



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94103-1398

JAN 15 2014

REPLY TO

Regulatory Division

SUBJECT: File Number 2009-00041N

Mr. Barney Riley
National Park Service
1111 Second Street
Crescent City, California 95531

Dear Mr. Riley:

Enclosed is your signed copy of a Department of the Army permit (Enclosure 1) to re-establish and restore the natural function and habitat of approximately 1600 linear feet of Strawberry Creek and adjacent tributaries and side channels within a work area of approximately 5.6 acres. Work includes replacing one culvert; excavating approximately 1600 linear feet of channel primarily within a wetland to re-establish a stream channel and create adjacent side channels; and establishing approximately 2 acres of streamside riparian canopy.

Please complete the appropriate parts of "Project Status" form (Enclosure 2), and return it to this office as your work progresses. You are responsible for ensuring that the contractor or workers executing the activity authorized herein are knowledgeable of the terms and conditions of this authorization.

Should you have any questions regarding this matter, please call Mr. Jim Mazza of our Regulatory Division at (415) 503-6775. Please address all correspondence to the Regulatory Division and refer to the File Number at the head of this letter. If you would like to provide comments on our permit review process, please complete the Customer Survey Form available online at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey.

Sincerely,

for John K. Baker, P. E.
Lieutenant Colonel, U.S. Army
District Engineer

Enclosures

Copy Furnished (w/encl 1 only):

US EPA, San Francisco, CA
US FWS, Arcata, CA
US NMFS, Arcata, CA
CA DFW, Napa, CA
CA RWQCB, Santa Rosa, CA

PROJECT STATUS

Please use the forms below to report the dates when you start and finish the work authorized by the enclosed permit. Also if you suspend work for an extended period of time, use the forms below to report the dates you suspended and resumed work. The second copy is provided for your records. If you find that you cannot complete the work within the time granted by the permit, please apply for a time extension at least one month before your permit expires. If you materially change the plan or scope of the work, it will be necessary for you to submit new drawings and a request for a modification of your permit.

(cut as needed) -----

Date: _____

NOTICE OF COMPLETION OF WORK under Department of the Army Permit No. **2009-00041N**

TO: District Engineer, US Army Corps of Engineers, Regulatory Division, 1455 Market Street, 16th Floor, San Francisco, CA 94103-1398

In compliance with the conditions of Permit No. **2009-00041N**, this is to notify you that work was completed on _____.

Permittee: National Park Service, Mr. Barney Riley

Address: 1111 Second Street, Crescent City, California 95531

(cut as needed) -----

Date: _____

NOTICE OF RESUMPTION OF WORK under Department of the Army Permit No. **2009-00041N**

TO: District Engineer, US Army Corps of Engineers, Regulatory Division, 1455 Market Street, 16th Floor, San Francisco, CA 94103-1398

In compliance with the conditions of Permit No. **2009-00041N**, this is to notify you that work was resumed on _____.

Permittee: National Park Service, Mr. Barney Riley

Address: 1111 Second Street, Crescent City, California 95531

(cut as needed) -----

Date: _____

NOTICE OF SUSPENSION OF WORK under Department of the Army Permit No. **2009-00041N**

TO: District Engineer, US Army Corps of Engineers, Regulatory Division, 1455 Market Street, 16th Floor, San Francisco, CA 94103-1398

In compliance with the conditions of Permit No. **2009-00041N**, this is to notify you that work was suspended on _____.

Permittee: National Park Service, Mr. Barney Riley

Address: 1111 Second Street, Crescent City, California 95531

(cut as needed) -----

Date: _____

NOTICE OF COMMENCEMENT OF WORK under Department of the Army Permit No. **2009-00041N**

TO: District Engineer, US Army Corps of Engineers, Regulatory Division, 1455 Market Street, 16th Floor, San Francisco, CA 94103-1398

In compliance with the conditions of Permit No. **2009-00041N**, this is to notify you that work was commenced on _____.

