Print Form

Appendix C

2014122048

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P.O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH #

Project Title: The 2015 Fisheries Restoration Grant Program Mitigated Negative Declaration

Lead Agency: Department of Fish and Wildlife — Contact Person: Melissa Mandrup

Mailing Address: 830 S Street — Phone: 916-327-8658

City: Sacramento — Zip: 95811 — County: Sacramento

Project Location: County: Various coastal counties — City/Nearest Community: Various coastal communities

Cross Streets: _____ — Zip Code: _____

Longitude/Latitude (degrees, minutes and seconds): ____° ____′ ____″ N / ____° ____′ ____″ W Total Acres: _____

Assessor's Parcel No.: _____ Section: _____ Twp.: _____ Range: _____ Base: _____

Within 2 Miles: State Hwy #: _____ Waterways: _____

Airports: _____ Railways: _____ Schools: _____

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DEC 19 2014
STATE CLEARING HOUSE

Document Type:

CEQA: ☐ NOP ☐ Draft EIR ☐ Early Cons ☐ Supplement/Subsequent EIR ☐ Neg Dec (Prior SCH No.) _____ ☒ Mit Neg Dec Other: _____

NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI

Other: ☐ Joint Document ☐ Final Document ☐ Other: _____

Local Action Type:

☐ General Plan Update ☐ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☐ Site Plan
☐ Rezone ☐ Prezone ☐ Use Permit ☐ Land Division (Subdivision, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☒ Other: Restoration

Development Type:

☐ Residential: Units _____ Acres _____
☐ Office: Sq.ft. _____ Acres _____ Employees _____
☐ Commercial: Sq.ft. _____ Acres _____ Employees _____
☐ Industrial: Sq.ft. _____ Acres _____ Employees _____
☐ Educational: _____
☐ Recreational: _____
☐ Water Facilities: Type _____ MGD _____
☐ Transportation: Type _____
☐ Mining: Mineral _____
☐ Power: Type _____ MW _____
☐ Waste Treatment: Type _____ MGD _____
☐ Hazardous Waste: Type _____
☒ Other: Watershed Resoration

Project Issues Discussed in Document:

☐ Aesthetic/Visual ☐ Agricultural Land ☐ Air Quality ☐ Archeological/Historical ☐ Biological Resources ☐ Coastal Zone ☐ Drainage/Absorption ☐ Economic/Jobs
☐ Fiscal ☐ Flood Plain/Flooding ☐ Forest Land/Fire Hazard ☐ Geologic/Seismic ☐ Minerals ☐ Noise ☐ Population/Housing Balance ☐ Public Services/Facilities
☐ Recreation/Parks ☐ Schools/Universities ☐ Septic Systems ☐ Sewer Capacity ☐ Soil Erosion/Compaction/Grading ☐ Solid Waste ☐ Toxic/Hazardous ☐ Traffic/Circulation
☐ Vegetation ☐ Water Quality ☐ Water Supply/Groundwater ☐ Wetland/Riparian ☐ Growth Inducement ☐ Land Use ☐ Cumulative Effects ☒ Other: Watershed

Present Land Use/Zoning/General Plan Designation:

Project Description: *(please use a separate page if necessary)*
This project uses grant funds approved by the California Legislature to initiate activities that are designed to restore salmon and steelhead habitat in coastal streams and watersheds.

Note: The State Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

Revised 2010

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "X".
If you have already sent your document to the agency please denote that with an "S".

____	Air Resources Board	____	Office of Historic Preservation
____	Boating & Waterways, Department of	____	Office of Public School Construction
____	California Emergency Management Agency	X	Parks & Recreation, Department of
____	California Highway Patrol	____	Pesticide Regulation, Department of
X	Caltrans District # ____	____	Public Utilities Commission
____	Caltrans Division of Aeronautics	X	Regional WQCB # 1,2,3
____	Caltrans Planning	____	Resources Agency
____	Central Valley Flood Protection Board	____	Resources Recycling and Recovery, Department of
____	Coachella Valley Mtns. Conservancy	____	S.F. Bay Conservation & Development Comm.
X	Coastal Commission	____	San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
____	Colorado River Board	____	San Joaquin River Conservancy
____	Conservation, Department of	____	Santa Monica Mtns. Conservancy
____	Corrections, Department of	____	State Lands Commission
____	Delta Protection Commission	____	SWRCB: Clean Water Grants
____	Education, Department of	X	SWRCB: Water Quality
____	Energy Commission	____	SWRCB: Water Rights
____	Fish & Game Region # ____	____	Tahoe Regional Planning Agency
____	Food & Agriculture, Department of	____	Toxic Substances Control, Department of
X	Forestry and Fire Protection, Department of	____	Water Resources, Department of
____	General Services, Department of		
____	Health Services, Department of	____	Other: ____
____	Housing & Community Development	____	Other: ____
____	Native American Heritage Commission		

Local Public Review Period (to be filled in by lead agency)

Starting Date Dec 19, 2014 Ending Date Jan 20, 2015

Lead Agency (Complete if applicable):

Consulting Firm: ____
Address: ____
City/State/Zip: ____
Contact: ____
Phone: ____

Applicant: Department of Fish and Wildlife
Address: 830 S Street
City/State/Zip: Sacramento, CA 95811
Phone: 916-327-8658

Signature of Lead Agency Representative: Patty Foster **Date:** 12-18-14

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

Print Form

Notice of Determination

Appendix D

To:
☒ Office of Planning and Research

U.S. Mail:
P.O. Box 3044
Sacramento, CA 95812-3044

Street Address:
1400 Tenth St., Rm 113
Sacramento, CA 95814

☐ County Clerk
County of: _____
Address: _____

From:
Public Agency: Department of Fish and Wildlife
Address: 830 S Street
Sacramento, CA 95811
Contact: Melissa Mandrup
Phone: 916-327-8658

Lead Agency (if different from above):
_____
Address: _____
Contact: _____
Phone: _____

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

State Clearinghouse Number (if submitted to State Clearinghouse): 2014122048

Project Title: The 2015 Fisheries Restoration Grant Program Mitigated Negative Declaration

Project Applicant: California Department of Fish and Wildlife

Project Location (include county): Various coastal counties

Project Description:
This project uses grant funds approved by the California Legislature to initiate activities that are designed to restore salmon and steelhead habitat in coastal and central valley streams and watersheds.

This is to advise that the California Department of Fish and Wildlife (☒ Lead Agency or ☐ Responsible Agency) has approved the above described project on _____ (date) and has made the following determinations regarding the above described project.

1. The project [☐ will ☒ will not] have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures [☒ were ☐ were not] made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan [☒ was ☐ was not] adopted for this project.
5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☒ were ☐ were not] made pursuant to the provisions of CEQA.

This is to certify that the final EIR with comments and responses and record of project approval, or the negative Declaration, is available to the General Public at:
830 S Street, Sacramento, CA 95811

Signature (Public Agency): _____ Title: Chief - Fisheries

Date: 1/21/15 Date Received for filing at OPR:

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JAN 21 2015
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Authority cited: Sections 21083, Public Resources Code.
Reference Section 21000-21174, Public Resources Code.

Revised 2011

California Department of Fish and Wildlife
Fisheries Restoration Grant Program
830 S Street
Sacramento, CA 95814

SCH No. 2014122048
Project title: The 2015 Fisheries Restoration Grant Program

Mitigated Negative Declaration Adoption
(Pursuant to the California Environmental Quality Act, Article 6, Section 15074)

These projects use grant funds approved by the California Legislature to initiate activities that are designed to restore salmon and steelhead habitat in coastal streams and watersheds. Years of poor land management within California's watersheds, combined with natural events have altered native habitats. These impacts have limited the ability of fish to survive and successfully reproduce in coastal streams that historically produced large populations of salmon and steelhead. These proposed projects are designed to increase populations of wild anadromous fish in coastal streams by restoring their habitat.

The projects objectives are to improve spawning success for adult salmon and steelhead as well as to increase survival for eggs, embryos, and rearing juvenile salmonids. Bank erosion and riparian enhancement treatments improve spawning conditions and embryo survival by reducing sediment yield to streams. Upslope road decommissioning or upgrading also help address these widespread problems. The replacement of migration barriers at stream crossings with bridges or natural stream bottom culverts allow adult and juvenile salmonids access to additional spawning and rearing habitats. The installation of instream habitat improvement structures recruit and sort spawning gravel for adult salmon and steelhead, and create summer rearing pool and over-wintering habitat for juveniles. Cooperative fish production at Kingfisher Flat hatchery is a program to prevent extirpation of only coho salmon and to enhance the diminished population of steelhead in the San Lorenzo-Soquel watershed.

Location and custodian of the mitigated negative declaration (MND) documents:

California Department of Fish and Wildlife,
Fisheries Restoration Grant Program
830 S Street
Sacramento, CA 95814

Attention: Melissa Mandrup
Office: (916) 327-8658
Fax: (916) 327-8854

Determination:
Initial study, mitigation measures, and MND documents have been prepared by the California Department of Fish and Wildlife (CDFW), Fisheries Restoration Grant Program (FRGP). On the basis of this study, it is determined these proposed actions with the incorporation of the identified mitigation measures will not have a significant (negative) effect on the environment for the following reasons:

The Finding:
Although these projects may have the potential to cause minor short-term impacts on soil, vegetation, wildlife, water quality, and aquatic life, the measures that shall be incorporated into the project will diminish impacts to insignificant level (see initial study and environmental checklist).

Basis for the Finding:
Based on the initial study, it was determined that there would not be significant adverse environmental effects resulting from implementing the proposed project. In addition, these projects are expected to achieve a net benefit to the environment by enhancing and maintaining quality salmonid spawning and rearing habitat in the eleven-county project area.

The CDFW finds that implementing these proposed projects will not have a significant environmental impact.

This MND consists of all of the following:

- Introduction - Project Description and Background Information
- Initial Study Environmental Checklist Form
- Explanation of Response to Initial Study Environmental Checklist Form
- Appendix A.
    - Table A Exempt and Action Items
    - State-wide Action Items Location Maps
- Appendix B. Mitigation Measures, Monitoring and Reporting Program For the 2015 Fisheries Restoration Grant Program
- Appendix C. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities
- Appendix D. Procedure for the Programmatic Evaluation of Paleontological Resources for the Fisheries Restoration Grant Program
- Appendix E. Procedure for the Programmatic Evaluation of Archaeological Resources for the Fisheries Restoration Grant Program

Monitoring Plan:
Project monitoring is considered an important element in the activity development and implementation process. The monitoring process provides performance control during the activity and also helps provide a measure of the benefits, insight, and guidance for future projects.

Activity during implementation is overseen by a CDFW grant manager and is geared to ensure that all regulatory environmental issues are strictly addressed including air, water, and avoiding impacts to sensitive plant and animal species. During implementation, activities are carefully monitored to make sure plans are followed and that the correct materials and techniques are used so that the objectives of the activities are met while protecting the environment.

Post-activity monitoring begins with information collected immediately after the activity is completed and documents whether the project was completed as designed and according the grant specifications. This information includes documenting the exact location where the activity has occurred with reference points and survey marks. Final project reports should contain "as-built" descriptions with design drawings and photographs (both before and after the activity) are collected. A complete activity description including the objectives of the activity must be retained.

The next phase of post-activity monitoring is designed to assess the efficacy of the project and shall occur within one to three years after an action item is complete. The CDFW shall randomly select 10 percent of the action items within each project work type for effectiveness/validation monitoring. A random sample, stratified by project type and region, shall be chosen from the pool of new restoration projects approved for funding each year. This evaluation shall be recorded on standard project evaluation forms. Effectiveness monitoring addresses the physical response associated with an activity, while validation monitoring evaluates fish response to the project. Pre-treatment monitoring shall be preformed for newly selected projects, and post-treatment monitoring will be preformed within three years following project completion.

Complete monitoring specifications are included on the CDFW's web site, http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp. Additional details on monitoring and reporting requirements are presented in Appendix B.

Adoption Statement

Pursuant to Section 21082.1 of the California Environmental Quality Act (CEQA), the CDFW has independently reviewed and analyzed the Initial Study and Negative Declaration for these proposed projects and finds these documents reflect the independent judgment of the CDFW. The CDFW, as lead agency, also confirms the project mitigation measures and monitoring plan detailed in these documents are feasible and shall be implemented as stated in the MND. The CEQA initial study findings and the MND was adopted by:

Date: 1/21/15

Stafford Lehr, Fisheries Branch Chief

STATE OF CALIFORNIA

THE RESOURCES AGENCY

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

MITIGATED NEGATIVE DECLARATION

FOR

THE 2015 FISHERIES RESTORATION GRANT PROGRAM
IN
DEL NORTE, HUMBOLDT, MARIN, MENDOCINO, MONTEREY, NAPA, SAN LUIS OBISPO, SAN MATEO, SANTA BARBARA, SANTA CLARA, SANTA CRUZ, SISKIYOU, SONOMA, TRINITY, AND VENTURA COUNTIES
AND
REQUIRED AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

Prepared By:

Karen Carpio
Environmental Scientist
Fisheries Restoration Grant Program

and

Melissa Mandrup
Environmental Scientist
Fisheries Restoration Grant Program

This Report Has Been Prepared Pursuant to the
California Environmental Quality Act of 1970
State of California
The Resources Agency
California Department of Fish and Wildlife

INITIAL STUDY
AND
MITIGATED NEGATIVE DECLARATION
FOR
THE 2015 FISHERIES RESTORATION GRANT PROGRAM
IN
DEL NORTE, HUMBOLDT, MARIN, MENDOCINO, MONTEREY, NAPA, SAN LUIS OBISPO, SAN MATEO, SANTA BARBARA, SANTA CLARA, SANTA CRUZ, SISKIYOU, SONOMA, TRINITY, AND VENTURA COUNTIES
AND
REQUIRED AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

The Project: This project uses grant funds approved by the California Legislature to initiate activities that are designed to restore salmon and steelhead habitat in coastal and central valley streams and watersheds. Years of poor land management within California's watersheds which combined with natural events has altered native habitats. This has limited the ability of fish to survive and successfully reproduce in coastal and central valley streams that historically produced large populations of salmon and steelhead. This proposed project is designed to increase populations of wild anadromous fish in coastal and central valley streams by restoring their habitat.

The project objective is to improve spawning success for adult salmon and steelhead as well as to increase survival for eggs, embryos, and rearing juvenile salmonids. Bank erosion and riparian enhancement treatments improve spawning conditions and embryo survival by reducing sediment yield to streams. Upslope road decommissioning or upgrading also help address these widespread problems. The replacement of migration barriers at stream crossings with bridges or natural stream bottom culverts allow adult and juvenile salmonids access to additional spawning and rearing habitats. The installation of instream habitat improvement structures recruit and sort spawning gravel for adult salmon and steelhead, and create summer rearing pool and over-wintering habitat for juveniles.

The Finding: Although the project may have the potential to cause minor short-term impacts on soil, vegetation, wildlife, water quality, and aquatic life, the measures that shall be incorporated into the project will lessen such impacts to a level that is less than significant (see initial study and environmental checklist).

Basis for the Finding: Based on the initial study, it was determined there would be no significant adverse environmental effects resulting from implementing the proposed project. In addition, the project is expected to achieve a net benefit to

the environment by enhancing and maintaining quality salmonid spawning and rearing habitat in the fifteen-county project area.

The California Department of Fish and Wildlife (CDFW) finds that implementing the proposed project will have no significant environmental impact.

Therefore, this mitigated negative declaration is filed pursuant to the California Environmental Quality Act (CEQA), Public Resources Code § 21080 (c2). This proposed mitigated negative declaration consists of all of the following:

- **Introduction - Project Description and Background Information**
- **Initial Study Environmental Checklist Form**
- **Explanation of Response to Initial Study Environmental Checklist Form**
- **Appendix A.**
    - **Non-physical Items**
    - **Action Items**
    - **State-wide Action Items Location Maps**
- **Appendix B. Mitigation Measures, Monitoring and Reporting Program For the 2015 Fisheries Restoration Grant Program**
- **Appendix C. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities**
- **Appendix D. Procedure for the Programmatic Evaluation of Paleontological Resources for the Fisheries Restoration Grant Program**
- **Appendix E. Procedure for the Programmatic Evaluation of Archaeological Resources for the Fisheries Restoration Grant Program**

DETAILED PROJECT DESCRIPTION AND BACKGROUND INFORMATION

FOR

THE 2015 FISHERIES RESTORATION GRANT PROGRAM
IN
DEL NORTE, HUMBOLDT, MARIN, MENDOCINO, MONTEREY, NAPA, SAN LUIS OBISPO, SAN MATEO, SANTA BARBARA, SANTA CLARA, SANTA CRUZ, SISKIYOU, SONOMA, TRINITY, AND VENTURA COUNTIES
AND
REQUIRED AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

INTRODUCTION

The 2015 Fisheries Restoration Grant Program (FRGP) in Del Norte, Humboldt, Marin, Mendocino, Monterey, Napa, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Siskiyou, Sonoma, Trinity, and Ventura counties is a "project" subject to review under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The FRGP involves funding, in whole or in part, of 111 habitat restoration items. These 111 restoration items are divided into 66 action items and 45 non-physical items.

The 66 action items, which are discussed in detail in the environmental analysis that follows (listed in Appendix A, Action Items) are the principal focus of the environmental analysis set forth below.

The 45 non-physical activities are implemented within various counties of the CDFW FRGP region. These non-physical activities involve grants for projects such as watershed evaluation, assessment, project planning, technical training, monitoring, and public involvement. Each of these non-physical activities are identified in Appendix A, Non-Physical Items. If reviewed individually, these projects would fall under categorical exemptions such as CEQA Guidelines § 15262 (Feasibility and Planning Studies), § 15306 (Information Collection), and § 15313 (Acquisition of Lands for Wildlife Conservation Purposes). However, as part of the FRGP project, these activities are included within the analysis of this Initial Study and mitigated negative declaration (MND). Because these activities are limited to non-physical activities that would not be anticipated to result in any environmental impacts or result in significant impacts due to unusual circumstances, they would not incrementally add to any potentially significant impacts that may result from the Action Items. Therefore, these activities are not discussed further in the analysis.

This Initial Study and MND describe and analyze the potential significant impacts of all 111 action items and non-physical items. These 111 items represent

all fundable applications that have been received in response to the Proposal Solicitation Notice and received initial review by CDFW. At the time this document is being prepared, CDFW has not made final funding decisions on these items. Therefore, some of the items described in this document may not receive funding from the FRGP. This analysis includes all potential items in order to disclose the greatest possible potential impacts that could result from CDFW's implementation of the FRGP.

This Initial Study and the MND analyze the environmental impacts that might result from implementation of the proposed FRGP. The initial study and MND also serve to address potential environmental impacts that may occur to the extent an individual restoration activity requires a Streambed Alteration Agreement (SAA) from the CDFW (See Fish and Game Code, § 1600 et seq.). Construction of all or a portion of some of the individual restoration activities may actually occur in subsequent years, depending on the terms for each respective individual grant provided by the CDFW.

PROJECT GOAL AND OBJECTIVES

The primary goal of this restoration program is to maintain and restore natural watershed processes that create habitat characteristics favorable to salmonids.

The objectives of the restoration program action items are to enhance the capability of streams to produce wild anadromous salmonids by maintaining, restoring, and improving stream habitat essential to salmonid production.

Finally, it is the CDFW's objective to implement this project while not causing a significant adverse effect on the environment, or reducing the number or restricting the range of an endangered, threatened, or rare species.

BACKGROUND

The CDFW may grant funds for habitat restoration to public and nonprofit organizations, and Native American tribes. Sections 1501 and 1501.5 of the Fish and Game Code and Public Resource Code 6217.1 pertain to activities funded by the CDFW.

The FRGP was established in 1981 and is administered by the CDFW. This program was initiated by the precipitous drop in the population of fish in coastal streams, mainly salmon and steelhead. This program was developed as a mechanism to administer grant funds designated for the restoration of fish populations. Through the past several decades to the present time, funds allocated by the California Legislature have been used in this grant program in an effort to

rebuild fish populations (see Fish and Game Code § 6900 et seq.). Initially, grants were awarded in three categories: stream restoration, fish rearing, and education. Since 1997, a more holistic restoration approach has been emphasized that facilitates habitat enhancement throughout the watershed.

There are many factors responsible for the decline of California coastal salmon and steelhead stocks. One important factor is the degradation of stream habitats. Activities in watersheds including logging, mining, road building, livestock grazing, water diversions, and dam construction have seriously impacted the ability of fish to survive and reproduce. For example, excessive fine-sediment has reduced egg and fry survival, removal of riparian vegetation has contributed to increased water temperatures, habitats have been impaired by water diversions, and culverts and dams have blocked fish passage. Habitat destruction has been instrumental in drastically reducing native anadromous fish populations. Natural events such as wildfire, drought, and floods have exacerbated these problems and accelerated the alteration of habitat further. The resulting decline in fish populations has caused extreme financial hardship to a once thriving commercial fishery and drastically reduced, or in some cases eliminated, a very popular sport fishery. Poor ocean conditions resulting in the collapse of the marine food chain along with the various factors stated above has culminated in the population crash of the Central Valley Chinook salmon in 2008 and 2009. This event prompted the closure of recreational and commercial ocean salmon season in 2008 and 2009. Most stocks have been reduced to the point where listing under the Federal and State Endangered Species Acts has become necessary.

The FRGP was instituted because the critical need to restore salmon and steelhead habitat was recognized. Guided by the *California Salmonid Stream Habitat Restoration Manual* 4th Edition (Flosi et al., 2009), hundreds of habitat restoration actions funded by the FRGP have been completed by government agencies, Indian Tribes and nonprofit groups. Activities have included revegetation with livestock exclusion fencing, riparian planting, removal of barriers to fish passage, bank stabilization and other bank protection structures, decommissioning of roads, and improving drainage systems on existing roads. Instream structures such as boulder clusters, wing deflectors, and log cover have also been used. Road crossings that have impeded fish migration have been replaced with bridges or culverts with natural stream bottoms allowing fish to access additional stream reaches. Finally, other watershed improvement activities include installation of fish screens to prevent entrainment of juvenile salmon and steelhead. These actions create spawning and nursery habitat, provide escape cover and prevent fine sediments from entering streams. Project monitoring has shown significant habitat improvements in streams where this work has taken place. A gradual rebuilding of salmon and steelhead populations is expected as this program continues.

Special funds will also be awarded for projects focusing on restoring anadromous salmonid habitat impacted by the 2014 drought as well as the legacy effects of forest management. These projects have a designated Proposal ID prefix of either D or F (Attachment A).

PROJECT LOCATION

Activities performed in the FRGP typically occur in watersheds that have been subjected to significant levels of logging, road building, mining, grazing, and other activities that have reduced the quality and quantity of stream habitat available for native anadromous fish.

Coastal watersheds previously dominated by mature redwood and Douglas fir forests, contain extensive road and skid trail systems from tractor logging. These previous mature, forested areas can now be found in various seral stages of vegetative recovery and are predominate in the coastal FRGP region. Most restoration action items are implemented within the stream course to improve fish habitat. Upslope restoration actions improve fish habitat by reducing the input of fine sediment to the stream environment.

Inland locations are usually in watersheds dominated by pine and fir forests, often with steep unstable terrain; some inland locations are in valley areas in agricultural use. Most restoration activities are intended to reduce sediment delivery to streams, and provide spawning and rearing habitat in the streams. Streams flowing through valley areas will be treated to stabilize stream banks and increase riparian vegetation.

Projects focused on restoring coho salmon, Chinook salmon, steelhead trout, or coastal cutthroat trout habitats impacted by the 2014 drought are located within the limits of anadromy as depicted in Map 1. Projects focused on restoring habitat impacted by forest management are located on private and nonfederal public forests within the San Lorenzo River/Pescadero Creek complex, the Ten Mile/Garcia Rivers complex, and the Scott River as depicted in Map 2.

SCHEDULE

The activities carried out in the FRGP typically occur during the annual period of dry weather. Stream work is normally confined to the period of June 15 through November 1 or the first significant fall rainfall, whichever comes first. This is to take advantage of low stream flows and is outside the spawning and egg/alevin incubation period of salmon and steelhead.

Generally, upslope work occurs during the same approximate period. Road decommissioning and other sediment reduction activities are dependent on soil moisture content. Equipment access on dirt roads and the ability of equipment to move soil is inhibited by wet conditions. The scheduling of upslope work may also be affected by the avoidance of nesting or breeding seasons of birds and terrestrial animals.

Some activities may continue after November 1, but the extent of such activities is limited through grant conditions and compliance with any required permit. Post-November 1 activities are generally limited to hand planting of tree seedlings, which typically does not begin until December 1 and may continue until the end of March. Planting during the wet season is necessary to ensure the best survival of seedlings.

PROJECT DESCRIPTION

The CDFW releases an annual Proposal Solicitation Notice (Solicitation) for proposals that cover fishery restoration, watershed assessment, and planning work throughout California. In addition to the annual Solicitation, the CDFW also released the 2014 Forest and Drought Solicitation Notice (F&D Solicitation) which solicited projects that focused on restoring anadromous salmonid habitat impacted by the legacy effects of forest management and the 2014 drought as well as projects that proposed to enhance habitat that showed resiliency during the drought and projects that utilized education, planning, and design to better prepare for future droughts.

Following initial review by the CDFW Technical Review Team (TRT), proposals are sent to appropriate fishery staff for field review, comment, and scoring, using standardized evaluation criteria. The evaluation process requires consideration of benefits to the fishery resources, the benefit for targeted species, project costs, and positive or negative impacts to the environment. The need for work in particular drainages or sites is evaluated and reviewed by the TRT utilizing the watershed assessment and planning work funded through the program, and from other CDFW and agency programs at work in California. The proposals, technical scores, and comments are forwarded to the California Coastal Salmonid Restoration Grants Peer Review Committee (PRC). The PRC also evaluates and scores each proposal, and makes recommendations for funding priorities. After CEQA review is completed the Director of the CDFW reviews the recommendations of the TRT and PRC, and makes the final funding decision. Grants are written for the approved proposals.

The FRGP operates under two Regional General Permits (RGP) issued by the U.S. Army Corps of Engineers (USACE). RGP12 (file number: 2003-27922N) was issued in 2010 by the USACE San Francisco District and covers action items implemented within the regulatory boundaries of the San Francisco District. RGP78

(file number: SPL-2003-01123-BAH) was issued in 2009 and re-issued in 2014 by the USACE Los Angeles District and covers action items implemented within the regulatory boundaries of the Los Angeles District. The RGP's allow the CDFW, grantees, and other individuals and groups to conduct fishery habitat restoration activities using methods described in the *California Salmonid Stream Habitat Restoration Manual* 4th edition (Flosi et al 2009) that have been evaluated by CDFW biologists. The National Oceanic and Atmospheric Administration (NOAA) and the U.S. Fish and Wildlife Service (USFWS) have issued biological opinions, which are incorporated into the corresponding RGP's. The biological opinions address the impacts of the CDFW's FRGP and stipulate the mitigations that shall be implemented to avoid and/or minimize impacts to listed species.

The FRGP shall submit an annual application for a programmatic Section 401 Water Quality Certificate to the State Water Resources Control Board. A description of project work and methods to prevent impacts on water quality shall be provided annually to the State Water Resources Control Board and to the appropriate regional boards.

The CDFW's lake and streambed alteration agreement process (Fish and Game Code § 1600 et seq.) is an integral part of stream restoration planning and implementation. An agreement is developed for each action item which defines required measures to minimize disturbance to the stream environment. Procedures to accomplish this task are contained in the CDFW Lake and Streambed Alteration Program (1600) webpage http://www.dfg.ca.gov/habcon/1600/. Activities such as installing replacement culverts to provide fish passage, operating equipment in or near streams, and installing bank stabilizing structures are all discussed in the context of minimizing impacts, and all required measures for species protection discussed in this document are incorporated into the agreement for each project.

All features of this project requiring CEQA review are being provided in sufficient detail to facilitate public review and clearly define the environmental evaluation. In order to achieve this goal, the FRGP items are considered to fall into two categories corresponding to similar activities and requirements for CEQA review. These two categories of items are as follows.

Public Involvement, Planning, Research, Monitoring, and Habitat Acquisition – Non-physical Items

Non-physical items include watershed evaluation, assessment, planning, habitat acquisition, and monitoring projects. The names of 45 non-physical items are presented in a list in Appendix A, non-physical Items. These non-physical items all qualify as either statutory or categorical exemptions under CEQA Guidelines § 15262 (Feasibility and Planning Studies), § 15306 (Information Collection), § 15313 (Acquisition of Lands for Wildlife Conservation Purposes), and § 15321 (Enforcement Actions by Regulatory Agencies). These non-physical items will not have a significant

effect on physical conditions including land, air, water, minerals, plants, animals, ambient noise, historic sites, or aesthetics. Based on these facts, these non-physical items will not be discussed further in this document.

Restoration Element - Action Items

There is a notable difference in the level of activity found under this category. The names of the 66 action items in this category are presented in a list in Appendix A, Action Items. The location of each action item is illustrated on a state-wide and on CDFW regional level maps in Appendix A. A detailed description of each action item in this element is also located in Appendix A, sorted by county.

Stream bank stabilization may include the use of boulder and cobble armoring of eroding banks, log cribbing, willow mattresses, or willow siltation baffles. Revegetation of riparian habitat normally involves the use of willow sprigs or willow or alder seedlings or transplants to stabilize banks and slopes, promote long-term shade and channel stability, and enhance large-wood recruitment. Indigenous stocks (when available) shall be used for planting projects. Upslope earthmoving and culvert replacement require large size material and increased volumes to be moved by heavy equipment and, in so doing, involve certain limited construction activities. The techniques that are used for these action items have proven successful on many coastal streams and are detailed in the current version of the *California Salmonid Stream Habitat Restoration Manual* 4th edition. This manual describes in detail how the work shall be performed in the field.

Typically, these stream habitat restoration activities use dump trucks to deliver logs, root wads, or quarry rock to staging areas, and front-end loaders to deliver material to restoration sites. Existing stream crossings are used to access the stream in most cases. If stream crossings do not exist, the least damaging access points are selected based upon the size, type, and density of riparian vegetation. Where use of such access points is necessary, riparian vegetation can be affected, particularly the upper part of plants may be damaged, with the roots and lower parts receiving minimal damage. Plants damaged in this way usually re-sprout and recover. Access to restoration activity sites are identified before implementation of the action item and shall not create bank erosion or cause the removal of riparian trees. Staging areas at the activity sites are set up on dry stream banks where there is a minimum, and less than significant, impact to vegetation. Disturbed or bare mineral soils resulting from work activities, which are subject to surface erosion, are seeded and straw mulched.

Hydraulic excavators or backhoes may be used to excavate trenches or keyways in stream banks to anchor logs or boulder structures. Excavators are used to place materials, construct instream structures, and stabilize stream banks with boulders and logs. Willow cuttings are usually placed into the keyway trenches around the logs or boulders and then the trench is backfilled with cobble and native

soil. This procedure anchors the structure into the stream bank, accelerates the establishment of willows around the structure, and prevents the stream from scouring around the newly placed structure.

Action items that stabilize stream banks or small stream-side landslides shall armor and buttress the landslide or stream bank using boulders, logs, root wads, and loose rock revetment. Revetments are designed with logs, root wads, and boulders that extend into the stream to provide instream cover and velocity breaks for salmonids. Smooth riprap, however, which accelerates water velocities along the stream bank, is not permitted under this program. When practical, the bank will be sloped back to a minimum 1.5 to 1 slope. A toe trench will be excavated at the toe of the landslide or eroding bank. The excavated trench shall be backfilled with boulders and will extend up to the high-water mark. Rock from the toe trench, up to the high-water mark, shall be of a size that will withstand normal high flows. Revetment shall extend upstream and downstream of the unstable reach and shall be keyed into the stable banks.

Runoff from above the slide or eroding banks shall be diverted away from the area being stabilized. The slide face shall be re-vegetated using indigenous plants. Willow cuttings shall be placed in the toe trenches. Browse protectors shall be used on seedlings to prevent predation by browsing animals.

All work, except for the revegetation, shall take place during the summer and fall (low flow period) and shall be completed by November 1 or before the first significant seasonal rainfall, whichever comes first. Planting of seedlings takes place after December 1, or when sufficient rainfall has occurred, to ensure the best chance of survival of the seedlings, but in no case later than April 15. All habitat improvements shall be done in accordance with techniques described in the *California Salmonid Stream Habitat Restoration Manual* 4th edition.

Upslope action items upgrade or decommission roads by implementing all or part of the following tasks: road ripping or decompacting; installing or maintaining rolling dips (critical dips); installing or maintaining waterbars and crossroad drains; replacing, maintaining or cleaning culverts; outsloping roadbeds; re-vegetating work sites; and excavating stream crossings with spoils stored on site or end-hauled.

Sites which are expected to erode and deliver sediment to the stream are the only locations where work shall be authorized under this category. Work shall not be authorized to improve aesthetic values only.

Removal of road and skid trails shall include retrieving unstable material sidecast during original road construction and excavation of stream crossings and other watercourse fill. Stream crossings shall be excavated to original width, depth, and slope to expose natural channel morphology and armor. Side slopes will

generally match original contours above and below the road. Culverts that are replaced in fish bearing reaches of streams shall be done in a manner to allow for unimpeded upstream and downstream fish passage.

When fill material is placed on road benches for permanent storage, the road bench shall be ripped or decompacted first. The fill shall then be placed against the cutbank and shaped to blend with the surrounding topography that existed prior to road construction. Outsloping of the roadbed will occur as needed, to reduce potential sediment delivery to the stream where there is insufficient fill available to recontour the site, or where there is evidence that the overall long-term stability of the site does not justify a full recontour treatment. Where practical, fill shall be compacted to the top of the filled cut to reduce the potential for fill cut failure. Spoil material shall be stored in stable locations where it will not erode. If stable spoils storage sites are not available within the project area, they will be end-hauled to a stable storage site outside of the project area. Areas chosen for this purpose shall be devoid of tree and shrub vegetation. Upon completion of each site, woody debris shall be scattered over the surface of the restored area as mulch.

Road crossing removal may involve some removal of vegetation that has grown in sediment that has been deposited upslope of road prisms. Most of this vegetation shall be used as coarse wood mulch on bare soils to reduce surface erosion. Some of the material shall be transplanted on-site as one component of the restoration action items. In all cases, disruption of existing vegetation shall be minimized.

Culvert replacement requires diverting stream flow around the project site and excavating the existing culvert with heavy equipment. Normally concrete footings are constructed to support a new bottomless culvert or bridge. If appropriate, grade control structures are incorporated into the project area to prevent excessive down-cutting of the stream. All work concerning culvert replacement shall be consistent with current CDFW and NOAA criteria concerning fish passage. Current NOAA fish passage guidelines can be found on the web at: http://www.westcoast.fisheries.noaa.gov/fish_passage/solutions/index.html. CDFW fish passage guidelines can be found in Part IX of the *California Salmonid Stream Habitat Restoration Manual* 4th edition, available at http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp.

Fish screens are constructed within existing irrigation diversions to prevent entrainment of juvenile salmon and steelhead. Fish screens are often composed of a concrete foundation and walls. A steel framework supports perforated screen panels with a mechanical cleaning system. A stream flow bypass carries the fish back to the stream. Current NOAA and CDFW fish screen criteria can be found in Appendix S of the *California Salmonid Stream Habitat Restoration Manual* 4th edition.

Appendix A contains a list of action item titles, locations, and descriptions of work that shall be implemented at each site. The action item designs are reviewed by the CDFW and are implemented by grantees utilizing heavy equipment and some hand labor crews. During a pre-project inspection, the grantee and the CDFW will tour the entire activity area and identify the sites and techniques necessary to carry out the recommendations. The site-specific recommendations shall be listed in an inspection report which will be acknowledged by the grantee's signature, as a required element of the activity. The CDFW shall continue to inspect the work site during and after completion of the action item. All road upgrading or decommissioning shall be done in accordance with techniques described in Part X of the *California Salmonid Stream Habitat Restoration Manual 4th edition*, available at http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp. All culvert replacement projects shall be done in accordance with techniques and criteria consistent with current CDFW and NOAA guidelines concerning fish passage. Implementation of each major action item shall be conditioned and controlled to prevent any potentially significant impacts under CEQA.

Complete site plans and prescriptions for action and non-physical items located in Del Norte, Humboldt, Lake, Mendocino, Siskiyou, Tehama, and Trinity counties are available for review at the California Department of Fish and Wildlife, Northern Regional Office at 1455 Sandy Prairie Court, Suite J, Fortuna, California 95540. For an appointment to view this information, contact Environmental Scientist, Trevor Tollefson at (707) 725-1027, Monday through Friday, between the hours of 9 a.m. and 4 p.m.

Complete site plans and prescriptions for action and non-physical items located in Alameda, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, and Sonoma counties are available for review at the California Department of Fish and Wildlife, Bay Delta Region, office of Senior Environmental Scientist, Gail Seymour, 5355 B Skylane Dr., Santa Rosa, California 95403. Appointments may be made by telephoning (707) 576-2813, Monday through Friday, between the hours of 9 a.m. and 4 p.m.

Complete site plans and prescriptions for action and non-physical items located in Merced, Monterey, San Luis Obispo, and Stanislaus counties are available for review at the California Department of Fish and Wildlife, Central Region, office of Senior Environmental Scientist, Margaret Paul, 20 Lower Ragsdale Dr. Ste. 100, Monterey, California 93940. Appointments may be made by telephoning (831) 649-2882, Monday through Friday, between the hours of 9 a.m. and 4 p.m.

Complete site plans and prescriptions for action and non-physical items in Los Angeles, Orange, San Diego, Santa Barbara, Riverside, and Ventura counties are available for review at the California Department of Fish and Wildlife, South Coast Region, office of Senior Environmental Scientist, Mary Larson, 4665 Lampson Ave,

Suite C, Los Alamitos, California 90720 and 1933 Cliff Drive, Suite 9, Santa Barbara, CA 93109. Appointments may be made by telephoning (562) 342-7186, Monday through Friday, between the hours of 9 a.m. and 4 p.m.

Environmental Assessment of Each Action Item

Each action item is assigned to the appropriate category using the established criteria for each category. The work to be completed for each action item is carefully evaluated to make this determination. Once this evaluation process is completed, the action items described under the Restoration Element - Action Items section, are subjected to a systematic environmental analysis. This analysis ultimately prescribes site-specific conditions which must be applied in order to avoid potentially significant negative effects on the environment, including such effects on endangered, rare, or threatened species and their habitat.

First, all action items listed in Appendix A shall comply with CDFW policies to protect rare, endangered, and listed animal species. A review of the CDFW's CNDDB for the entire fifteen-county project location indicated which animal species found on a State or Federal special status list may be present at the work sites. This site specific information is also attached to each statement of work in Appendix A. Mitigation measures to avoid impacts to these species are presented along with other mitigation measures in Appendix B; Mitigation Measures, Monitoring and Reporting Program. In the absence of site-specific information, species identified as having potential to be affected at a work site shall be assumed present at the work site and mitigation measures to avoid impact to that species shall be implemented. Any site-specific surveys to confirm the presence, or absence, of a listed animal species at a work site will be performed by qualified biologists according to protocols described in Appendix B. Streambed Alteration Agreements and grants for each site shall be conditioned to avoid impacts to any special status species that could potentially be affected at that site. The CDFW shall ensure that the grantee or responsible party is aware of all specific conditions that apply to their work site. Also, the CDFW shall inspect the work site before, during, and after completion of the action item to ensure compliance with mitigation measures to avoid potential impacts to endangered, rare, or threatened species. Any violation of the specific recommendations shall be immediately rectified. Failure or inability to rectify a particular recommendation will cause all work to cease at that site until a remediation plan is developed.

