would not provide nesting opportunities. There are a few residual old growth redwood and spruce trees scattered over the hillslope that could be suitable nest trees, although in most cases these are isolated with crowns that are well above the surrounding second growth.

Marbled Murrelet (*Brachyramphus marmoratus*), Threatened

A. Species Account

The areas that these projects occur in have not been surveyed for marbled murrelets, however, suitable habitat occurs in all three project areas. The Tall Trees Trail project is in contiguous old growth and is assumed to be occupied by nesting marbled murrelets. The Streelow Trail and Strawberry Creek projects have residual old growth trees present in the project areas. These residual trees have the potential to provide nesting opportunities, therefore we assume they too are occupied.

B. Habitat Status

Streelow Creek Trail Improvements

The approximately 15 acre old growth redwood/spruce linear fragment is suitable marbled murrelet nesting habitat.

Tall Trees Trail Reroute

The entire trail reroute and project area (approximately 130 acres) occurs in a large (i.e. >5,000 acres), contiguous old growth redwood stand and is thus all high quality marbled murrelet nesting habitat.

Strawberry Creek Restoration

The exact number of acres of residual old growth habitat (in the form of single residuals or low density clusters) is unknown, due to incomplete mapping. Based on visual observations, an estimated one to two acres of suitable marbled murrelet habitat in total may occur in the project area.

Marbled Murrelet Critical Habitat

None of the projects occur within designated critical marbled murrelet habitat although all three contain primary constituent elements of critical habitat.

Fisher (*Martes pennanti*), Candidate

A. Species Account

Fisher surveys in RNSP have been limited. Two were U.S. Forest Service funded 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 couple of miles of the coast. A state-sponsored distribution study surveyed habitats within 50 air kilometers of the coast between the Oregon border and southern Humboldt County (Beyer and Golightly 1995). A park-funded survey took place in 2002 with the main objective of determining presence of the Humboldt marten (*M. americana* ssp. *humboldtensis*) in the park (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. There are also 50 reports of fisher recorded in the park's wildlife observations database. The survey results coupled with the reliable database records indicate that fishers have the capacity to be present within all three project areas.

B. Habitat Status

Streeflow Creek Trail Improvements

Approximately 575 acres of suitable fisher habitat occurs within the project area. Habitat is of variable quality along the project corridor and exists as an approximately 15 acre old growth redwood/spruce linear fragment that is high quality habitat with the rest of the area composed of densely stocked 45 – 50 year old second growth mixed conifer forest with few large structures (snags and logs) that are elements of high quality habitat.

Tall Trees Trail Reroute

The entire trail reroute and project area (approximately 130 acres) occurs in a large (i.e. >5,000 acres), contiguous old growth redwood stand and is thus all high quality fisher habitat.

Strawberry Creek Restoration

The 600 acre project area contains suitable fisher habitat that is of fairly low quality in that it lacks many of the large structures (snags and logs) that are elements of high quality fisher habitat. There are a few residual old growth redwood trees and spruce trees scattered over the hillslope that could be suitable rest sites if they contain cavities.

VI. IMPACTS TO THREATENED AND ENDANGERED SPECIES

A. Direct Effects

1. Disturbance

a. Northern Spotted Owl

Streelow Creek Trail Improvements

All above ambient noise producing work occurring within 0.25 miles of suitable spotted owl habitat will take place from 10 July to 31 January and so spotted owls may be affected but will not be adversely affected by noise disturbance.

Tall Trees Trail Reroute

No above ambient noise producing work will occur within 0.25 miles of suitable spotted owl habitat during the noise restriction period and so there will be no disturbance of spotted owls.

Strawberry Creek Restoration

Stream restoration and culvert replacement work are not in or within 500 feet of suitable spotted owl nesting and roosting habitat. In addition, work with heavy equipment would not begin until mid-summer when flows are at their lowest. The likelihood of spotted owls nesting within 0.25 mi of these project activities is low due to poor habitat quality and the presence of barred owls within the project vicinity.