Permittee: National Park Service, Mr. Barney Riley

Address: 1111 Second Street, Crescent City, California 95531



DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
1455 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94103-1398

REPLY TO

DEPARTMENT OF THE ARMY PERMIT

PERMITTEE: National Park Service

PERMIT NO.: 2009-00041N

ISSUING OFFICE: San Francisco District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate District or Division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below:

PROJECT DESCRIPTION: The National Park Service (NPS) will restore approximately 3 acres of the historic riparian wetlands (palustrine forested in place of the current ponded emergent herbaceous wetlands) in Redwood National Park. The project will include the clearing of non-native plants along 1200 linear feet of Strawberry Creek and 390 feet of the West Tributary, both will be restored by grubbing and excavating the channels, constructing planting berms and anchoring wood and rock structures in the channels. The applicant will grub/excavate 1224 linear feet of Strawberry Creek, including approximately 1930 cy of reed canary grass and 420 cy of sediment to clear approximately 2.9 acres, which will be removed and stockpiled adjacent to the Old SOC.

In the tributary channel near the Old SOC (SOC Tributary), the channel will be excavated up to 4 feet deep and approximately 4 feet wide, with log steps placed 20-25 feet apart.

The mainstem channel begins at the confluence of the East Tributary and the SOC Tributary and will curve gently with a 10-foot bottom and side slopes of 1.5H:1V.

The restoration of the West Tributary will begin approximately 150 feet upstream of the culvert under the SOC Access road and continue downstream of the culvert another 220 feet to join the mainstem of Strawberry Creek. The West Tributary will be restored as a series of step-pools with log steps and weirs separated by scour pools, glides, and riffles. Additionally, the applicant will excavate approximately 340 cy of fill from the road bed to replace the undersized culvert for the West Tributary.

The restoration will include a 255 linear foot flow-through side channel constructed parallel to the mainstem. Several dead-end spurs, totaling approximately 245 feet, will connect to the mainstem and the side channel, providing habitat complexity and off-channel refugia.

The applicant will plant a riparian buffer at least 25 feet wide on each side of the mainstem. The applicant will plant alder and spruce seedlings and willow shoots on planting mounds that will provide the seedlings some drainage to better facilitate their hydrologic needs. The applicant will plant the seedlings and shoots densely so that they will quickly shade the reed canary grass. Approximately 5000 willow stakes will be planted at 1 foot spacing along the base of the planting mounds. Spruce and alder seedlings will be planted with 2-foot spacing on 0.6 acres. The willows and alders will be planted below the 23-foot elevation; the applicant will plant spruce above the 23-foot elevation. Ten nurse logs will be anchored in the wetland adjacent to the side channels and sprigged with spruce.

To facilitate the construction, two temporary access roads will be necessary. One, from the Old SOC access road to the mainstem, will not require additional fill material. The second will be 160 feet long and bypass the undersized

culvert where the road crosses the West Tributary. The fill material used for the temporary bypass will be excavated from the wetlands adjacent to the West Tributary after the culvert is replaced and used again for construction of the planting berms.

In addition to grubbed and excavated channels and planting berms, the applicant will construct and anchor 5 log steps in the main channel, 7 log steps and weirs in the West Tributary, 2 rock and boulder steps and weirs in the West Tributary, 7 log habitat structures in the main channel, and 10 nurse logs adjacent to the main channel. The applicant will bolt the logs together with piles driven in to the banks. Rock and boulder steps will be installed inside the West Tributary culvert to provide a natural streambed substrate. Log steps and log weirs will control the channel bed elevation.

Additional project details are provided in the plans titled, "Strawberry Creek Restoration Project," sheets 1, 3, 5-9, 14, and 22-33 of 33, dated March 2012.

PROJECT LOCATION: Redwood National and State Park, north of Old South Operations Center, east of the old SOC Access Road (which splits off of Hilton Road), in the town of Orick, Humboldt County, California. The project area encompasses approximately 5.6 acres.