Second, all action items listed in Appendix A shall comply with CDFW policies to conduct rare plant surveys. A qualified botanist shall be contracted to complete the surveys using standard protocols. Rare plant surveys shall be conducted following the Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (California Department of Fish and Wildlife, 2009), Appendix C. A review of the CDFW's current California Natural Diversity Data Base (CNDDB) for each project located in the entire fifteen-county programmatic project area is attached to the statement of work for each action item

listed in Appendix A and indicates which plant species found on a State or Federal special status list that could potentially be affected at the work sites. Rare plant surveys shall be completed prior to any ground disturbing activities. If any potentially significant impact cannot be avoided, the action item shall not be implemented. Any site specific recommendations made by a CDFW biologist, or other qualified biological consultant, to avoid any potentially significant impacts shall become part of the work plan and incorporated into the measures required in the issued streambed alteration agreement (Fish and Game Code § 1600 et seq.). The CDFW's grant managers shall ensure that the grantee or responsible party is aware of, and implements, these site specific conditions during routine inspections. The CDFW shall inspect the work site before, during, and after completion of the action item. Any violation of the specific recommendations shall be immediately rectified. Failure, or inability, to rectify a particular recommendation shall cause all work to cease until a remediation plan is developed that avoids the potentially significant impact.

Third, all action items listed in Appendix A shall comply with CDFW policies to conduct cultural resource surveys, including archaeological or paleontological surveys (if necessary). A qualified cultural resource specialist(s) shall be contracted to complete the surveys using standard protocols. Research shall be done on available cultural data repositories and a review of cultural resources with regional experts to identify possible areas of importance within the fifteen-county programmatic project area will occur. Site specific detailed research shall be done for projects sites deemed likely to encounter cultural resources (Appendix D & E). Review of cultural surveys shall be completed prior to any ground disturbing activities. If any potentially significant impact cannot be avoided, the action item shall not be implemented. Any site specific recommendations made by a qualified cultural specialist, to avoid any potentially significant impacts shall become part of the work plan and incorporated into the measures required in the issued streambed alteration agreement (Fish and Game Code § 1600 et seq.). The CDFW's grant managers shall ensure that the grantee or responsible party is aware of, and implements, these site specific conditions during routine inspections. The CDFW shall inspect the work site before, during, and after completion of the action item. Any violation of the specific recommendations shall be immediately rectified. Failure, or inability, to rectify a particular recommendation shall cause all work to cease until a remediation plan is developed that avoids the potentially significant impact.

Through careful design, scheduling, and monitoring, any and all potentially significant impacts associated with the action items shall be avoided or mitigated to below a level of significance under CEQA. To ensure that each action item adheres to avoidance and mitigation measures, a CDFW grant manager is assigned to each action item. Additional details regarding implementation of action items, including required mitigation measures, are detailed in the environmental checklist section below.

Monitoring

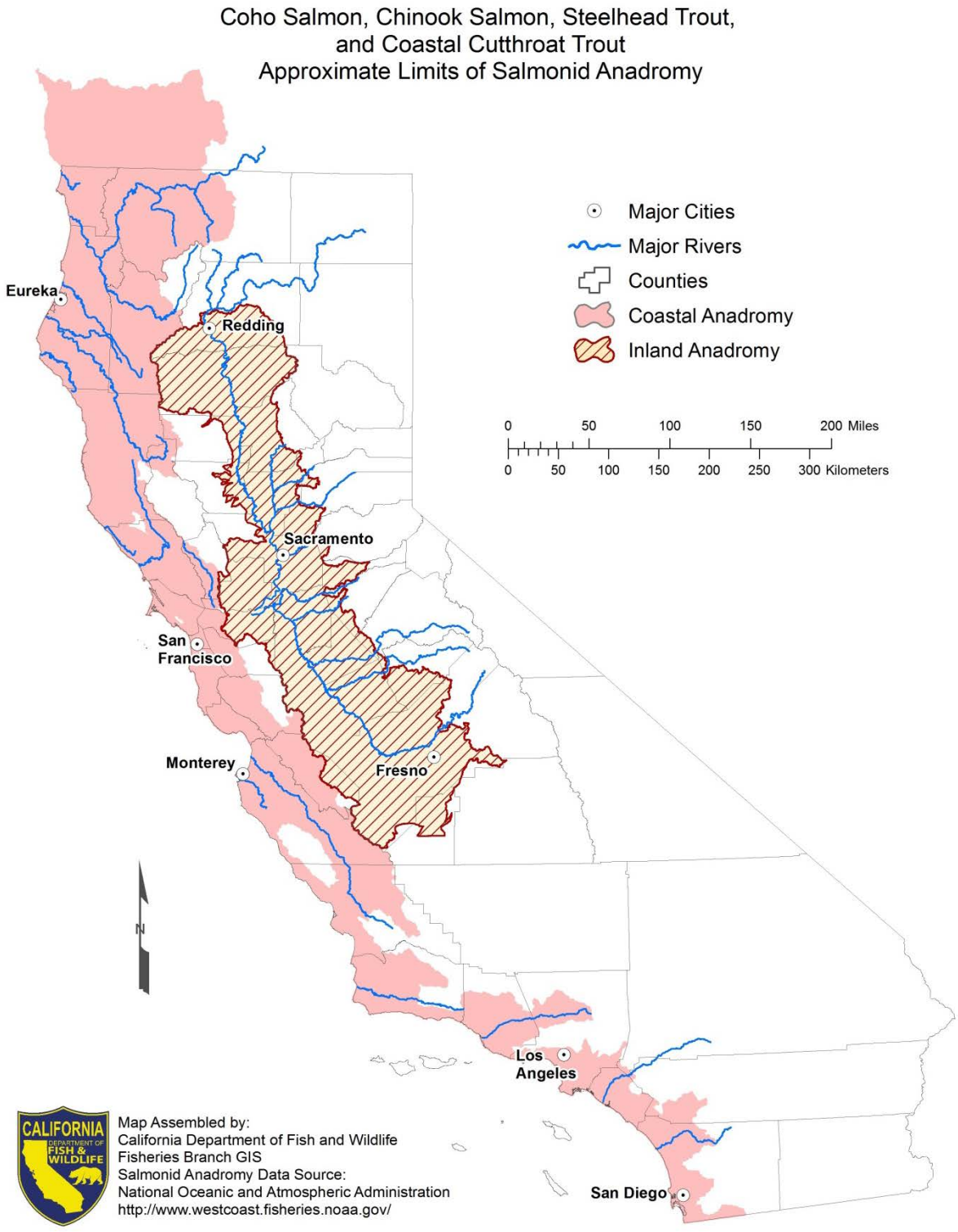
Project monitoring is considered an important element in the activity development and implementation process. The monitoring process provides performance control during the activity and also helps provide a measure of the benefits, insight, and guidance for future projects.

Activity during implementation is overseen by a CDFW grant manager and is geared to ensure that all regulatory environmental issues are strictly addressed including air, water, and avoiding impacts to sensitive plant and animal species. During implementation, activities are carefully monitored to make sure plans are followed and that the correct materials and techniques are used so that the objectives of the activities are met while protecting the environment.

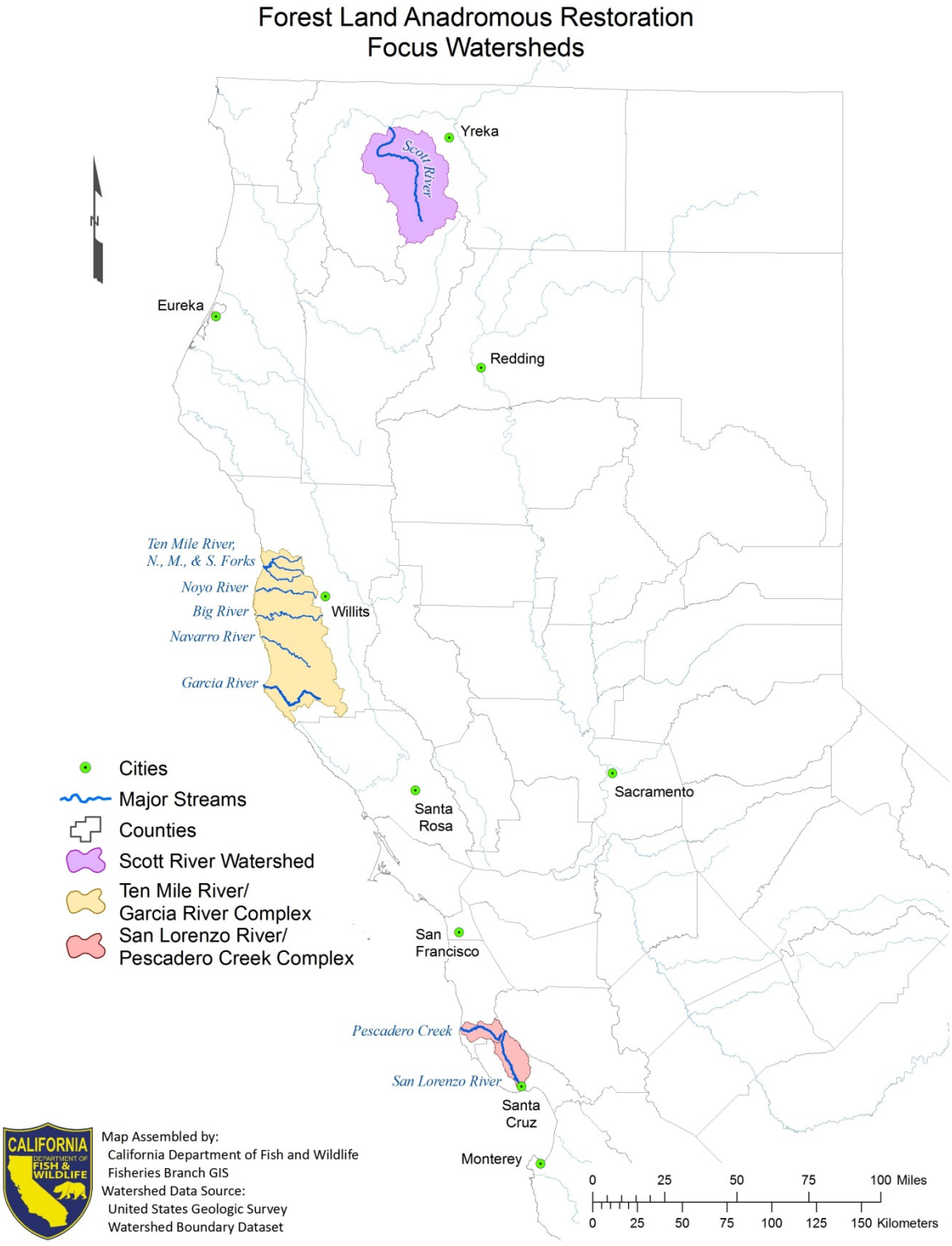
Post-activity monitoring begins with information collected immediately after the activity is completed and documents whether the project was completed as designed and according to grant specifications. This information includes documenting the exact location where the activity has occurred with reference points and survey marks. Final project reports should contain "as-built" descriptions with design drawings and photographs (both before and after the activity) are collected. A complete activity description including the objectives of the activity must be retained.

The next phase of post-activity monitoring is designed to assess the efficacy of the project and shall occur within one to three years after an action item is complete. The CDFW shall randomly select ten percent of the action items within each project work type for effectiveness/validation monitoring. A random sample, stratified by project type and region, shall be chosen from the pool of new restoration projects approved for funding each year. This evaluation shall be recorded on standard project evaluation forms. Effectiveness monitoring addresses the physical response associated with an activity, while validation monitoring evaluates fish response to the project. Pre-treatment monitoring shall be performed for newly selected projects, and post-treatment monitoring will be performed within three years following project completion.

Complete monitoring specifications can be found in Part VIII of the *California Salmonid Stream Habitat Restoration Manual* 4th edition (Flosi et al 2009) (http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp). Additional details on monitoring and reporting requirements are presented in Appendix B.



Map 1: Area covered by Drought Focus (excluding Oregon)



Map 2: Area covered by Forest Land Anadromous Restoration Focus

REFERENCES:

California Department of Fish and Wildlife. Lake and Streambed Alteration Program (1600) webpage http://www.dfg.ca.gov/habcon/1600/

California Department of Fish and Game. 2000. Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities. The Resources Agency, State of California, Sacramento, CA.

Flosi, G, S. Downie, J. Hopelain, M. Bird, R. Coey, and B. Collins. 1998. *California Salmonid Stream Habitat Restoration Manual*. Third Edition. Calif. Fish and Game. The most current version of the manual is available at: http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp.

Flosi, G, S. Downie, M. Bird, R. Coey, and B. Collins. 2003, 2006. *California Salmonid Stream Habitat Restoration Manual*. Volume II, Third Edition. Calif. Fish and Game. The most current version of the manual is available at: http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp.

Hagans and Weaver. 1994. Handbook for Forest and Ranch Roads. 161 p. Prepared by William E. Weaver, Ph.D. and Danny K. Hagans, Pacific Watershed Associates for the Mendocino County Resource Conservation District, 405 Orchard Ave., Ukiah, CA 95482.

ENVIRONMENTAL CHECKLIST FORM

1. Project Title: **The 2015 Fisheries Restoration Grant Program in Del Norte, Humboldt, Marin, Mendocino, Monterey, Napa, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Siskiyou, Sonoma, Trinity, and Ventura Counties.**

2. Lead Agency Name and Address:

   California Department of Fish and Wildlife
   Fisheries Branch
   830 S Street
   Sacramento, CA 95811

3. Contact People and Phone Numbers:

   Melissa Mandrup
   (916) 327-8658
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   830 S Street
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   1455 Sandy Prairie Ct.
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   Gail Seymour
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   95403

   Margaret Paul
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   20 Lower Ragsdale Dr.
   Ste. 100
   Monterey, CA 93940

   Mary Larson
   (562) 342-7186
   South Coast Region
   4665 Lampson Ave.
   Los Alamitos, CA
   90720

4. Project Location: Various sites in Del Norte, Humboldt, Marin, Mendocino, Monterey, Napa, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Siskiyou, Sonoma, Trinity, and Ventura Counties (Appendix A).

5. Project Sponsor's Name and Address:

   California Department of Fish and Wildlife
   Fisheries Branch
   830 S Street
   Sacramento, CA 95811

6. General Plan Designation: Various

7. Zoning: Various

8. Description of Project: Implementation of 66 action items for restoration of anadromous salmonid habitat (Appendix A). These action items include measures to improve anadromous fish passage, reduce erosion and sedimentation, enhance instream habitat, improve water quality and improve juvenile survival.

9. Surrounding Land Uses and Setting: Briefly describe the project's surroundings: Action items will be surrounded by lands consisting of agriculture, private holdings, forests used for timber production as well as national, state, and county parks.

10. Other Public Agencies Whose Approval Is Required: U.S Army Corps of Engineers, North Coast Regional Water Quality Control Board, San Francisco Bay Regional Water Quality Control Board, and Central Coast Regional Water Quality Control Board, Los Angeles Regional Water Quality Control Board, and Central Valley Regional Water Quality Control Board.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐	Aesthetics	☐	Agriculture and Forestry	☐	Air Quality
☐	Biological Resources	☐	Cultural Resources	☐	Geology/Soils
☐	Greenhouse Gas Emissions	☐	Hazards and Hazardous Materials	☐	Hydrology/Water Quality
☐	Land Use/Planning	☐	Mineral Resources	☐	Noise
☐	Population/Housing	☐	Public Services	☐	Recreation
☐	Transportation/Traffic	☐	Utilities/Service Systems	☐	Mandatory Findings of Significance

This project will not have a "Potential Significant Impact" on any of the environmental factors listed above; therefore, no boxes are checked.

DETERMINATION:

On the basis of this initial evaluation:

☐	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
☒	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
☐	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
☐	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
☐	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required

Stafford Lehr, Chief, Fisheries Branch

Dec. 12, 2014
Date

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒
IV. BIOLOGICAL RESOURCES: Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐
VI. GEOLOGY AND SOILS: Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☐	☒
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
VII. GREENHOUSE GAS EMISSIONS: Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐
VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☒	☐	☐

IX. HYDROLOGY AND WATER QUALITY: Would the project:

a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☒
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☒	☐	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow	☐	☐	☐	☒
X. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b)Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒
XI. MINERAL RESOURCES: Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒
XII. NOISE: Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XIII. POPULATION AND HOUSING: Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
XIV. PUBLIC SERVICES:				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☒	☐
Parks?	☐	☐	☒	☐
Other public facilities?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
XV. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒
XVI. TRANSPORTATION/TRAFFIC: Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☐	☒
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

EXPLANATION OF RESPONSES TO INITIAL STUDY ENVIRONMENTAL CHECKLIST

I. AESTHETICS

a) The project will not have an adverse effect on a scenic vista. Such an impact will not occur because the project will stabilize, restore, and re-vegetate damaged and eroded sites to produce a more natural and esthetically pleasing appearance.

b) The project will not damage scenic resources such as trees, rock outcroppings, and historic buildings. Such an impact will not occur because the project will not disturb large trees or other scenic features in the process of restoring damaged sites.

c) The project will not substantially degrade the existing visual character or quality of the work sites and their surroundings. Such an impact will not occur because in most cases the restoration project will restore the natural character of disturbed sites. Where non-natural structures (such as fish screens) are constructed, they will be of small size and compatible with the appearance of their surroundings.

d) The project will not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area of the worksites. Such an impact will not occur because none of the restoration project action items require installation of artificial lighting.

II. AGRICULTURE AND FOREST RESOURCES

a) The project will not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency, to non-agricultural use. Such an impact will not occur because most project worksites are located away from FMMP designated farmland. Project actions associated with farmland (such as fish screens) are designed to allow continued use of farmland with reduced impacts to anadromous salmonids.

b) The project will not conflict with existing zoning for agricultural use or a Williamson Act contract. Fish habitat restoration actions will not change existing land use.

c) The project will not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timber zoned Timberland Production. Fish habitat restoration actions will not change existing land use.

d) There will be no loss of forest land and the project will not result in the conversion of forest land to non-forest use. Road decommissioning projects

in forest land will reduce fine sediment delivery to the streams while restoring forest land by planting with native vegetation.

e) The project will not involve other changes in the existing environment, which due to their location or nature, could not result in conversion of farmland to non-agricultural use. Fish habitat restoration actions are either away from, or are compatible with, existing agricultural uses.

III. AIR QUALITY

a) The project will not conflict with or obstruct implementation of the applicable air quality plan. Such an impact will not occur because implementation of the project does not create any features that would be a source of air pollution.

   The work window for restoration activities is generally limited from June 15 to November 1. Under a worst case scenario, the most work that a project can have in a single field season is eighteen weeks and the most number of years a project has to be completed is four years. Based on the worst case scenario, the CDFW finds that each restoration activity will not likely adversely affect air quality plans through the use of vehicle and heavy equipment because of the short duration of each restoration activity. For most projects, work does not occur for the entire eighteen week field season and most restoration activities do not take four years to implement. Also, projects do not need to be implemented in consecutive years. Thus, the amount of time it takes to complete a restoration activity varies. Additionally, not all projects require the use of heavy equipment (although heavy equipment may be used to transport materials to the work site) and not all projects occur simultaneously. Calculating the emissions from a single restoration activity to use as an example would not be representative of the other restoration activities in Appendix A for the reasons listed above.

b) The project will not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Such an impact will not occur because of the limited scope of construction activities and the fact that work sites are located in rural areas that are in overall attainment of air quality standards.

c) The project will not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors). Such an impact will not occur because the project involves no ongoing sources of air pollution.

d) The project will not expose sensitive receptors to substantial pollutant concentrations. Such an impact will not occur because the project will not significantly increase pollutant concentrations.

e) The project will not create objectionable odors affecting a substantial number of people. Project actions are designed to restore natural habitat conditions for salmonids, and will not create any stagnant water that might produce objectionable odors.

IV. **BIOLOGICAL RESOURCES**

a) The project will not have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW), National Oceanic and Atmospheric Administration (NOAA) or U. S. Fish and Wildlife Service (USFWS). Such an impact will not occur because project activities are designed to improve and restore stream habitat, to provide a long-term benefit to both anadromous salmonids and other fish and wildlife. The project will be implemented in a manner that will avoid short-term adverse impacts to rare plants and animals and cultural resources during construction; the mitigation measures that will be implemented to avoid short-term impacts to rare plants and animals and cultural resources are described in Appendices B, C, D, and E. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance. In addition,

Species Impacts for the following species include (mitigation measures are included in Appendix B):

i. Arroyo toad (*Anaxyrus californicus*)

The arroyo toad was federally listed as endangered in 1994. Typically found in coastal areas, the toad ranges from Salinas River Basin in Monterey and San Luis Obispo Counties south to Arroyo San Simón in northern Baja California, México. The preferred habitat for arroyo toad during breeding season (February – July) includes low gradient sections of slow moving streams which have adjacent stream terraces, sandbars, and shallow pools. In non-breeding months, this species can be found in a variety of upland habitats such as coastal sage scrub, chaparral, sycamore-cottonwood woodlands, oak, woodlands and grasslands.

During the implementation of a project, activities such as (but not limited to) channel dewatering, unscreened pumping, heavy equipment usage, work with hand tools, removal of riparian vegetation, spills from refueling vehicles, and introduction of non-native species into streams may have the potential to impact arroyo toad—this does not result in habitat removal and/or degradation. All impacts that occur are temporary and can be minimized to avoid take of the species. Furthermore, many of these projects involve restoring the riparian corridor that is absent.

ii. California freshwater shrimp (*Syncaris pacifica*)

In 1998, the US Fish and Wildlife Service listed California freshwater shrimp (CAFS) as endangered. The distribution of CAFS is limited to four drainage units in the California counties of Marin, Sonoma, and Napa: 1) tributary streams of the lower Russian River drainage, that flow westward to the Pacific Ocean, 2) coastal streams flowing westward directly into the Pacific Ocean, 3) streams draining into Tomales Bay, and 4) streams flowing southward into San Pablo Bay. California freshwater shrimp depend on the availability of slow moving perennial water adjacent to continuous, stable, well vegetated stream banks, or deep stable undercuts banks during winter high flows.

Salmonid restoration projects typically enhance or create habitat that is also suitable for CAFS. Although project activities in wetted stream habitats may directly impact individuals when present, project activities in dry stream habitats will not have a direct impact on individuals. Mitigation measures are implemented to avoid directly impacting individuals when present however, some short term direct and indirect impacts can occur.

iii. California red-legged frog *(Rana draytonii)*

The California red-legged frog was listed as threatened in the Federal Registry in 1996. This species is the largest native frog in the western United States and is primarily found in streams and drainages along the California coast, ranging from southern Mendocino County south to northwestern Baja California. An eastern extension of this population can be found in the Sierra Nevada foothills, though a majority of the species is found in Monterey, San Louis Obispo, and Santa Barbara counties. Individuals found in coastal areas are active year round and those found farther inland are less active during the colder months. Breeding season is typically November through March, slightly earlier in southern regions. This species of frog prefers permanent quiet bodies of water but can be found in damp thickets and forest as well as along riparian corridors.

Impacts to the CAFS have the potential to occur during project implementation activities such as (but not limited to) channel dewatering, degradation of water quality, heavy equipment usage, work with hand tools, removal of riparian vegetation, spills from refueling vehicles, and introduction of non-native species into stream. All impacts that occur are temporary and can be minimized to avoid take of the species and does not result in habitat removal and/or degradation. Furthermore, many of these projects involve restoring the riparian corridor that is absent.

iv. California tiger salamander (*Ambystoma californiense)*

The central California population of California tiger salamander was federally listed as threatened in 2004 but had been endangered in Santa

Barbara County since 2000 and in Sonoma County since 2002. The state of California listed the entire population as threatened in 2010. The salamander can be found coastally from Sonoma to Santa Barbara counties as well as in the Central Valley and surrounding foothills—primarily in grassland or open woodland areas from Alameda County south to Monterey County and east to Merced and Madera counties. This nocturnal salamander breeds during the rainy season (November – May) depositing egg masses in standing water. Outside of estivation, the California tiger salamander spends a majority of its time underground finding refuge in animal burrows.

Impacts to the species are highly unlikely as most implementation projects occur in or near the stream and riparian corridor. Upslope projects are typically limited to road upgrading and decommissioning in areas that are steep, eroding, and often in areas vegetated with trees and shrubs. The species uses ponds and vernal pools for breeding and grassland habitat for estivation, both of which are usually not in proximity to anadromous fish-bearing streams.

v. Coho salmon (*Oncorhynchus kisutch*), Chinook salmon (*Oncorhynchus tshawytscha*), steelhead (*Oncorhynchus mykiss irrideus*), and coastal cutthroat trout (*Oncorhynchus clarki clarki*)

Winter-run chinook has been listed as endangered by the state since 1989 and federally since 1994. Spring-run chinook was listed in 1999 as threatened by both the state of California and USFWS. Depending on the evolutionary significant unit (ESU) of the coho salmon, the species is listed either as threatened or endangered; federally since 1996 and by the state since 2005. In 1997, USFWS listed the distinct population segment (DPS) of the southern California steelhead as endangered. The 4 other DPS of steelhead (south central, central, Central Valley, and northern) have been federally listed as threatened as early as 1997. Coastal cutthroat trout is not listed as threaten or endangered. These salmonids can be found throughout the coastal and inland river systems of north and central California. The salmonid lifecycle involves adults maturing in the ocean, migrating back to their home streams and spawning, embryos incubating, fry emerging, juveniles growing, and smolts migrating to the estuary to acclimate to saltwater and moving out into the ocean.

Habitat loss and modification are believed to be the major factors determining the current status of salmonid populations. Conservation and recovery of salmonid depend on having diverse habitats with connections among those habitats. While all of the work proposed under this program will enhance habitat for one or more of these species, impacts to the species have the potential to occur during project implementation activities such as (but not limited to) channel dewatering,

disturbance of banks, and fish relocation. All impacts are temporary and can be minimized to avoid take of the species.

vi. Least Bell's vireo (*Vireo bellii pusillus)*

The least Bell's vireo was listed as endangered federally in 1986 and by the State in 1980. The breeding season distribution of these small, monogamous, territorial birds range from coastal southern California east to the foothill Central Valley with the majority of the population is found in San Diego County (March – September). In colder, non-breeding months, the least Bell's vireo migrates south into Baja California. Many return to their same lowland riparian territory to breed, with some building nests in the same scrub used the previous year.

Impacts to the species have the potential to occur as a result of removal of riparian vegetation (willows and low scrub) during the spring and summer or from disturbance within a 0.25 mile radius of the sites. Typically removal of riparian vegetation for the purpose of implementing a project does not occur, but is minimal when it does. Many projects involve restoring the riparian corridor that is absent. Removal of willow branches for revegetation at restoration sites has the potential to degrade existing vireo habitat. Noise from heavy equipment has the potential to cause nesting birds to abandon nests. All impacts are temporary and can be minimized to avoid take of the species.

vii. Marbled murrelet (*Brachyramphus marmoratus*)

In 1992, the marbled murrelet was listed as threatened, federally, and as endangered, by the State. As coastal birds that range from Alaska to Santa Barbara County, CA, they can be found nesting and brooding along the California coastline in old-growth or mature forests from April to September—possibly using the same nest in successive years. In the winter, they can be found using the same habitat for roosting and courtship.

Noise from heavy equipment has the potential to cause nesting birds to abandon nests. Limiting such work (e.g. culvert removal or placement of large woody debris) to the fall and winter months will greatly reduce adverse effects. Projects will not remove or degrade suitable habitat, only restore and protect habitat.

viii. Northern spotted owl (*Strix occidentalis caurina*)

The Northern spotted owl has been federally listed threatened since 1990 and has recently (2013) been listed as a threatened species candidate by the state of California. Old growth and mature forests of northwestern California and Pacific Northwest are the preferred habitat for these monogamous, territorial, medium-sized birds of prey. A pair of owls can occupy up to a 40 sq. km territory, nesting in hollow trees and cliff crevices from February to June.

Noise from heavy equipment has the potential to cause nesting birds to abandon nests. Preventing such work (e.g. culvert removal or placement of large woody debris) from occurring during February to July will greatly reduce adverse effects. Projects will not remove or degrade suitable habitat, only restore and protect habitat.

ix. Point Arena mountain beaver (*Aplodontia rufa nigra*)

In 1991, the US Fish and Wildlife listed the Point Arena mountain beaver (PAMB) as an endangered species. This beaver a burrowing rodent found in coastal Mendocino County, in an area of approximately 24 square miles (from about 2 miles north of Bridgeport Landing south to about 5 miles south of the town of Point Arena, and from the coast to about 5 miles inland). Mountain beaver inhabit underground burrow systems, associated with moist areas with well drained soils and lush herbaceous vegetation. Populations of PAMB are typically found in riparian, coastal scrub, or dune scrub habitats; however they may occur in any habitat with brushy or herbaceous cover. The presence of PAMB is evaluated by surveying for burrows of characteristic size and shape, with signs of recent activity.

Potential impacts to PAMB from salmonid habitat improvement projects include disruption of nesting or other activities due to equipment noise; collapse or damage to burrows from heavy equipment, riparian planting, or foot traffic; and removal of vegetation (such removal is usually temporary, but may nonetheless impact PAMB).

x. San Francisco garter snake (*Thamnophis sirtalis tetrataenia*)

The San Francisco garter snake has been federally listed as endangered since 1967 and by the State since 1970. Endemic to California, this multi-colored garter snake is only found from southern San Francisco County south to San Mateo County in grasslands or wetlands near ponds, marshes, and sloughs. Breeding season starts in spring, soon after females will bare live young from June to September. Typically found in densely vegetative ponds nears hills however, the SF garter snake will find animal burrows when ponds dry up in the summer months and will go into a dormant state.

The potential for impacts to the San Francisco garter snake will be mitigated by consulting with the USFWS prior to the implementation of the projects.

xi. Southwestern Willow flycatcher (*Empidonax traillii extimus*)

The southwestern willow flycatcher (a sub species of the Willow flycatcher, *Empidonax trailli*) was placed on the federal species list in 1995 as endangered. Extirpated from most of its California range, this small migratory bird has been reported to return to various river systems in southern California during breeding season. Breeding season is from

May to September, with a majority of breeders returning to the same sites in areas of dense mature riparian woodlands along streams and rivers. Native vegetation is preferable for nesting, but this bird will also nest in thickets of non-native species (e.g. tamarisk and Russian olive).

Impacts to the southwestern willow flycatcher have the potential to occur as a result of removal of riparian vegetation (willows and low scrub) during the spring and summer or from disturbance within a 0.25 mile radius of the sites. Typically removal of riparian vegetation for the purpose of implementing a project does not occur, but is minimal when it does. Many projects involve restoring the riparian corridor that is absent. Removal of willow branches for revegetation at restoration sites has the potential to degrade existing southwestern Willow flycatcher habitat. Noise from heavy equipment has the potential to cause nesting birds to abandon nests. All impacts are temporary and can be minimized to avoid take of the species.

xii. Tidewater goby (*Eucyclogobius newberryi*)

The tidewater goby was listed by the state of California for protection in 1987, and federally listed in 1994. The species, which is endemic to California, is typically found in coastal lagoons, estuaries, and marshes with relatively low salinities. Tidewater gobies can withstand a range of habitat conditions: they have been documented in waters with salinity levels from 0 to 42 ppt thousand, temperatures from 8 to 25^{o} C, depths from 25 to 200 cm, and dissolved oxygen levels of less than one milligram per liter. Reproduction occurs from late April or May to July and as late as November or December, depending on the seasonal temperature and rainfall.

Measures to reduce impacts to tidewater goby habitat will include adjusting the timing of projects to avoid disruption to breeding activities, the use of silt fencing to reduce sediment loads and as barricades around project sites, and installing coffer dams above and below project sites. Additional measures include, moving individual tidewater gobies found within the enclosures prior to dewatering, minimizing project areas, and requiring qualified biologists to oversee project activities.

xiii. Willow flycatcher (*Empidonax trailli*)

The Willow flycatcher was listed as endangered by the State of California in 1991. This small migratory bird can be seen during their summer migration throughout a majority of northern and western US. In California, the Willow flycatcher can be found primarily in dense moist willow thickets and riparian woodlands in northern California and along the western side of the Sierras. During spring (May to June), adults can be seen in north central California counties during the spring migration to their breeding sites farther north. Fall migration occurs primarily in August as the travel to the winter habitats in Central and South America.

Impacts to the Willow flycatcher have the potential to occur as a result of removal of riparian vegetation (willows and low scrub) during the spring and summer or from disturbance within a 0.25 mile radius of the sites. Typically removal of riparian vegetation for the purpose of implementing a project does not occur, but is minimal when it does. Many projects involve restoring the riparian corridor that is absent. Removal of willow branches for revegetation at restoration sites has the potential to degrade existing Willow flycatcher habitat. Noise from heavy equipment has the potential to cause nesting birds to abandon nests. All impacts are temporary and can be minimized to avoid take of the species.

b) The project will not have a substantial adverse effect on any riparian habitat or other sensitive natural communities identified in local or regional plans, policies and regulations, or by the California Department of Fish and Wildlife or U. S. Fish and Wildlife Service. Such an impact will not occur because the project actions are designed to correct past habitat degradation and restore and enhance riparian habitat and associated upland habitats. In accordance with the Regional General Permits 12, 78, and the § 401 Water Quality Certification, construction of action items is allowed during the summer dry season (generally June 15-November 1) to avoid impacts to aquatic habitats. Work that is permitted after November 1 is limited to hand planting of seedlings. Planting of seedlings generally occurs after December 1, or when there is sufficient rainfall to ensure the best survival chance of the seedlings. Mitigation measures to avoid impacts to riparian habitat are found in Appendix B: Mitigation measures, monitoring, and reporting program for the 2015 Fisheries Restoration Grant Program (§ IV subsection C).

   Furthermore, the CDFW LSAAs include project-specific terms and conditions that set out reasonable measures determined by CDFW to be necessary to protect fish and wildlife resources that may be affected by the project.

c) The project will not have a substantial adverse effect on federally protected wetlands as defined by § 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. The project actions will have either no effect on wetlands or will be beneficial to wetlands.

d) The project will not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. The project will enhance the movement of anadromous fish by the replacement or removal of culverts and bridges that are barriers to fish migration.

e) The project will not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. Such an impact will not occur because project actions are designed to restore and enhance biological resources. Some minor disturbance of grasses and shrubs will occur where stream structures are keyed into the stream banks.

Care will be taken not to disturb any mature trees. Riparian vegetation will be reestablished where construction activities disturb existing plants, and additional native plants will be planted to enhance the riparian vegetation.

f) The project will not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan. Such a conflict will not occur because the project restoration actions will not have a significant adverse impact on any species or habitat. Project actions are designed to restore the natural character of the fish and wildlife habitat at the project work sites. The project specifically supports the California Salmon, Steelhead Trout and Anadromous Fisheries Program Act (Fish and Game Code § 6900 et. seq.)

V. CULTURAL RESOURCES

a) The project will not cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines § 15064.5. While ground disturbance will be required to implement the project at some work sites that have the potential to affect historical resources, this potential impact will be avoided through implementation of the protective measures presented in Appendix B and E for all work sites. Resources identified during site-specific surveys will be protected before ground-disturbing activities are permitted at a site. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.

b) The project will not cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines § 15064.5. While ground disturbance will be required to implement the project at some work sites that have the potential to affect archaeological resources, this potential impact will be avoided through implementation of the protective measures presented in Appendix B for all work sites. Resources identified during site-specific surveys will be protected before ground-disturbing activities are permitted at a site. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.

c) The project will not directly or indirectly destroy any unique paleontological resources or sites, or unique geologic features. While ground disturbance to implement the project at some work sites has the potential to affect these resources, this potential impact will be avoided through implementation of the protective measures presented in Appendix B and D for all work sites. Resources identified during site-specific surveys will be protected before ground-disturbing activities are permitted at a site. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.

d) The project will not disturb any human remains, including those interred outside of formal cemeteries. While ground disturbance will be required to

implement the project at some work sites that have the potential to affect these resources, this potential impact will be avoided through implementation of the protective measures presented in Appendix B for all work sites. Resources identified during site-specific surveys will be protected before ground-disturbing activities are permitted at a site. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.

VI. GEOLOGY AND SOILS

a) The project will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area, or based on other substantial evidence of a known fault. Such an impact will not occur because the project does not create any structures for human habitation.

   i. The project will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. Such an impact will not occur because the project does not create any structures for human habitation.

   ii. The project will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction. Such an impact will not occur because the project does not create any structures for human habitation.

   iii. The project will not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. Such an impact will not occur because the project does not create any structures for human habitation.

b) The project will not result in substantial soil erosion or the loss of topsoil. Such an impact will not occur because implementation of the restoration project is designed to contribute to an overall reduction in erosion and sedimentation. Existing roads will be used to access work sites. Ground disturbance at most work sites will be minimal, except for road improvements or decommissioning. Road improvements and decommissioning will involve moving large quantities of soil from road fills and stream crossings to restore historic land surface profiles and prevent chronic erosion and sediment delivery to streams. The potential for substantial soil loss associated with road improvement and decommissioning will be avoided through implementation of the mitigation measures presented in Appendix B, Mitigation Measures, Monitoring and Reporting Program. As a result,

mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.

c) Some project worksites are on unstable soils; however, the project will not increase the risk of landslides, lateral spreading, subsidence, liquefaction, or collapse. The project actions are designed to stabilize conditions at these sites in order to reduce sediment delivery to salmonid habitat. Actions implemented to stabilize sites may not be successful in all cases, but site instability will not be increased when compared to existing conditions.

d) Some project work sites will be located on expansive soil; however, the project will not create substantial risks to life or property. Such an impact will not occur because the project will create no habitations, and the majority of the restoration actions will not create rigid structures that could be damaged by expansive soils. The few rigid structures to be created by the project (such as fish screens) will be engineered to withstand expansive soils, if they are present.

e) The project will not create any sources of waste water requiring a septic system.

VII. GREENHOUSE GAS EMISSIONS

The project will emit greenhouse gases (GHG) through the use of fuel to operate vehicles and heavy equipment. The work window for restoration activities is generally limited from June 15 to November 1. Construction is limited to at most eighteen weeks during that window, and work must be completed within four years. However, for most projects, work does not occur for the entire eighteen week field season and most restoration activities do not take four years to implement. Some action items do not require heavy equipment use at the restoration site, but may use vehicles to transport materials. Furthermore, for an individual restoration action, GHG emissions may fluctuate during the implementation, as vehicles and equipment will be necessary to varying degrees. Watershed restoration projects often require more time to construct (six to twelve weeks) then other action items. Projects may be completed in a single year of construction, or may require several years. Thus, the amount of time it takes to complete a restoration activity and the use of heavy equipment varies greatly among the actions. Although the project construction schedules and details are constrained by permit and grant conditions, the exact details cannot be specifically stated at this time. However, based on the short duration and small scale of the action items, the project will not generate a significant increase in GHG emissions above existing baseline levels because action items are discrete, limited in scope and implemented during a short time period.

a) Additionally, some action items involve decommissioning of existing paved or dirt roads in forested landscapes. The decommissioned roads are re-planted with native conifer tree species. Additionally, when plants are removed to implement the restoration activity, the replanting ratio is 1:2 (for every plant

removed, two native plants are planted). Once established native habitat restoration requires little to no maintenance and therefore little to no GHG emissions and will increase the presence of native plant species that sequester carbon dioxide.

b) Due to each action item's short duration, small scale, and minimal on-going maintenance, the project will not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHG. The short term impacts to the GHG levels are less than significant. Furthermore, the long term impacts to the GHG levels from re-vegetation actions will aid in decreasing the GHG levels by reforesting areas where roads have been removed and where restoration work has been done.