The hillslope restoration will be seasonally restricted to after September 15 and before 1 February, therefore, there would be no disturbance to nesting spotted owls.

b. Marbled Murrelet

Streelow Creek Trail Improvements

All above ambient noise producing work occurring within 0.25 miles of suitable marbled murrelet habitat will take place from 16 September to 31 January and so there will be no

disturbance of marbled murrelets

Tall Trees Trail Reroute

No above ambient noise producing work will occur within 0.25 miles of suitable marbled murrelet habitat during the noise restriction period and so there will be no disturbance of marbled murrelets.

Strawberry Creek Restoration

Stream restoration and culvert replacement work are not in or within 0.25 mi of suitable marbled murrelet nesting habitat. Hillslope treatment work would be seasonally restricted between September 15 and March 24 to ensure no disturbance of any marbled murrelets that potentially could be nesting in old growth residuals.

c. Fisher

Steele Creek Trail Improvements

All above ambient noise producing work occurring within 0.25 miles of suitable fisher habitat will take place from 10 July to 31 January and so fishers may be negatively affected but will not be significantly negatively affected by noise disturbance.

Tall Trees Trail Reroute

No above ambient noise producing work will occur within 0.25 miles of suitable fisher habitat during the noise restriction period and so there will be no disturbance of fishers.

Strawberry Creek Restoration

Stream restoration and culvert replacement work are not in suitable fisher habitat. The likelihood of fishers denning or resting within 0.25 mi of these project activities is low due to poor habitat quality.

The hillslope restoration will be seasonally restricted to after September 15, therefore, there would be no disturbance to denning fishers.

2. Loss and Modification of Suitable Habitat

a. Northern Spotted Owl

Steele Creek Trail Improvements

Approximately 4.7 acres of <24" DBH trees embedded within suitable nesting, roosting and foraging habitat spread across 1.8 miles of trail will be removed during the project resulting in habitat degradation. There will be, however, ample suitable habitat remaining within 0.7 and 1.3 miles of the action area to provide for the needs of any spotted owls existing in the area.

Tall Trees Trail Reroute

Approximately 0.25 acres of <18" DBH (primarily <6" DBH) trees embedded within suitable nesting, roosting and foraging habitat spread across approximately one mile of

trail will be removed during the project resulting in habitat degradation. There will be, however, ample suitable habitat remaining within 0.7 and 1.3 miles of the action area to provide for the needs of any spotted owls existing in the area.

Strawberry Creek Restoration

Stream channel restoration is expected to improve habitat quality for the spotted owl. On the main channel 1600 ft of riparian habitat would be improved by tree and native shrub planting, where currently there are exotic species. This equates to 2.4 ac of improved foraging habitat, and potentially nesting and roosting habitat.

Hillslope treatments have the potential to degrade suitable spotted owl nesting, roosting, and foraging habitat, at least in the short term, due to opening haul roads and treating stream crossings. Haul roads (with the exception of the McArthur Horse Trail access road) are currently overgrown with tall shrubs and small trees, with some down logs present that could provide suitable foraging habitat. At stream crossings mature alders and tall shrubs would be removed. The four stream crossings are all approximately of the same size and dimensions and are estimated to be 0.15 ac maximum in area of ground disturbance. The haul road ground disturbance is equal to 1.4 ac, therefore a maximum of 2.2 ac of suitable spotted owl nesting, roosting, and foraging habitat would be degraded by project activities.

b. Marbled Murrelet

Steele Creek Trail Improvements

No suitable nest trees or adjacent trees that extend up to suitable nest platforms (and thus provide cover) will be removed during the project; however, three alder trees that extend below suitable nest platforms will be removed.

Tall Trees Trail Reroute

No suitable nest trees or adjacent trees that extend up to suitable nest platforms (and thus provide cover) will be removed during the project; however, 0.25 acres of smaller trees that extend below suitable nest platforms will be removed.