PERMIT CONDITIONS:

GENERAL CONDITIONS:

1. The time limit for completing the work authorized ends on 31 JANUARY 2019. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.
7. You understand and agree that, if future operations by the United States require the removal, relocation or other alteration of the structure or work authorized herein, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, you will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

SPECIAL CONDITIONS:

1. To remain exempt from the prohibitions of Section 9 of the Endangered Species Act, the non-discretionary Terms and Conditions for incidental take of federally-listed Species shall be fully implemented as stipulated in the Biological Opinion entitled, "*NOAA Restoration Center Arcata Office Programmatic Biological Opinion*" (pages 102-106) dated March 21, 2012. Project authorization under this permit is conditional upon compliance with the mandatory terms and conditions associated with incidental take. Failure to comply with the terms and conditions for incidental take, where take of a federally-listed species occurs, would constitute an unauthorized take and non-compliance with the authorization for your project. The NMFS is, however, the authoritative federal agency for determining compliance with the incidental take statement and for initiating appropriate enforcement actions or penalties under the Endangered Species Act.
2. The USFWS concurred with the determination that the project was not likely to adversely affect Northern spotted owl and marbled murrelet. This concurrence was premised, in part, on project work restrictions outlined in enclosure 1. These work restrictions are incorporated as special conditions to this authorization for your project to ensure unauthorized incidental take of species and loss of critical habitat does not occur.
3. Applicant shall implement all required measures to minimize adverse effects on listed fish species as stated in CDFW's *California Salmonid Stream Habitat Restoration Manual*.
4. Project performance standards shall be adhered to as per the criteria set forth in the *Strawberry Creek Riparian Restoration Planting Plan*, dated March 2012 and prepared by NPS and annual monitoring reports shall be submitted to the Corps by December 31 for five years following the completion of construction, referencing the Corps File Number associated with this project. Each monitoring report shall incorporate a discussion of the project objectives outlined in the *Strawberry Creek Restoration – NPS Reach, Redwood National Park Project Monitoring Plan*, dated March 2013 and prepared by NPS. The reports shall include dated photographs that cover the entire project reach, including the creek and both banks. If performance standards are not being met, a brief explanation of the difficulties and potential remedial actions shall be provided.

FURTHER INFORMATION:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:
 - () Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. Section 403).
 - (X) Section 404 of the Clean Water Act (33 U.S.C. Section 1344).
 - () Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. Section 1413).
2. Limits of this authorization:
 - a. This permit does not obviate the need to obtain other Federal, State, or local authorizations required by law.
 - b. This permit does not grant any property rights or exclusive privileges.
 - c. This permit does not authorize any injury to the property or rights of others.
 - d. This permit does not authorize interference with any existing or proposed Federal project.
3. Limits of Federal Liability: In issuing this permit, the Federal Government does not assume any liability for the following:
 - a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

- b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
 - c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
 - d. Design or construction deficiencies associated with the permitted work.
 - e. Damage claims associated with any future modification, suspension, or revocation of this permit.
4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.
5. Reevaluation of Permit Decision: This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:
- a. You fail to comply with the terms and conditions of this permit.
 - b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate. (See Item 4 above.)
 - c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 C.F.R. Section 325.7 or enforcement procedures such as those contained in 33 C.F.R. Sections 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 C.F.R. Section 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions: General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.


(PERMITTEE)

1.8.14
(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

John K. Baker

John K. Baker
Lieutenant Colonel, U.S. Army
District Engineer

1/15/14
(DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFeree)

(DATE)

Attachment 1. *Strawberry Creek Riparian Restoration Planting Plan*, dated March 2012

RECEIVED
SF DISTRICT

2014 JAN 15 P 2:45

CORPS OF ENGINEERS
REGULATORY DIVISION

Strawberry Creek Riparian Restoration Planting Plan

March, 2012

By Leonel Arguello¹, Darci Short², David Anderson³, and Rachel Shea⁴

¹Botanist, ²Geologist, ³Fishery Biologist (respectively, RNSP),
and ⁴Engineer, Mike Love and Associates

Location of the restoration site(s)

Sheets 20 through 23 of the Intermediate Plans show a plan view schematic of the Riparian Restoration Planting Plan including the various planting zones.

Site suitability evaluation

The goal of the plantings is to shade out non-native, invasive grasses including Reed canary grass (*Phalaris arundinacea*) and the floating mats of *Glyceria fluitans*. The shading will be accomplished by grass removal and re-establishment of a dense riparian area within 25 feet of each side of the flow course of Strawberry Creek as well as within 25 feet of each side of all side channels in the approximately 3-acre wetland area. Project success is predicated on rapidly establishing deep shade that persists throughout the invasive grass growing period. The site, a former pasture was originally a spruce forest as determined from historic air photographs (1936) and anecdotal information from residents that lived in the Orick valley as early as the 1930's. Stories of the large effort to clear the land of the spruce have been shared with subsequent generations that have since shared the stories with us.