VIII. HAZARDS AND HAZARDOUS MATERIALS

a) The project will not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. Any potential significant hazard associated with the accidental release of coolant and petroleum products used with equipment during construction will be avoided through implementation of the mitigation measures presented in Appendix B. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.

b) The project will not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. At work sites requiring the use of heavy equipment, there is a small risk of an accident upsetting the machine and releasing fuel, oil, and coolant. The potential for accidental release will be reduced to a less than significant level through implementation of the mitigation measures presented in Appendix B. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.

c) The project will not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. Such impact is avoided because the project will not create any feature that will emit hazardous substances.

d) The project worksites are not located on any site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

e) No project work site is located within an airport land use plan or within two miles of a public airport or public use airport.

f) No project work site is located within the vicinity of a private airstrip.

g) The project will not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. Except for

the case of road decommissioning, the project has no effect on access. The planned decommissioning of selected unused wild land roads will not have a significant impact on emergency vehicle access.

h) The project will not expose people or structures to a significant risk of loss, injury, or death involving wild land fires. At work sites requiring the use of heavy equipment, there is a small risk of an accidental spark from equipment igniting a fire. The potential for accidental fire will be reduced to a less than significant level through implementation of the mitigation measures presented in Appendix B, Mitigation Measures, Monitoring and Reporting Program. As a result, mitigation measures will ensure that any potentially significant impacts are avoided or mitigated to below a level of significance.

IX. HYDROLOGY AND WATER QUALITY

a) The project will not violate any water quality standards or waste discharge requirements. There is the potential for minor short-term increase in turbidity during installation of instream structures or culvert removal, however the mitigation measures described in Appendix B Mitigation, Monitoring and Reporting will assure that the project actions are in compliance with water quality standards. As a result, mitigation measures will ensure that any potentially significant short-term impacts are avoided or mitigated to below a level of significance.

b) The project will not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. Upslope restoration activities will return drainage to historic patterns thereby decreasing surface runoff and increasing infiltration to the ground water.

c) The project will not substantially alter the existing drainage pattern of the work sites in a manner that would result in substantial erosion or siltation on- or off-site. Such an impact will not occur because the project actions are designed to produce decreased erosion overall. Instream habitat structures, such as boulder weirs or flow deflectors, will produce local redistribution of sediments. These structures will produce a local redistribution of bed load, facilitating the deposition of spawning gravel in riffles, and improving scour to maintain pools for juvenile fish habitat. This local redistribution of bed load will not produce a net increase of erosion.

d) The project will not substantially alter the existing drainage pattern of the work sites, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. The project will decrease the risk of flooding through upslope restoration activities that will return drainage to historic patterns, thereby increasing infiltration and decreasing surface runoff.

e) The project will not create or contribute runoff water that would exceed the capacity of existing or planned storm-water drainage systems, or provide substantial additional sources of polluted runoff. Such an impact will not

occur because upslope restoration activities will stabilize slopes and return drainage to historic patterns, thereby decreasing surface runoff and decreasing the silt load delivered to streams in the area of the project.

f) The project will not substantially degrade water quality. During placement of stream habitat structures and culvert replacement, some minor turbidity may be generated. The potential for degradation of water quality will be reduced to a less than significant level through implementation of the mitigation measures presented in Appendix B, Mitigation Measures, Monitoring and Reporting Program. Some short-term minor increase in turbidity may also occur as the streambed around instream structures adjusts during the first high stream flow following activity completion. However, this is not expected to produce a significant increase over background turbidity. As a result, mitigation measures will ensure that any potentially significant short-term impacts to water quality are avoided or mitigated to below a level of significance.

g) The project will not place housing within a 100-year flood hazard area as mapped on any flood hazard delineation map. No housing will be created as part of this project.

h) The project will not place within a 100-year flood hazard area structures which would significantly impede or redirect flood flows. Culvert removal and replacement to be done as part of the project will remove existing impediments to flood flows. Instream habitat structures, such as boulder weirs, deflectors, and bank armor, are built to change the direction and velocity of stream flow. However, these structures are small (sized to affect conditions in the low flow channel) and will not impede flood flows.

i) The project will not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. Such an impact will be avoided because all instream structures to be created are small and will not significantly impede flood flows.

j) The project will not expose people or structures to a significant risk of inundation by seiche, tsunami, or mudflow. Such an impact will not occur because project actions are designed to improve or stabilize conditions at the work sites. Upslope restoration actions will reduce the chance of mudflow by stabilizing disturbed areas, and restoring natural drainage patterns. Project work sites are not located in areas at risk to inundation by seiche or tsunami.

X. LAND USE AND PLANNING

a) The project will not physically divide an established community. This impact will not occur because no culvert removal or road decommissioning is proposed in any established community.

b) The restoration activities that comprise this project do not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction

over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. Such an impact will not occur because the project's restoration activities are designed to be compatible with local land use plans and ordinances.

c) The project will not conflict with any applicable habitat conservation plan or natural community conservation plan. Such an impact will not occur because project actions are designed to improve aquatic habitat conditions without adversely affecting any other species or their habitats.

XI. MINERAL RESOURCES

a) The project will not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. Such an impact will not occur because project actions are only designed to stabilize and restore habitat and soils within the actions area.

b) The project will not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Such an impact will not occur because no mineral resource recovery sites occur at the project work sites.

XII. NOISE

a) The project will not result in exposure of persons to, or generation of noise levels in excess of, standards established in the local general plan or noise ordinance, or applicable standards of other agencies. There may be a minor temporary increase in noise levels at those work sites requiring the use of heavy equipment. While such short-term increase in noise will not produce a significant increase in the noise level in the general environment, there is a potential for equipment noise to affect workers in close proximity to equipment producing noise levels ≥85 db, such as chainsaws or backhoes. However, such an impact will not occur because personnel operating noisy equipment will be required to wear hearing protection. As a result, mitigation measures will ensure that any potentially significant noise impacts are avoided or mitigated to below a level of significance.

b) The project will not result in exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels. Such an impact will not occur because only minor amounts of ground-borne vibration or noise will be generated short-term at those work sites requiring the use of heavy equipment.

c) The project will not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. Such an impact will not occur because most project structures are passive (i.e., contain no moving parts). The only exceptions are the proposed fish screens, which will contain moving brushes to clean the screens. These

brushes are driven by slow speed (10-15 RPM) water wheels and will not substantially increase ambient noise levels where installed.

d) The project will not result in a substantial temporary, or periodic, increase in ambient noise levels in the project vicinity above levels existing without the project. Such an impact will not occur because only minor amounts of noise will be generated temporarily at those work sites requiring the use of heavy equipment. At those sites near nesting or breeding sites for listed species, heavy equipment will only be used outside the sensitive periods for nesting or breeding, as described in Appendix B, Mitigation Measures, Monitoring and Reporting Program. As a result, mitigation measures will ensure that any potentially significant noise impacts are avoided or mitigated to below a level of significance.

e) None of the project work sites are located within two miles of a public airport or public use airport.

f) None of the project work sites are located within the vicinity of a private airstrip.

XIII. POPULATION AND HOUSING

a) The project will not induce substantial population growth in an area, either directly or indirectly. Such an impact will not occur because the project will not construct any new homes, businesses, roads, or other human infrastructure.

b) The project will not displace any existing housing and will not necessitate the construction of replacement housing elsewhere.

c) The project will not displace any people and will not necessitate the construction of replacement housing elsewhere.

XIV. PUBLIC SERVICES

a) The project will not have any significant environmental impacts associated with new or physically altered governmental facilities. Issuance of restoration grants to government agencies could, in some cases, lead to minor increases in staffing to complete projects. Such increases will not lead to any significant adverse impacts, because the increases are short term, and no significant construction will be required to accommodate additional staff.

XV. RECREATION

a) The project would not increase the use of existing neighborhood and regional parks, or other recreational facilities. Such an impact will not occur because the project actions will restore anadromous fish habitat and do not significantly alter human use or facilities at existing parks or recreational

facilities. Overall, the Restoration Program is expected to increase recreation opportunities by assisting in restoring populations of anadromous fish.

b) The project does not include recreational facilities and does not require the construction or expansion of recreational facilities.

XVI. TRANSPORTATION/TRAFFIC

a) The project will not conflict with any applicable plans, ordinances or policies that establish measures of effectiveness for the performance of the circulation systems. Such a conflict will not occur because the project will result in only minor temporary increases in traffic to primarily wild land sites during implementation of habitat improvement measures.

b) The project will not conflict, either individually or cumulatively, with any applicable congestion program established by the county congestion management agency for designated roads or highways. Such an impact will not occur because the habitat improvement actions will not generate a significant amount of traffic at each individual work site and because the work sites are dispersed throughout the coastal counties.

c) The project will not result in any change in air traffic patterns.

d) The project will not alter roads in any way that will substantially increase hazards to transportation. The proposed project will reduce hazards to transportation, because the proposed project will correct and reduce landslide and erosion damage on the selected rural roads.

e) The project will not result in inadequate emergency access. Such an impact will not occur because during replacement of small road crossings, an alternate route for traffic will be provided around the construction.

f) The project will not significantly affect parking capacity or demand for parking.

g) The project will not conflict with adopted policies, plans, or programs supporting alternative transportation.

XVII. UTILITIES AND SERVICE SYSTEMS

a) The project will not produce wastewater.

b) The project will not require, or result in the construction of, new water or wastewater treatment facilities or expansion of existing facilities. Such an impact will not occur because the project will not produce wastewater.

c) The project will not cause significant adverse environmental effects associated with the construction of new storm water drainage facilities or expansion of existing facilities.

d) The project will have sufficient water supplies available to serve the project from existing entitlements and resources.

e) The project will not produce wastewater.

f) The project will not generate solid waste requiring disposal in a landfill.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

a) The project does have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. However, the potential is reduced to less than significant by implementing the mitigation measures in Appendix B: Mitigation Measures, Monitoring and Reporting Program. The project shall be implemented in a manner that will avoid short-term adverse impacts to rare plants and animals, and cultural resources during construction. The project activities are designed to improve and restore stream habitat; thereby providing long-term benefits to both anadromous salmonids and other fish and wildlife.

b) The project does not have adverse impacts that are individually limited, but cumulatively considerable. Cumulative adverse impacts will not occur because potential adverse impacts of the project are only minor and temporary in nature. It is the goal of the project that the beneficial effects of habitat enhancement actions will be cumulative over time and contribute to the recovery of listed anadromous salmonids.

c) The project does not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly. The habitat enhancement measures implemented as part of this project will contribute to improved water quality, increased soil stability, and the recovery of listed salmonids, all of which will be beneficial to human beings.

Appendix A

Action Items

Project ID	Type	Proposal ID	Project Name	Applicant	County	Region
724582	HI	222	Rowdy Creek Instream Habitat Enhancement	Rural Human Services	Del Norte	R1
724584	FP	224	Yontocket Slough Fish Passage Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association (PCFWWRA)	Del Norte	R1
724449	HI	037	Lower Mill Creek Instream Restoration Project	Hoopa Valley Tribe	Humboldt	R1
724451	HR	040	Lower Mattole River and Estuary Riparian	Mattole Restoration Council	Humboldt	R1
724452	HU	042	Sullivan Gulch Road Decommissioining and Erosion Prevention Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association	Humboldt	R1
724467	HU	065	Lawrence Creek Road Decommissioning and Coho Habitat Improvement Project	Trout Unlimited	Humboldt	R1
724471	HI	071	Lower Mattole Coho Habitat Enhancement - Heliwood Phase 2	Mattole Salmon Group	Humboldt	R1
724481	FP	082	Dinner Creek Fish Passage Barrier Removal Project	County of Humboldt Department of Public Works	Humboldt	R1
724510	HI	124	Ryan Creek Coho Habitat Enhancement Project	Pacific Coast Fish Wildlife and Wetland Restoration Association	Humboldt	R1
724532	WC	158	Mattole Flow Program-Water Storage and Forbearance 2015-2018	Sanctuary Forest, Inc.	Humboldt	R1
724533	HU	160	West Fork Ryan Creek Sediment Reduction and Coho Habitat Improvement	Pacific Coast Fish Wildlife and Wetlands Restoration Association	Humboldt	R1
724553	HI	185	Lindsay Creek Coho Habitat Enhancement Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association	Humboldt	R1
724567	HI	203	Little River Coho Habitat Improvement Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association (PCFWWRA)	Humboldt	R1
724569	HI	205	Hall Creek Coho Habitat Improvement Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association (PCFWWRA)	Humboldt	R1
724585	HI	225	Lower Jacoby Creek Off-Channel Rearing Habitat Restoration Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association (PCFWWRA)	Humboldt	R1
724610	WC	D013	Mattole Flow Program: McKee Creek Water Storage & Forbearance	Sanctuary Forest, Inc.	Humboldt	R1
724613	HI	D016	Supply Creek Restoration Project	Hoopa Valley Tribe	Humboldt	R1
724642	HR	D045	Bobcat Run Riparian Restoration	California Conservation Corps	Humboldt	R1
724577	FP	216	Fish Creek Fish Passage Improvement Project	Trout Unlimited	Humboldt	R1
724524	HI	146	Upper Mattole Coho Habitat Enhancement Phase II	Sanctuary Forest	Humboldt, Mendocino	R1

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Project ID	Type	Proposal ID	Project Name	Applicant	County	Region
724639	PD	D042	Klamath River Tributary Fish Passage Improvement Project (2015-2017)	Salmon River Restoration Council	Humboldt, Siskiyou	R1
724435	HR	011	Redi-mix Concrete Plant Riparian Enhancement	Salmon Protection and Watershed Network	Marin	R3
724539	HI	168	Lagunitas Creek Winter Habitat Enhancement Implementation – Phase I	Marin Municipal Water District	Marin	R3
724540	HU	169	Black Mountain Creek Sediment Reduction and Fish Passage Project	Marin Resource Conservation District	Marin	R3
724615	FP	D018	San Geronimo Fish Passage & Habitat Enhancement for Drought Resilience	County of Marin Public Works	Marin	R3
724446	HI	034	Marble Gulch Instream Coho Habitat Enhancement Project	Trout Unlimited	Mendocino	R1
724459	HI	054	Upper Rancheria Creek Instream Habitat Enhancement Project	Mendocino County Resource Conservation District	Mendocino	R1
724468	HU	067	Hayworth Creek Watershed Restoration and Implementation Project, Phase I	Trout Unlimited	Mendocino	R1
724469	FP	068	Manly Gulch Coho Access and Habitat Restoration	Trout Unlimited	Mendocino	R1
724472	HU	072	Upper Jack of Hearts Creek Coho Habitat Restoration Project	Trout Unlimited	Mendocino	R1
724473	HU	074	Standley Creek Sediment Reduction Project, Phase 6	Trout Unlimited	Mendocino	R1
724477	HU	078	S. Daugherty Creek Sediment Reduction and Instream Habitat	Trout Unlimited	Mendocino	R1
724480	HI	081	Little River Coho Stream Habitat Enhancement Project	California Conservation Corps	Mendocino	R1
724482	HI	083	South Branch North Fork Navarro River Coho Stream Habitat Enhancement	California Conservation Corps	Mendocino	R1
724489	HI	097	North Fork Noyo River Coho Stream Habitat Enhancement Project	California Conservation Corps	Mendocino	R1
724494	HI	106	Flynn Creek Coho Habitat Enhancement Project	Mendocino County Resource Conservation	Mendocino	R1
724495	HI	107	Redwood Creek Coho Stream Habitat Enhancement	California Conservation Corps	Mendocino	R1
724500	HI	112	Upper Noyo River Large Wood Enhancement Project–Phase III	California Conservation Corps	Mendocino	R1
724501	HI	113	Cahto Creek Coho Salmon Habitat Enhancement	Mendocino County Resource Conservation	Mendocino	R1

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Project ID	Type	Proposal ID	Project Name	Applicant	County	Region
724502	HI	115	South Fork Albion River Coho Stream Habitat Enhancement Project-Phase	California Conservation Corps	Mendocino	R1
724513	HI	127	Hollow Tree Creek Complex Habitat Enhancement Project	Eel River Watershed Improvement Group	Mendocino	R1
724570	HU	206	Graphite Creek Sediment Reduction and Habitat Enhancement Project	The Conservation Fund	Mendocino	R1
724603	HI	F006	John Smith Creek Coho Habitat Enhancement Project	Mendocino County Resource Conservation	Mendocino	R1
724607	HU	F010	James Creek Road Decommissioning and Fish Passage Implementation Project	Mendocino Land Trust	Mendocino	R1
724619	HI	F022	Campbell Creek Instream Coho Salmon Habitat Enhancement Project	Trout Unlimited	Mendocino	R1
724466	FP	062	Big Sur River Fish Passage Restoration Project – Riverside Campground	Trout Unlimited	Monterey	R4
724631	EF	D034	Napa River Dry Season Stream Flow Monitoring	Napa County Resource Conservation District	Napa	R3
724632	PD	D035	Reducing Road related Sediment Delivery to stream systems in the Wing Canyon Subwatershed, Napa River	Napa County Resource Conservation District	Napa	R3
724554	HR	186	Chorro Valley Cape Ivy Removal Project	Land Conservancy of San Luis Obispo	San Luis Obispo	R4
724568	HI	204	San Gregorio Creek Habitat Enhancement Project	San Mateo County Resource Conservation	San Mateo	R3
724431	FP	004	Circle G Ranch Fish Passage Restoration	Earth Island Institute/South Coast Habitat Restoration	Santa Barbara	R5
724634	ED	D037	Little Arthur Creek Residential Storage & Forbearance Project	Trout Unlimited	Santa Clara	R3
724620	HI	D023	Lower Scotts Creek Salmonid Habitat Improvement Project	Santa Cruz County Resource Conservation	Santa Cruz	R3
724551	HB	183	Bogus Creek Fish Passage - Implementation Project	Northern California Resource Center	Siskiyou	R1
724572	HI	208	Seiad Creek Coho Habitat Enhancement Project	Mid Klamath Watershed Council	Siskiyou	R1
724623	HB	D026	Fiock Bank Fine Sediment Reduction	Shasta Valley Resources Conservation District	Siskiyou	R1
724602	HU	F005	Scott River Mile 21 Road Crossing Repair	Siskiyou Resource Conservation District	Siskiyou	R1
724507	WC	120	Westminster Woods Water Conservation and Storage Project	North Coast Resource Conservation and Development Council	Sonoma	R3
724517	HI	138	2014 Dutch Bill Creek Coho Habitat Enhancement Project	Gold Ridge Resource Conservation District	Sonoma	R3
724519	HI	140	Porter Creek Instream Habitat Restoration Project,	Sonoma Resource Conservation District	Sonoma	R3

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Project ID	Type	Proposal ID	Project Name	Applicant	County	Region
724520	HI	141	Grape Creek Instream Habitat Improvement Project	Sonoma Resource Conservation District	Sonoma	R3
724555	WC	187	Salmon Creek Dairy Water Conservation Project	North Coast Resource Conservation & Development Council	Sonoma	R3
724531	FP	157	Sharber-Peckham Creek Fish Passage Project	Northwest CA Resource Conservation & Development Council	Trinity	R1
724601	PD	D003	Prospect Creek Road Decommissioning	Trinity County Resource Conservation District	Trinity	R1
724635	HB	D038	12th Street Infiltration Gallery Fish Passage Restoration Project	California Trout	Ventura	R5
724448	HR	036	San Antonio Creek Arundo Removal	California Conservation Corps	Ventura	R5

FP: Fish passage at stream crossings

HB: Instream barrier modification for fish passage

HI: Instream habitat restoration

HR: Riparian restoration

HS: Instream Bank Stabilization

HU: Watershed restoration (upslope)

RE: Cooperative rearing

WC: Water conservation measures

Appendix A

Non-Physical Items

Project ID	Type	Proposal ID	Project Name	Applicant	County	Region
724440	AC	021	Watershed Stewards Program - Year 22	California Conservation Corps - Watershed Stewards Program	All coastal counties	All
724464	TE	039	SRF Fish Passage Design and Engineering Field School	Salmonid Restoration Federation	All coastal counties	All
724535	PL	093	CalFish - Public Access to Fisheries Data for Restoration Planning	Pacific States Marine Fisheries Commission	All coastal counties	All
724518	PL	139	Passage Assessment Database (PAD) 2015-2016	Pacific States Marine Fisheries Commission	All coastal counties	All
724491	MD	099	Mill Creek LCM Station - Juvenile Coho Salmon Outmigrant Trapping	Smith River Alliance	Del Norte	R1
724571	MD	207	Juvenile salmonid winter rearing habitat in the Smith River Plain	Smith River Alliance	Del Norte	R1
724444	MO	027	Salmonid Distribution in the Restored Salt River	Humboldt County Resource Conservation District	Humboldt	R1
724485	PL	091	Mill Creek Watershed Assessment and Erosion Prevention Planning Project	Hoopa Valley Tribe	Humboldt	R1
724486	MD	092	Sproul Creek Life Cycle Monitoring Station	Pacific States Marine Fisheries Commission	Humboldt	R1
724503	PD	116	Mattole Estuary Slough Restoration Plan and Designs	Mattole Salmon Group	Humboldt	R1
724508	PD	121	Mad River Estuary Off-channel Habitat Restoration Design	California Trout	Humboldt	R1
724526	MD	148	Upper Redwood Cr Juvenile Salmonid (Smolt) Abundance Project YR 2015	CDFW Anadromous Fish Restoration and Monitoring Program	Humboldt	R1
724534	PL	161	Road Assessment and Restoration Planning in the Horse Linto Watershed	Redwood Community Action Agency	Humboldt	R1
724544	MD	174	Redwood Creek DIDSON 2015-2017	HSU Sponsored Programs Foundation	Humboldt	R1
724561	MD	194	Adult steelhead trout escapement to the Mad R using DIDSON technology	CDFW Anadromous Fish Restoration and Monitoring Program	Humboldt	R1
724604	PD	D007	Redwood Creek Flow Enhancement Feasibility Study	Salmonid Restoration Federation	Humboldt	R1
724611	TE	D014	Mattole River Water Conservation Technical Assistance Program	Sanctuary Forest, Inc.	Humboldt	R1
724617	ED	D020	"Drought Busters" Water Conservation & Salmonid Education in a Drought Environment	Redwood Community Action Agency	Humboldt	R1
724478	MD	079	Mattole River Juvenile Coho Salmon Summer Spatial Structure Monitoring	Mattole Salmon Group	Humboldt, Mendocino	R1
724542	EF	172	Redwood Creek, SF Eel River Water Rights and Salmon Protection Project	Salmonid Restoration Federation	Humboldt, Mendocino	R1
724511	PL	125	Coastal Watershed Planning and Assesment Program (2015-2018)	Pacific States Marine Fisheries Commission	Humboldt, Mendocino, Trinity	R1
724562	PL	195	Salmon River Juvenile Coho Rearing Assessment and Restoration Planning	Salmon River Restoration Council	Humboldt, Siskiyou	R1

Appendix A

Non-Physical Items

Project ID	Type	Proposal ID	Project Name	Applicant	County	Region
724586	PD	226	Aikens Creek and Ti Creek Coho Habitat Enhancement Design Project	Mid Klamath Watershed Council	Humboldt, Siskiyou	R1
724583	PL	223	Trinity Timberlands South Fork Trinity River Road Sediment Source Inventory	Northwest CA Resource Conservation & Development Council	Humboldt, Trinity	R1
724454	MD	044	Steelhead Population Monitoring in the Santa Monica Bay	RCD of the Santa Monica Mountains	Los Angeles	R5
724437	PI	014	Santa Clara River Steelhead Coalition	California Trout, Inc.	Los Angeles, Ventura	R5
724530	PD	156	San Geronimo Creek Floodplain and Instream Habitat Restoration	Salmon Protection and Watershed Network	Marin	R3
724443	PL	026	West Chamberlain Creek Sediment Source Assessment	Mendocino Land Trust	Mendocino	R1
724475	PL	076	Usal Forest Watershed Action Plan for Coho Recovery in Usal Ck Watershed	Trout Unlimited	Mendocino	R1
724490	PD	098	Skunk Train Coho Barrier Improvement Project Design	Trout Unlimited	Mendocino	R1
724527	PD	149	Garcia River Estuary Restoration Design	The Nature Conservancy	Mendocino	R1
724606	WD	D009	Parlin Fork Conservation Camp - South Fork Noyo River Fish Passage Design Project	Mendocino Land Trust	Mendocino	R1
724605	FP	D008	North Coast Water Rights & Water Conservation Project	Salmonid Restoration Federation	Mendocino, Humboldt, Trinity, Del Norte, Siskiyou	R1
724462	MD	057	California Coastal Salmonid Population Monitoring in the Russian River	Sonoma County Water Agency	Mendocino, Sonoma	R1, R3
724638	HB	D041	Instream & Off-channel Rehabilitation in the Merced River	Merced Irrigation District	Merced	R4
724438	PI	015	South Coast Steelhead Coalition	California Trout	Orange, San Diego, Riverside	R5
724461	PD	056	Chorro Creek Ecological Reserve Floodplain Restoration Design Project	The Bay Foundation of Morro Bay (Morro Bay National Estuary Program, MBNEP)	San Luis Obispo	R4
724514	PD	128	Pennington Creek Steelhead Barrier Removal Project Design	Trout Unlimited	San Luis Obispo	R4
724523	PD	145	Lower Uvas Creek Agricultural Wet Ford Alternative Design Project	Trout Unlimited	Santa Clara	R3
724493	PD	102	Red Bank Off-Channel Fisheries and Riparian Habitat Design	Salmon River Restoration Council	Siskiyou	R1
724499	PD	111	Hotelling Gulch Fish Passage and Channel Restoration Design	Salmon River Restoration Council	Siskiyou	R1
724549	PD	181	Scott River Fishery Habitat Enhancement-Location 2 Design	Northern California Resource Center	Siskiyou	R1
724640	PD	D043	Salmon River Watershed Education	Salmon River Restoration Council	Siskiyou	R1
724628	HU	D031	Bodega Water Company Large Starage Tank Design	Gold Ridge Resource Conservation District	Sonoma	R3
724625	PD	D028	Dennett Dam Removal Phase 2: Project Design	Tuolumne River Trust	Stanislaus	R4

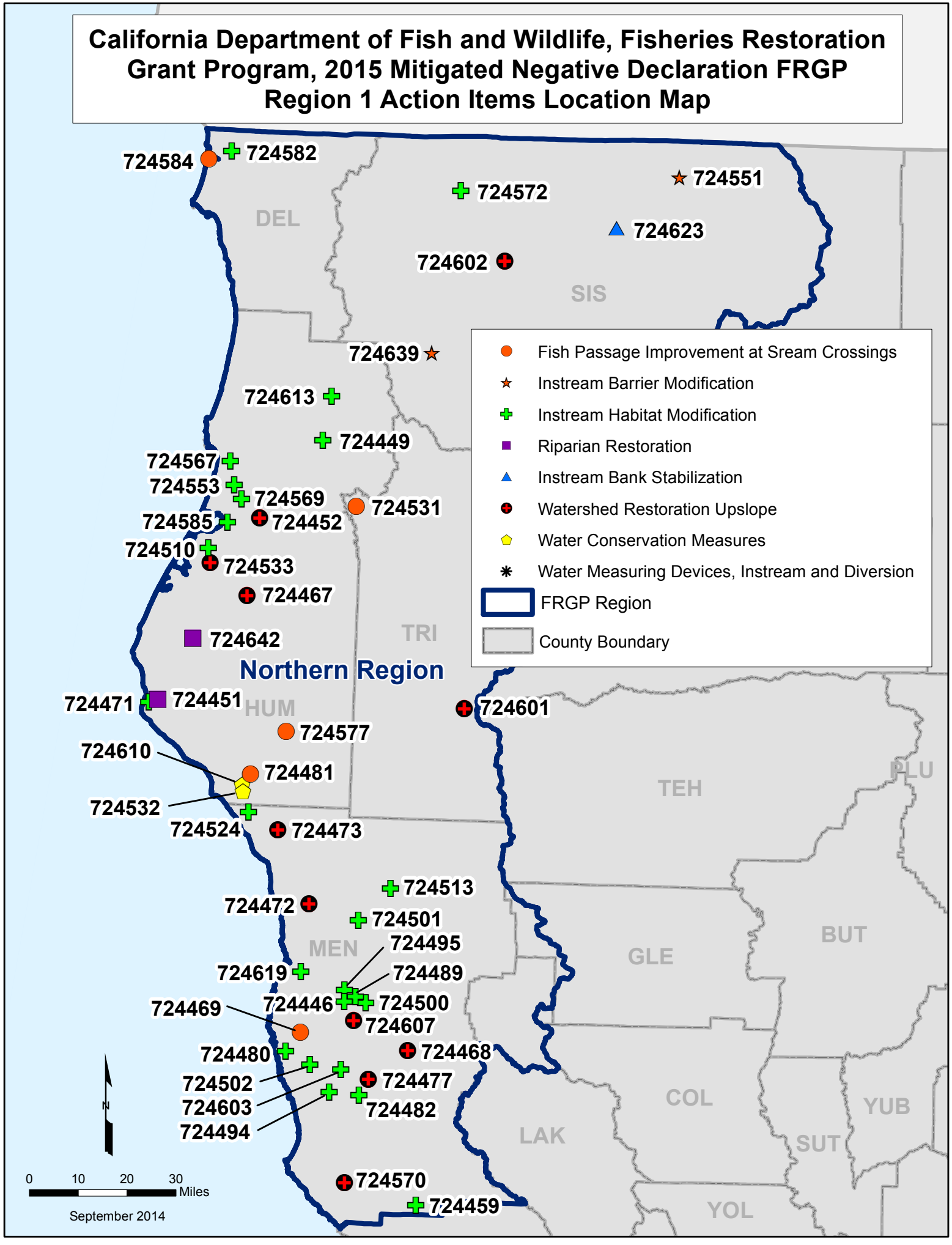
Appendix A

Non-Physical Items

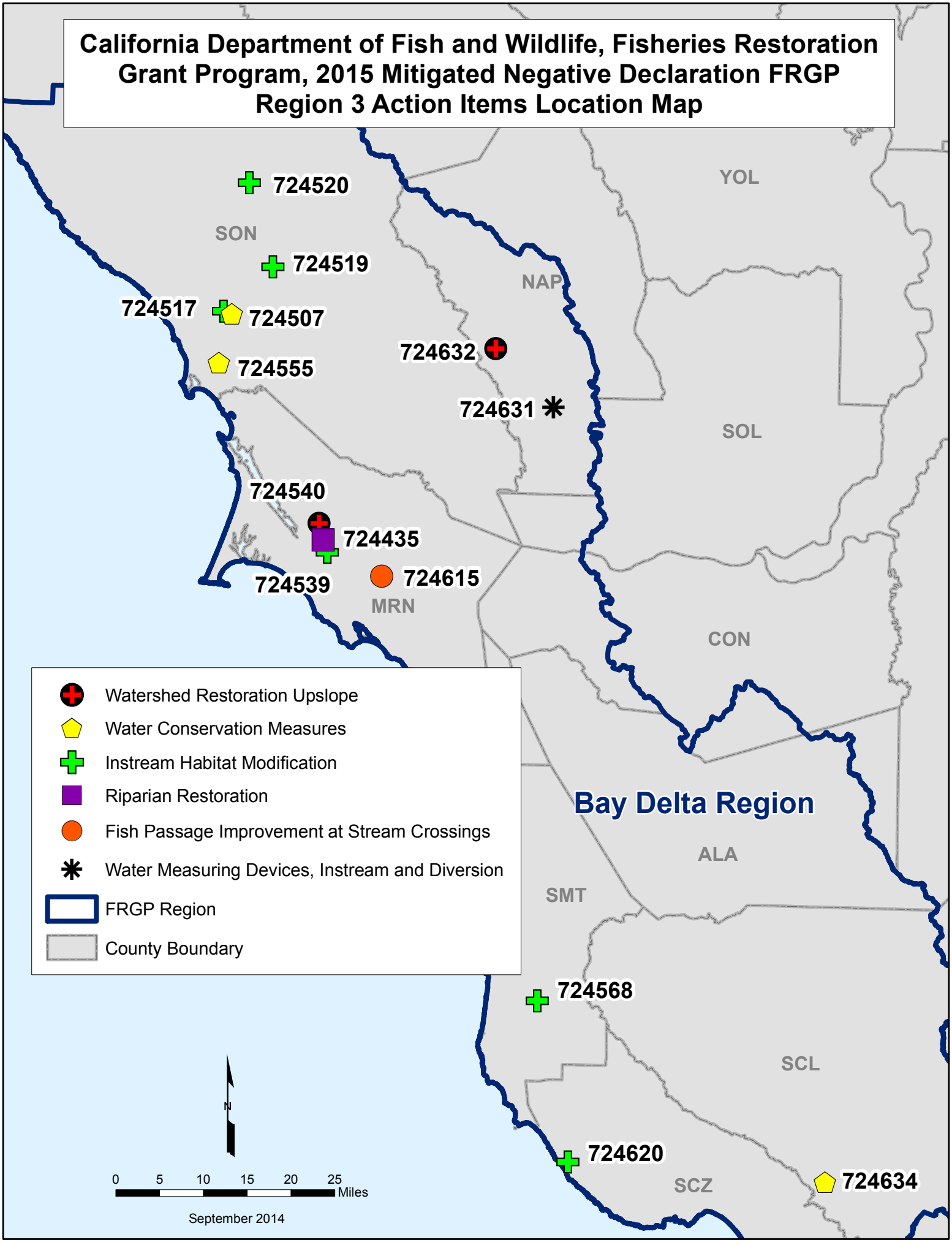
Project ID	Type	Proposal ID	Project Name	Applicant	County	Region
724633	WC	D036	Deer Creek Irrigation District Ditch System Master Plan	Trout Unlimited	Tehema	R1

AC: AmeriCorps program only
ED: Public School Watershed and Fishery Conservation Education Projects
HA: Habitat aquisistion and conservation easements
MD: monitoring status
MO: Monitoring watershed restoration
OR: Watershed and Regional Organization
PD: Project design
PI: Public involvement and capacity building
PL: Watershed evaluation, assessment, and planning
TE: Private sector technical training and education

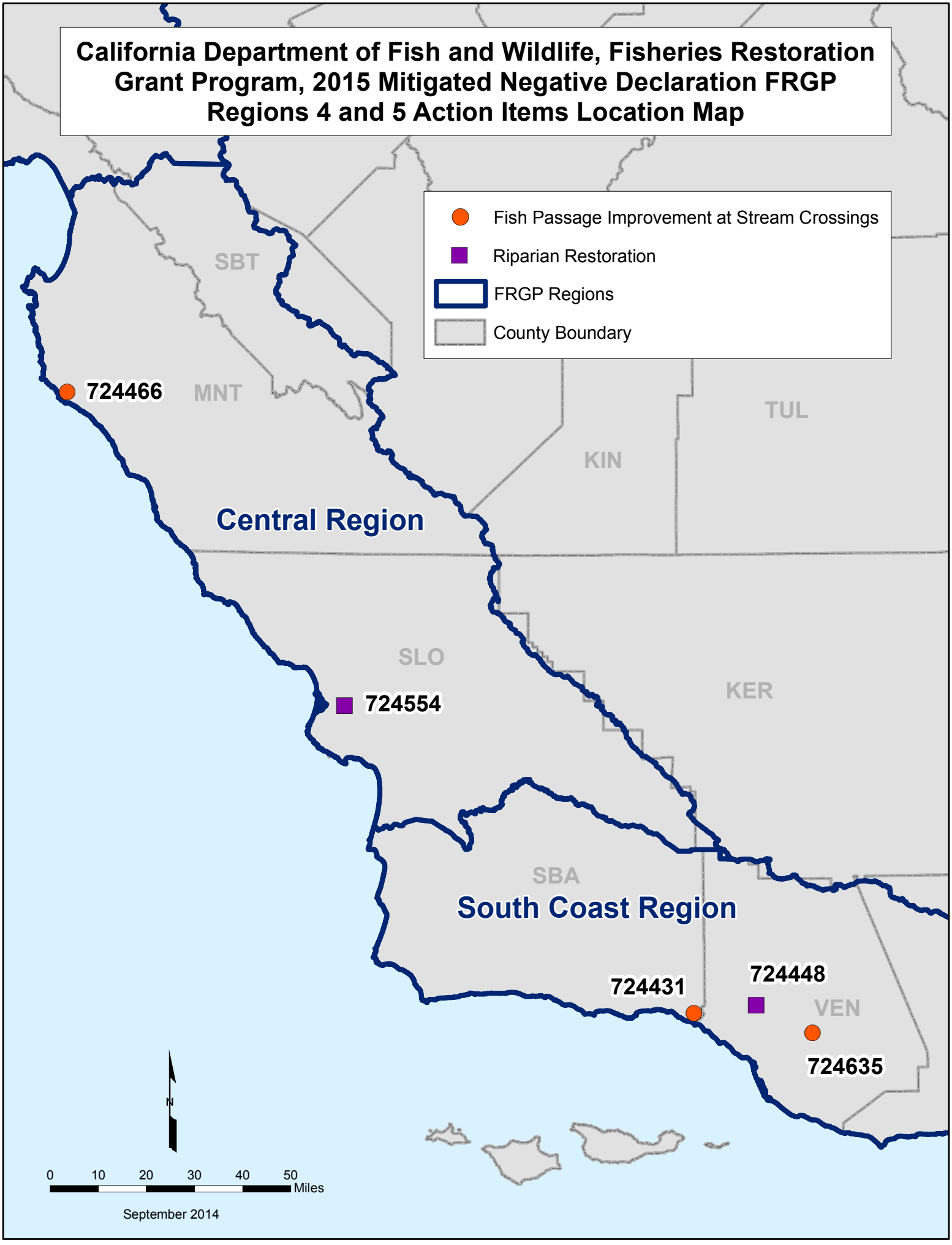
California Department of Fish and Wildlife, Fisheries Restoration Grant Program, 2015 Mitigated Negative Declaration FRGP Region 1 Action Items Location Map



California Department of Fish and Wildlife, Fisheries Restoration Grant Program, 2015 Mitigated Negative Declaration FRGP Region 3 Action Items Location Map



California Department of Fish and Wildlife, Fisheries Restoration Grant Program, 2015 Mitigated Negative Declaration FRGP Regions 4 and 5 Action Items Location Map




California Department of Fish and Wildlife,
Fisheries Restoration Grant Program,
2015 Mitigated Negative Declaration
State-Wide Action Items Location Map
Action Items
FRGP Regions
County Boundary
Northern Region
Bay Delta Region
Central Region
South Coast Region
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December 2014

Yontocket Slough Fish Passage Project

Introduction:

Pacific Coast Fish, Wildlife and Wetlands Restoration Association (PCFWWRA) will restore fish access into up to 6.2 miles of Yontocket Slough and Tryon Creek by replacing an existing crossing barrier at Pala Road in Tolowa Dunes State Park with two new culverts.

1. This project is necessary because there is a lack of suitable low velocity habitat needed for over-winter survival of juvenile coho in the Lower Smith River. An extensive area of low gradient/low velocity overwintering habitat exists in lower Tryon Creek and Yontocket Slough. This potentially highly productive habitat is severely limited by blocked access for juveniles at all but the highest flows by the existing barrier. Restoring complete migration access to Yontocket Slough and Tryon Creek will allow both juvenile and adult coho salmon access to a significant portion of the stream/ estuary ecotone and spawning habitat in the upper watershed under a wide range of tidal and flow and conditions. This project would result in complete migration access to these habitats and will likely expand the carrying capacity of rearing fish in this highly modified estuary.

2. The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

3. All habitat improvement will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* Parts VI, VII, IX and XII (Flosi et al 1998 and 2002).