Strawberry Creek Restoration

No suitable marbled murrelet habitat would be removed or degraded by project activities.

c. Fisher

Steele Creek Trail Improvements

Approximately 4.7 acres of trees that do not provide suitable den or rest sites but may provide some cover will be removed across 1.8 miles of trail. Due to the thin, linear arrangement of the trees to be removed, it is not expected that any significant gaps will be created in the forest canopy and thus the effects to fishers should be minimal.

Tall Trees Trail Reroute

All of the small trees slated for removal are subcanopy trees and thus their removal

should not affect canopy cover in the action area. In addition, none of the trees that will be removed are large enough to provide suitable den or rest sites. This project should have no effect on fisher habitat.

Strawberry Creek Restoration

Stream channel restoration is expected to improve habitat quality for the fisher. On the main channel 1600 ft of riparian habitat would be improved by tree and native shrub planting, where currently there are exotic species. This equates to 2.4 ac of improved foraging habitat, and potentially resting and denning habitat.

Hillslope treatments have the potential to degrade suitable fisher foraging habitat, at least in the short term, due to opening haul roads and treating stream crossings. Haul roads (with the exception of the McArthur Horse Trail access road) are currently overgrown with tall shrubs and small trees, with some down logs present, that could provide suitable foraging habitat. At stream crossings mature alders and tall shrubs would be removed. The five stream crossings are all approximately of the same size and dimensions and are estimated to be 0.15 ac maximum in area of ground disturbance. The haul road ground disturbance is equal to 1.4 ac, therefore a maximum of 2.2 ac of suitable fisher foraging habitat would be degraded by project activities.

B. Indirect Effects

Steele Creek Trail and Tall Trees Trail Projects

No indirect effects are expected from the proposed action for marbled murrelets, spotted owls, or fishers. Current levels of recreational use are not expected to change upon completion of this project, and future recreational use of the trail is covered under the RNSP Trail and Backcountry Management Plan consultation (2007).

Strawberry Creek Restoration

There are no indirect effects.

C. Cumulative Effects

Cumulative effects are those state and private actions in the action area that may occur in the future that have the potential to impact listed species in the park.

Steele Creek Trail and Tall Trees Trail Projects

No cumulative effects are expected from state and private actions because no state or private lands exist within the action area.

Strawberry Creek Restoration

Outside of the park boundary, work will be conducted to restore the downstream reaches of Strawberry Creek. This work will be conducted by private contractors and will be primarily stream channel restoration work. Impacts to spotted owls and fishers are expected to be beneficial due to the removal of exotic species, replanting with native trees and shrubs, and an overall improvement of the health of the watershed.

VII. DETERMINATION

Based on the nature and timing of the proposed action, it is our determination that the Streeflow Creek Trail Improvements project may affect but will not adversely affect the northern spotted owl and marbled murrelet due to noise disturbance (owls) and minimal habitat degradation (owls and murrelets). The fisher may be minimally affected due to noise disturbance and habitat degradation.

The Tall Trees Reroute project may affect but will not adversely affect the spotted owl and marbled murrelet due to minimal habitat degradation. The fisher may be minimally affected due habitat degradation.

The Strawberry Creek Restoration project may affect and is likely to beneficially affect the northern spotted owl and fisher due to stream channel restoration. It may affect, but is not likely to adversely affect the spotted owl and fisher due to a small amount of habitat degradation. It would not affect the marbled murrelet.

VIII. MANAGEMENT RECOMMENDATIONS

There are no management recommendations.