Initial riparian restoration plans were developed by Michael Love and Associates, including a detailed planting plan for the project area (Enhancement Planting Plan for Management of Reed Canary Grass at Strawberry Creek, 2008) developed by Tamara Gedik, a Certified Associate Ecologist. The planting plan for the area was subsequently revised by Redwood National and State Parks (RNSP) Supervisory Botanist with review by other resource staff at RNSP. The revision is based on observations from past similar riparian planting projects implemented by RNSP in the Redwood Creek watershed.

The riparian restoration plan now includes a phased approach that emphasizes rapidly growing canopy tree species. The first phase of planting will consist of dense planting of larger spruce and alder planted above seasonal high water levels with willow planted in wetter areas. Native Sitka spruce and Red alder, grown from seed collected for the project will be used. A second planting phase would occur some ten to twenty years later that would include a diversity of understory shrubs if these plants have not already naturally colonized the understory riparian area.

Site preparation and installation methods

The project area has extensive areas of invasive Reed canary grass and *Glyceria*, with some areas covered with other native species. All areas within the project area

vegetated with invasive grasses will be grubbed in late summer/early fall using an excavator to remove the entire plant to below the rhizomes. Large clusters of Slough sedge (*Carex obnupta*), cattail (*Typha latifolia*) and blackberry (*Rubus ursinus*) will remain undisturbed as much as possible. Waste material will be piled in a developed area at the adjacent old South Operations Center and allowed to decompose naturally. After grubbing, the new channel will be excavated and material from the excavations will be used to build elevated planting mounds in the wetland restoration area. These raised areas will provide growing sites for spruce and alder that are above the elevation of persistent water.

Planting will occur between November and February depending on dormant season timing and crew scheduling. Planting crews will prep the site by using hand tools to remove any remaining invasive grasses. Weed barrier (combination of heavy cardboard and 10-oz burlap) will be placed over areas above the calculated average water elevation and secured in place with decomposable stakes. The covered areas will then be planted with Sitka spruce (*Picea sitchensis*) and Red alder (*Alnus rubra*) with spacing of approximately two-feet. All other stream bank areas below the average water elevation would be planted with willow (*Salix spp.*) down to the calculated summer water level. Following plantings, all weed barrier material will be covered with shredded redwood bark to a depth of 12 - 18 inches. The mulch will protect the weed barrier from damage and further insure that any remnant invasive grass rhizomes or seeds in the soil would not photosynthesize or survive.

Materials:

- 10,562 Sitka Spruce (*Picea sitchensis*): 2-year old container plant, grown from seed collected for this project. Plants are currently being grown under contract at Green Diamond Resources Company nursery.
- 5,688 Red Alder (*Alnus rubra*): 2-year old container plant, grown from seed collected for this project. Plants are currently being grown under contract at Green Diamond Resources Company nursery.
- 5,000 willow stakes: stem cuttings to be collected on-site at time of planting.

Native plant diseases: The species are native to the area, are vigorous and are not expected to be threatened by disease.

All plantings will be within an elk fence enclosure to protect from browsing by an elk herd present at the site. A 25-year old electrified elk fence, demarcating the boundary between private lands and NPS lands, is located adjacent the project area. Identical fencing will be installed at this project site and maintained by RNSP until plants are of sufficient size to survive elk browsing and rubbing.

Schematic:

Sheets 19 through 22 of the Intermediate Plans shows the areas to be planted. A total area of 1.5 acres will be replanted with native riparian materials. The planting zones shown on the Intermediate Plans are as follows:

Floating Mat Removal (Approximately 2 acres): The floating mat of *Glyceria fluitans* as well as Reed Canary Grass will be grubbed from all areas of the project area that are

designed for channel restoration, side channel development and riparian plantings. Willow stakes will be planted at 2-foot spacing within area above the seasonally high water table.

Planting Mounds (1.5 acres): Planting mounds with a top elevation of 24 feet will be constructed within the wetland restoration area and within the area of Floating Mat Removal. Spruce will be planted on the tops of the mounds with 2-foot spacing (0.5 acres). Below the 23 foot elevation, alder and willows will be planted with 2-foot spacing down to the seasonal high water elevation (1.0 acre). 10 Nurse Logs, 2.5-3 foot diameter logs sprigged with spruce will also be placed randomly within the wetland enhancement area.