Objective(s):

The objectives of this project include:

1. Address task “SR-PL-02 - Treat the barriers to coho salmon passage” from the *Recovery Strategy for California Coho Salmon* by implementing the replacement of four existing culverts that are complete barriers to all life stages of salmonids with two culverted crossings that are passable to all life stages of salmonids for the range of fish passage flows.

2. Provide hydrologic connectivity through the new crossing, allowing sufficient flow depths for salmonid passage during minimal flows, two new small channels will be excavated to connect the new culverts to the existing slough upstream and downstream slough channel during low water times of the year.

Project Description:

Location:

The fish passage barrier to be replaced lies at the crossing of Pala Road and Yontocket Slough, about one-third of a mile upstream of the confluence with the Smith River at 41.9083451213701 N; -124.196772749349 W.

Project Set Up:

PCFWWRA personnel will perform project management and subcontract administration functions.

- The Project Manager will oversee all aspects of the project, both in the field and administratively. That includes coordination and problem solving with all agencies, landowners and subcontractors. Permits, landowner agreements and grant agreements are his responsibility to make sure they are in place and followed. He will ensure equipment and materials are present where and when they are needed. He often delivers materials on site as he reviews the progress and completed work. He views the work in the field and works regularly with technical consultants to make sure it is being done to the required standards. He is responsible for the review and editing of all invoices and reporting on projects. His time is split between the field, meetings and the office.

- The Assistant Project Manager / Administrative Assistant will perform administrative assistant and assistant manager functions. They will draft subcontracts, invoices, permit applications and reports, working closely with the Project Manager. They will help track the progress, expenditures, and budget of the project. They will also perform some of the field and photo documentation, communication with partners, and review/verify subcontractor invoices. They spend the majority of her time in the office, but periodically attend meetings with agencies and work in the field.

- The Field Crew mainly works in the field unless they are entering field data into a database. For this project, they will principally assist in setting up and maintaining fish exclusion, as well as assist in fish removal, dewatering and erosion prevention. They regularly handle tasks during implementation that are not handled by subcontractors, such as water diversion inspection, the more technical aspects of biological monitoring and permit compliance. They do whatever is needed to keep implementation running on-site, whether that is staging materials, assisting with defining work locations and access sites, to many other field related project tasks. They will coordinate their activities with the Project Manager and quite often have oversight of the technical subcontractor for compliance purposes.

- The technical subcontractor will support PCFWWRA with heavy equipment subcontractor selection, project implementation and will perform a post-construction as-built topographic survey and post-construction fish passage monitoring. It is anticipated that four staff from the technical subcontractor will be participating in the project, including the

Principal Engineer, Engineering Geomorphologist, Project Engineer and Staff Engineer.

- The heavy equipment subcontractor will be responsible for mobilization, construction access, erosion and sediment control, some water management and dewatering, construction work and material testing.

- The biologist subcontractor will survey the area for nesting migratory birds and raptors prior to construction if construction begins between June 1 and September 15.

- The cultural resource monitor subcontractor including a professional archaeologist and tribal monitor will be present during new excavation, to perform cultural resource monitoring.

Materials:

Materials will include approximately 3,000 yds^2 of seed and mulch, 210 tons of structural backfill, 60 linear feet of 142" x 91" 10 gage galvanized steel corrugated metal pipe arch (CMPA), 40 linear feet of 117' x 79" CMPA and 90 tons of class II aggregate base for roadway.

Tasks:

PCFWWRA will complete the following tasks:

Task 1: Project Management and Meetings. The technical subcontractor will prepare invoices and progress reports to be submitted to PCFWWRA during the course of the project. The PCFWWRA will perform project management and subcontract administration functions, including permitting, subcontracting, coordinating among contractors, landowners, and other stakeholders, project documentation, and grant administration.

Task 2: Bidding and Subcontractor Selection. The PCFWWRA will select qualified contractors based upon their procurement of services policy. The technical subcontractor will assist PCFWWRA with preparing bid documents and selection of a heavy equipment subcontractor. This task includes attending up to two meetings prior to bidding to coordinate project timing and preparation of bid documents. The technical subcontractor will attend one on-site pre-bid meeting to describe the project to prospective subcontractors, and prepare a response to questions, necessary addendums, review of bids, and checking of references.

Task 3: Construction Oversight and Support; The PCFWWRA will subcontract with a qualified heavy equipment subcontractor and coordinate construction of the project. The PCFWWRA will provide daily

construction management and oversight, and resolution of contractual issues. The PCFWWRA will photo-document all aspects of the project.

a) The heavy equipment subcontractor will perform all construction work and will provide all material certifications, and records of compaction. The heavy equipment subcontractor will provide his own compaction testing records from a qualified person.

b) If construction begins between June 1 and September 15, PCFWWRA will select a qualified biologist subcontractor to survey the area prior to construction for nesting migratory birds and raptors, as required by permitting. The biologist shall survey all proposed construction work areas, including a 100' buffer in compliance with the Migratory Bird Treaty Act. Surveys shall be conducted within three calendar days of any construction activity and prior to the commencement of construction. Tasks will include species list review, preconstruction bird surveys, survey logs, and reporting. If a bird is observed nesting within 100 feet (non-raptor) or 1,320 feet (raptor) of a construction site, the biologist shall prepare a Nest Protection Plan to be submitted for review and approval.

c) The technical subcontractor will provide construction stakeout. The stakeout will include establishment of elevation control, placement of stakes to denote the location and stationing of the proposed centerline of the stream channel and culverts.

d) Once staking is complete, it will be the obligation of the heavy equipment subcontractor to maintain the stake locations and to determine locations of non-staked items.

e) The technical subcontractor, the project designers, will provide assistance with oversight of the project construction. The technical subcontractor will perform part-time oversight during the implementation phase, including clarifying the intent of the design plans when necessary, checking grades, overseeing the slough channel grading, and development of a final punch-list for the heavy equipment subcontractor.

f) The technical subcontractor will attend one construction kickoff meeting and up to four weekly construction progress meetings. During those meetings, the technical subcontractor will be available to make recommendations for addressing unforeseen conditions that arise and for make field changes, if necessary.

g) It is expected that construction may take approximately 5 weeks, unless items of cultural resource value are discovered. If this occurs,

a temporary implementation delay may occur. A professional archaeologist and tribal monitor will be present during new excavation to perform cultural resource monitoring.

Task 4: Post Construction Implementation Monitoring;

a) As-Built Survey. The technical subcontractor will prepare a red-line markup of the construction documents with any changes that occurred during construction. A brief As-Built Memorandum will be prepared that provides a discussion of any differences between the construction documents and the as-built survey and potential concerns arising from the difference.

b) Fish Passage Monitoring. Post-construction monitoring will be conducted at two different water levels in the slough during the fall/winter following construction to evaluate if the project meets hydraulic design criteria. The monitoring will include recording the stage from the upstream staff plate and survey of the channel thalweg and water surface profile through each culvert to obtain flow depths. Water velocity through the culverts will be obtained with a wading-rod current meter approved by the United States Geological Survey. Water velocities below the measurement capability of the current meter will be recorded as such. Collected data will be used to compute water depths and velocities, for comparison to project fish passage criteria. The evaluation will be documented in the Monitoring Memorandum.

c) Final Report. Upon completion of the project, the Grantee will photograph the constructed project and develop a written final completion report for submission to Grantor The final report will contain: 1) general grant information, 2) location of work, 3) project access, 4) participating landowners names and addresses, 5) a description and analysis of the restoration and planning techniques used, 6) a description of the results of the project, 7) dates of work and the number of person hours expended, 8) labeled before and after photos of selected restoration activities and techniques, and 9) grant dollars spent and contributed and/or in kind services used to complete the project. List all tasks to be accomplished to complete the goals and describe how tasks will be achieved.

Deliverables:

- As-Built Memorandum in PDF and 3 hardcopies.

- Post-Construction Fish Passage Monitoring Memorandum in PDF and 3 hardcopies.

- Final Report

Timelines:

- Construction will begin between August 16 and October 31, 2016.
- The As-Built Memorandum will be completed by November 30, 2016.
- The Post-Construction Fish Passage Monitoring Memorandum will be completed by March 30, 2017. The Final Report will be submitted by February 28, 2018.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
    - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
    - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.
    - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. The culvert design and installation will meet flow carrying capacity required for a 100-year flood event as identified by specifications determined by National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Wildlife (CDFW), for adult and juvenile salmonid fish passage. The project will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and criteria for fish passage as described in Volume II, Part IX, of the *California Salmonid Stream Habitat Restoration Manual*. The engineered plans for the bridge (culvert) installation shall be visually reviewed and authorized by NOAA Fisheries or California Department of Fish and Wildlife engineers prior to commencement of work.

4. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*, Volume I, and Volume II Part XI and Part XII. The Grantee/landowner will maintain the new crossing, inspect the crossing in a timely manner and remove debris as necessary during the storm season.

5. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Smith River Quad and Surrounding Quads for:
FP 224 Yontocket Slough Fish Passage Project
H 18N 1W Section 32
Del Norte County

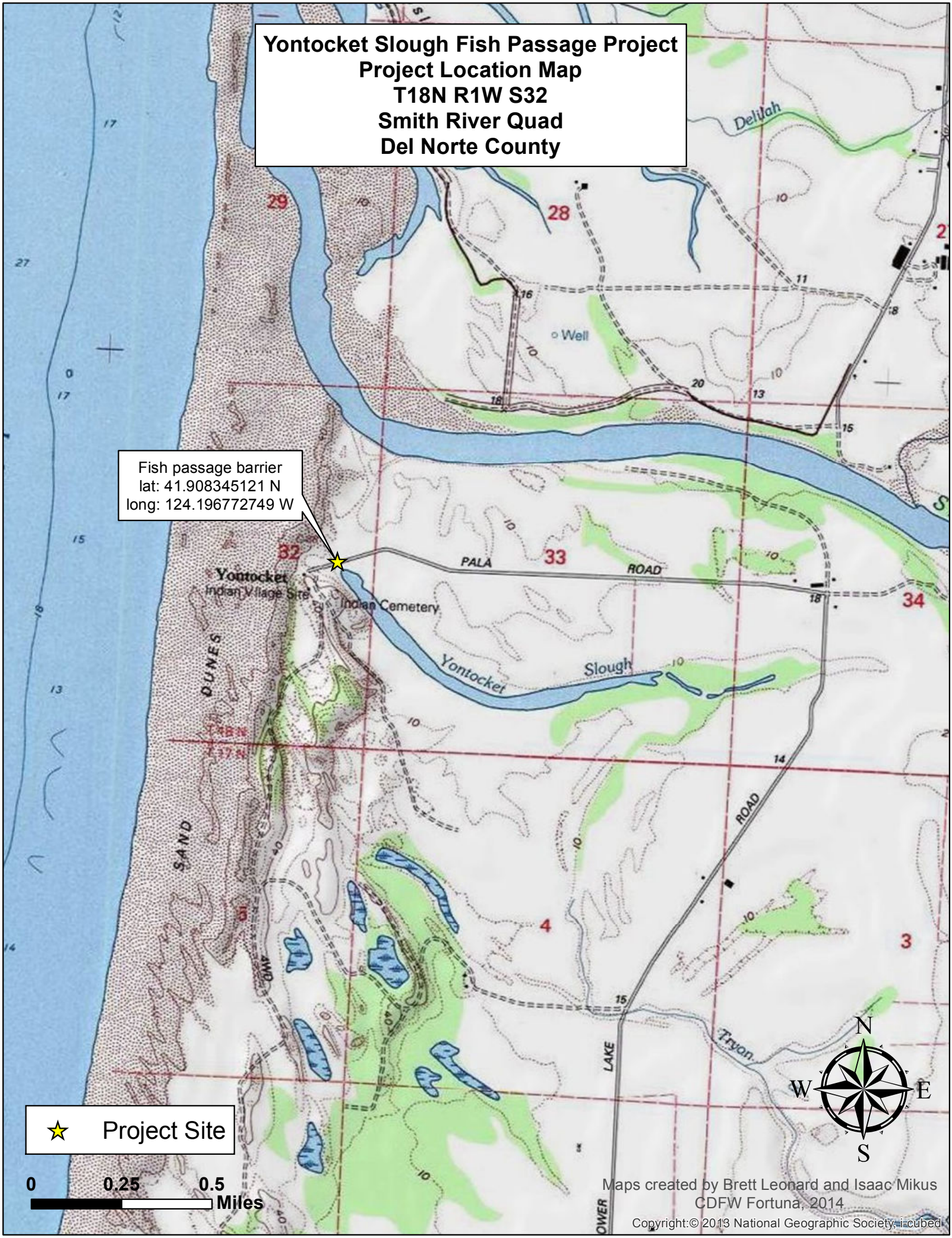
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Butte County morning-glory *Calystegia atriplicifolia ssp. buttensis*	PDCON04012			G5T3	S3	4.2
2	Chace juga *Juga chacei*	IMGASK4180			G1	S1	
3	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
4	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
5	Del Norte pyrrocoma *Pyrrocoma racemosa var. congesta*	PDASTDT0F4			G5T4	S2	2B.3
6	Del Norte salamander *Plethodon elongatus*	AAAAD12050			G4	S3	SC
7	Fort Dick limnephilus caddisfly *Limnephilus atercus*	IITRI15020			G3G4	S1	
8	Greenland cochlearia *Cochlearia groenlandica*	PDBRA0S020			G4?	S2	2B.3
9	Henderson's fawn lily *Erythronium hendersonii*	PMLIL0U070			G4	S2	2B.3
10	Howell's fawn lily *Erythronium howellii*	PMLIL0U080			G3G4	S2	1B.3
11	Howell's jewelflower *Streptanthus howellii*	PDBRA2G0N0			G2G3	S2	1B.2
12	Howell's sandwort *Minuartia howellii*	PDCAR0G0F0			G4	S2	1B.3
13	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
14	Koehler's rockcress *Boechera koehleri*	PDBRA060Z0			G3	S2	1B.3
15	Langsdorf's violet *Viola langsdorffii*	PDVIO04100			G4	S1	2B.1
16	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
17	Mcdonald's rockcress *Arabis mcdonaldiana*	PDBRA06150	Endangered	Endangered	G2	S2	1B.1
18	Mendocino gentian *Gentiana setigera*	PDGEN060S0			G2	S1	1B.2
19	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
20	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
21	Nuttall's saxifrage *Cascadia nuttallii*	PDSAX0U160			G4?	S1	2B.1
22	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
23	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Oregon polemonium *Polemonium carneum*	PDPLM0E050			G4	S1	2B.2
25	Oregon silverspot butterfly *Speyeria zerene hippolyta*	IILEPJ6087	Threatened		G5T1	S1	
26	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
27	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
28	Sanford's arrowhead *Sagittaria sanfordii*	PMALI040Q0			G3	S3	1B.2
29	Siskiyou bells *Prosartes parvifolia*	PMLIL0R014			G2?	S2	1B.2
30	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
31	Siskiyou paintbrush *Castilleja elata*	PDSCR0D213			G3	S2S3	2B.2
32	Steller (=northern) sea-lion *Eumetopias jubatus*	AMAJC03010	Delisted		G3	S2	
33	Thurber's reed grass *Calamagrostis crassiglumis*	PMPOA17070			G3Q	S2?	2B.1
34	Tracy's romanzoffia *Romanzoffia tracyi*	PDHYD0E030			G4	S2	2B.3
35	Waldo wild buckwheat *Eriogonum pendulum*	PDPGN084Q0			G4	S3	2B.2
36	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G1	S1	1B.1
37	Yontocket satyr *Coenonympha tullia yontockett*	IILEPN6035			G5T1T2	S1	
38	Yuma myotis *Myotis yumanensis*	AMACC01020			G5	S4?	
39	alpine marsh violet *Viola palustris*	PDVIO041G0			G5	S1S2	2B.2
40	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
41	arctic starflower *Trientalis europaea*	PDPRI0A030			G5	S1	2B.2
42	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
43	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
44	black crowberry *Empetrum nigrum*	PDEMP03020			G5	S2?	2B.2
45	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
47	cackling (=Aleutian Canada) goose *Branta hutchinsii leucopareia*	ABNJB05035	Delisted		G5T3	S2	
48	coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A			G4T4	S3	SC
49	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
50	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
51	double-crested cormorant *Phalacrocorax auritus*	ABNFD01020			G5	S4	
52	eulachon *Thaleichthys pacificus*	AFCHB04010	Threatened		G5	S3	SC
53	fibrous pondweed *Potamogeton foliosus ssp. fibrillosus*	PMPOT030B1			G5T2T4	S1S2	2B.3
54	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
55	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
56	fork-tailed storm-petrel *Oceanodroma furcata*	ABNDC04010			G5	S1	SC
57	ghost-pipe *Monotropa uniflora*	PDMON03030			G5	S2	2B.2
58	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2
59	great burnet *Sanguisorba officinalis*	PDROS1L060			G5?	S2	2B.2
60	great egret *Ardea alba*	ABNGA04040			G5	S4	
61	green yellow sedge *Carex viridula ssp. viridula*	PMCYP03EM5			G5T5	S2	2B.3
62	horned butterwort *Pinguicula macroceras*	PDLNT01040			G5	S2S3	2B.2
63	lagoon sedge *Carex lenticularis var. limnophila*	PMCYP037A7			G5T5	S1	2B.2
64	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
65	little-leaved huckleberry *Vaccinium scoparium*	PDERI180Y0			G5	S3	2B.2
66	maidenhair spleenwort *Asplenium trichomanes ssp. trichomanes*	PPASP021K2			G5T5	S1	2B.3

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
67	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
68	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
69	mardon skipper *Polites mardon*	IILEP66030			G2G3	S1	
70	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2S3	2B.2
71	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S1	1B.2
72	nodding vanilla-grass *Anthoxanthum nitens ssp. nitens*	PMPOA0F041			G5	S2	2B.3
73	northern meadow sedge *Carex praticola*	PMCYP03B20			G5	S2S3	2B.2
74	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
75	opposite-leaved lewisia *Lewisia oppositifolia*	PDPOR040B0			G4	S2	2B.2
76	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
77	rhinoceros auklet *Cerorhinca monocerata*	ABNNN11010			G5	S3	
78	rocky coast Pacific sideband *Monadenia fidelis pronotis*	IMGASC7032			G4G5T1	S1	
79	sand dune phacelia *Phacelia argentea*	PDHYD0C070			G2	S1	1B.1
80	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
81	seaside pea *Lathyrus japonicus*	PDFAB250C0			G5	S2	2B.1
82	serpentine catchfly *Silene serpentinicola*	PDCAR0U2B0			G2	S2	1B.2
83	serpentine sedge *Carex serpenticola*	PMCYP03KM0			G4	S3	2B.3
84	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
85	silver-haired bat *Lasionycteris noctivagans*	AMACC02010			G5	S3S4	
86	small groundcone *Kopsiopsis hookeri*	PDORO01010			G5	S1S2	2B.3
87	snowy egret *Egretta thula*	ABNGA06030			G5	S4	
88	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
89	spiral-spored gilded-head pin lichen *Calicium adspersum*	NLT0005640			G3G4	S1?	2B.2
90	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
91	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
92	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S2	SC
93	twisted horsehair lichen *Bryoria spiralifera*	NLTEST5460			G3	S1S2	1B.1
94	western lily *Lilium occidentale*	PMLIL1A0G0	Endangered	Endangered	G1	S1	1B.1
95	western pearlshell *Margaritifera falcata*	IMBIV27020			G4G5	S1S2	
96	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
97	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
98	western white bog violet *Viola primulifolia ssp. occidentalis*	PDVIO040Y2			G5T2	S2	1B.2
99	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	
100	willow flycatcher *Empidonax traillii*	ABPAE33040		Endangered	G5	S1S2	
101	woodnymph *Moneses uniflora*	PDPYR02010			G5	S3	2B.2
102	yellow-tubered toothwort *Cardamine nuttallii var. gemmata*	PDBRA0K0R3			G5T3Q	S2	3.3


Yontocket Slough Fish Passage Project
Project Location Map
T18N R1W S32
Smith River Quad
Del Norte County
Fish passage barrier
lat: 41.908345121 N
long: 124.196772749 W
Yontocket
Indian Village Site
Indian Cemetery
PALA ROAD
Yontocket Slough
SAND DUNES
LAKE ROAD
Delilah
Well
Tryon
Project Site
0 0.25 0.5 Miles
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
Copyright:© 2013 National Geographic Society, i-cubed

Rowdy Creek Instream Habitat Enhancement Project: Reach III

Introduction:

Rural Human Services Natural Resource Program will install 18 to 20 large wood structures along 1,250 feet of Rowdy Creek to improve spawning and rearing habitat for salmonids through pool retention, pool development and increased habitat complexity. Five-hundred native conifer trees will be planted to provide future large wood recruitment:

1. This project is necessary as Rowdy Creek has limited salmonid habitat available due to a combination of input of sediment and loss of large wood resulting in lack of pool depth, complexity, and large wood.

2. The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

3. All habitat improvement will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* Parts VII and XI (Flosi et al 1998 and 2002).

Objective(s):

The objectives of this project include:

1. Place instream large wood structures in stream reaches where observable in-channel large woody debris (LWD) is limiting salmonid habitat.

2. Increase the amount of in-channel LWD by placing multiple logs together to form structures extending from the stream bank and into existing in-channel pool habitat.

3. Design multiple log structures to catch natural LWD sources.

4. Contribute to future in stream large woody debris recruitment and improved riparian conifer structure by planting 500 native conifer trees.

Project Description:

Location:

The project reach begins upstream 4.6 miles from the Rowdy Creek and Smith River confluence and 3,200 feet upstream from the Del Norte County Rowdy Creek Road Bridge and extends upstream approximately 1,250 feet. The downstream end of the reach is at 41.9339^{o} north, 124.10783^{o} west and the upstream end of the reach is at 41.93663^{o} north, 124.10509^{o} west.

Project Set Up:
The Natural Resource Coordinator Project Manager will conduct and oversee all tasks. The Natural Resource Technician will provide support as needed for log and boulder delivery, material staging activities, final site design, final photo documentation, and anchoring by anchoring and planting subcontractor.

Materials:
Materials will include approximately 40 conifer trees processed into 118 logs, 500 conifer tree seedlings and 90 boulders.

Tasks:
Grantee will complete the following tasks:

1. Develop and submit notification of lake or streambed alteration.

2. Conduct pre-project inspections with Grantor.

3. Coordinate with project site landowner/subcontractors to schedule project activities.

4. Contact and coordinate with heavy equipment operators to haul structure material. Coordinate the locating and hauling of logs/boulders to project site staging areas.

5. Direct the placement of 18 to 20 multiple LWD structures. A typical structure will include a combination of five or more logs/rootwads anchored to one or more imported boulders. When available, smaller un- anchored logs will be incorporated with larger anchored logs.

6. Supervise planting and instream anchoring subcontractor operations.

7. Coordinate the purchase of one hundred or more logs, with attached root if possible, measuring 25 to 30 feet in length and 12” to 24” inches in diameter.

8. Coordinate the purchase and delivery of approximately 90 boulders, 1.2 to 1.8 tons each, to project sites to anchor placed LWD where bank tree anchors are not adequate.

9. Inspect heavy equipment for cleanness and foreign material that could transport invasive vegetation and/or invertebrates including invasive mud snails. Implement power wash and methodology described in California Department of

Fish and Game Aquatic Invasive Species Decontamination Protocol and U.S. Department of the Interior-Bureau of Reclamation.2012: Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species.

10. Provide up to 3 hours of Watershed and Fishery Conservation Education to anchoring and planting subcontractor crews during lunch hours while on site.

11. Using end dump (30 yard) haul approximately 90 boulders purchased from quarry to project site. End dump will move on-site material (LWD and boulders) not used on one side of creek to opposite side to complete structures. Move stumps and logs from slide debris storage area to project and move downed logs located along Savoy Creek Road to project.

12. Using hydraulic excavator with thumb, place log and boulder structure material at predetermined instream structure placement sites and remove brushy vegetation along riparian access. Load LWD located at slide debris storage area and down logs along Savoy Creek Road. Clear brush along stream access routes.

13. Using front end loader, off load logs from logging trucks and stage boulders and LWD along stream edge where excavator is staged.

14. Using low bed (boy) truck, haul excavator and loader to project site. Deliver excavator to load LWD at slide storage area and LWD along Savoy Road and return excavator to Crescent City. Deliver loader to un-load log truck (purchased logs) and return to Crescent City. Deliver loader to project to support excavator in in stream structure building: Bring LWD/boulder to excavator staged along stream bank. Return loader to Crescent City.

15. Anchoring and planting subcontractor secure placed LWD to boulders and stream bank riparian trees using 1-inch rebar, ¾ inch cable, cable clamps and polyester resin adhesive as needed. Crews will incorporate unanchored small logs and limbs into placed structures. Conservationist 1 will supervise the labor crew and labor crews are directed by a Fish Habitat Assistant. In stream structure design and placement will follow protocol found in the *California Salmonid Stream Habitat Restoration Manual* (1998).

16. Purchase and plant 500 native conifers trees consisting of Sitka Spruce, Coast Redwood, and Douglas fir along the enhanced stream corridor on Rowdy Creek. If possible, conifers age 2 to 4 year old trees in tree pots will be purchased. Trees will be from proper seed zone and of similar species to existing riparian conifer stand. Anchoring and planting subcontractor crews will remove sod, two feet around each site prior to planting each tree, and plant trees with power augers and hand tools. Trees will be planted on approximately ten-foot centers. Trees

maintenance such as weed removal around existing trees (trees planted in previous years Rowdy Creek FRPG funded project(s) will be conducted as well.

17. Work to obtain whole trees for this project if possible. The processed whole trees will include cut trees with attached root wad, cut logs without root wad and associated limbs material. If whole trees are not available, logs will be purchased.

Deliverables:

Photo documentation of the project sites and a final report prepared. Place a combination of 19 or more multiple log/root wad and boulder combinations. Place approximately 100 or more logs for in-channel habitat improvements Place approximately 90 or more boulders as anchor points for placed logs where stream bank tree anchors are limiting or absent. Plant 500 conifers within the project site reach and provide maintenance on trees planted at previous FRGP year funding Rowdy Creek instream site reaches. Submit final report containing required detail.

Timelines:

- Tasks 1-15 (instream structure installation) will be completed (June 1, 2015 to October 15, 2015) and (June 1, 2016 to October 15, 2016).

- Tasks 16 and 17 (riparian planting) will be completed (November 1, 2015 to March 31, 2016) and (November 1, 2016 to March 31, 2017).

- Final reporting billing and site inspections will occur November 2015 and November 1 to March 31, 2017.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers.

3. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.* Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to ensure the best chance of survival of the seedlings.

4. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the High Divide Quad and Surrounding Quads for Rowdy Creek Instream Habitat Enhancement Project: Reach III HI 222 H 18N R1E Section 19 Del Norte County

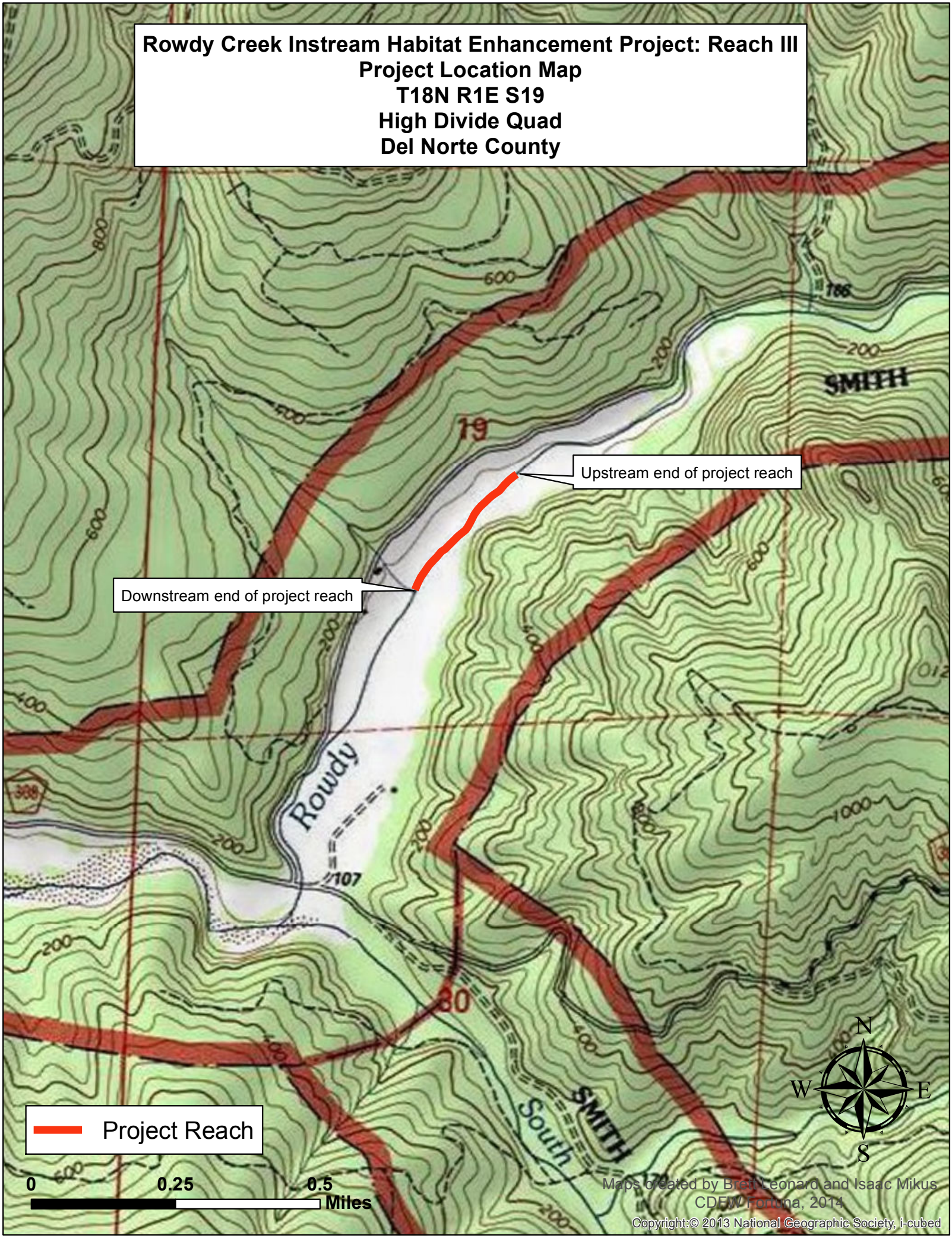
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Butte County morning-glory *Calystegia atriplicifolia ssp. buttensis*	PDCON04012			G5T3	S3	4.2
2	Chace juga *Juga chacei*	IMGASK4180			G1	S1	
3	Coast Range lomatium *Lomatium martindalei*	PDAPI1B140			G5	S3	2B.3
4	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
5	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
6	Darlingtonia Seep	CTT51120CA			G4	S3.2	
7	Del Norte pyrrocoma *Pyrrocoma racemosa var. congesta*	PDASTDT0F4			G5T4	S2	2B.3
8	Del Norte salamander *Plethodon elongatus*	AAAAD12050			G4	S3	SC
9	Fort Dick limnephilus caddisfly *Limnephilus atercus*	IITRI15020			G3G4	S1	
10	Gasquet rose *Rosa gymnocarpa var. serpentina*	PDROS1J1V1			G5T2	S2	1B.3
11	Greenland cochlearia *Cochlearia groenlandica*	PDBRA0S020			G4?	S2	2B.3
12	Henderson's fawn lily *Erythronium hendersonii*	PMLIL0U070			G4	S2	2B.3
13	Howell's fawn lily *Erythronium howellii*	PMLIL0U080			G3G4	S2	1B.3
14	Howell's jewelflower *Streptanthus howellii*	PDBRA2G0N0			G2G3	S2	1B.2
15	Howell's sandwort *Minuartia howellii*	PDCAR0G0F0			G4	S2	1B.3
16	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
17	Koehler's rockcress *Boechera koehleri*	PDBRA060Z0			G3	S2	1B.3
18	Langsdorf's violet *Viola langsdorffii*	PDVIO04100			G4	S1	2B.1
19	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
20	Mcdonald's rockcress *Arabis mcdonaldiana*	PDBRA06150	Endangered	Endangered	G2	S2	1B.1
21	Mendocino gentian *Gentiana setigera*	PDGEN060S0			G2	S1	1B.2
22	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
23	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
24	Nuttall's saxifrage *Cascadia nuttallii*	PDSAX0U160			G4?	S1	2B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
26	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
27	Oregon polemonium *Polemonium carneum*	PDPLM0E050			G4	S1	2B.2
28	Oregon silverspot butterfly *Speyeria zerene hippolyta*	IILEPJ6087	Threatened		G5T1	S1	
29	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
30	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
31	Sanford's arrowhead *Sagittaria sanfordii*	PMALI040Q0			G3	S3	1B.2
32	Siskiyou bells *Prosartes parvifolia*	PMLIL0R014			G2?	S2	1B.2
33	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
34	Siskiyou paintbrush *Castilleja elata*	PDSCR0D213			G3	S2S3	2B.2
35	Steller (=northern) sea-lion *Eumetopias jubatus*	AMAJC03010	Delisted		G3	S2	
36	Thurber's reed grass *Calamagrostis crassiglumis*	PMPOA17070			G3Q	S2?	2B.1
37	Tracy's romanzoffia *Romanzoffia tracyi*	PDHYD0E030			G4	S2	2B.3
38	Waldo rockcress *Arabis aculeolata*	PDBRA06010			G4	S2	2B.2
39	Waldo wild buckwheat *Eriogonum pendulum*	PDPGN084Q0			G4	S3	2B.2
40	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G1	S1	1B.1
41	Yontocket satyr *Coenonympha tullia yontockett*	IILEPN6035			G5T1T2	S1	
42	Yuma myotis *Myotis yumanensis*	AMACC01020			G5	S4?	
43	alpine marsh violet *Viola palustris*	PDVIO041G0			G5	S1S2	2B.2
44	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
45	arctic starflower *Trientalis europaea*	PDPRI0A030			G5	S1	2B.2
46	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
47	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
48	black crowberry *Empetrum nigrum*	PDEMP03020			G5	S2?	2B.2
49	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
50	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
51	cackling (=Aleutian Canada) goose *Branta hutchinsii leucopareia*	ABNJB05035	Delisted		G5T3	S2	
52	coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A			G4T4	S3	SC
53	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
54	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
55	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
56	double-crested cormorant *Phalacrocorax auritus*	ABNFD01020			G5	S4	
57	eulachon *Thaleichthys pacificus*	AFCHB04010	Threatened		G5	S3	SC
58	fibrous pondweed *Potamogeton foliosus ssp. fibrillosus*	PMPOT030B1			G5T2T4	S1S2	2B.3
59	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
60	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
61	fork-tailed storm-petrel *Oceanodroma furcata*	ABNDC04010			G5	S1	SC
62	ghost-pipe *Monotropa uniflora*	PDMON03030			G5	S2	2B.2
63	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2
64	great burnet *Sanguisorba officinalis*	PDROS1L060			G5?	S2	2B.2
65	great egret *Ardea alba*	ABNGA04040			G5	S4	
66	green yellow sedge *Carex viridula ssp. viridula*	PMCYP03EM5			G5T5	S2	2B.3
67	horned butterwort *Pinguicula macroceras*	PDLNT01040			G5	S2S3	2B.2
68	lagoon sedge *Carex lenticularis var. limnophila*	PMCYP037A7			G5T5	S1	2B.2
69	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
70	little-leaved huckleberry *Vaccinium scoparium*	PDERI180Y0			G5	S3	2B.2
71	maidenhair spleenwort *Asplenium trichomanes ssp. trichomanes*	PPASP021K2			G5T5	S1	2B.3
72	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
73	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
74	mardon skipper *Polites mardon*	IILEP66030			G2G3	S1	
75	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2S3	2B.2
76	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S1	1B.2
77	nodding vanilla-grass *Anthoxanthum nitens ssp. nitens*	PMPOA0F041			G5	S2	2B.3
78	northern meadow sedge *Carex praticola*	PMCYP03B20			G5	S2S3	2B.2
79	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
80	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
81	opposite-leaved lewisia *Lewisia oppositifolia*	PDPOR040B0			G4	S2	2B.2
82	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
83	rhinoceros auklet *Cerorhinca monocerata*	ABNNN11010			G5	S3	
84	rocky coast Pacific sideband *Monadenia fidelis pronotis*	IMGASC7032			G4G5T1	S1	
85	sand dune phacelia *Phacelia argentea*	PDHYD0C070			G2	S1	1B.1
86	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
87	seaside pea *Lathyrus japonicus*	PDFAB250C0			G5	S2	2B.1
88	serpentine catchfly *Silene serpentinicola*	PDCAR0U2B0			G2	S2	1B.2
89	serpentine sedge *Carex serpenticola*	PMCYP03KM0			G4	S3	2B.3
90	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
91	silver-haired bat *Lasionycteris noctivagans*	AMACC02010			G5	S3S4	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
92	small groundcone *Kopsiopsis hookeri*	PDORO01010			G5	S1S2	2B.3
93	snowy egret *Egretta thula*	ABNGA06030			G5	S4	
94	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
95	spiral-spored gilded-head pin lichen *Calicium adspersum*	NLT0005640			G3G4	S1?	2B.2
96	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
97	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
98	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S2	SC
99	twisted horsehair lichen *Bryoria spiralifera*	NLTEST5460			G3	S1S2	1B.1
100	western lily *Lilium occidentale*	PMLIL1A0G0	Endangered	Endangered	G1	S1	1B.1
101	western pearlshell *Margaritifera falcata*	IMBIV27020			G4G5	S1S2	
102	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
103	western ragwort *Packera hesperia*	PDAST8H1L0			G3	S1	2B.2
104	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
105	western white bog violet *Viola primulifolia ssp. occidentalis*	PDVIO040Y2			G5T2	S2	1B.2
106	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
107	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	
108	willow flycatcher *Empidonax traillii*	ABPAE33040		Endangered	G5	S1S2	
109	woodnymph *Moneses uniflora*	PDPYR02010			G5	S3	2B.2
110	yellow-tubered toothwort *Cardamine nuttallii var. gemmata*	PDBRA0K0R3			G5T3Q	S2	3.3


Rowdy Creek Instream Habitat Enhancement Project: Reach III
Project Location Map
T18N R1E S19
High Divide Quad
Del Norte County
Upstream end of project reach
Downstream end of project reach
Rowdy
SMITH
South
SMITH
19
30
107
Project Reach
0
0.25
0.5
Miles
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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Lower Mill Creek Instream Restoration Project

Introduction:

The Hoopa Valley Tribe will increase and enhance rearing and high flow velocity refugia habitat for coho salmon through implementation of site specific instream restoration and fish passage improvement on levee-confined lower Mill Creek.

1. This project is necessary as low-gradient floodplain reaches favored by coho salmon are rare in tributaries to the Trinity River. Mill Creek has the highest potential intrinsic habitat value per kilometer for coho salmon within the Hoopa Valley (NMFS 2012), but is currently constrained by levees, which impairs the streams ability to provide over-wintering habitat for coho and reduces the channel's ability to store gravel and large wood critical for all life stages. This project will substantially address existing conditions that severely limit coho recovery within this watershed by providing large quantities of high quality coho off-channel and floodplain habitat and addressing the factor identified as most limiting within this core population.

2. The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

3. All habitat improvement will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* Parts VII, IX, and XI, XII (Flosi et al 1998 and 2002).

Objectives:

The objectives of this project include:

1. The breaching of levees and construction of 5 off-channel ponds, seasonal wetlands, floodplains, and side channel areas that will provide immediate high quality winter and summer juvenile coho natal and non-natal rearing habitat (emphasizing winter rearing).