CONTRIBUTORS

Streeflow Creek Trail Improvements

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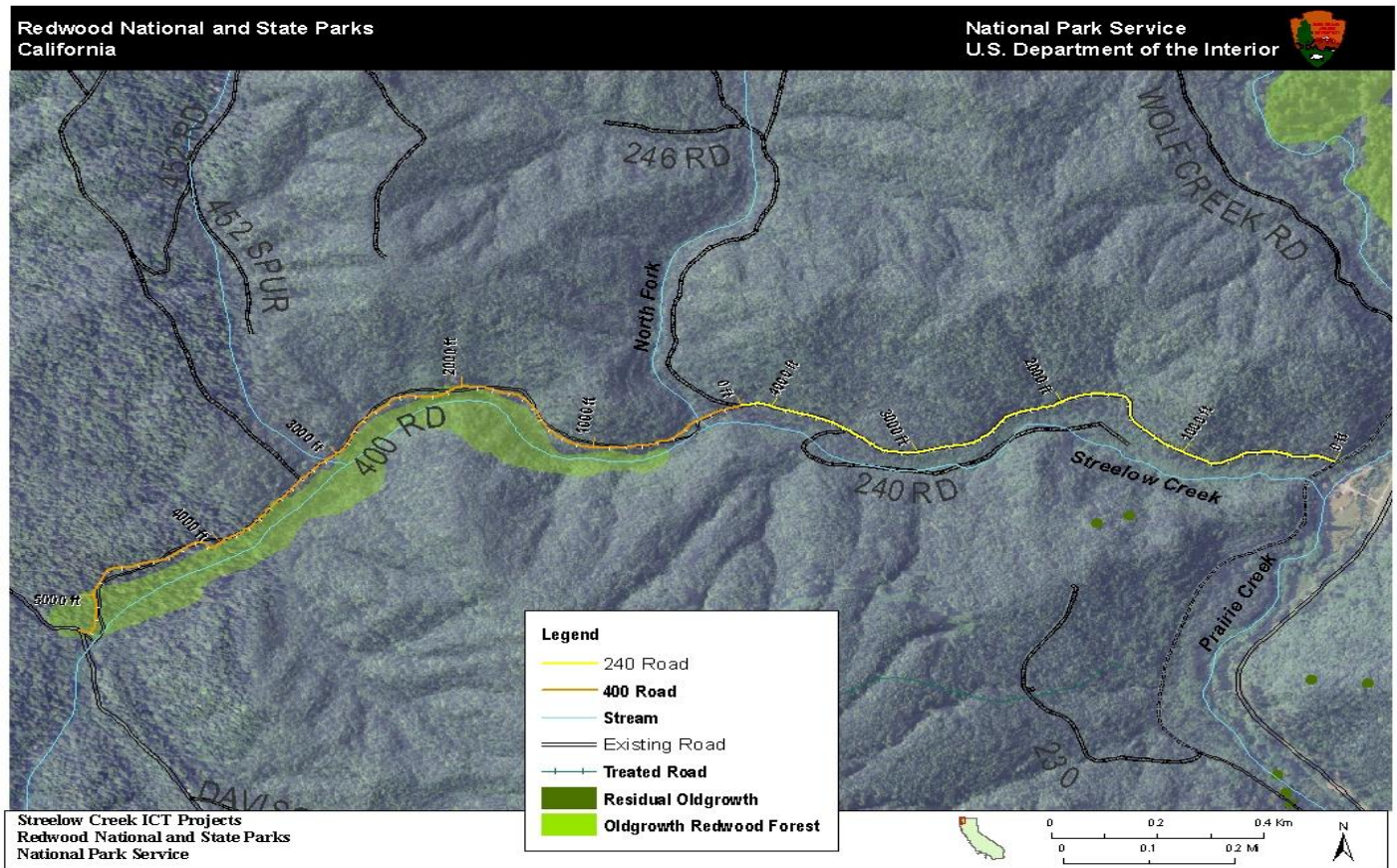
Michael Love and Associates, Eureka, CA