Spruce and Alder Riparian Areas (0.6 acres): These planting areas will consist of Spruce and Alder planted with 2-foot spacing within a 25-foot riparian area along the stream channel, starting at the bankfull elevation.

Willow Stakes (5,000 stakes): Willow stakes will be planted at 1-foot spacing in sunny and damp areas along the base of the wetland mounds. This planting zone is outside the 25-foot Spruce and Alder riparian buffer. Willow stakes will also be planted within the 25-foot riparian buffer along the bankfull elevation of the entire length of the stream channel for bank stabilization.

Maintenance of plants

The project area will be monitored regularly by RNSP staff. Monitoring will evaluate fence integrity, plant survival and invasion of non-native plant species. Any deficiencies or failures will be repaired or addressed immediately, or in the event of plant mortality, replacement trees or willow stakes could be planted during the following dormant season. The cause of plant failures will be evaluated to determine if water elevations have played a role in failure and planting elevations may require subsequent adjustments upon plant failure. We anticipate hand crews may be necessary to remove any returning invasive grasses. The goal is to remove the invasive grasses to prevent an infectious spread.

Success criteria

Success will be measured primarily by the elimination of 90% of the current extent of invasive grasses within the project limits. This will be measured visually through repeated photography at photo point locations by botanists at RNSP. Success of the planted trees will target 80% survival. We are purposefully planting very heavily to effect dense shade rapidly, but this will also allow some mortality early on. Additional mortality is expected as the trees grow and overcrowd. RNSP will thin trees in the future as size and crowding dictates. Mortality of some trees may occur due to water table persisting at levels not anticipated by the design drawings, by shifts in rainfall amounts or from influences downstream. RNSP will evaluate if water table elevation has played a role in any tree mortality and will replant areas accordingly.

Monitoring methods

Photo points will be established at vantage points throughout the project area. The access road into the project area provides continuous overview of much of the project

area and numerous photo points will be established along the road. Many photo points will be established from along the banks of the newly aligned channel to visually monitor channel function and riparian planting success.

Vegetation monitoring plots of about 3 meters square will be established at some photopoint locations to monitor tree mortality.

Attachment 2. USFWS NLAA concurrence letter, dated June 9, 2009



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Arcata Fish and Wildlife Office

1655 Heindon Road

Arcata, California, 95521

Phone: (707) 822-7201 FAX: (707) 822-8411



In Reply Refer To:
8-14-2009-3622
81331-2009-1-0105

JUN 09 2009

Memorandum

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

From: *Acting* Field Supervisor, Arcata Fish and Wildlife Office
Arcata, California

Subject: Informal Consultation on the Streeflow Creek Trail Improvement, Tall Trees Trail Reroute, and Strawberry Creek Restoration Projects in Redwood National and State Parks, Del Norte County, California

This memorandum responds to your May 26, 2009, letter requesting the Fish and Wildlife Service's (Service) concurrence with your determination of effects for the Streeflow Creek Trail Improvement, Tall Trees Trail Reroute, and Strawberry Creek Restoration Projects in Redwood National and State Parks (Parks). You determined the actions may affect, but are not likely to adversely affect the federally threatened marbled murrelet (*Brachyramphus marmoratus*) and 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 May 21, 2009, biological assessment and other sources of information. The biological assessment contains a complete description of the proposed actions and their effects on the marbled murrelet and northern spotted owl and is hereby incorporated by reference. Documents related to this consultation are on file in this office.

The proposed Streeflow Creek Trail Improvement Project will convert 0.9 mile of road on the existing Streeflow Creek Trail/Road to a trail and upgrade another 0.9 mile section of the Streeflow Creek Trail/Road to provide for administrative vehicle use and reduce sediment delivery to Streeflow Creek. The western portion of the project area is located in unsurveyed northern spotted

owl nesting and roosting habitat and contains residual old growth trees which are considered potential marbled murrelet nest trees. Shrubs and occasional trees will be removed during the road to trail conversion portion of the project. Trees removed will be less than 12 inches diameter-at-breast-height (dbh), with most less than 6 inches dbh. The road upgrade portion of the project will result in the removal of trees less than 18 inches dbh with most less than 12 inches dbh.