2. A process-based restoration approach for the mainstem Mill Creek channel that restores channel form, floodplain connectivity, habitat complexity, riparian function, and salmon habitat for all life stages by encouraging the channel to restore itself over time. By providing access to and restoring high quality habitat blocked by the 1964 levees, this project will allow coho access to complex backwater and seasonal wetlands throughout the winter rearing season that is not currently available. Large wood additions will provide improved cover, gravel sorting, and channel complexity. Riparian enhancements provided by floodplain lowering and plantings will improve shading and food supply, and provide future large wood loading.

Project Description:

Location: The project area begins 0.1 miles upstream of the confluence of Mill Creek and the Trinity River at Trinity River mile 8.6 at 41.089444N, 123.703333W.

Project Set Up:
Project management and grant administration will be completed by the Hoopa Valley Tribal Fisheries Department, heavy equipment subcontractor, engineering subcontractor, and biological subcontractor. The Habitat Division Lead will oversee construction, fish relocation before construction, installation of fish barriers to isolate work areas from the channel, and riparian planting and maintenance. The Riparian Ecologist will supervise riparian planting and conduct the post-planting maintenance of planted areas. The Fisheries Biologist will install fish barriers to isolate work areas from the channel and conduct fish relocation prior to construction. The Technician III will conduct post-planting maintenance of planted areas. The Roads Director will oversee implementation of construction operations.

Materials:
Materials will include approximately 2,265 tons of boulders/cobble/gravel, 1,573 tons of ¼- to 1-ton rock slope protection, two prefabricated arch culverts (100 ft L x 10 ft W x 5.3 ft H) including concrete headwalls and footings, a prefabricated arch culvert (20 ft L x 10 ft W x 5.3 ft H with concrete footings, 112 cubic yards of asphalt, 305 pieces of large wood with rootwads including salvage, and 494 riparian plant clusters.

Tasks:
Construct an off-channel pond, seasonal wetland, floodplain, and side channel and implement process-based restoration actions on the mainstem of Mill Creek that restore channel complexity, riparian function, and salmonid habitat for all life stages and encourage the channel to restore itself over time. The Lower Mill Creek Instream Implementation Project is divided into two work areas, the Northern Restoration Area and the Southern Restoration Area.

The Northern Restoration Area

- The heavy equipment subcontractor will construct a 2,750 ft side channel beginning at Mill Creek Station 25+50 and exiting at Mill Creek Station 9+00. This side channel will pass under Mill Creek (Dyke) Road (the road built on top of the Army Corps levee) via two arch culverts with natural channel bottoms. Large immobile boulders will be placed within the side channel to create velocity breaks upstream, which will allow juvenile and adult fish passage at all flows.

- Construct ponds to have a maximum depth slightly greater than 4 ft to maintain open water and discourage the establishment of wetland plants

(such as hardstem bulrush and cattail). Construct seasonal wetlands to flood as side channel flows begin to exceed 5 cubic feet per second (cfs), filling to a maximum depth of 2-feet deep when side channel flows are 25 cfs. Add large wood habitat structures to all constructed side channels, ponds, and seasonal wetlands to meet depth, velocity, and cover criteria that will provide immediate high quality rearing habitat for fry and juvenile salmonids.

- To attract adult and juvenile salmonids into the northern side channel complex, construct a series of step pools within the Mill Creek channel between Mill Creek Station 7+50 and 9+50. Construct the downstream confluence of Mill Creek and the side channel to backwater 0.8- to 1-ft deep between side channel Station 0+00 and 3+00. Install an arch culvert with natural (open) bottom at the downstream Mill Creek Road crossing (side channel Station 2+00). Construct the northern side channel between Stations 3+00 and 6+00 as a series of pools and roughened channel with an overall grade of 1.5%.

- Place an arch culvert with a natural bottom at side channel Station 9+50 to allow flow and fish passage under an existing private driveway, which will be maintained (rather than moved) as a beneficial control. Construct a side channel between Station 12+00 and 22+00 to have an overall slope of 0.75% and consist of alternating pools and riffles designed to provide areas for adult spawning and juvenile rearing.

- Install an arched culvert with a natural bottom under the upstream Mill Creek Road crossing at side channel Station 25+50 to connect the upper end of the northern side channel complex to Mill Creek. Clear and grub approximately 5 acres of non-native vegetation to provide heavy equipment subcontractor staging areas and construction access. Plant these areas with native vegetation once construction of the project is complete.

The Southern Restoration Area

- The heavy equipment subcontractor will construct two cobble, boulder and large wood habitat structures within the Mill Creek channel at Stations 15+50 and 22+50. Leave the remnant channel in place. Place large wood within the newly constructed and remnant channels to provide immediate cover and habitat benefits for adult and juvenile salmonids. Place large wood consisting 1- to 2-foot diameter conifers with intact root balls and/or branches, ballasted by boulders, in the mainstem channel.

Mill Creek Revegetation

- Grow and maintain plant materials at the Tsemeta Nursery using as many seeds of locally-adapted native plants collected on the reservation as possible. Specify plant materials by species and container sizes consistent with ANSI standards for nursery stock production. Collect other plant materials on-site, including cuttings and salvaged willow clumps. Conduct post-planting maintenance of planted areas for a period of up to five years. Irrigate areas that are high enough above the water table to dry out early in the growing season. Irrigate using gasoline-powered pumps, hand-watering or overhead sprinklers. Weed treatments may include hand-pulling, solarizing, mowing or weed-whipping, and herbicide spraying.

Task1. Project Management.
Complete project management and grant administration. Complete all reporting and billing. The Habitat Division Lead will track the project budget and develop and submit invoices to the Grantor on a regular basis. In addition, required annual report metrics will be generated and submitted every year.

Task 2. Environmental Compliance and Permitting.
The Hoopa Valley Tribal Fisheries Department and heavy equipment subcontractor will apply for and complete all necessary federal, state, and tribal permits and ensure environmental compliance. The Tribe will take all actions necessary to minimize human and environmental impacts.

Task 3. Project Implementation.
Excavate 74,000 cubic yards (cy) of material, install 3 arch culverts with natural bottoms, and construct and place habitat and engineered features. Conduct all construction work during the dry season. Large wood with rootwads will be sourced from the heavy equipment subcontractor. Construction will be overseen by the engineering subcontractor, biological subcontractor and the Habitat Division Lead. Conduct fish relocation before construction and install fish barriers to isolate work areas from the channel prior to relocation operations. Perform riparian planting under the supervision of the Riparian Ecologist and Habitat Division Lead. Tribal Technicians and Tribal California Conservation Corps (CCC) volunteers will provide planting support.

Task 4. Riparian Maintenance.
Riparian maintenance will be performed by the Hoopa Valley Tribal Fisheries Department under the supervision of the Riparian Ecologist and Habitat Division Lead. Tribal Technicians and Tribal CCC volunteers will provide maintenance of revegetation

Task 5. Monitoring.
Post project evaluation monitoring by the Hoopa Valley Tribal Fisheries Department and engineering subcontractor will include physical monitoring of the

project to ensure that the constructed channel is functioning using as built criteria, longitudinal profile surveys, cross-sectional surveys, photo monitoring, and vegetation survival monitoring. Conduct pre-project baseline monitoring prior to implementation and post-project and effectiveness monitoring for the off-channel features. Maintain and enhance existing fisheries outmigrant monitoring and stream gaging stations on Mill Creek.

Deliverables:

Project deliverables include:

Task 1: Progress invoices, quarterly and final reports, and final landowner access agreement.

Task 2: Compliance with all permits.

Task 3: Project invoices, grant reports (semi-annual, annual, and final), and construction subcontract.

Task 4: Project invoices, reports.

Task 5: As-built survey and Final project monitoring report.

Timelines:

Task 1: Project Management (June 1, 2015 to December 31, 2018).

Task 2: Environmental Compliance and Permitting (June 1, 2015 to October 1, 2017).

Task 3: Project Implementation (June 30, 2015 to September 1, 2016).

Task 4: Riparian Maintenance (June 30, 2015 to October 1, 2018).

Task 5: Monitoring (June 1, 2015 to December 31, 2018).

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Timing of work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids,

the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

- Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.

- The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.

- All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

- The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.

- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. The bridge (culvert) design and installation will meet flow carrying capacity required for a 100-year flood event as identified by specifications determined by National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Wildlife (CDFW), for adult and juvenile salmonid fish passage. The project will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and criteria for fish passage as described in Volume II, Part IX, of the *California Salmonid Stream Habitat Restoration Manual*. The engineered plans for the bridge (culvert) installation shall be visually reviewed and authorized by NOAA Fisheries or California Department of Fish and Wildlife engineers prior to commencement of work.

4. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*, Volume I, and Volume II Part XI and Part XII. The Grantee/landowner will maintain the new crossing, inspect the crossing in a timely manner and remove debris as necessary during the storm season.

5. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

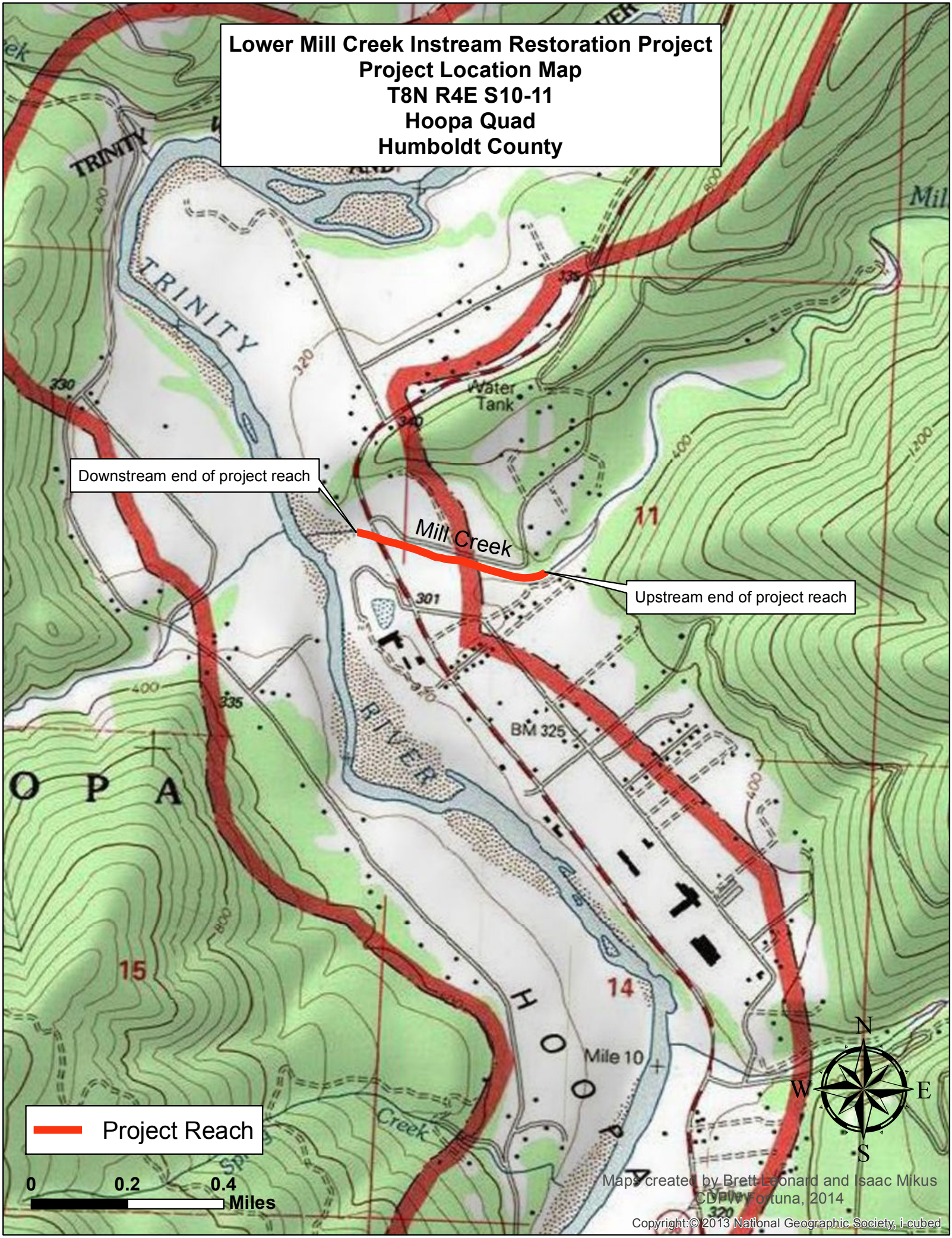
6. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Hoopa Quad and Surrounding Quads for:
HI 037 Lower Mill Creek Instream Restoration Project
H T8N R4E Sections 10 and 11
Humboldt County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Bald Mountain milk-vetch *Astragalus umbraticus*	PDFAB0F990			G4	S2	2B.3
2	California globe mallow *Iliamna latibracteata*	PDMAL0K040			G2G3	S2	1B.2
3	California wolverine *Gulo gulo*	AMAJF03010		Threatened	G4	S1	
4	Del Norte salamander *Plethodon elongatus*	AAAAD12050			G4	S3	SC
5	Gasquet rose *Rosa gymnocarpa var. serpentina*	PDROS1J1V1			G5T2	S2	1B.3
6	Heckner's lewisia *Lewisia cotyledon var. heckneri*	PDPOR04052			G4T3	S3	1B.2
7	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
8	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
9	Klamath/North Coast Fall/Winter Run Chinook Salmon River	CARB2332CA			GNR	SNR	
10	Klamath/North Coast Interior Headwater Fishless Stream	CARB2220CA			GNR	SNR	
11	Klamath/North Coast Rainbow Trout Stream	CARB2312CA			GNR	SNR	
12	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
13	Pacific fuzzwort *Ptilidium californicum*	NBHEP2U010			G3G4	S3?	4.3
14	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
15	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
16	Sonoma canescent manzanita *Arctostaphylos canescens ssp. sonomensis*	PDERI04066			G3G4T2	S2	1B.2
17	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
18	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
19	Tracy's sanicle *Sanicula tracyi*	PDAPI1Z0K0			G4	S4	4.2
20	Trinity shoulderband *Helminthoglypta talmadgei*	IMGASC2630			G2	S2	
21	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
22	Yuma myotis *Myotis yumanensis*	AMACC01020			G5	S4?	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
23	bensoniella *Bensoniella oregona*	PDSAX02010		Rare	G3	S2	1B.1
24	chinook salmon - spring-run Klamath-Trinity Rivers pop. *Oncorhynchus tshawytscha*	AFCHA02056			G5	S1S2	SC
25	coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A			G4T4	S3	SC
26	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
27	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
28	elongate copper moss *Mielichhoferia elongata*	NBMUS4Q022			G4	S2	2B.2
29	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
30	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
31	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2
32	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
33	hooded lancetooth *Ancotrema voyanum*	IMGAS36130			G1G2	S1S2	
34	long-legged myotis *Myotis volans*	AMACC01110			G5	S4?	
35	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
36	northern meadow sedge *Carex praticola*	PMCYP03B20			G5	S2S3	2B.2
37	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
38	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
39	pale yellow stonecrop *Sedum laxum ssp. flavidum*	PDCRA0A0L2			G5T3Q	S3.3	4.3
40	robust false lupine *Thermopsis robusta*	PDFAB3Z0D0			G2	S2	1B.2
41	ruffed grouse *Bonasa umbellus*	ABNLC11010			G5	S4	
42	silver-haired bat *Lasionycteris noctivagans*	AMACC02010			G5	S3S4	
43	slender silver moss *Anomobryum julaceum*	NBMUS80010			G4G5	S2	4.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
44	small groundcone *Kopsiopsis hookeri*	PDORO01010			G5	S1S2	2B.3
45	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
46	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
47	water bulrush *Schoenoplectus subterminalis*	PMCYP0Q1G0			G4G5	S3	2B.3
48	wayside aster *Eucephalus vialis*	PDASTEC0A0			G3	S1	1B.2
49	western pearlshell *Margaritifera falcata*	IMBIV27020			G4G5	S1S2	
50	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
51	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
52	willow flycatcher *Empidonax traillii*	ABPAE33040		Endangered	G5	S1S2	


Lower Mill Creek Instream Restoration Project
Project Location Map
T8N R4E S10-11
Hoopa Quad
Humboldt County
Downstream end of project reach
Upstream end of project reach
Mill Creek
TRINITY
RIVER
HOOPA
Water Tank
BM 325
Mile 10
Project Reach
0
0.2
0.4
Miles
N
S
E
W
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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Lower Mattole River and Estuary Riparian Enhancement

Introduction:

The Mattole Restoration Council will increase riparian forest habitat on stable floodplain terraces by planting 15,000 long-lived riparian tree species, and increase riparian edge habitat on intermediate elevation islands by installing trenched willow baffles from 6,000 large willow cuttings.

1. This project is necessary because the Mattole River Estuary is currently poor habitat for all salmon and steelhead species: the water is too warm, habitat cover is poor, and the channel lacks riparian vegetation.

2. The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured. All habitat improvement will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* Parts VI and XI (Flosi et al 1998 and 2002).

Objectives:

The objectives of this project include:

1. Promote riparian vegetation colonization and growth

2. Increase channel stability in the lower Mattole River

3. Increase instream habitat complexity

4. Increase riparian forest habitat on stable floodplain terraces along the lower Mattole River through the planting of 15,000 long-lived riparian tree species.

5. Promote riparian vegetation colonization and growth to enhance riparian floodplain forests along the lower Mattole River, which are currently lacking long-lived riparian tree species such as Douglas-fir, California bay, big-leaf maple, and California black cottonwood.

6. Increase channel stability by planting 15,000 riparian species to create a mosaic of root structures that will improve sediment storage and stabilize floodplains. Also, plantings will trap sediments during moderate to heavy flow events by increasing vertical structure, as well as increase habitat complexity along channel edges.

7. Increase willow growth via installation of trenched willow baffles from 6,000 large willow cuttings on intermediate elevation islands and bar apices. This activity will promote riparian vegetation by increasing willow growth. Also, the baffles will increase channel stability by creating a vertical structure at bar apices to encourage concentrated sediment deposition at engineered

locations. Baffles will also increase instream complexity by increasing interstitial spaces and surface area throughout the baffle structures.

Project Description:

Location:

This project is located along the main stem Mattole River downstream of Petrolia in Humboldt County. The project area encompasses approximately 60 acres and 6,000 linear feet along 4 river miles. Project features are located at

40.301202 : -124.301723 - GOULD01,
40.298728 : -124.321759 - BLM01,
40.300669 : -124.319428 - BLM02,
40.296050 : -124.323628 - BLM03,
40.294667 : -124.326797 - BLM05,
40.293609 : -124.341954 - BLM08, and
40.291538 : -124.340512 - BLM24.

Project Set Up:

The following tasks will be conducted by associated personnel as shown below:
Task 1. Pre-project photographs and monitoring: Project Manager, Field Tech 1

Task 2. Seed collection: Project Manager, Field Tech I, Field Tech II

Task 3. Plant propagation: Nursery Plant Manager, Field Tech I, Field Tech II

Task 4. Trenched willow baffle installation: Project Manager, Field Tech I, Field Tech II, heavy equipment contractor

Task 5. Containerized plant installation: Project Manager, Field Tech I, Field Tech II

Task 6. Irrigation and well installation: Project Manager, Field Tech I, Field Tech II, heavy equipment contractor

Task 7. Livestock exclusion fencing: Project Manager, Field Tech I, Field Tech II

Task 8. Broadcast seeding: Project Manager, Field Tech I, Field Tech II

Task 9. Maintenance, monitoring, and post-project photos: Project Manager, Field Tech I, Field Tech II

Task 10. Final report preparation and quarterly invoices: Project Manager, Contract Manager

Materials:

Materials will include conifer wood chip mulch or other on-site mulch; willow; large cuttings and whole trees of California black cottonwood; conifer poles measuring 15 to 20 feet in length and at least 12 inches in diameter; fencing materials (barbed wire, 6-foot t posts, 8-inch wood posts, clips, nails, brace wire, and gates); propagation supplies (soil, soil amendments, and containers); revegetation supplies (tree protection and flagging); and irrigation supplies (poly line, connectors, clamps, hose bibs, and well pipe).

Tasks:

Implement riparian containerized planting on floodplain terraces and trenched willow baffle installation on intermediate elevation islands and bar apices.

Element 1. Riparian Containerized Planting on Floodplain Terraces. Plant a total of 15,000 riparian plants on approximately 30 acres of floodplains along the lower five miles of the Mattole River.

- All container plants will be grown from seed collected in the lower Mattole River at sites with similar characteristics to planting sites. Seed for each species will be collected from multiple individuals to ensure genetic diversity. Seed will be collected by hand and processed and stored at the native plant nursery in the Mattole Watershed until needed for plant propagation. Propagation will begin in the fall of 2014 or in the summer and fall of 2015. Species grown and planted will be representative of species composition at reference sites along the Mattole River. Propagation of Douglas fir (*Pseudotsuga menziesii*) starts grown from seed collected in the Mattole River basin will be grown at a nursery outside of the Mattole River watershed. All other plants will be grown at the nursery located in the watershed. Seed collection and propagation activities will be completed by interns, volunteers, laborers, nursery manager, and project manager.

- Containerized plants will be planted in the fall of 2015 and/or 2016 after significant rainfall provides adequate soil moisture for planting. Individual planting sites will be chosen by the project manager. Planting locations will be chosen based on distribution of species at reference sites. Micro-site selection will be used to provide the most appropriate planting site for each individual species. The project manager will flag planting sites prior to plant installation using color-coded pin flags to differentiate between species. All planting sites will be located within 150 feet of the mainstem of the Mattole River. Tree species that will be installed include California black cottonwood, big-leaf maple (*Acer macrophyllum*), California bay laurel (*Umbellularia californica*), California buckeye (*Aesculus californica*), Oregon ash (*Fraxinus latifolia*), and Douglas-fir. In order to increase shrub diversity and wildlife forage, shrub species will also be installed and include black-capped raspberry (*Rubus leucodermis*), thimbleberry (*Rubus parviflorus*),

ocean spray (*Holodiscus discolor*), redflowering currant (*Ribes sanguinum*) and toyon (*Heteromeles arbutifolia*).

- A total of 12,000 riparian trees and 3,000 riparian shrubs will be installed at two floodplain sites (GOULD01, BLM01). Plants will be installed by hand using a planting shovel or hoedad, depending on plant size. All vegetation will be cleared to bare ground within 2 feet of the planting hole prior to planting. After plant installation, a shallow basin measuring 2 feet in diameter will be installed to facilitate water collection from irrigation. Each planting basin will be mulched with 2 inches of conifer wood chips, or other on-site materials, to assist in maintaining soil moisture. Trees will be spaced 5- to 10-feet apart. Shrubs will be spaced 3- to 5-feet apart and planted in clusters of 3 to 5 plants. When possible, on-site materials will be used to construct shade structures that will be placed on the southwest side of plants.

- Small patches of Scotch broom (*Cytisus scoparius*) will be removed from the planting area prior to plant installation. Plants will be piled and left to compost. Planting areas will be treated annually.

- An above-ground temporary irrigation system will be installed on the GOULD01 planting site for hand watering of plants. Some of the irrigation materials will be recycled materials salvaged from old marijuana backcountry grow sites that volunteers have cleaned up over the past 5 years. Water will come from a surface well source that will be installed prior to plant installation. The well will be dug with an excavator or back hoe by a licensed subcontractor. A pump will be placed at the well and will supply water to a 1.5-inch main line that will run through the entire length of the planting site. A hose bib will be located every 100 ft. Plants will be hand watered using a standard garden hose that is 50- to 100-feet long.

- A livestock exclusion fence will be installed along approximately 6,000 feet of river frontage at GOULD01 to exclude livestock from the planting area. The fence will be installed 40 feet from the river bank and consist of four strands of barbed wire. A total of three access gates will be installed along the fence. This fence will tie into an existing fence line at GOULD01 and protect approximately 80 acres of riparian floodplain habitat.

Element 2. Willow Baffle Installation on Intermediate Elevation Islands and Bar Apices. Install willow baffles created with a total of 6,000 willow cuttings on approximately 30 acres of intermediate elevation islands and bar apices adjacent to large wood installation sites along the lower five miles of the Mattole River.

- Trenched willow baffle installation will take place at various islands and bar apices (including BLM01, BLM02, BLM03, BLM05, BLM08, and BLM24) in

the lower Mattole River and estuary from June 15 to October 15 of 2015 and/or 2016. A total of 6,000 linear feet of willow baffles will be installed on approximately 20 to 30 acres of intermediate elevation islands and bar apices excluding the wetted channel.

- Willow baffle installation will be implemented in conjunction with wood installation projects. All willow baffle installation will take place on Bureau of Land Management (BLM) property, and all access to sites will be through BLM property. Large willow cuttings ranging in size from 15- to 25-feet long and 1 to 4 inches in diameter will be harvested with a chainsaw from local populations of Pacific willow (*Salix lucida*), arroyo willow (*Salix lasiolepis*), and red willow (*Salix laevigata*). The willow cuttings will be transported to project sites and directly planted into excavated trenches on 1-foot centers. When materials are available, large cuttings and whole trees of California black cottonwood will be placed in trenches with willow.
- Trenches will be dug by an excavator to a depth of 8 to 10 feet or until 2 feet of standing water is present in the trench. Trenches will vary in length from 50 to 100 feet. If funding and materials are available, conifer poles measuring 15 to 20 feet in length and at least 12 inches in diameter, will be placed vertically in the trench every 10 feet to provide structure for catching materials at high flows and to facilitate maintaining soil moisture in planting trenches. Trenched willow baffles will be installed starting at the head of islands and bar apices and staggered every 100 feet, working downstream of the island and avoiding disturbance of natural vegetation.

- Cuttings and excavated materials will be watered while the trench is being backfilled by the excavator. Water will be pumped from an excavated hole with standing water in the gravel floodplain adjacent to planting sites. The pump will be placed in a leak-proof container lined with absorbent pads to mitigate for leaks and spills. Disturbed areas will be broadcast seeded with a riparian seed mix of 24 pounds of blue wildrye (*Elymus glaucus*), 0.5 pounds of coyote brush (*Baccharis pilularus*), and 0.5 pounds of red alder at a rate of 25 pounds per acre and mulched with native grass straw at a rate of 50 pounds per acre. All excavator work will be subcontracted to a local licensed contractor.

Task 1. Collect pre-project photographs and baseline monitoring data.

Task 2. Collect 250 pounds of riparian grass, shrub, and tree seed.

Task 3. Propagate 15,000 riparian plants at the native plant nursery located in the watershed.

Task 4. Install trenched willow baffles from 6,000 large willow cuttings at wood installation sites along the Lower Mattole River and Estuary.

Task 5. Plant 15,000 riparian containerized plants on floodplain terraces along the Lower Mattole River and Estuary.

Task 6. Install a well, pump, and irrigation at containerized planting sites.

Task 7. Install livestock exclusion fence along approximately 6,000 feet of river frontage.

Task 8. Broadcast seed disturbed areas.

Task 9. Perform monitoring and maintenance, and collect post-project photos at project sites.

Task 10. Prepare final report and quarterly invoices.

Deliverables:

Deliverables will include:

1. Pre- and post-project photographs of all project sites.

2. Pre- and post-project monitoring data.

3. Project photographs demonstrating each step of project implementation.

4. GIS database and shapefiles including all relevant project components, with accompanying metadata.

5. Final report including a clear description of methods used, monitoring data, clear descriptions of success (using success criteria established in plan), and site maps detailing project implementation.

Timelines:

Task 1. Pre-project photographs and monitoring: June 2015, October 2015

Task 2. Seed collection: June 2014 - January 2016

Task 3. Plant propagation: June 2014 - November 2016

Task 4. Trenched willow baffle installation: June 2015 - October 2016

Task 5. Containerized plant installation: November 2015 - March 2017

Task 6. Irrigation and well installation: June2015 - March 2016

Task 7. Livestock exclusion fencing: July 2015 - October 2015

Task 8. Broadcast seeding: October 2015 - November 2016

Task 9. Maintenance, monitoring, and post-project photos: March 2016 - February 2019

Task 10. Final report preparation and quarterly invoices: January 2019 - February 2019 and September 2015 - February 2019 (invoices)

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Timing of work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers.

2. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.* The Grantee/landowner will maintain the livestock exclusion fence(s) for a period of 10 years and totally exclude livestock from the riparian zone. Maintenance will include repair of fences to a level that will effectively exclude livestock from the livestock exclusion project area. Maintenance will not include damage that exceeds 50 percent of the fence due to natural disaster.

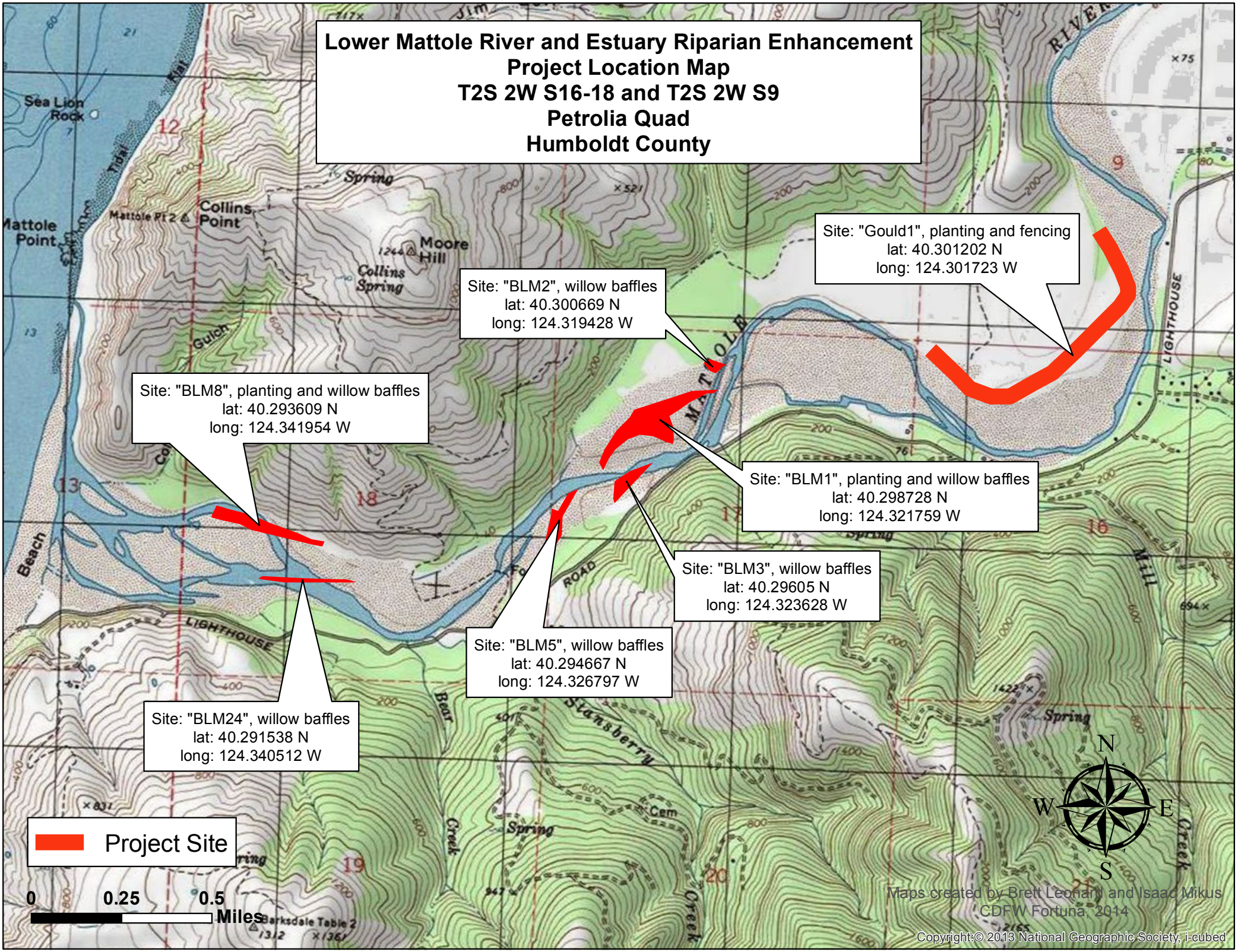
3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Petrolia Quad and Surrounding Quads for:
HR 040 Lower Mattole River and Estuary Riparian Enhancement
T2S, R2W Sections 9, 16, 17, 18
Humboldt County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S3	SC
2	Coastal Douglas Fir Western Hemlock Forest	CTT82410CA			G4	S2.1	
3	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
4	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
5	Hitchcock's blue-eyed grass *Sisyrinchium hitchcockii*	PMIRI0D0S0			G2	S1	1B.1
6	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
7	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
8	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
9	Oregon polemonium *Polemonium carneum*	PDPLM0E050			G4	S1	2B.2
10	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
11	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
12	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
13	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
14	Tracy's romanzoffia *Romanzoffia tracyi*	PDHYD0E030			G4	S2	2B.3
15	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G1	S1	1B.1
16	beach layia *Layia carnosa*	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
17	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
18	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
19	coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2			G2T2	S2	1B.2
20	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	SC
21	double-crested cormorant *Phalacrocorax auritus*	ABNFD01020			G5	S4	
22	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Petrolia Quad and Surrounding Quads for:
HR 040 Lower Mattole River and Estuary Riparian Enhancement
T2S, R2W Sections 9, 16, 17, 18
Humboldt County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
23	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
24	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2
25	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
26	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
27	great egret *Ardea alba*	ABNGA04040			G5	S4	
28	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2
29	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
30	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
31	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
32	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
33	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
34	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
35	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S2	SC
36	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2


Lower Mattole River and Estuary Riparian Enhancement
Project Location Map
T2S 2W S16-18 and T2S 2W S9
Petrolia Quad
Humboldt County
Site: "Gould1", planting and fencing
lat: 40.301202 N
long: 124.301723 W
Site: "BLM2", willow baffles
lat: 40.300669 N
long: 124.319428 W
Site: "BLM8", planting and willow baffles
lat: 40.293609 N
long: 124.341954 W
Site: "BLM1", planting and willow baffles
lat: 40.298728 N
long: 124.321759 W
Site: "BLM3", willow baffles
lat: 40.29605 N
long: 124.323628 W
Site: "BLM5", willow baffles
lat: 40.294667 N
long: 124.326797 W
Site: "BLM24", willow baffles
lat: 40.291538 N
long: 124.340512 W
Project Site
0
0.25
0.5
Miles
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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Sullivan Gulch Road Decommissioning and Erosion Prevention Project

Introduction:

The Pacific Coast Fish, Wildlife and Wetlands Restoration association will prevent over 8,600 cubic yards of sediment delivery and restore coho salmon habitat through implementation of prioritized site-specific road decommissioning and erosion prevention work, and in-stream habitat improvement on the North Fork Mad River.

1. This project is necessary as road systems have become widely recognized throughout the region as one of the most significant sources of accelerated sediment production and delivery to stream channels. In Sullivan Gulch, as elsewhere, the disturbance and degradation of stream channels caused by excess sediment input during large rainfall events is clearly one of the most significant factors negatively affecting salmonid habitat. Reducing sediment inputs will increase salmonid survival and improve the aquatic ecosystem as a whole through channel narrowing and deepening, increased habitat complexity, improved substrate conditions and reduced turbidity levels.

2. The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

3. All habitat improvement will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* Parts VII, IX, and XI, XII (Flosi et al 1998 and 2002).

Objectives:

1. Decommission roads, guided by assessment.

2. Improve and protect water quality and salmonid habitat in the North Fork Mad River.

3. Implement cost-effective erosion control and erosion prevention work on high priority roads, based on a road assessment sediment source inventory conducted along the proposed road network (PWA, 2008).

4. Reduce threats of both chronic fine sediment from road surfaces and episodic inputs of sediment from road failures during large magnitude storms.

5. Prevent fill failures, stream crossing washouts, stream diversions and chronic road surface erosion.

6. Reduce further degradation of water quality and salmonid habitat in the Mad River watershed.

Project Description:

Location:

The 1.62-mile MR 3070 project road parallels Sullivan Gulch starting approximately 0.5 miles up Sullivan Gulch from its confluence with the North Fork Mad River respectively. The road is located at 40.85183050 : -123.93809710 (upstream end) and 40.86819330 : -123.95856180 (downstream end) as shown on the Project Location Map.

Project Set Up:

The project tasks will be completed as specified below:

- Project Manager: His role is to oversee all aspects of the project, both in the field and administratively, including coordination and problem solving with all agencies, land owners and subcontractors. It is the Project Manager's responsibility to make sure permits, landowner agreements and grant agreements are in place and followed. He assures equipment and materials are provided where and when they are needed, often delivering materials on site to review progress and completed work. He reviews work in the field and works regularly with technical consultants to make sure work is being done to the required standards. He is responsible for the review and editing of all invoices and reporting on projects. His time is split between the field, meetings and the office.

- Assistant Manager: Drafts subcontracts, invoices, permit applications and reports, working closely with the Project Manager. Assists in tracking project's budgets and progress. Conducts some of the documentation in the field, communication with partners and reviews/verifies sub-invoicing. Spends the majority of time in the office, but does attend meetings with agencies and works in the field too.

- Field Crew: The Field Crew does almost all of their work in the field unless they are entering field information into a usable database. They regularly handle tasks during implementation such as water diversion, the more technical aspects of biological monitoring, and permit compliance. They do whatever is needed to keep implementation running, whether that is staging materials, assisting someone with finding work locations and access, to many other field-related project tasks. They coordinate their activities with the Project Manager, and quite often have technical oversight by a Geologic Subcontractor for compliance purposes.

- Heavy Equipment and Labor Subcontractor: The heavy equipment and labor subcontractor will provide all necessary heavy equipment, operators

and skilled laborers required to complete the project as designed. This includes but may not be limited to the excavation of stream crossing and unstable road fills, road drainage treatments (outsloping, cross road drains, etc.), and installation of in-stream structures using a team of hydraulic excavators, bulldozers and dump trucks. In addition, laborers will be used to spread straw and mulch, run and monitor pumps during any necessary dewatering operations, and maintain and monitor equipment.

- Geologic Subcontractor: The geologic subcontractor will provide technical oversight and supervision of heavy equipment and labor operations, field layout prior to heavy equipment and labor arrival, before and after photographic monitoring, maintaining regular communications between the Grantee, Grantor, and all subcontractors, and reporting of accomplishments completed during the implementation project. Personnel Categories include:

    - Principal Geologist: Provides technical expertise, final work plan review and guidance for senior scientists and project managers as required in complex landform issues. Also in charge of final report technical editing and review.

    - Professional Geologist: In overall responsible charge of work plan development, geologic characterization of landforms and oversight support of on-the-ground implementation. Ensures compliance with Geologist and Geophysicist Act (California Business and Professions Code 7800).

    - Project Manager: In overall charge of daily on-going activities including technical oversight and supervision of heavy equipment and labor operations, overall work plan development, maintaining regular communications between the Grantee, Grantor and all subcontractors, and reporting of accomplishments completed during the implementation project.

    - Technical staff: Provides project support by working with the Project Manager and professional staff to collect field data and enter data into electronic database/stream volumetric software. This includes field surveys of pre-project profiles, field layout of work sites, pre-project photo point set up, road log development and other duties as assigned by the Project Manager. Reports directly to Project Manager.

    - Geographic Information Systems (GIS) Staff: Provides project support through development of GIS maps and products, database interfaces, and Global Position System data organization and analysis. Produces

field maps in support of implementation work plan and required final report maps.

- Clerical Staff: Develops invoice tracking spreadsheet analysis, maintains project cost records and develops timely invoices pursuit contact obligations.

Materials:

Materials include mulch and seed, 1,500 trees and other miscellaneous materials (geofabric, silt fence, sand bags, etc.).