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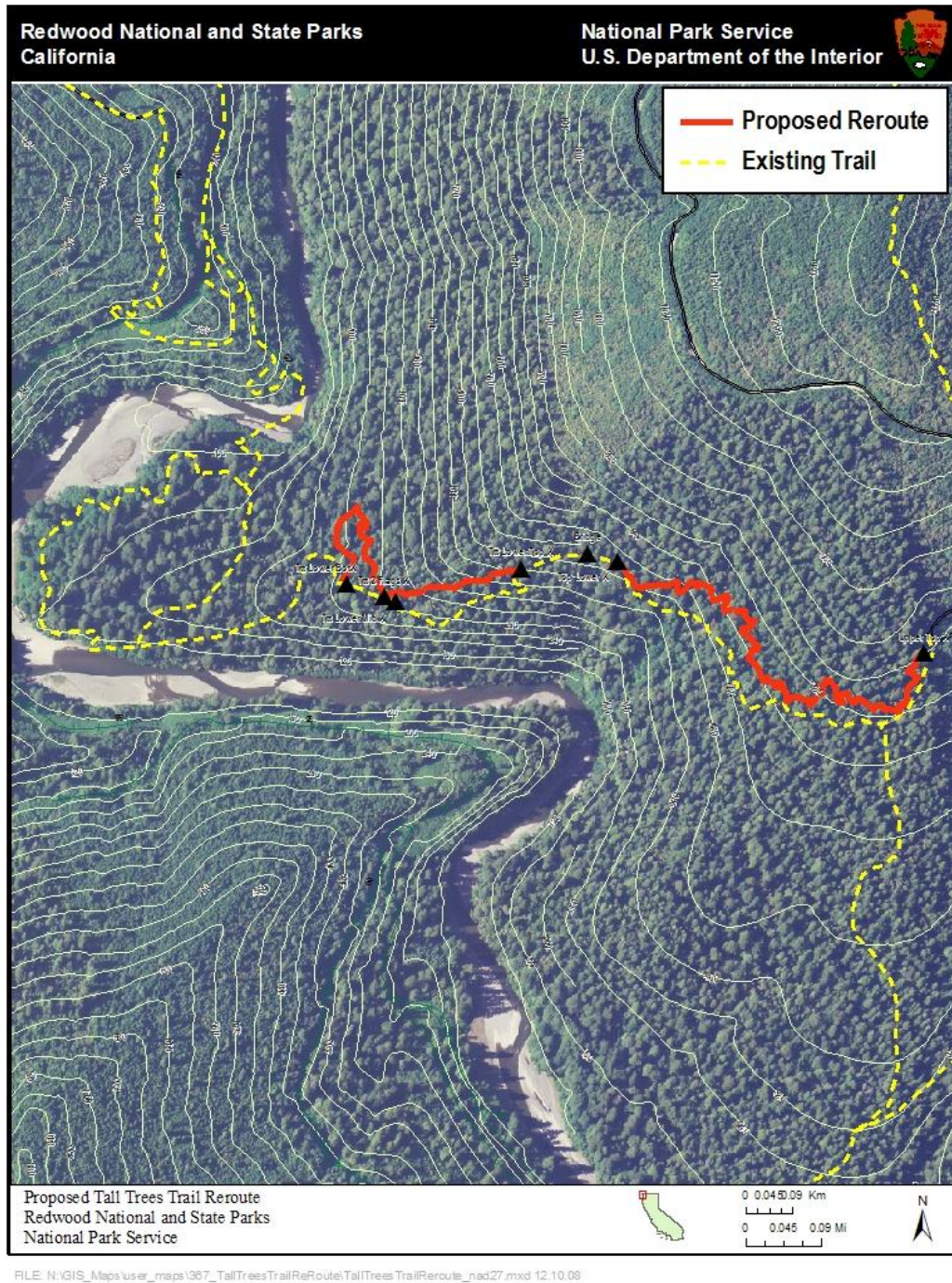
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Appendix- Maps

Map 1. Strelow Creek Trail Improvements.



Map 2. Tall Trees Reroute. Ignore black triangles, they are meaningless.



Map 3. Strawberry Creek Restoration.