The proposed Tall Trees Trail Reroute Project will reroute a 1.0 mile portion of the existing Tall Trees Trail. The entire project is located within suitable, partially surveyed northern spotted owl habitat and in suitable marbled murrelet habitat. Construction of the new trail route will require the removal of a small number of trees less than 6 inches dbh and less than five moderate sized trees less than 18 inches dbh. Only shrubs and pole sized trees will be removed during restoration of the old trail route.

The proposed Strawberry Creek Restoration Project includes reconstruction of a stable channel, establishment of a shaded riparian zone, replacement of two culverts, and excavation of four unstable stream crossings on the hillside. Only the hillside portion of the project area is in suitable marbled murrelet and northern spotted owl habitat. This area contains low quality northern spotted owl nesting and roosting habitat and a few residual old growth trees which are considered potential marbled murrelet nest trees. The hillside treatments will result in the removal of mature alders and shrubs at five stream crossings and shrubs and small trees along the haul road.

Concurrence

Marbled Murrelet

The Service concurs with your determination that the projects may affect, but are not likely to adversely affect the marbled murrelet, based on the following factors:

1. No suitable marbled murrelet nesting habitat will be removed. No marbled murrelet nesting habitat will be degraded on the Strawberry Creek Restoration Project. A small amount of suitable nesting habitat will be degraded on the Streelow Creek Trail Improvement and Tall Trees Trail projects; however, these effects are considered to be insignificant for the following reasons: 1) a small number of trees adjacent to potential nest trees will be removed; however, none of these trees are one-half potential tree height or provide canopy for potential nesting platforms; 2) no potential nest trees will be removed; 3) habitat suitability and function will be maintained; and 4) less than 0.25 acre of suitable nesting habitat will be degraded on each trail project.
2. Disturbance to marbled murrelets is not anticipated because no project-generated noise associated with the proposed actions will occur in or within 0.25 mile of suitable nesting habitat from March 24 through September 15.
3. The two trail projects (Streelow Creek and Tall Trees) are currently open to recreation use; therefore, no additional harassment from humans or harm due to increased corvid predation is anticipated.
4. Injury or harm to marbled murrelets is not anticipated because no trees will be cut in suitable nesting habitat during the breeding season (March 24 through September 15).

Concurrence

Northern Spotted Owl

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

1. No suitable nesting and roosting nesting habitat will be removed. Suitable nesting and roosting habitat will be degraded; however, the effects are considered to be insignificant for the following reasons: 1) the total area to be impacted on the Streeflow Creek Trail is 9.5 acres distributed along the linear 1.8 mile trail corridor; 2) the total area impacted on the Tall Trees Trail is 0.25 acre spread across 1.0 mile of trail; 3) the total area impacted from the Strawberry Creek Restoration will be approximately 2 acres spread between the five stream crossings and the length of the haul road; 3) trees removed will be less than 18 inches dbh, with most less than 12 inches dbh; 4) no potential nest trees will be removed; 3) habitat suitability and function will be maintained; and 5) down logs will remain on-site.
2. Disturbance to northern spotted owls is not anticipated on the Tall Trees Reroute or Strawberry Creek Restoration projects because no project-generated noise associated with the proposed actions will occur in or within 0.25 mile of suitable nesting and roosting habitat from February 1 through July 31.
3. A limited operating period from February 1 through July 9 will be imposed on the Streeflow Creek Project in or within 0.25 mile of unsurveyed or occupied nesting and roosting habitat. The period from July 10 through July 31 is after the period when the majority of young owls have fledged from the nest. As a result, we anticipate some change in the owl's behavior, but do not expect this to result in abandonment of the breeding effort, disruption of nesting activities, or premature dispersal of juveniles.
4. Injury or harm to northern spotted owls is not anticipated because no trees will be cut in suitable nesting and roosting habitat from February 1 through September 15.