Tasks:

Implement site specific treatments based on the North Fork Mad River Watershed Inventory and Restoration Planning Project (PWA, 2008) to prevent or control sediment yield to stream channels. Prevent approximately 8,600 cubic yards of future erosion and sediment delivery from the failure of 27 stream crossings, 3 potential landslide features and 1 ditch relief culvert along 1.6 miles of logging roads. Excavate approximately 17,000 cubic yards of stream crossing and other road fill to decommission the roads.

Decommissioning treatments will involve “reverse road construction,” except that full topographic obliteration of the roadbed is not normally required to accomplish cost-effective sediment prevention goals. From least intensive to most intensive, decommissioning the proposed roads will include the following tasks:

1. Road ripping or decompaction, in which the surface of the road or landing is "decompacted" or is aggregated using mechanical rippers. This action reduces surface runoff and often dramatically improves revegetation.

2. Cross-road drains (deep waterbars) are installed at 50, 75, 100 or 200-foot intervals, or as necessary at springs and seeps, to disperse road surface runoff, especially on roads that are to be permanently or temporarily decommissioned. Cross-road drains are large ditches or trenches excavated across a road or landing surface to provide permanent drainage and to prevent the collection of concentrated runoff on the former roadbed. In some locations, such as in streamside zones, mild outsloping may be used instead of cross road drain construction.

3. In-place stream crossing excavation (IPRX) is a decommissioning treatment that is employed at locations where roads or landings were built across stream channels. The fill (including the culvert or Humboldt log crossing) is completely excavated and the original stream bed and side slopes are exhumed. Excavated spoil is stored at nearby stable locations where it will not erode, sometimes being pushed several hundred feet

from the crossing by tractor(s). A stream crossing excavation typically involves more than simply removing the culvert, as the underlying and adjacent fill material must also be removed and stabilized. Side slopes are excavated to about a 2:1 slope so that they can be mulched and seeded with minimal post-project erosion.

4. Exported stream crossing excavation (ERX) is a decommissioning treatment where stream crossing fill material is excavated and spoil is hauled off-site for storage. Spoil is moved farther up- or down-road from the crossing, due to the limited amount of stable storage locations at the excavation site. This treatment frequently requires dump trucks to endhaul spoil material to the off-site location.

5. In-place outsloping (IPOS) ("pulling the sidecast") calls for excavation of unstable or potentially unstable sidecast material along the outside edge of a road prism or landing, and replacement of the spoil on the roadbed against the corresponding, adjacent cutbank, or within several hundred feet of the site. Placement of the spoil material against the cutbank usually blocks access to the road and is used in road decommissioning. In road upgrading, the excavated material can be used to build up the roadbed and convert an insloped, ditched road to an outsloped road.

6. Exported outsloping (EOS) is comparable to in-place outsloping, except spoil material is moved off-site to a permanent, stable storage location. Where the road prism is very narrow, where there are springs along the road cutbank or where continued use of the road is anticipated, spoil material is typically not placed against the cutbank, and material is end hauled to a spoil disposal site. This treatment frequently requires dump trucks to endhaul spoil material. This is typically a decommissioning treatment as part of the entire roadbed is removed.

7. Working with the Grantor, place large wood suitable for improving in-stream habitat. Suitable LWD material will be placed along or near the streambank of North Fork Mad River or its lower tributaries, including Sullivan Gulch, where natural recruitment potential is determined or where material is accessible to labor crews for constructing in-stream habitat improvements.

Deliverables:

A written completion report which contains: 1) general grant information, 2) location of work, 3) project access, 4) participating landowners names and addresses, 5) a description and analysis of the restoration and planning techniques used, 6) a description of the results of the project, 7) dates of work and the number of person hours expended, 8) labeled before and after photos of

selected restoration activities and techniques, 9) grant dollars spent and contributed and/or in kind services used to complete the project, and 10) GIS generated maps and shapefiles for the project area.

Timelines:

- June 2015 - Project layout and pre-project monitoring.
- June 2015 - October 2017 - Heavy equipment implementation.
- Fall 2015 and Fall 2017 - Post treatment monitoring.
- Fall 2017 - February 2018 - Data analysis and report writing.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Timing of work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:
    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
    - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
    - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.
    - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. Final structure design and placement of habitat structures will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

4. All road decommissioning will be done in accordance with techniques described in the Handbook for Forest and Ranch Roads, (PWA, 1994c.) and the *California Salmonid Stream Habitat Restoration Manual*, Volume II, Part X. All road upgrade and decommissioning sites and techniques shall be approved by the Grantor Project Manager before any equipment work takes place.

5. All crossings treated in fish bearing reaches of streams will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and the criteria for adult and juvenile salmonid fish passage as described in Volume II, Part IX of the *California Salmonid Stream Habitat Restoration Manual*.

6. Seeding and mulching of all exposed soils shall be done for all slopes which may deliver sediment to a stream. Woody debris will be concentrated on finished slopes adjacent to stream crossings. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. Mulching and seeding will take place as sites are completed to avoid unforeseen erosion. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

7. Sites which are expected to erode and deliver sediment to the stream are the only locations where work will be authorized for reimbursement under the terms of this agreement. Reimbursement will not be authorized for work done to improve aesthetics only.

8. The landowner or responsible party must sign an access agreement stating they agree to maintain the erosion control project for a period of not less than 10 years. Maintenance will consist of repair to the road or stream crossing to a level that will effectively reduce sediment from entering the stream. In the event of an act of nature which results in partial or complete failure of the project, the landowner or applicant will not be held responsible for costs incurred after the act of nature. Acts of nature include, but are not limited to floods, earthquakes, volcanic eruptions, and wind storms.

9. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment

devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Korbel Quad and Surrounding Quads for:
HU 042 Sullivan Gulch Road Decommissioning and Erosion Prevention Project
T6N R2E Sections: 33, 34, 35
Humboldt County

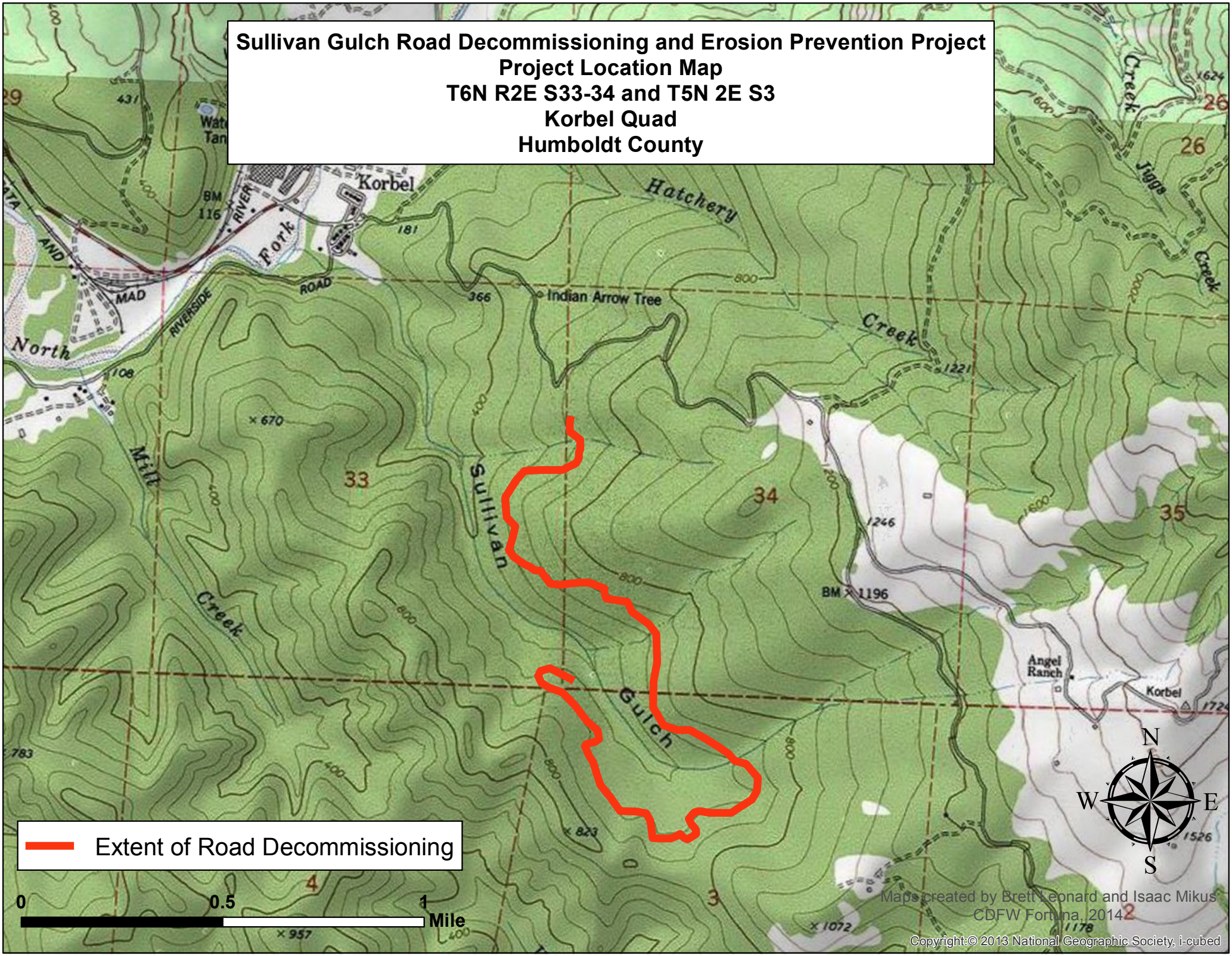
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American manna grass *Glyceria grandis*	PMPOA2Y080			G5	S2	2B.3
2	Bald Mountain milk-vetch *Astragalus umbraticus*	PDFAB0F990			G4	S2	2B.3
3	California globe mallow *Iliamna latibracteata*	PDMAL0K040			G2G3	S2	1B.2
4	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
5	Del Norte salamander *Plethodon elongatus*	AAAAD12050			G4	S3	SC
6	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
7	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
8	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
9	Kneeland Prairie pennycress *Noccaea fendleri ssp. californica*	PDBRA2P041	Endangered		G5?T1	S1	1B.1
10	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
11	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
12	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
13	Oregon fireweed *Epilobium oreganum*	PDONA060P0			G2	S2	1B.2
14	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
15	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
16	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
17	Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3			G4?T2	S2	1B.2
18	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
19	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
20	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
21	Tracy's sanicle *Sanicula tracyi*	PDAPI1Z0K0			G4	S4	4.2
22	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
23	alpine marsh violet *Viola palustris*	PDVIO041G0			G5	S1S2	2B.2
24	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
25	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
26	beach layia *Layia carnosa*	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
27	bensoniella *Bensoniella oregona*	PDSAX02010		Rare	G3	S2	1B.1
28	black-crowned night heron *Nycticorax nycticorax*	ABNGA11010			G5	S4	
29	bristle-stalked sedge *Carex leptalea*	PMCYP037E0			G5	S1	2B.2
30	bunchberry *Cornus canadensis*	PDCOR01040			G5	S2	2B.2
31	coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A			G4T4	S3	SC
32	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
33	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
34	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	SC
35	cylindrical trichodon *Trichodon cylindricus*	NBMUS7N020			G4G5	S2	2B.2
36	double-crested cormorant *Phalacrocorax auritus*	ABNFD01020			G5	S4	
37	eulachon *Thaleichthys pacificus*	AFCHB04010	Threatened		G5	S3	SC
38	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
39	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
40	ghost-pipe *Monotropa uniflora*	PDMON03030			G5	S2	2B.2
41	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2
42	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
43	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
44	great burnet *Sanguisorba officinalis*	PDROS1L060			G5?	S2	2B.2
45	green sturgeon *Acipenser medirostris*	AFCAA01030	Threatened		G3	S1S2	SC
46	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
47	long-eared myotis *Myotis evotis*	AMACC01070			G5	S4?	
48	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
49	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
50	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S1	1B.2
51	northern clustered sedge *Carex arcta*	PMCYP030X0			G5	S2	2B.2
52	northern microseris *Microseris borealis*	PDAST6E030			G5	S1	2B.1
53	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
54	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
55	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
56	pale yellow stonecrop *Sedum laxum ssp. flavidum*	PDCRA0A0L2			G5T3Q	S3.3	4.3
57	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
58	pink-margined monkeyflower *Erythranthe trinitiensis*	PDPHR01070			G2	S2	1B.3
59	robust false lupine *Thermopsis robusta*	PDFAB3Z0D0			G2	S2	1B.2
60	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
61	sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101			G5T2	S1	
62	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
63	seaside bittercress *Cardamine angulata*	PDBRA0K010			G5	S1	2B.1
64	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S3	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
65	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
66	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
67	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
68	western lily *Lilium occidentale*	PMLIL1A0G0	Endangered	Endangered	G1	S1	1B.1
69	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
70	western sand-spurrey *Spergularia canadensis var. occidentalis*	PDCAR0W032			G5T4?	S1	2B.1
71	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
72	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
73	white-footed vole *Arborimus albipes*	AMAFF23010			G3G4	S2S3	SC

Sullivan Gulch Road Decommissioning and Erosion Prevention Project
Project Location Map
T6N R2E S33-34 and T5N 2E S3
Korbel Quad
Humboldt County



Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014

Lawrence Creek Road Decommissioning and Coho Habitat Improvement Project

Introduction:

Trout Unlimited's North Coast Coho Project will address coho salmon recovery through road decommissioning and in-stream habitat enhancement. The project will reduce sediment in stream channels at 34 source locations on 4.44 miles of abandoned roads and improve 1.5 miles of instream habitat.

1. This project is necessary because erosion problems specifically related to forestland roads have become a threat to water quality and salmonid habitat in the Lawrence Creek watershed (PALCO, 2002; PWA, 2009). Pool enhancement projects that increase or deepen pool habitat, improve flatwater habitat types, and provide increased cover are recommended (CDFG, 2006; PALCO, 2002).

2. The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

3. All habitat improvement will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* Parts VII, IX, and XI, XII (Flosi et al 1998 and 2002).

Objectives:

1. Decommission roads, guided by assessment.

2. Reduce delivery of sediment to streams.

3. Reduce sediment delivery to the Lawrence Creek stream network by decommissioning abandoned roads.

4. Reduce or prevent sediment delivery (~12,126 cubic yards) from 4.44 miles of forest roads through direct implementation of upslope sediment control prescriptions at 34 sediment source locations.

5. Protect and improve instream habitat for all salmonid species, including coho salmon, within the Lawrence Creek watershed through road decommissioning sediment reduction.

Project Description:

Location:

The project is located in the Lawrence Creek Watershed. The project center is located at 40.62078: -123.97429.

Project Set Up:

Trout Unlimited will provide all contracting oversight and administration including but not limited to obtaining permits, securing agreements (Grantor, subcontractors, and landowner), scheduling, implementation oversight, invoicing, reporting, and agency and landowner communications.

- Heavy equipment and labor subcontractor - The heavy equipment and labor teams will provide all necessary heavy equipment, experienced operators, and skilled laborers required to complete the project as designed. This includes but may not be limited to the excavation of stream crossing and unstable road fills, road drainage treatments, and installation of instream structures using a team of hydraulic excavators, bulldozers, and dump trucks. In addition, laborers will be used to spread straw and mulch, man and monitor pumps during any necessary dewatering operations, and maintain and monitor equipment. Laborers will also conduct seeding, tree planting, straw delivery and mulching.

- Geologic subcontractor (technical oversight) - The Geologic Subcontractor will provide technical oversight and supervision of the Heavy Equipment and Labor Subcontractor. Tasks include (1) Project permitting, pre-construction layout, and pre-project monitoring; (2) Heavy equipment implementation supervision, technical oversight and field reviews, including pre- and post-construction inspections; and (3) Post-treatment data collection, photographic monitoring, data analysis and reporting. In addition, the Geologic Subcontractor will maintain regular communications between the Grantee, Grantor, Landowner Area Forester, and Heavy Equipment and Labor subcontractor.

    - The Project Manager and Technical Staff perform project permitting, pre-construction layout, and pre-project monitoring for both the upslope and instream project elements. This includes laying out (flagging) specific treatments and extent of excavations, carrying out pre-treatment surveys of stream crossings, and pre-treatment monitoring. Layout includes a wet weather inspection to help identify seeps and springs along the road proposed for treatment. Other layout steps include compiling field information into a detailed set of construction maps, road logs, and treatment information that will be provided to the Heavy Equipment and Labor Subcontractor selected to implement the project.

    - The Geographic Information System (GIS) staff provides project support by organizing and analyzing Global Position System data used to develop database interfaces and GIS maps and products necessary for project development and implementation.

- The Senior Geologist and Project Manager supervise heavy equipment operations and provide technical oversight.

- The Project Manager provides technical oversight and supervision of daily on-going activities including heavy equipment and labor operations. Duties include materials coordination; project planning; attending meetings; and communications with the landowner, subcontractors, and agency staff.

- The Technical Staff is responsible for field preparation, coordination, field vehicle maintenance, and field map creation and transfer for the GIS staff. Technical Staff duties also include photo downloading; file management; and data entry for annual report metrics, as-built construction road logs, stream crossing surveys, and heavy equipment time logs which are used to track hours spent treating individual road features.

- The Senior Geologist ensures compliance with the Geologist and Geophysicist Act (California Business and Professions Code 7800).

- The Principal and Senior Scientist ensure that the project is implemented as designed, and follows or exceeds the standards for road decommissioning.

- The Project Manager and Technical Staff will perform post-treatment data collection, photographic monitoring, data analysis, and reporting. Duties include quality assurance and quality control including final report technical editing and review by the Principal and Senior Geologist. For the final report, the GIS staff will generate and provide final report maps.

Materials:

Materials for this project include wood exhumed from decommissioned stream crossings and other road decommissioning work, mulch and seed, 220 cubic yards of rock armor, 20 large cull logs, trees, and anchoring hardware (rebar, nuts, plates, etc.).

Tasks:

Decommission 4.44 miles of abandoned, decaying, inner gorge, and streamside roads in the Lawrence Creek watershed and improve stream habitat on 1.5 miles of anadromous steam reaches in the watershed to protect and improve instream habitat for all salmonid species.

Task A: Contract Oversight. Trout Unlimited personnel will provide all contract oversight and administration including but not limited to obtaining permits; securing contracts (grantors, subcontractors, and landowner); scheduling; implementation oversight; invoicing; reporting; and agency and landowner communications. This task will occur throughout the life of the project. All reporting and billing will be pursuant to contract and regulatory guidelines.

Task B: Implementation. Decommission 4.44 miles of abandoned, decaying streamside; mid-slope; and inner gorge roads and improve stream habitat along 1.5 miles of anadromous stream channel in the Lawrence Creek watershed.

- Implement project permitting, pre-construction layout, and pre-project monitoring.

- Implement heavy equipment work and provide technical oversight and field reviews, including pre- and post-construction inspections.

- Implement post-treatment data collection, photographic monitoring, data analysis, and reporting.

- Exhume woody debris during the road decommissioning process for reuse in creating complex log and root wad fish habitat structures. Twenty cull logs from the mill may be supplied as a backup plan.

- Treat 26 stream crossings to save approximately 10,427 cubic yards of road-related sediment from delivery to local streams.

- Treat 7 potential or existing fillslope landslide features including 6 road fill failures and 1 landing fill failure to prevent approximately 874 cubic yards of future sediment delivery. Treat by direct excavation, sediment removal, and proper spoils disposal.

- Treat 1 road surface drainage problem and sediment discharge point, to prevent delivery of approximately 13 cubic yards of sediment (originating from springs) to stream channels.

- Treat approximately 1.67 miles of road surfaces, cutbanks, and/or ditches currently draining to stream channels either directly, via gullies, or through other treatment features to prevent approximately 812 cubic yards of future sediment delivery.

- Construct 10 complex large woody debris (LWD) habitat structures along 1.5 miles of Lawrence Creek.

- Excavate approximately 28,922 cubic yards of sediment at 34 different work features. Haul spoil materials to stable disposal areas.

- Construct 176 cross road drains to ensure gullies, springs, road runoff, and other concentrated flow will no longer collect over long road lengths to prevent saturation of roads and fillslopes, gully erosion, and related sediment delivery to streams. Construct cross road drains at approximately 75- to 150-foot spacing intervals to direct road surface runoff off the road and onto stable hillslopes.

- Load LWD on-site using a loader and dump truck. Move, position, and install each log using a skidder and excavator. Coordinate LWD delivery and placement activities from existing roads, skid trails, and streamside banks.

- Collect pre-implementation data. Survey stream longitudinal and lateral profiles to display pre-implementation channel conditions. Take photographs to accompany the survey data. Assess LWD availability at this time. Enhance and refine preliminary feature plans based on material size, configuration, and availability.

- Implementation. Place and position LWD using heavy equipment following feature designs. Deliver approximately 65 logs, 81 logs with root wads attached, 4 root wads, and several rack pieces from offsite; and install to improve low flow and high flow habitat. Install approximately 10 structures of LWD within the 1.5 mile reach.

- LWD monitoring. Immediately following installation of the described LWD structures, photograph the LWD features. After one winter and after high flows have receded, resurvey longitudinal and lateral stream profiles to determine channel response to new structures (scour and deposition).

Deliverables:

Submit a written completion report which contains: (1) general grant information, (2) location of work, (3) project access, (4) participating landowner's name and address, (5) a description and analysis of the restoration and planning person hours expended, (6) a quantified description of the results of the project, including as-built road logs, number of LWD structures, and stream profile survey data, (7) dates of work and the number of person hours expended, (8) labeled before and after photos of selected restoration activities and techniques, (9) grant dollars spent and contributed and/or in kind services used to complete the project, and (10) GIS generated maps and shapefiles of project area..

Timelines:

Project will be completed according to the following timeline:

- Administer and manage the project (Task A) throughout the entirety of the agreement term, Spring 2015 to Winter 2018.

- June 1, 2015 Pre-construction project permitting, pre-construction layout, and pre-project monitoring tasks are planned to occur.

- Summer 2015 - Fall 2017: Heavy equipment implementation

- Fall 2015, 2016, and 2017: Post-construction data collection. Post-treatment data collection, preparation of road logs and maps that show as-built road conditions, and photographic monitoring will be conducted to fulfill reporting requirements.

- Fall 2017 – February 28, 2018: Reporting. Data collection synthesis, data analysis, and report writing will occur. The implementation report will be completed and submitted no later than February 28, 2018.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Timing of work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.

    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.

    - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service,

Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

- The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.

- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. Final habitat structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

4. All road decommissioning will be done in accordance with techniques described in the Handbook for Forest and Ranch Roads, (PWA, 1994c.) and the *California Salmonid Stream Habitat Restoration Manual*, Volume II, Part X. All road upgrading and decommissioning sites and techniques shall be approved by the Grantor Project Manager before any equipment work takes place.

5. All crossings treated in fish bearing reaches of streams will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and the criteria for adult and juvenile salmonid fish passage as described in Volume II, Part IX of the *California Salmonid Stream Habitat Restoration Manual*.

6. Seeding and mulching of all exposed soils shall be done for all slopes which may deliver sediment to a stream. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. Mulching and seeding will take place as sites are completed to avoid unforeseen erosion. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings. Woody debris will be concentrated on finished slopes adjacent to stream crossings.

7. Sites which are expected to erode and deliver sediment to the stream are the only locations where work will be authorized for reimbursement under the terms of this agreement. Reimbursement will not be authorized for work done to improve aesthetics only.

8. The landowner or responsible party must sign an access agreement stating they agree to maintain the erosion control project for a period of not less than 10 years. Maintenance will consist of repair to the road(s) or stream crossing(s) to a level that will effectively reduce sediment from entering the stream. In the event of an act of nature which results in partial or complete failure of the project, the landowner or applicant will not be held responsible for costs incurred after the act of nature. Acts of nature include, but are not limited to floods, earthquakes, volcanic eruptions, and wind storms.

9. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Iaqua Buttes and Owl Creek Quad and Surrounding Quads for:
HU 065 Lawrence Creek Road Decommissioning and Coho Habitat Improvement Project
T3N R2E Sections 19, 20, 21, 26, 27, 28, 29, 30, and 32
Humboldt County

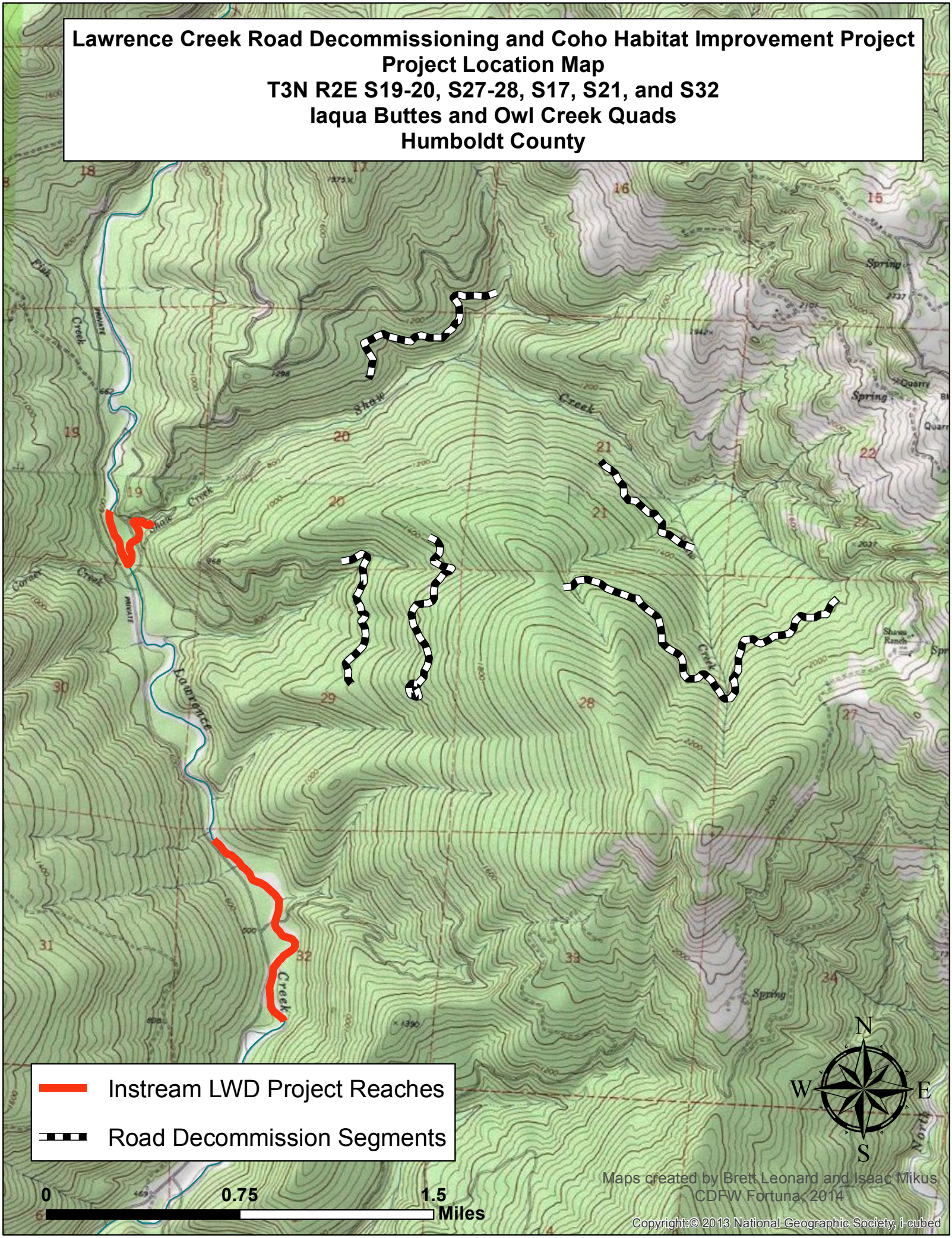
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American manna grass *Glyceria grandis*	PMPOA2Y080			G5	S2	2B.3
2	Bald Mountain milk-vetch *Astragalus umbraticus*	PDFAB0F990			G4	S2	2B.3
3	California globe mallow *Iliamna latibracteata*	PDMAL0K040			G2G3	S2	1B.2
4	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
5	Del Norte salamander *Plethodon elongatus*	AAAAD12050			G4	S3	SC
6	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
7	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
8	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
9	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
10	Kneeland Prairie pennycress *Noccaea fendleri ssp. californica*	PDBRA2P041	Endangered		G5?T1	S1	1B.1
11	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
12	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
13	North Central Coast Summer Steelhead Stream	CARA2634CA			GNR	SNR	
14	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
15	Oregon fireweed *Epilobium oreganum*	PDONA060P0			G2	S2	1B.2
16	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
17	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
18	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
19	Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3			G4?T2	S2	1B.2
20	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
21	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
22	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
23	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
24	Yuma myotis *Myotis yumanensis*	AMACC01020			G5	S4?	
25	alpine marsh violet *Viola palustris*	PDVIO041G0			G5	S1S2	2B.2
26	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
27	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
28	bensoniella *Bensoniella oregona*	PDSAX02010		Rare	G3	S2	1B.1
29	black-crowned night heron *Nycticorax nycticorax*	ABNGA11010			G5	S4	
30	bristle-stalked sedge *Carex leptalea*	PMCYP037E0			G5	S1	2B.2
31	bunchberry *Cornus canadensis*	PDCOR01040			G5	S2	2B.2
32	chinook salmon - California coastal ESU *Oncorhynchus tshawytscha*	AFCHA0205S	Threatened		G5	S1	
33	coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A			G4T4	S3	SC
34	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
35	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
36	double-crested cormorant *Phalacrocorax auritus*	ABNFD01020			G5	S4	
37	eulachon *Thaleichthys pacificus*	AFCHB04010	Threatened		G5	S3	SC
38	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
39	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
40	ghost-pipe *Monotropa uniflora*	PDMON03030			G5	S2	2B.2
41	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2
42	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
43	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
44	great burnet *Sanguisorba officinalis*	PDROS1L060			G5?	S2	2B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
45	green sturgeon *Acipenser medirostris*	AFCAA01030	Threatened		G3	S1S2	SC
46	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
47	long-eared myotis *Myotis evotis*	AMACC01070			G5	S4?	
48	long-legged myotis *Myotis volans*	AMACC01110			G5	S4?	
49	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
50	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
51	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
52	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S1	1B.2
53	northern clustered sedge *Carex arcta*	PMCYP030X0			G5	S2	2B.2
54	northern microseris *Microseris borealis*	PDAST6E030			G5	S1	2B.1
55	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
56	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
57	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
58	pale yellow stonecrop *Sedum laxum ssp. flavidum*	PDCRA0A0L2			G5T3Q	S3.3	4.3
59	pink-margined monkeyflower *Erythranthe trinitiensis*	PDPHR01070			G2	S2	1B.3
60	robust false lupine *Thermopsis robusta*	PDFAB3Z0D0			G2	S2	1B.2
61	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
62	sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101			G5T2	S1	
63	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
64	seaside bittercress *Cardamine angulata*	PDBRA0K010			G5	S1	2B.1
65	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S3	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
66	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
67	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
68	three-ranked hump moss *Meesia triquetra*	NBMUS4L020			G5	S4	4.2
69	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
70	western lily *Lilium occidentale*	PMLIL1A0G0	Endangered	Endangered	G1	S1	1B.1
71	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
72	western sand-spurrey *Spergularia canadensis var. occidentalis*	PDCAR0W032			G5T4?	S1	2B.1
73	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
74	white-footed vole *Arborimus albipes*	AMAFF23010			G3G4	S2S3	SC

Lawrence Creek Road Decommissioning and Coho Habitat Improvement Project
Project Location Map
T3N R2E S19-20, S27-28, S17, S21, and S32
Iaqua Buttes and Owl Creek Quads
Humboldt County



Lower Mattole Coho Habitat Enhancement Project – Heliwood Phase 2

Introduction:

The Mattole Salmon Group will place very large wood (100 whole trees with root wads and crowns) in the lower river in order to provide immediate suitable winter rearing habitat, adult holding habitat and refuge for coho, Chinook & steelhead.

1. This project is necessary because the lower Mattole River is now poor habitat for all salmon and steelhead species: it is a mostly homogenous zone characterized by warm water during the summer, little habitat cover and riparian vegetation, a lack of slackwater and off-channel habitat, low levels of instream wood, and overall low habitat complexity. This means efforts to add complexity and restore habitat in these areas are critical to salmonid survival.

2. The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

3. All habitat improvement will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* Parts VII (Flosi et al 1998).

Objective:

The objectives of this project include:

1. Provide immediate suitable winter rearing, and adult holding and refuge habitat for coho salmon. Ancillary benefits for Chinook salmon and steelhead are also expected.

2. Increase habitat benefits over the longer-term, as the overarching goal of the project is to of restore natural ecosystem process to the lower river through the following:

    a. Increase instream habitat complexity

    b. Promote riparian vegetation colonization and growth

    c. Create a mosaic of varying streambed sediment sizes

    d. Promote more variable topographic diversity in the reach

    e. Increase connectivity to existing sloughs, alcoves, and other off-channel habitat

    f. Increase stream nutrients available to native species.

Project Description:

Location:

The project is located in the lower 3 miles of the Mattole River on Bureau of Land Management lands. The middle of the project reach is located at 40.29219400: -124.33630600.

Project Set Up:

The Mattole Salmon Group will implement this project and will use a local subcontractor for heavy equipment services for the project. The most cost effective helicopter subcontractor available at the time will be chosen for the helicopter subcontract. Project tasks will completed as described below:

- Project Manager responsibilities include management tasks (such as subcontracts and budgets and invoicing), personnel management, and implementation and overall project management.

- Project Coordinator responsibilities include day to day supervision of construction activities, including subcontractor communications and oversight, crew supervision, tracking daily costs, maintaining the safety program and protocols, and meeting all permit conditions.

- Laborers assist with all labor activities related to removing, hauling, and placement of trees, and site cleanup upslope.

- Bookkeeper will help create invoicing and track budgets, as well as meet payroll and pay accounts receivable.

- Program Assistant will assist the Project Manager with management tasks.

- Subcontracted Equipment Operator will operate all heavy equipment as needed for placement and installation of logs and boulders, including excavator, bulldozer, log skidder, dump truck and trailer, and crane truck and trailer.

- Subcontracted Helicopter Crew and Machine will lift and place whole trees.

Materials:

Materials include approximately 100 whole trees with rootwads.

Tasks:

Place large wood at key sites to facilitate stable island formation, multiple channel formation (anabranching), and scour (where appropriate), treat eroding

terrace margins, and plant cottonwood, willow, and other native species on established islands and along edges of stream channels.

- Select final sites each summer before placement occurs. Record all final site locations with GPS, assign a specific station number in sequential order from river mile 0, and map.

- Pit tag every tree. Determine specific access to site locations including suitable existing roads along the bank. Choose additional access routes to other sites to minimize water crossings or the need for flow diversions.

- Pre-project monitor lower river sites and feature locations by measuring physical habitat characteristics, such as residual pool depth, and snorkel survey for fish presence, as well as Total Station Mapping and identifying every tree placed with pit tags and GPS locations.

- Place a minimum of 100 whole trees in lower river locations not prior to June 1st each year. Use a large helicopter to transport the trees, which will be placed at the final selected sites within the lower-river.

- Locate staging areas for equipment and materials on previously disturbed areas near each site. Replant any perennial vegetation removed for temporary access routes. Mulch all disturbed areas with native straw following construction.

- Implement treatments along intermediate-elevation islands, bar apices and terrace margins.

    - Intermediate-elevation Islands: Install a combination of wood structures and plantings on islands. Install structures at the upstream end of the island or along the margins to increase stability of the feature, promote deposition of finer-grained sediment for vegetation colonization, contribute to instream habitat complexity, promote development and connection to side channel and alcove habitat.

    - Bar Apices: Treat the upstream extents of alternate and mid-channel bars with bar apex jams and vegetated baffles. Treat the heads of bars to promote stability and increase habitat complexity at low flows. Install individual logs to create instream habitat features such as scour and cover. Install combinations of larger log and vegetated baffle installations to create a persistent topographic feature in the channel.

- Terrace Margins: Treat terrace margins with wood structures and vegetated baffles.

- Install in-stream structures by stacking whole trees and logs in crisscross arrangements to emulate natural logjam formation. Base designs on California Salmonid Stream Habitat Restoration Manual , Abbe et al. 1997 and Braudrick and Grant 2000. Anchor structures into banks and ballast with large rocks as needed. Pin or cable key pieces of structures to large rock as necessary to offset buoyancy and flow velocity forces during high flow events using standard cabling and pinning techniques described in the California Salmonid Stream Habitat Restoration Manual. Place cabling and pinning in a location where it will be permanently submerged or hidden from view by woody debris and sediment. Use a large excavator to construct structures and excavate prior to wood placement.

- Construct bar–apex jams on islands and at the upstream extent of active river bars. Using an excavator, excavate trenches at the head of bars. Place one to six large whole trees and boles in the trench along with other organic material and/or willow and/or cottonwood cuttings. Partially bury the woody material with the excavation spoil. Leave the root boles or tops protruding above ground level depending on site conditions. Extend the woody material a short distance above the bed, and sufficiently anchor using the fill to prevent removal during high-flow events. Vary the angle of the protruding trees from nearly horizontal to nearly vertical depending on site conditions.
- Install bio-technical bank treatments constructed from whole trees, root wads, tree logs, rooted willow clusters, willow and cottonwood cuttings, and soils from nearby slough channel excavations.

- Post-implementation monitoring and assessment. Monitor implementation sites including pre- and post-project photo documentation and topographic and/or bathymetric mapping, as well as surveys to document fish use. Pit-tag all trees placed, take GPS locations, and survey into the topographic map.

Deliverables:

1. The removal of 100 trees from Prosper Ridge or Moore Hill prairie restoration locations and removal site restoration through grading, planting, seeding, and mulching with native species.

2. The placement of 100 whole trees in the lower Mattole River including large single tree placement, apex jams and complex habitat structures.

3. Individual identifier tags into each placed whole tree. Site map with GPS locations and correlated PITT tags of all placed whole trees.

4. Final report containing pre- and post-project topographic and bathymetric information and/or mapping, photo documentation, and fish presence information.

Timelines:

- June 2015: Pre-project monitoring and final site designs complete
- June - July 2015, and 2016: Tree removal and staging
- July - October 2015, and 2016: Helicopter placement of whole trees in lower river
- July - October 2015, and 2016: Ground crews secure tree boles to each other, as needed
- September - November 2015, 2016: project site and wood donor site cleanups complete
- December 2015 - June 2018: Post-project monitoring
- May 2018: Final Reporting

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

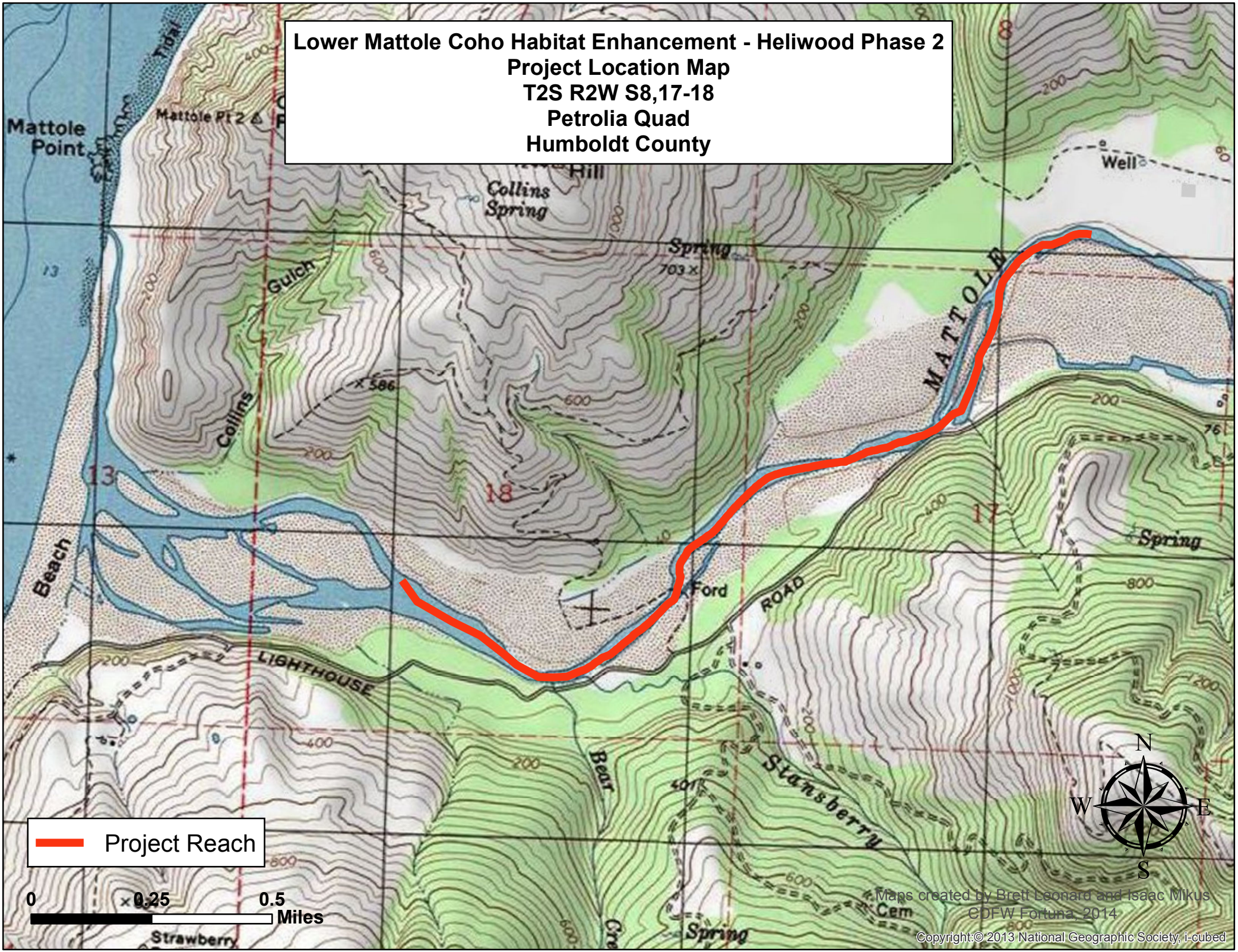
2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Petrolia Quad and Surrounding Quads for:
HI 071 Lower Mattole Coho Habitat Enhancement - Heliwood Phase 2
H T2S R2W Sections 8, 17, 18,
Humboldt County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S3	SC
2	Coastal Douglas Fir Western Hemlock Forest	CTT82410CA			G4	S2.1	
3	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
4	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
5	Hitchcock's blue-eyed grass *Sisyrinchium hitchcockii*	PMIRI0D0S0			G2	S1	1B.1
6	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
7	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
8	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
9	Oregon polemonium *Polemonium carneum*	PDPLM0E050			G4	S1	2B.2
10	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
11	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
12	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
13	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
14	Tracy's romanzoffia *Romanzoffia tracyi*	PDHYD0E030			G4	S2	2B.3
15	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G1	S1	1B.1
16	beach layia *Layia carnosa*	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
17	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
18	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
19	coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2			G2T2	S2	1B.2
20	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	SC
21	double-crested cormorant *Phalacrocorax auritus*	ABNFD01020			G5	S4	
22	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
23	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
24	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2
25	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
26	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
27	great egret *Ardea alba*	ABNGA04040			G5	S4	
28	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2
29	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
30	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
31	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
32	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
33	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
34	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
35	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S2	SC
36	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2


Lower Mattole Coho Habitat Enhancement - Heliwood Phase 2
Project Location Map
T2S R2W S8,17-18
Petrolia Quad
Humboldt County
Mattole Point
Mattole Pt 2
Collins Spring
Gulch
Collins
Beach
LIGHTHOUSE
Ford
ROAD
MATTOLE
Spring
Well
Bear
Stansberry
Cem
Strawberry
Project Reach
0
0.25
0.5
Miles
N
S
E
W
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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Dinner Creek Fish Passage Barrier Removal Project

Introduction:

County of Humboldt Department of Public Works will remove fish migration barriers opening access to over 9,400 feet (1.8miles) of spawning habitat in the Dinner Creek Watershed. The project is necessary because the culverts at this location have been identified as anadromous fish migration barriers (Ross Taylor and Associates, 2005) and due to their size and corroded condition pose a potential risk of introducing sediment loads into critical fish habitat downstream during high winter storm events. The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured. All habitat improvement will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* Parts IX and XII (Flosi et al 2002).

Objectives:

1. At Site 1 (Culvert at Briceland Thorne Road PM 3.74), replace the existing 6-ft diameter culvert with an 18' x 9' x 100' steel plate arch culvert and remove the existing concrete weir located downstream of the culvert.

2. At Site 2 (Culvert at Briceland Thorne Road PM 3.27), replace the existing 4' culvert located at Briceland Thorne and the existing 4' culvert located at the private driveway (approximately 150 ft upstream of Briceland Thorne Road) with 10' structural steel pipe culverts embedded with approximately 2' of natural river gravels.

Project Description:

Location:

The barriers are located at Briceland Thorne Road approximately 8.7 miles west of Redway near post mile marker 3.27 and 3.74. Site one is located at 40.09305280: -123.93156670 and site 2 is located at 40.09149440: -123.93764440.

Project Set Up:

County personnel involved in this project include County Environmental (county natural resources division), County Design Engineering, and County Construction Engineering. Staff from County Environmental, a qualified fish biologist, will assist with the fish exclusion fencing installation, fish relocation efforts, weekly oversight for permit compliance, and post construction surveys. The County Design Engineering will complete the bid documents, send the plans to the Board of Supervisors for project approval and prepare survey staking information. Construction Engineering includes a full time on-site inspector; two person survey crew for staking design and staff for materials testing; and a Registered Engineer for construction oversight and contact administration. Fish relocation efforts will be completed by a qualified biologist. A Subcontractor will install the

vortex weir. The Subcontractor includes a foreman, two heavy equipment, operators and three laborers on site full time.

Materials:

Materials for this project include an 18' x 9 'x 100' steel plate arch culvert and 2 10' (120") Structural Steel Pipe culverts.

Tasks:

Replace the culvert at site one (PM 3.74) with an 18' x 9' x 100' steel plate arch culvert and remove the existing concrete weir. Replace both culverts at site 2 (PM 3.27 and private driveway approximately 150 ft. upstream) with 10' (120") Structural Steel Pipe culverts. Replace culverts by completing the following tasks:

1. The County Design Engineering will complete the bid documents, send the plans to the Board of Supervisors for project approval and prepare survey staking information. County Construction Engineering will provide on-site inspection staking design surveys, and materials testing including a Registered Engineer for construction oversight and contact administration.

2. Prior to beginning the earthwork, the Subcontractor will prepare a water pollution control program (WPCP) outlining the appropriate Best Management Practices (BMPs) to prevent storm water discharges and non-storm water discharges from leaving the work area. BMPs may include temporary silt fence, fiber rolls and a temporary concrete washout for this project.

3. Install a 90' flat car bridge during the duration of the earthwork at each site. The county bridge crew will move the flat car bridge on/off site and will move the flat car bridge from Site 1 to Site 2. The Subcontractor will provide construction area signs and temporary railing (Type K) required for the traffic detour.

4. County Environmental staff from the county natural resources division, a qualified fish biologist, will assist with the fish exclusion fencing installation, fish relocation efforts, weekly oversight for permit compliance and post construction surveys. Install a fish protection water bypass system. Place fish exclusion fencing at both sites approximately 50 ft. upstream and downstream of both sites.

5. Implement earthwork and install culvert at Site 1. Excavate and remove the existing culvert and concrete weir. Complete forming, installing reinforcement rebar and pouring the concrete (Class A Concrete) footings for the 18' x 9' x 100' steel plate arch culvert. Assemble and install the culvert, and place approximately 3.5 ft. of natural stream gravel.

6. Implement earthwork and install the culvert at Site 2. Excavate and remove the existing culverts and install 2-120" structural steel pipe culverts (L = 70' and L = 30') embedded approximately 2 ft. with natural gravels. Excavate the stream channel between the two culverts creating an 8 ft. wide channel. Install a vortex weir approximately 50' downstream of the new culvert at the Briceland Thorne Rd. crossing at Site 2. Anchor the vortex weir into the bank at the bank full elevation with 1/2T -2T sized rocks with smaller diameter river gravel placed to fill the voids between the larger rocks. Approximately, 20 tons total of 1/2T and 2T rocks and approximately 20 cubic yards total of ¾" - 4" diameter river gravel will be required.

7. At both sites, place and compact the structural backfill and embankment to CalTrans standards. Place Rock Slope Protection (1/2 Ton to 2 Ton) at both ends of the culverts to protect embankment slopes.

8. Upon completion of the earthwork, hydroseed the disturbed soil areas with native grasses and place fiber rolls in locations unprotected by the Rock Slope Protection.

9. Manage storm water and finish the roadway. Install three 18" inch over side drains Briceland Thorne Rd. directed into the rock slope protection. Place hot mix asphalt to direct the surface water run off to the over side drains. Install the roadway structural section (0.67' of aggregate base and 0.3' of hot mix asphalt) at both sites.

10. The county qualified fish biologist will assist with monitoring surveys and perform county specific surveys for presence/absence post construction.

Deliverables:

Removal of three fish migration barriers and installation of three culverts.

Timelines:

The project construction is estimated to take approximately 6-8 weeks to complete. Construction will occur between June 15, 2015 and October 15, 2015.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel

to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

- Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
- The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
- All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
- The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.
- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. The culvert design and installation will meet flow carrying capacity required for a 100-year flood event as identified by specifications determined by National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Wildlife (CDFW), for adult and juvenile salmonid fish passage. The project will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and criteria for fish passage as described in Volume II, Part IX, of the *California Salmonid Stream Habitat Restoration Manual*. The engineered plans for the bridge (culvert) installation shall be visually reviewed and authorized by NOAA Fisheries or California Department of Fish and Wildlife engineers prior to commencement of work.

4. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*, Volume I, and Volume II Part XI and Part XII. The Grantee/landowner will maintain the new crossing, inspect the crossing in a timely manner and remove debris as necessary during the storm season.

5. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Briceland Quad and Surrounding Quads for:
FP 082 Dinner Creek Fish Passage Barrier Removal Project
H T4S R2E Sections 22, 23
Humboldt County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
2	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
3	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
4	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
5	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
6	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
7	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
8	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
9	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
10	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
11	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
12	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
13	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
14	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
15	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
16	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	SC
17	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
18	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
19	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
20	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2
21	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
22	little willow flycatcher *Empidonax traillii brewsteri*	ABPAE33041		Endangered	G5T3T4	S1S2	
23	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
24	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2S3	2B.2
25	mountain shoulderband *Helminthoglypta arrosa monticola*	IMGASC2035			G2G3T1	S1	
26	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
27	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
28	small groundcone *Kopsiopsis hookeri*	PDORO01010			G5	S1S2	2B.3
29	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
30	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
31	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
32	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2


Dinner Creek Fish Passage Barrier Removal Project
Project Location Map
T4S R2E S22-23
Briceland Quad
Humboldt County
BM X751
800
Creek
22
23
1000
Site 1
Site 2
Dinner
1000
1000
1000
X1244
N
W
E
S
Culvert Replacement
0
0.25
0.5
Miles
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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Ryan Creek Coho Habitat Improvement Project

Introduction:

The grantee will complete the Ryan Creek Coho Habitat Improvement Project by installing 16 woven log structures along a 1.9 mile stretch of Ryan Creek to create more, deeper, and better covered pool habitat and increased channel complexity within the project reach.

This project is necessary to will provide low velocity refuge for young of the year coho salmon during heavy runoff events, allow for deeper summertime pools, and maintain a complex geomorphic environment with increased edge habitat. Instream habitat enhancement using a variety of potential LWD augmentation methods can increase stream habitat complexity and shelter values allowing improved rearing habitat as well as secondary effects of improving spawning conditions and water quality.

Objectives:

The objectives of this project include:

1. Enhance pool depth at existing pools by fluvial scour adjacent to LWD installation sites

2. Enhance cover in existing pools by adding complex wood structures to the margins of the existing channel

3. Improve and increase refuge for coho salmon from high velocity flows during moderate and large storm events

4. Create enhanced spawning habitat by substrate sorting adjacent to LWD structures, and

5. Facilitate the creation and sustainability of a complex geomorphic channel environment where fish can “pick and choose” from a diverse suite of habitat elements within Ryan Creek rather than compete for the limited suitable existing locations.

Project Description:

Location:

The project is located along a 1.9 mile stretch of Ryan Creek, 3.0 miles upstream from its confluence with Freshwater Creek/Slough. The center point of the stream reach is at 40.75575000: -124.13293000.

Project Set Up:

Contracting, management, landowner coordination, and oversight will be conducted by the PCFWWRA Project Manager and Assistant Manager/Field Staff.

On the ground implementation of the project will be designed, supervised, documented, and monitored by Pacific Watershed Associates:

- The PWA Principal Geologist will review field layout, make several site visits and review final reporting.

- The PWA Project Manager will manage day to day activities, coordinate and supervise heavy equipment and laborers, coordinate material procurement, work on final reporting and maps.

- The PWA Engineering Geologist will assist in developing and review the final site design plans, review the design in its geomorphic context to minimize identified risks, and provide the PWA Project Manager and Physical Scientist with recommendations for site specific and reach design.

- The PWA Physical Scientist will conduct pre-project layout and documentation and post-project documentation. They will assist in material procurement, and they will oversee installation of the LWD features and work closely with the construction crews to assure the project is implemented as designed.

- The PWA Physical Science Technician will assist in pre-project layout and documentation, assist in material procurement, and oversee post project erosion control and planting and other duties as assigned by the Project Manager.

- PWA GIS staff will create field maps and graphics for reporting.

- PWA Clerical staff will create invoicing and track budgets.

Actual construction will be undertaken by a trained and experienced heavy equipment contractor. The heavy equipment contractor will also be responsible for material procurement, construction of the LWD jams, installation of erosion control BMPs, and installation of anchoring devices within the LWD structures.

Materials:

Materials will include 800 riparian trees, 15 sets of LWD hardware (rebar, nuts, and plates), seed, straw, and logs.

Tasks:

Task A: Contracting, management, landowner coordination, and oversight will be conducted by PCFWWRA. All reporting and billing will be pursuant to contract and regulatory guidelines.

Task B: Planning and Implementation:
Create site specific plans with the following objectives:

- Provide scour holes and complex edge habitat through reaches which are currently mostly devoid of wood structure and the expected outcome should be consistent with and scaled to the proximal geomorphic environment

- Provide refuge from high velocity flows where it is lacking

- Route sediment out of the existing pools, which currently lack depth, without causing excessive erosion of the channel margins

- Provide shaded shelter for fish habitat and

- Facilitate the creation of more complex geomorphic conditions through the proposed project reach.

    - Procure large diameter (12”-30” dia.) wood from Green Diamond Resource Company. The logs and rootwads will be delivered via log trucks or end dumps and staged in areas proximal to the installation sites. Once the wood has been staged as close to its installation site as possible, an excavator will be used to move and position the material into its designed location. PWA staff will be on site to supervise final placement of each of the structures.

    - Install 16 in-channel log and root wad structures including some whole tree materials. Weave logs into existing live vegetation. The project will utilize living riparian trees as anchors by wedging the logs between them where feasible. In circumstances where riparian trees are not sufficient to anchor wood together laborers will fasten logs together using CDFW approved fastening techniques. During construction of the primary structural elements of the wood jams, medium and small woody debris will be incorporated into the structure to reduce its porosity and mimic natural wood recruitment at the jam site.

Deliverables:
Project deliverables include:
Install 16 woven log jams along 1.9 miles of Ryan Creek. Upon completion of the project PCFWWRA shall submit a written completion report which contains: (1) general grant information, (2) location of work, (3) project access, (4) participating landowner’s name and address, (5) a description and analysis of the restoration and planning person hours expended, (6) a quantified description of the results of the project, including as-built construction logs, and number of LWD structures, (7) dates of work and the number of person hours expended, (8)

labeled before and after photos of selected restoration activities and techniques, (9) grant dollars spent and contributed and/or in kind services used to complete the project, and (10) GIS generated maps and shapefiles of project area.

Written consent documents signed by landowners or authorized land managing authorities unless applicant is the landowner. Consent documents must include:

- Statement that landowner(s) or land manager is aware of the proposed project;
- Landowner or land manager gives consent for the grantee to complete the proposed project with CDFW oversight and visitation;
- Landowner name(s) or land manager contact information; and
- Signature of landowner(s) or land manager.

Timelines:

- June 2015 – March 2017 – Project management, contracting, and land owner coordination.

- June 2015 to October 2015 - Procure trees and stage the log material to construct LWD features. Start installation of LWD features and winterize access roads at the end of the work season.

- June 2016 to October 2016 – Finalize LWD features and winterize access roads. It is anticipated that heavy equipment work will be completed by
- October 15th, 2016.

- Fall 2016 – Winter 2016 – Monitoring and reporting.

- February 28, 2017 – Final Report due

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the California Salmonid Stream Habitat Restoration Manual.

3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling

equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

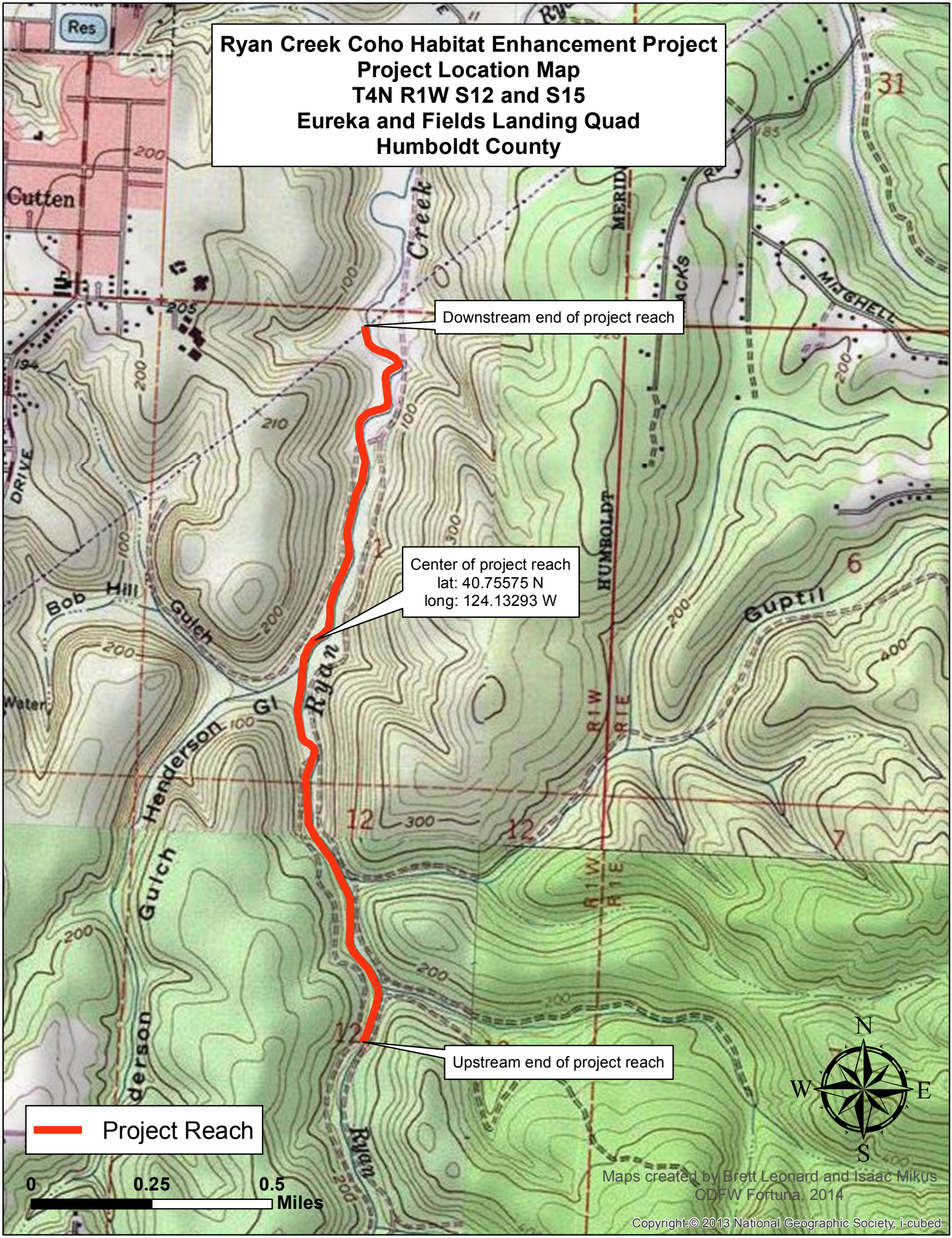
California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Eureka and Fields Landing Quad and Surrounding Quads for:
HI 124 Ryan Creek Coho Habitat Enhancement Project
H 4N 1W Sections: 1, 12
Humboldt County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	California clapper rail *Rallus longirostris obsoletus*	ABNME05016	Endangered	Endangered	G5T1	S1	
2	Coastal Terrace Prairie	CTT41100CA			G2	S2.1	
3	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
4	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
5	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
6	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
7	Menzies' wallflower *Erysimum menziesii*	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
8	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
9	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
10	Northern Foredune Grassland	CTT21211CA			G1	S1.1	
11	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
12	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
13	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
14	Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3			G4?T2	S2	1B.2
15	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
16	Sitka Spruce Forest	CTT82110CA			G1	S1.1	
17	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
18	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
19	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G1	S1	1B.1
20	alpine marsh violet *Viola palustris*	PDVIO041G0			G5	S1S2	2B.2
21	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
22	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
23	beach layia *Layia carnosa*	PDAST5N010	Endangered	Endangered	G2	S2	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	black-crowned night heron *Nycticorax nycticorax*	ABNGA11010			G5	S4	
25	bristle-stalked sedge *Carex leptalea*	PMCYP037E0			G5	S1	2B.2
26	coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A			G4T4	S3	SC
27	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
28	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
29	coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2			G2T2	S2	1B.2
30	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	SC
31	cylindrical trichodon *Trichodon cylindricus*	NBMUS7N020			G4G5	S2	2B.2
32	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
33	double-crested cormorant *Phalacrocorax auritus*	ABNFD01020			G5	S4	
34	dwarf alkali grass *Puccinellia pumila*	PMPOA531L0			G4?	SH	2B.2
35	eulachon *Thaleichthys pacificus*	AFCHB04010	Threatened		G5	S3	SC
36	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
37	ghost-pipe *Monotropa uniflora*	PDMON03030			G5	S2	2B.2
38	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
39	great egret *Ardea alba*	ABNGA04040			G5	S4	
40	green sturgeon *Acipenser medirostris*	AFCAA01030	Threatened		G3	S1S2	SC
41	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
42	long-eared myotis *Myotis evotis*	AMACC01070			G5	S4?	
43	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
44	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
45	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2S3	2B.2
46	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S1	1B.2
47	northern clustered sedge *Carex arcta*	PMCYP030X0			G5	S2	2B.2
48	northern meadow sedge *Carex praticola*	PMCYP03B20			G5	S2S3	2B.2
49	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
50	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
51	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
52	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
53	sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101			G5T2	S1	
54	seaside bittercress *Cardamine angulata*	PDBRA0K010			G5	S1	2B.1
55	seaside pea *Lathyrus japonicus*	PDFAB250C0			G5	S2	2B.1
56	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S3	
57	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
58	snowy egret *Egretta thula*	ABNGA06030			G5	S4	
59	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
60	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
61	twisted horsehair lichen *Bryoria spiralifera*	NLTEST5460			G3	S1S2	1B.1
62	western lily *Lilium occidentale*	PMLIL1A0G0	Endangered	Endangered	G1	S1	1B.1
63	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
64	western sand-spurrey *Spergularia canadensis var. occidentalis*	PDCAR0W032			G5T4?	S1	2B.1
65	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
66	white-footed vole *Arborimus albipes*	AMAFF23010			G3G4	S2S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
67	willow flycatcher *Empidonax traillii*	ABPAE33040		Endangered	G5	S1S2	


Ryan Creek Coho Habitat Enhancement Project
Project Location Map
T4N R1W S12 and S15
Eureka and Fields Landing Quad
Humboldt County
Downstream end of project reach
Center of project reach
lat: 40.75575 N
long: 124.13293 W
Upstream end of project reach
Project Reach
0
0.25
0.5
Miles
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
Copyright:© 2013 National Geographic Society, i-cubed

Mattole Flow Program-Water Storage and Forbearance 2015-2018

Introduction:

Grantee will implement the Mattole Flow Program Institutional, Residential Storage and Forbearance Project. This project will restore, improve, and protect juvenile anadromous fish habitat and fish passage through installation of multiple storage tanks totaling 150,000 gallons and placing restrictions on corresponding seasonal water rights to prevent summertime water diversion. The project will improve summer stream flows to provide connectivity between pools.

The Mattole River headwaters are the key spawning and summer rearing habitat for threatened salmonids in the river system. This key habitat is threatened by an emerging pattern of extreme summertime low flows beginning in 1999. Low flows are recognized as the most acute threat to the survival of listed salmonids in the watershed by the Recovery Strategy for California Coho Salmon, North Coast Watershed Assessment Program (NCWAP) Mattole River Watershed Assessment Report, Mattole Watershed Plan, and the Upper Mattole River and Forest Cooperative Draft Coordinated Resource Management Plan. Reduced instream flows are also recognized as a significant threat to salmonid recovery throughout North Coast streams by National Oceanic and Atmospheric Administration (NOAA) Fisheries in their draft recovery plan, Recovery Plan for the Southern Oregon and Northern California Coast Evolutionary Significant Unit of Coho Salmon (2012). The Mattole Coho Recovery Strategy (2011) prepared by the Mattole River and Range Partnership, identifies low summer flows as a key constraint to coho recovery.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. All habitat restoration improvements will follow techniques in the California Salmonid Stream Habitat Restoration Manual. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

The specific objective of this project is to install multiple storage tanks totaling 150,000 gallons and placing restrictions on corresponding seasonal water rights to prevent summertime water diversion. Additionally this project will protect juvenile salmonids from injury by properly screening all diversions associated with the project.

The goal of this project is to directly improve juvenile anadromous fish habitat and passage by increasing summer stream flows and providing connectivity between pools during the low flow time of year. These goals will be accomplished by providing incentives to an institutional landowner to protect habitat and reduce

summer water withdrawals. Specifically the project will enable them to forbear from pumping during the low flow season by increasing the size of their water storage system sufficient to last during the forbearance season. The institutional landowner and associated representatives will be educated on how to operate the water storage system, including water use reductions through conservation and leak proofing, along with guidelines for habitat protection while filling and topping their tanks. The landowner will sign a legally enforceable forbearance agreement with restrictions that protect fish habitat, including the following: minimum stream flows below which no pumping is allowed; maximum pumping rates and minimum bypass flows; assigned pumping days to minimize cumulative impacts; and pump intake screens that comply with Grantor 2000 criteria.

Project Description:

Location:

The Grantee will conduct work in the Mattole River headwaters in the historic village of Whitethorn, located approximately 10 miles due west of Highway 101 on the Mendocino and Humboldt County border. The three diversion sites adjoin the Mattole River. The Steadman/Tedesco property formerly known as the Henry property is located between Anderson Creek and Green Creek (river mile ~55.2) and coordinates are 40.0412° north latitude and 123.9579° west longitude. The Deperna/Hall property is located between Gibson and Harris Creek (river mile ~56.6) and the coordinates are 40.0221° north latitude and 123.9403° west longitude. The Noyce property is located at 39.9884° north latitude and 123.9268°, as depicted in the Project Location Map

Project Set Up:

The Grantee will be the project lead and primary responsible organization for the project. The Project Manager will be responsible for project oversight and ensuring all tasks are completed and project deliverables are met. The Coordinator will work with the landowners to develop and execute the forbearance agreement and finalize the water management plan, supervise all contractors, order materials and coordinate delivery. The Landowner monitor will manage all landowner notifications for the forbearance program, perform annual monitoring and manage all landowner files. The Bookkeeper/Grant Manager will track budgets and prepare all invoicing. A subcontracted legal consultant will help with drafting, reviewing and/or editing all legal agreements associated with the project. A subcontracted engineer will review plans and designs for all tank sites. Subcontracted heavy equipment will prepare sites for tank installations. Staff positions including laborer, staff pipe installer, staff trench operator will work along with subcontracted installation crew, electrician, plumber and laborers to install water tanks and associated hardware, pumps, electrical, and water lines.

Materials:

A total of three 50,000 50,000-gallon water storage system including three source pumps, 6000 feet of plastic pipe, three leak safety and valves, three fish screens, six water clarity filters, three electrical controls and associated parts, three water meters, 410 yards of sand and gravel, and one pump shed.

Tasks:

Tank Installation -

Install three 50,000-gallon water storage systems in the Mattole headwaters for three landowners, with accompanying forbearance agreements that prohibit pumping during the dry season (August 1 through November 15). The following tasks will be completed for all participants:

- Complete Participant Water Management Plan: Finalize development of participant Water Management Plan including type and size of tank storage, exact location of tank and trench locations (requiring archaeology and botany site clearance first), system components needed to connect storage to existing system, leak safety and controls, and participant cost share tasks and responsibilities.

- Finalize and record forbearance agreement: Landowner specific information is entered into the template forbearance document. After review by participant and land trust attorneys, documents are signed and recorded, securing the interest in the land.

- Apply for and obtain site specific permits: Using the pre-determined permitting process, site specific applications are submitted and necessary permits are obtained. Water rights for storage will be developed based on purpose of water use with a different process for residential participants and institutional participants.

- Install tank and associated water system improvements: The tank or tanks are installed along with other plumbing needed to facilitate use of the stored water. Installation tasks include site preparation; tank assembly; trenching and piping from tank to house; pressure pump and small pressure tank installation if needed; plumbing and electrical hook-ups; meter installation; Grantor/NOAA compliant fish screen installations; and filtration system installation.

- Finalize water management plan: The template water management plan is modified to reflect the specifics of the final configuration of the upgraded water system and the water consumption patterns of the participant.

Deliverables:

- Copies of three executed forbearance agreements
- Three landowner Water Management Plans
- Installation of three 50,000 gallon water storage systems
- Installation of Grantor compliant fish screens for all diversions associated with the project
- Documentation of Compliance Monitoring
- Final Project Report as described in Section 7.02, including discussion of: a) implementation issues, if any; b) monitoring and adaptive management issues such as landowner compliance; and c) monitoring results.

Timelines:

- June 1, 2015 through June 31, 2015, finalize pumping restrictions and permit process

- June 1, 2015 through July 31, 2016, develop and finalize water system & water management plan, execute forbearance agreement, obtain permits

- July 1, 2016 through December 31, 2017, install water tanks, water system modifications and DFW compliant fish screens on all diversion points

- September 1, 2016 through 2031, begin monitoring for landowner compliance

Additional Requirements:

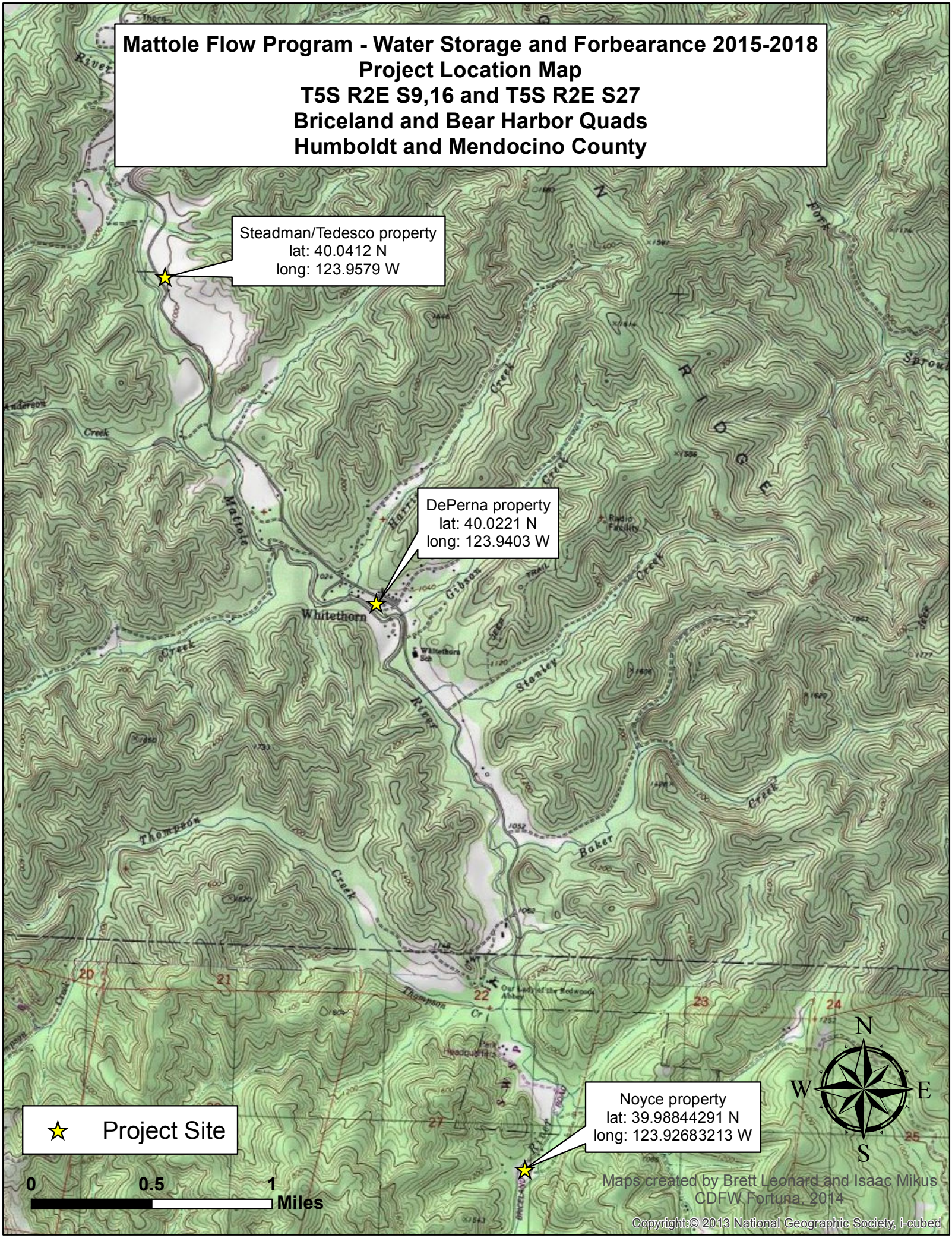
1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Briceland and Bear Harbor Quads and Surrounding Quads for:
WC 158 Mattole Flow Program-Water Storage and Forbearance 2015-2018
H 5S 2E Sections: 8, 9, 16, 27
Humboldt County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
2	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
3	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
4	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
5	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
6	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
7	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
8	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
9	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
10	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
11	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
12	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
13	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
14	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
15	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
16	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
17	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	SC
18	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
19	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
20	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
21	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
22	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
23	little willow flycatcher *Empidonax traillii brewsteri*	ABPAE33041		Endangered	G5T3T4	S1S2	
24	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
25	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2S3	2B.2
26	mountain shoulderband *Helminthoglypta arrosa monticola*	IMGASC2035			G2G3T1	S1	
27	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
28	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
29	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
30	small groundcone *Kopsiopsis hookeri*	PDORO01010			G5	S1S2	2B.3
31	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
32	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
33	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
34	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2


Mattole Flow Program - Water Storage and Forbearance 2015-2018
Project Location Map
T5S R2E S9,16 and T5S R2E S27
Briceland and Bear Harbor Quads
Humboldt and Mendocino County
Steadman/Tedesco property
lat: 40.0412 N
long: 123.9579 W
DePerna property
lat: 40.0221 N
long: 123.9403 W
Noyce property
lat: 39.98844291 N
long: 123.92683213 W
Project Site
0
0.5
1
Miles
N
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E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
Copyright:© 2013 National Geographic Society, i-cubed

West Fork Ryan Creek Sediment Reduction and Coho Habitat Improvement Project

Introduction:

The grantee will implement the West Fork Ryan Creek Sediment Reduction and Coho Habitat Improvement Project. The purpose of the project is to prevent 5,500 cubic yards (yd^3) of sediment delivery to streams and to restore salmonid habitat through implementation of 0.9 mile of site specific and prioritized road decommissioning, erosion control and erosion prevention work directly above Class I coho habitat in West Fork Ryan Creek. Large wood removed from stream crossings will be used to construct large woody debris structures in Ryan Creek, East Fork Ryan Creek, or West Fork Ryan Creek.

This project is necessary because excessive sediment yield was identified as a limiting factor to salmonids in the 1995 CDFW stream inventory report of Ryan Creek. The report included the following recommendation: “active and potential sediment sources related to the road system need to be identified, mapped, and treated according to their potential for sediment delivery to the stream and its tributaries.”

Objective(s):

The specific objective of this project is to improve and protect water quality and salmonid habitat in the West Fork Ryan Creek and Ryan Creek watersheds. This will be achieved by implementing erosion control and erosion prevention work on high priority sediment sources identified during the field inventory for the Ryan Creek Watershed Assessment and Erosion Prevention Planning Project, Humboldt County, California ((Pacific Watershed Associates (PWA), 2013)). Specifically, the project will decommission roads to reduce threats of episodic inputs of sediment from larger road failures during large magnitude storms and floods. Prescribed remedial treatments will prevent fill failures, stream crossing washouts and stream diversions. As a result, further degradation of water quality and salmonid habitat in the West Fork Ryan Creek watershed will be reduced. In addition, large wood removed from the road will be used to build large woody debris structures in Ryan Creek, West Fork Ryan Creek, and/or East Fork Ryan Creek to improve rearing habitat for juvenile salmonids.

Project Description:

Location:

The Grantee will conduct work in the Ryan Creek Watershed. The project is located at 40.71240800 North latitude, 124.12365000 West longitude (upstream); 40.72301100 North latitude, 124.12418900 West longitude (downstream).

Project Set Up:

This road-decommissioning project will be administered and managed by staff of the grantee. The Project Manager will oversee all aspects of the project, both in the field and administratively. This will include coordination and problem solving with all agencies, landowners and subcontractors. The manager will organize permits, landowner agreements, grant Agreements, equipment and materials. The manager also looks at the work in the field and works regularly with technical consultants to make sure it is being done to the required standards. Lastly, the manager will review and finalize all invoices and reporting on projects.

The administrative assistant will draft subcontracts, invoices, permit applications and reports. The assistant will help track the project's budgets and progress, conduct field documentation, communicate with partners, and review/verify sub-invoicing.

The Field Crew will conduct pre and post implementation data collection. They will handle tasks during implementation that are not completed by subcontractors, such as water diversion, the more technical aspects of biological monitoring, and permit compliance. The field crew will also stage materials.

The technical oversight subcontractor will provide technical oversight and supervision of heavy equipment and labor operations, field layout prior to heavy equipment and labor arrival, before-and-after photographic monitoring, before-and-after stream crossing surveys, implementation monitoring, maintaining regular communications between the project proponent, the grantor and all subcontractors, and reporting of accomplishments completed during the implementation project. An experienced in-stream technician will be on-site the entire time the
LWD structures are being installed.