This concludes informal consultation on the Streeflow Creek Trail Improvement, Tall Trees Trail Reroute, and Strawberry Creek Restoration Projects 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:

RNSP, Orick, CA (Attn: K. Schmidt)

RNSP, Orick (Attn: K. Bensen)

CDFG, Eureka (Attn: W. Condon)

Attachment 3. *Strawberry Creek Restoration – NPS Reach, Redwood National Park Project Monitoring Plan*, dated March 2013

Strawberry Creek Restoration – NPS Reach, Redwood National Park Project Monitoring Plan

March 2013

Following completion of project implementation, Redwood National Park will coordinate post project monitoring to assess project success and guide adaptive management to meet project objectives. The following implementation objectives have been established for Strawberry Creek restoration:

- Restore portions of the stream channel to re-establish natural geomorphic processes and allow fish passage.
- Remove and control invasive reed canary grass from portions of the stream channel, wetland, and floodplain.
- Revegetate the riparian corridor with native species.
- Fence the new plantings along the riparian corridor to prevent damage by elk browsing and associated streambank erosion and to keep beavers out.
- Replace an undersized stream crossing that impedes fish passage and alters natural geomorphic processes.

Restored Stream Channel

As built drawings - Drawings will be prepared at completion of the project to provide a basis for comparing possible changes in the project area due to channel or structure adjustments or vegetation mortality. They will also document channel complexity.

Photo Points – Photo points will be established and will be used to document before and after conditions of the project. Photo points will be repeated to capture the evolution of the project area.

Improved Stream Habitat for Fish

Fish distribution monitoring – Fish monitoring will document salmonid presence in the project area where presently there are none. Strawberry Creek has been monitored at more than six locations since 2006. The fish monitoring stations throughout Strawberry Creek range from upstream of the proposed project reach to the confluence of Strawberry Creek at Redwood Creek estuary south slough. Monitoring is presently a joint effort of Redwood National Park and NOAA Fisheries Restoration Center. The current locations (Figure 1) from upstream to downstream are:

1. Old SOC culvert – immediately upstream of the project area
2. Wooden bridge at Barlow pasture – 1,294 feet downstream of the downstream boundary of the project
3. Hiltons Road culvert – downstream of project area
4. Highway 101 bridge – downstream of project area

5. Humboldt County Waste Transfer Station box culvert – downstream of project area
6. Humboldt County Waste Transfer Station- below beaver dam – downstream of project area.

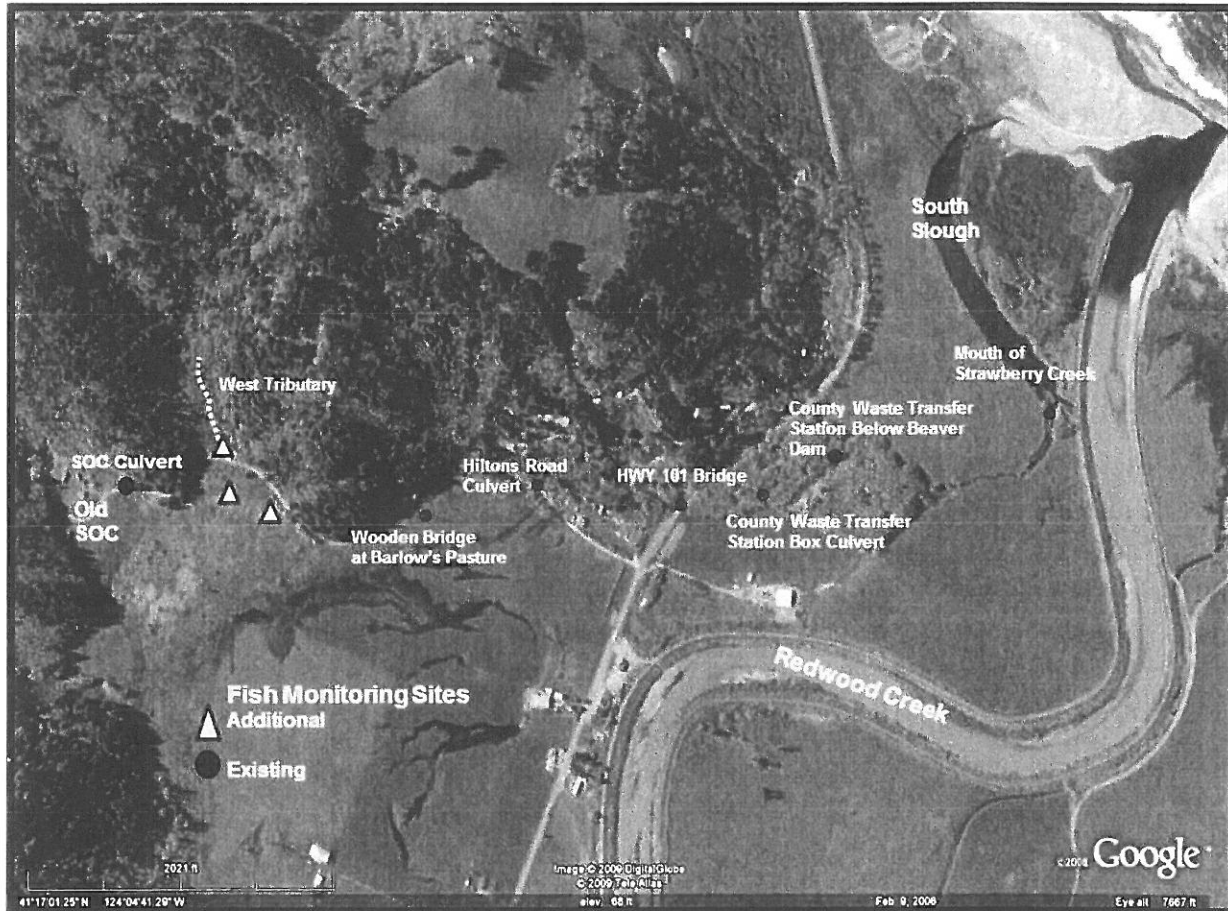


Figure 1. Existing and proposed additional fish monitoring sites on Strawberry Creek.

Coho salmon, cutthroat trout and steelhead have been trapped at the Hilton Road culvert. Steelhead trout have been trapped upstream at the wooden bridge at the Barlow pasture. As salmonids are present as far upstream as Hiltons Road culvert, when project construction is complete, trapping will be concentrated upstream of Hiltons Road culvert and additional sites will be established within the project area (Figure 1). The number of sites will be determined later, but will include the channel at the downstream end of the project, the confluence of the mainstem channel and West Tributary, and upstream of the West Tributary culvert. Presently (2013), there are no fish, salmonid or otherwise, upstream of the West Tributary culvert and no open water/channel where the mainstem channel is proposed to be excavated.

Fish monitoring methodology will use salmon roe baited minnow traps deployed for three hours on a single day. Electrofishing of channel reaches may be used, depending on the newly excavated channel bottom. If the channel bottom is unconsolidated, deep mud would preclude wading to electrofish the channel.

Water Quality – As fish distribution within the project is contingent on passage downstream of the project, several water quality parameters will be measured to determine an improvement in existing water quality that would be a proxy for suitable fish habitat. These are dissolved oxygen (mg/l), water temperature (°C), and specific conductivity (µS). Water quality measurements will be done at the time of fish trapping.

Control of Reed Canary Grass

The stream channel will be surveyed to determine if reed canary grass as a mat is covering the stream channel and the extent, if any, of reed canary grass in the channels. Photo points will capture changes in vegetation throughout the project area.

Riparian Vegetation Establishment

Photo points - will be established and reoccupied throughout the project area to document riparian vegetation establishment and growth. The photo points will also document the condition of channel form, culvert inlets and outlets, crib wall and log habitat structures, log steps and weirs, wetland side channels and overall project area.

Adjacent Wetland Effects

Water level monitoring - Presently, two recording stage gages record stage level in the project area. One is located in the main channel at the downstream end of the project reach, and another is located approximately 150 feet away within the adjacent wetland. A third gage, at a location to be determined, will be added in 2013 to measure water levels near the furthest extent of wetlands. In addition, the recording gages continuously measure water temperature at one hour increments, data that will be incorporated in the water quality measurements.

Wetland plant species composition – Between the third gage and margin of the wetland, 12 one square meter plots will be established and reoccupied to monitor wetland plant community. At three locations (the third gage, a stake equidistant between the gage and wetland margin, and at the wetland margin) photographs at the four cardinal directions will be taken 10 to 20 feet out from the center (stake). The vegetation composition will be measured in one meter square area plots at the four cardinal directions at each location.

Reporting

Summary reports will cover the first five years.