The heavy equipment and labor subcontractor will provide all necessary heavy equipment, operators and skilled laborers required to complete the project as designed. This includes, but may not be limited to, excavation of stream crossing fills, excavation of unstable road fills, and road drainage treatments using a team of hydraulic excavators, bulldozers and dump trucks. In addition, laborers will be used to spread straw and mulch, man and monitor pumps during any necessary dewatering operations, and maintain and monitor heavy equipment.

The tree planter subcontractor will be responsible for collecting, delivering and planting the site the first winter after treatment. A mix of native species, including both deciduous and coniferous trees will be planted.

Materials:
Materials for this project include mulch and seed, riparian nursery trees and plants, silt fence, geofabric, and flex line.

Tasks:
Habitat improvements will be accomplished by decommissioning 0.9 mile of road thereby saving 5,500 cubic yards of sediment from delivery to West Fork Ryan Creek.

Task A: Contract oversight will be conducted by Pacific Coast Fish, Wildlife, and Wetlands Restoration Association and Pacific Watershed Associates. All reporting and billing will be pursuant to contract and regulatory guidelines.

Task B: Implementation. Decommission 0.9 miles of high priority abandoned loggng road in the Ryan Creek watershed.

- Implement project permitting, pre-construction layout, and pre-project monitoring
- Implement heavy equipment work, provide technical oversight and field reviews, including pre- and post-construction inspections
- Implement post-treatment data collection, photographic monitoring, data analysis, and reporting.
- Treat 17 stream crossings to save approximately 4360 cubic yards of road-related sediment from delivery to local streams.
- Treat 5 potential or existing fillslope landslide features saving approximately 1118 cubic yards of future sediment delivery. Treat by direct excavation, sediment removal, and proper spoils disposal.
- Treat 3 springs saving approximately 19 cubic yards of sediment from delivery to stream channels.
- Treat approximately 0.9 miles of road surfaces, cutbanks, and/or ditches currently draining to stream channels either directly, via gullies, or through other treatment features.
- Excavate approximately 5,479 cubic yards of sediment at 25 different work features. Haul spoil materials to stable disposal areas.
- Construct up to 40 cross road drains and 2 drainage swales to ensure gullies, springs, road runoff, and other concentrated flow will no longer collect over long lengths of road causing saturated roads, and fillslopes,

gully erosion, and sediment delivery to streams. Construct cross road drains at approximately 75 to 150 feet spacing intervals directing road surface runoff off the road and onto stable hillslope.

- Large wood generated by the project that is suitable for placement in Ryan Creek will be transported and placed within accessible stream reaches or hauled to staging sites outside the project area for other stream habitat improvement projects. The CDFW Grant Manager will evaluate and approve proposed large wood placement sites.
- Seeding and mulching of all exposed soils which may deliver sediment to a stream. Mulching and seeding will take place as sites are completed to avoid unforeseen erosion. Woody debris will be concentrated on finished slopes adjacent to stream crossings. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years.

- A mix of native species, including both deciduous and coniferous trees will be planted at stream crossings.

- Collect data for future reporting such as a quantified description of the results of the project (including as-built road logs and in-stream enhancement feature designs) and labeled before and after photos of selected restoration activities and techniques. Analyze collected data.

Deliverables:

Submit a written completion report which contains: (1) general grant information, (2) location of work, (3) project access, (4) participating landowner's name and address, (5) a description and analysis of the restoration and planning person hours expended, (6) a quantified description of the results of the project including as-built road logs, (7) dates of work and the number of person hours expended, (8) labeled before and after photos of selected restoration activities and techniques, (9) grant dollars spent and contributed and/or in kind services used to complete the project, and (10) GIS generated maps and shapefiles of project area..

Timelines:

Project will be completed according to the following timeline:

- Administer and manage the project (Task A) throughout the entirety of the agreement term Spring 2015 to Winter 2017.

- June 1, 2015 - Pre-construction project permitting, pre-construction layout, and pre-project monitoring tasks are planned to occur.

- Summer 2015 - Fall 2016 - Heavy equipment implementation

- Fall 2015, 2016 - Post-construction data collection. Post-treatment data collection, road logs and maps showing as built road conditions, and photographic monitoring will be conducted to fulfill reporting requirements.

- Fall 2016 – February 28, 2017 - Reporting. Data collection synthesis, data analysis, and report writing. The implementation report will be completed and submitted no later than February 28, 2017.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:
    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.

    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.

    - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

    - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.

    - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

4. All road decommissioning will be done in accordance with techniques described in the Handbook for Forest and Ranch Roads, (PWA, 1994c.) and the *California Salmonid Stream Habitat Restoration Manual*, Volume II, Part X. All road upgrade and decommissioning sites and techniques shall be approved by the Grantor Project Manager before any equipment work takes place.

5. All crossings treated in fish bearing reaches of streams will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and the criteria for adult and juvenile salmonid fish passage as described in Volume II, Part IX of the *California Salmonid Stream Habitat Restoration Manual*.

6. Seeding and mulching of all exposed soils shall be done for all slopes which may deliver sediment to a stream. Woody debris will be concentrated on finished slopes adjacent to stream crossings. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. Mulching and seeding will take place as sites are completed to avoid unforeseen erosion. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

7. Sites which are expected to erode and deliver sediment to the stream are the only locations where work will be authorized for reimbursement under the terms of this agreement. Reimbursement will not be authorized for work done to improve aesthetics only.

8. The landowner or responsible party must sign an access agreement stating they agree to maintain the erosion control project for a period of not less than 10 years. Maintenance will consist of repair to the road or stream crossing to a level that will effectively reduce sediment from entering the stream. In the event of an act of nature which results in partial or complete failure of the project, the landowner or applicant will not be held responsible for costs incurred after the act of nature. Acts of nature include, but are not limited to floods, earthquakes, volcanic eruptions, and wind storms.

9. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment

devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

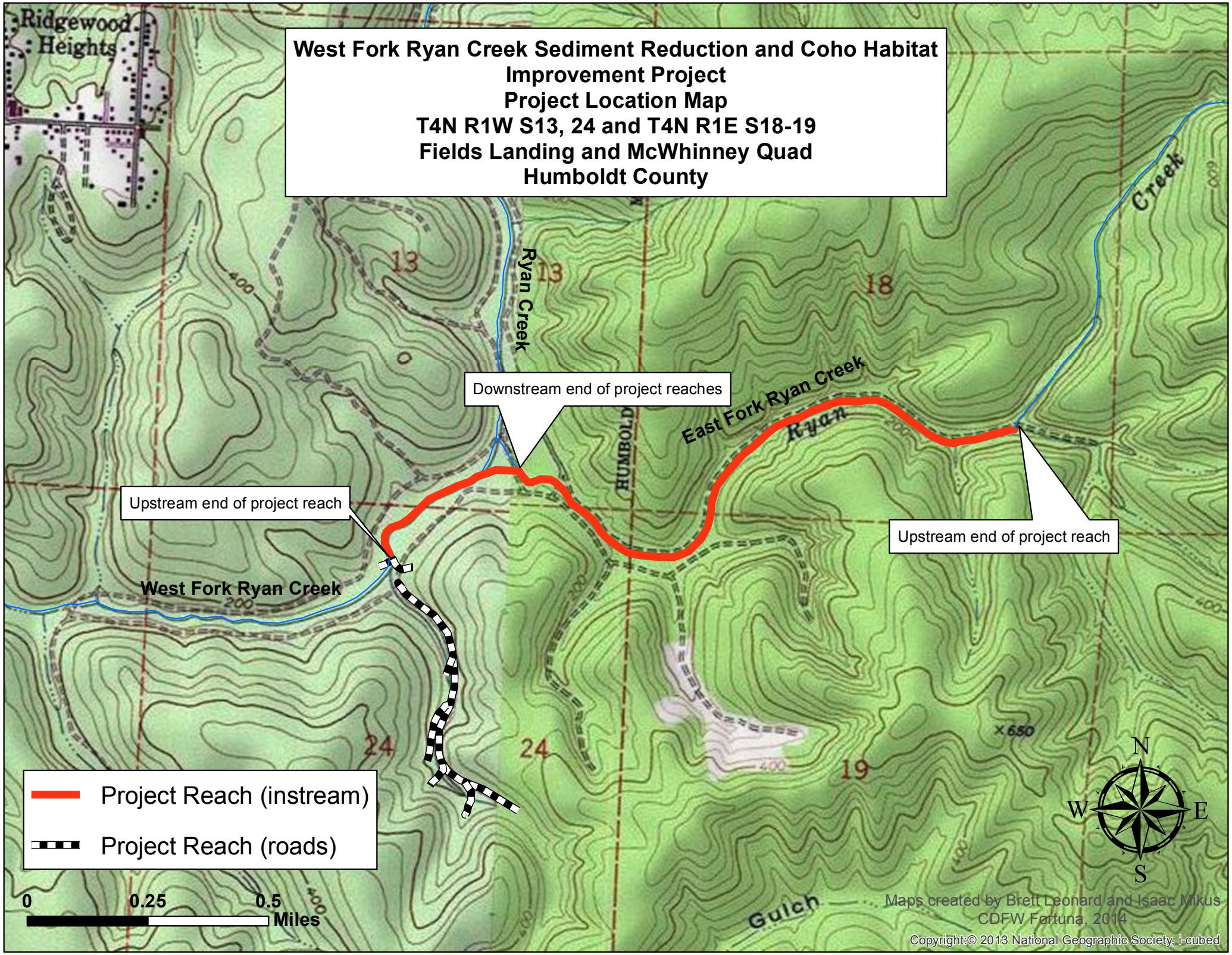
California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the McWhinney Quad and Surrounding Quads for West Fork Ryan Creek Sediment Reduction and Coho Habitat Improvement Pro HU 160
H T4N, R1W Sections 13, 24
H T4N, R1E Sections 18, 19

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	California clapper rail *Rallus longirostris obsoletus*	ABNME05016	Endangered	Endangered	G5T1	S1	
2	California globe mallow *Iliamna latibracteata*	PDMAL0K040			G2G3	S2	1B.2
3	Coastal Terrace Prairie	CTT41100CA			G2	S2.1	
4	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
5	Del Norte salamander *Plethodon elongatus*	AAAAD12050			G4	S3	SC
6	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
7	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
8	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
9	Kneeland Prairie pennycress *Noccaea fendleri ssp. californica*	PDBRA2P041	Endangered		G5?T1	S1	1B.1
10	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
11	Menzies' wallflower *Erysimum menziesii*	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
12	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
13	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
14	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
15	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
16	Oregon polemonium *Polemonium carneum*	PDPLM0E050			G4	S1	2B.2
17	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
18	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
19	Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3			G4?T2	S2	1B.2
20	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
21	Sitka Spruce Forest	CTT82110CA			G1	S1.1	
22	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
23	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
25	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
26	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G1	S1	1B.1
27	alpine marsh violet *Viola palustris*	PDVIO041G0			G5	S1S2	2B.2
28	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
29	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
30	beach layia *Layia carnosa*	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
31	black-crowned night heron *Nycticorax nycticorax*	ABNGA11010			G5	S4	
32	bristle-stalked sedge *Carex leptalea*	PMCYP037E0			G5	S1	2B.2
33	chinook salmon - California coastal ESU *Oncorhynchus tshawytscha*	AFCHA0205S	Threatened		G5	S1	
34	coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A			G4T4	S3	SC
35	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
36	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
37	coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2			G2T2	S2	1B.2
38	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
39	double-crested cormorant *Phalacrocorax auritus*	ABNFD01020			G5	S4	
40	dwarf alkali grass *Puccinellia pumila*	PMPOA531L0			G4?	SH	2B.2
41	eulachon *Thaleichthys pacificus*	AFCHB04010	Threatened		G5	S3	SC
42	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
43	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
44	ghost-pipe *Monotropa uniflora*	PDMON03030			G5	S2	2B.2
45	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
47	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
48	great egret *Ardea alba*	ABNGA04040			G5	S4	
49	green sturgeon *Acipenser medirostris*	AFCAA01030	Threatened		G3	S1S2	SC
50	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
51	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
52	long-eared myotis *Myotis evotis*	AMACC01070			G5	S4?	
53	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
54	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
55	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2S3	2B.2
56	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S1	1B.2
57	northern clustered sedge *Carex arcta*	PMCYP030X0			G5	S2	2B.2
58	northern meadow sedge *Carex praticola*	PMCYP03B20			G5	S2S3	2B.2
59	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
60	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
61	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
62	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
63	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
64	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
65	sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101			G5T2	S1	
66	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
67	seaside bittercress *Cardamine angulata*	PDBRA0K010			G5	S1	2B.1
68	seaside pea *Lathyrus japonicus*	PDFAB250C0			G5	S2	2B.1
69	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S3	
70	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
71	slender silver moss *Anomobryum julaceum*	NBMUS80010			G4G5	S2	4.2
72	snowy egret *Egretta thula*	ABNGA06030			G5	S4	
73	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
74	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
75	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
76	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
77	twisted horsehair lichen *Bryoria spiralifera*	NLTEST5460			G3	S1S2	1B.1
78	western lily *Lilium occidentale*	PMLIL1A0G0	Endangered	Endangered	G1	S1	1B.1
79	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
80	western sand-spurrey *Spergularia canadensis var. occidentalis*	PDCAR0W032			G5T4?	S1	2B.1
81	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
82	western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Proposed Threatened	Endangered	G5T3Q	S1	
83	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
84	white-footed vole *Arborimus albipes*	AMAFF23010			G3G4	S2S3	SC


West Fork Ryan Creek Sediment Reduction and Coho Habitat Improvement Project
Project Location Map
T4N R1W S13, 24 and T4N R1E S18-19
Fields Landing and McWhinney Quad
Humboldt County
Ridgewood Heights
Ryan Creek
Downstream end of project reaches
East Fork Ryan Creek
Upstream end of project reach
Upstream end of project reach
West Fork Ryan Creek
Project Reach (instream)
Project Reach (roads)
0
0.25
0.5
Miles
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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Lindsay Creek Coho Habitat Improvement Project

Introduction:

The grantee will complete the Lindsay Creek Coho Habitat Improvement Project by installing 16 woven log structures along a 1.5 mile stretch of Lindsay Creek to create more, deeper, and better covered pool habitat and increased channel complexity within the project reach.

This project is necessary to will provide low velocity refuge for young of the year coho salmon during heavy runoff events, allow for deeper summertime pools, and maintain a complex geomorphic environment with increased edge habitat. Instream habitat enhancement using a variety of potential LWD augmentation methods can increase stream habitat complexity and shelter values allowing improved rearing habitat as well as secondary effects of improving spawning conditions and water quality.

Objectives:

The objectives of this project include:

1. Enhance pool depth at existing pools by fluvial scour adjacent to LWD installation sites

2. Enhance cover in existing pools by adding complex wood structures to the margins of the existing channel

3. Improve and increase refuge for coho salmon from high velocity flows during moderate and large storm events

4. Create enhanced spawning habitat by substrate sorting adjacent to LWD structures, and

5. Facilitate the creation and sustainability of a complex geomorphic channel environment where fish can “pick and choose” from a diverse suite of habitat elements within Lindsay Creek rather than compete for the limited suitable existing locations.

Project Description:

Location:

The project is located along a 1.5 mile stretch of Lindsay Creek, 3.5 miles upstream from its confluence with Mad River. The center point of the stream reach is at 40.94644000: -124.0424900.

Project Set Up:

Contracting, management, landowner coordination, and oversight will be conducted by the PCFWWRA Project Manager and Assistant Manager/Field Staff.

On the ground implementation of the project will be designed, supervised, documented, and monitored by Pacific Watershed Associates:

- The PWA Principal Geologist will review field layout, make several site visits and review final reporting.

- The PWA Project Manager will manage day to day activities, coordinate and supervise heavy equipment and laborers, coordinate material procurement, work on final reporting and maps.

- The PWA Engineering Geologist will assist in developing and review the final site design plans, review the design in its geomorphic context to minimize identified risks, and provide the PWA Project Manager and Physical Scientist with recommendations for site specific and reach design.

- The PWA Physical Scientist will conduct pre-project layout and documentation and post-project documentation. They will assist in material procurement, and they will oversee installation of the LWD features and work closely with the construction crews to assure the project is implemented as designed.

- The PWA Physical Science Technician will assist in pre-project layout and documentation, assist in material procurement, and oversee post project erosion control and planting and other duties as assigned by the Project Manager.

- PWA GIS staff will create field maps and graphics for reporting.

- PWA Clerical staff will create invoicing and track budgets.

Actual construction will be undertaken by a trained and experienced heavy equipment contractor. The heavy equipment contractor will also be responsible for material procurement, construction of the LWD jams, installation of erosion control BMPs, and installation of anchoring devices within the LWD structures.

Materials:

Materials will include 200 riparian trees, 10 sets of LWD hardware (rebar, nuts, and plates), seed, straw, and logs.

Tasks:

Task A: Contracting, management, landowner coordination, and oversight will be conducted by PCFWWRA. All reporting and billing will be pursuant to contract and regulatory guidelines.

Task B: Planning and Implementation:
Create site specific plans with the following objectives:

- Provide scour holes and complex edge habitat through reaches which are currently mostly devoid of wood structure and the expected outcome should be consistent with and scaled to the proximal geomorphic environment

- Provide refuge from high velocity flows where it is lacking

- Route sediment out of the existing pools, which currently lack depth, without causing excessive erosion of the channel margins

- Provide shaded shelter for fish habitat and

- Facilitate the creation of more complex geomorphic conditions through the proposed project reach.

Procure large diameter (12”-30” dia.) wood from Green Diamond Resource Company. The logs and rootwads will be delivered via log trucks or end dumps and staged in areas proximal to the installation sites. Once the wood has been staged as close to its installation site as possible, an excavator will be used to move and position the material into its designed location. PWA staff will be on site to supervise final placement of each of the structures.

Install 16 in-channel log and root wad structures including some whole tree materials. Weave logs into existing live vegetation. The project will utilize living riparian trees as anchors by wedging the logs between them where feasible. In circumstances where riparian trees are not sufficient to anchor wood together laborers will fasten logs together using CDFW approved fastening techniques. During construction of the primary structural elements of the wood jams, medium and small woody debris will be incorporated into the structure to reduce its porosity and mimic natural wood recruitment at the jam site.

Deliverables:
Project deliverables include:
Install 16 woven log jams along 1.5 miles of Lindsay Creek. Upon completion of the project PCFWWRA shall submit a written completion report which contains: (1) general grant information, (2) location of work, (3) project access, (4) participating landowner’s name and address, (5) a description and analysis of the restoration and planning person hours expended, (6) a quantified description of the results of the project, including as-built construction logs, and number of LWD structures, (7) dates of work and the number of person hours expended, (8) labeled before and after photos of selected restoration activities and techniques, (9) grant dollars spent and contributed and/or in kind services used to complete the project, and (10) GIS generated maps and shapefiles of project area.

Written consent documents signed by landowners or authorized land managing authorities unless applicant is the landowner. Consent documents must include:

- Statement that landowner(s) or land manager is aware of the proposed project;
- Landowner or land manager gives consent for the grantee to complete the proposed project with CDFW oversight and visitation;
- Landowner name(s) or land manager contact information; and
- Signature of landowner(s) or land manager.

Timelines:

- June 2015 – March 2017 – Project management, contracting, and land owner coordination.
- June 2015 to October 2015 - Procure trees and stage the log material to construct LWD features. Start installation of LWD features and winterize access roads at the end of the work season.
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- October 15th, 2016.
- Fall 2016 – Winter 2016 – Monitoring and reporting.
- February 28, 2017 – Final Report due

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

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3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

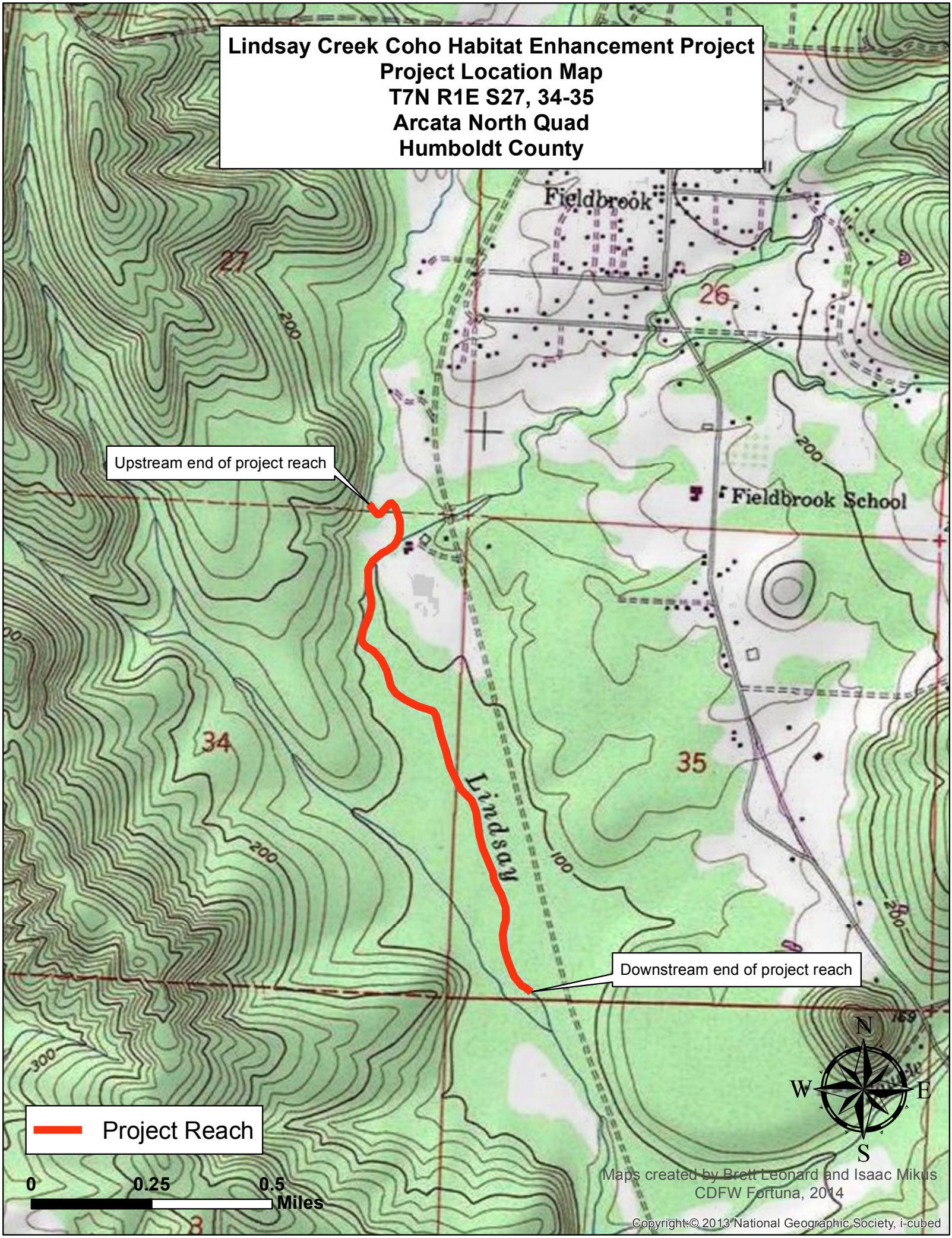
California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
H 7N 1E Sections 34, 35 Humboldt County
Possible Species within Arcata North Quad and Surrounding quads for Lindsay Creek Coho Habitat Enhancement Project

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	California clapper rail *Rallus longirostris obsoletus*	ABNME05016	Endangered	Endangered	G5T1	S1	
2	California globe mallow *Iliamna latibracteata*	PDMAL0K040			G2G3	S2	1B.2
3	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
4	Del Norte salamander *Plethodon elongatus*	AAAAD12050			G4	S3	SC
5	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
6	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
7	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
8	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
9	Menzies' wallflower *Erysimum menziesii*	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
10	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
11	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
12	Northern Foredune Grassland	CTT21211CA			G1	S1.1	
13	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
14	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
15	Oregon polemonium *Polemonium carneum*	PDPLM0E050			G4	S1	2B.2
16	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
17	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
18	Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3			G4?T2	S2	1B.2
19	Sierra rush *Juncus nevadensis var. inventus*	PMJUN011Z5			G5T3T4	S1	2B.2
20	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
21	Sitka Spruce Forest	CTT82110CA			G1	S1.1	
22	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
23	Sphagnum Bog	CTT51110CA			G3	S1.2	
24	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Tracy's romanzoffia *Romanzoffia tracyi*	PDHYD0E030			G4	S2	2B.3
26	Waldo daisy *Erigeron bloomeri var. nudatus*	PDAST3M0M2			G5T4	S2?	2B.3
27	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G1	S1	1B.1
28	alpine marsh violet *Viola palustris*	PDVIO041G0			G5	S1S2	2B.2
29	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
30	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
31	beach layia *Layia carnosa*	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
32	black crowberry *Empetrum nigrum*	PDEMP03020			G5	S2?	2B.2
33	black-crowned night heron *Nycticorax nycticorax*	ABNGA11010			G5	S4	
34	bristle-stalked sedge *Carex leptalea*	PMCYP037E0			G5	S1	2B.2
35	coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A			G4T4	S3	SC
36	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
37	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
38	coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2			G2T2	S2	1B.2
39	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	SC
40	cylindrical trichodon *Trichodon cylindricus*	NBMUS7N020			G4G5	S2	2B.2
41	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
42	double-crested cormorant *Phalacrocorax auritus*	ABNFD01020			G5	S4	
43	eulachon *Thaleichthys pacificus*	AFCHB04010	Threatened		G5	S3	SC
44	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
45	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
46	fork-tailed storm-petrel *Oceanodroma furcata*	ABNDC04010			G5	S1	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
47	ghost-pipe *Monotropa uniflora*	PDMON03030			G5	S2	2B.2
48	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2
49	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
50	great egret *Ardea alba*	ABNGA04040			G5	S4	
51	green sturgeon *Acipenser medirostris*	AFCAA01030	Threatened		G3	S1S2	SC
52	green yellow sedge *Carex viridula ssp. viridula*	PMCYP03EM5			G5T5	S2	2B.3
53	inundated bog-clubmoss *Lycopodiella inundata*	PPLYC03060			G5	S1?	2B.2
54	lagoon sedge *Carex lenticularis var. limnophila*	PMCYP037A7			G5T5	S1	2B.2
55	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
56	long-eared myotis *Myotis evotis*	AMACC01070			G5	S4?	
57	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
58	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
59	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
60	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2S3	2B.2
61	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S1	1B.2
62	naked flag moss *Discelium nudum*	NBMUS2E010			G3G4	S1	2B.2
63	northern clustered sedge *Carex arcta*	PMCYP030X0			G5	S2	2B.2
64	northern meadow sedge *Carex praticola*	PMCYP03B20			G5	S2S3	2B.2
65	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
66	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
67	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
68	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
69	rhinoceros auklet *Cerorhinca monocerata*	ABNNN11010			G5	S3	
70	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
71	sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101			G5T2	S1	
72	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
73	seaside bittercress *Cardamine angulata*	PDBRA0K010			G5	S1	2B.1
74	seaside pea *Lathyrus japonicus*	PDFAB250C0			G5	S2	2B.1
75	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
76	snowy egret *Egretta thula*	ABNGA06030			G5	S4	
77	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
78	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
79	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
80	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S2	SC
81	twisted horsehair lichen *Bryoria spiralifera*	NLTEST5460			G3	S1S2	1B.1
82	western lily *Lilium occidentale*	PMLIL1A0G0	Endangered	Endangered	G1	S1	1B.1
83	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
84	western sand-spurrey *Spergularia canadensis var. occidentalis*	PDCAR0W032			G5T4?	S1	2B.1
85	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
86	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
87	white-footed vole *Arborimus albipes*	AMAFF23010			G3G4	S2S3	SC
88	willow flycatcher *Empidonax traillii*	ABPAE33040		Endangered	G5	S1S2	


Lindsay Creek Coho Habitat Enhancement Project
Project Location Map
T7N R1E S27, 34-35
Arcata North Quad
Humboldt County
Fieldbrook
Fieldbrook School
Upstream end of project reach
Downstream end of project reach
Lindsay
27
26
34
35
200
100
300
Project Reach
0
0.25
0.5
Miles
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
Copyright © 2013 National Geographic Society, i-cubed

Little River Coho Habitat Improvement Project

Introduction:

The grantee will complete the Little River Coho Habitat Improvement Project by installing 11 log structures along a 0.5 mile stretch of Little River to bolster existing wood features and create more complex edge habitat within the project reach.

This project will provide low velocity refuge for young of the year coho salmon during heavy runoff events, allow for deeper summertime pools, and maintain a complex geomorphic environment with increased edge habitat. Instream habitat enhancement using a variety of potential LWD augmentation methods can increase stream habitat complexity and shelter values allowing improved rearing habitat as well as secondary effects of improving spawning conditions and water quality.

Objectives:

The objectives of this project include:

1. Enhance pool depth at existing pools by fluvial scour adjacent to LWD installation sites

2. Enhance cover in existing pools by adding complex wood structures to the margins of the existing channel

3. Improve and increase refuge for coho salmon from high velocity flows during moderate and large storm events

4. Create enhanced spawning habitat by substrate sorting adjacent to LWD structures, and

5. Facilitate the creation and sustainability of a complex geomorphic channel environment where fish can “pick and choose” from a diverse suite of habitat elements within Little River rather than compete for the limited suitable existing locations.

Project Description:

Location:

The project is located along a 0.5 mile stretch of Little River, just upstream from its confluence with Carson Creek. The center point of the stream reach is at 41.01300000: -124.06100000.

Project Set Up:

Contracting, management, landowner coordination, and oversight will be conducted by the PCFWWRA Project Manager and Assistant Manager/Field Staff.

On the ground implementation of the project will be designed, supervised, documented, and monitored by Pacific Watershed Associates:

- The PWA Principal Geologist will review field layout, make several site visits and review final reporting.

- The PWA Project Manager will manage day to day activities, coordinate and supervise heavy equipment and laborers, coordinate material procurement, work on final reporting and maps.

- The PWA Engineering Geologist will assist in developing and review the final site design plans, review the design in its geomorphic context to minimize identified risks, and provide the PWA Project Manager and Physical Scientist with recommendations for site specific and reach design.

- The PWA Physical Scientist will conduct pre-project layout and documentation and post-project documentation. They will assist in material procurement, and they will oversee installation of the LWD features and work closely with the construction crews to assure the project is implemented as designed.

- The PWA Physical Science Technician will assist in pre-project layout and documentation, assist in material procurement, and oversee post project erosion control and planting and other duties as assigned by the Project Manager.

- PWA GIS staff will create field maps and graphics for reporting.

- PWA Clerical staff will create invoicing and track budgets.

Actual construction will be undertaken by a trained and experienced heavy equipment contractor. The heavy equipment contractor will also be responsible for material procurement, construction of the LWD jams, installation of erosion control BMPs, and installation of anchoring devices within the LWD structures.

Materials:

Materials will include 800 riparian trees, 15 sets of LWD hardware (rebar, nuts, and plates), seed, straw, and logs.

Tasks:

Task A: Contracting, management, landowner coordination, and oversight will be conducted by PCFWWRA. All reporting and billing will be pursuant to contract and regulatory guidelines.

Task B: Planning and Implementation:
Create site specific plans with the following objectives:

- Provide scour holes and complex edge habitat through reaches which are currently mostly devoid of wood structure and the expected outcome should be consistent with and scaled to the proximal geomorphic environment

- Provide refuge from high velocity flows where it is lacking

- Route sediment out of the existing pools, which currently lack depth, without causing excessive erosion of the channel margins

- Provide shaded shelter for fish habitat and

- Facilitate the creation of more complex geomorphic conditions through the proposed project reach.

Procure large diameter (12”-30” dia.) wood from Green Diamond Resource Company. The logs and rootwads will be delivered via log trucks or end dumps and staged in areas proximal to the installation sites. Once the wood has been staged as close to its installation site as possible, an excavator will be used to move and position the material into its designed location. PWA staff will be on site to supervise final placement of each of the structures.

Install 11 in-channel log and root wad structures including some whole tree materials. Weave logs into existing live vegetation. The project will utilize living riparian trees as anchors by wedging the logs between them where feasible. In circumstances where riparian trees are not sufficient to anchor wood together laborers will fasten logs together using CDFW approved fastening techniques. During construction of the primary structural elements of the wood jams, medium and small woody debris will be incorporated into the structure to reduce its porosity and mimic natural wood recruitment at the jam site.

Deliverables:
Project deliverables include:
Install 11 woven log jams along 0.5 miles of Little River. Upon completion of the project PCFWWRA shall submit a written completion report which contains: (1) general grant information, (2) location of work, (3) project access, (4) participating landowner’s name and address, (5) a description and analysis of the restoration and planning person hours expended, (6) a quantified description of the results of the project, including as-built construction logs, and number of LWD structures, (7) dates of work and the number of person hours expended, (8) labeled before and after photos of selected restoration activities and techniques, (9) grant dollars spent and contributed and/or in kind services used to complete the project, and (10) GIS generated maps and shapefiles of project area.

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- Landowner or land manager gives consent for the grantee to complete the proposed project with CDFW oversight and visitation;
- Landowner name(s) or land manager contact information; and
- Signature of landowner(s) or land manager.

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- October 15th, 2016.
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California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Crannell Quad and Surrounding Quads for Little River Coho Habitat Improvement Project HI 203 H 7N 1E Sections 3, 9, 10 Humboldt County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	California clapper rail *Rallus longirostris obsoletus*	ABNME05016	Endangered	Endangered	G5T1	S1	
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3	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
4	Del Norte salamander *Plethodon elongatus*	AAAAD12050			G4	S3	SC
5	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
6	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
7	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
8	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
9	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
10	Menzies' wallflower *Erysimum menziesii*	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
11	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
12	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
13	Northern Foredune Grassland	CTT21211CA			G1	S1.1	
14	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
15	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
16	Oregon polemonium *Polemonium carneum*	PDPLM0E050			G4	S1	2B.2
17	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
18	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
19	Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3			G4?T2	S2	1B.2
20	Sierra rush *Juncus nevadensis var. inventus*	PMJUN011Z5			G5T3T4	S1	2B.2
21	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
22	Sitka Spruce Forest	CTT82110CA			G1	S1.1	
23	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
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37	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	SC
38	cylindrical trichodon *Trichodon cylindricus*	NBMUS7N020			G4G5	S2	2B.2
39	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
40	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
41	double-crested cormorant *Phalacrocorax auritus*	ABNFD01020			G5	S4	
42	eulachon *Thaleichthys pacificus*	AFCHB04010	Threatened		G5	S3	SC
43	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
44	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
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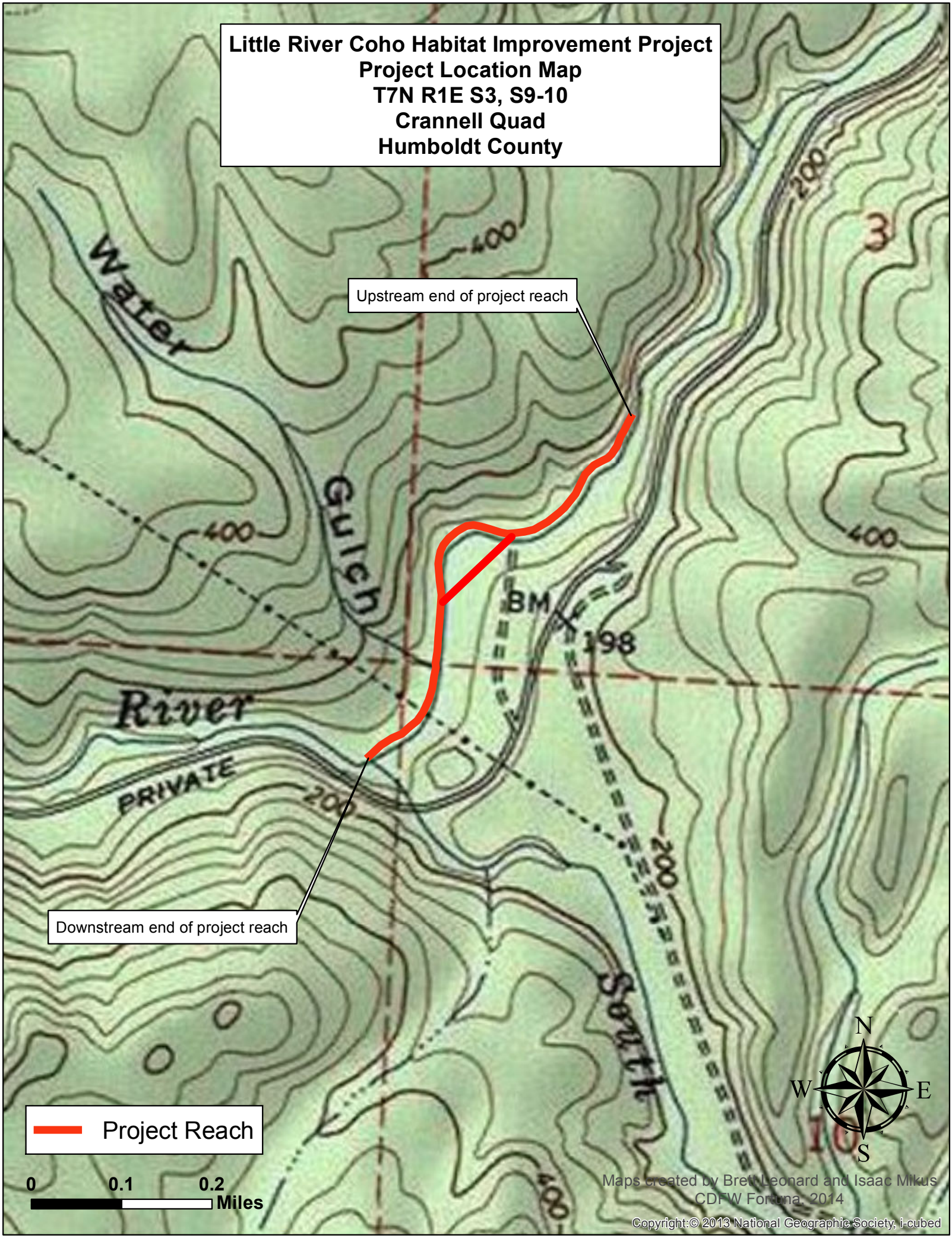
47	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
48	green yellow sedge *Carex viridula ssp. viridula*	PMCYP03EM5			G5T5	S2	2B.3
49	inundated bog-clubmoss *Lycopodiella inundata*	PPLYC03060			G5	S1?	2B.2
50	lagoon sedge *Carex lenticularis var. limnophila*	PMCYP037A7			G5T5	S1	2B.2
51	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
52	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
53	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
54	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2S3	2B.2
55	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S1	1B.2
56	naked flag moss *Discelium nudum*	NBMUS2E010			G3G4	S1	2B.2
57	northern clustered sedge *Carex arcta*	PMCYP030X0			G5	S2	2B.2
58	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
59	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
60	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
61	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
62	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
63	rhinoceros auklet *Cerorhinca monocerata*	ABNNN11010			G5	S3	
64	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
65	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
66	seaside pea *Lathyrus japonicus*	PDFAB250C0			G5	S2	2B.1
67	silver-haired bat *Lasionycteris noctivagans*	AMACC02010			G5	S3S4	
68	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
69	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
70	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S2	SC
71	twisted horsehair lichen *Bryoria spiralifera*	NLTEST5460			G3	S1S2	1B.1
72	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
73	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
74	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
75	white-footed vole *Arborimus albipes*	AMAFF23010			G3G4	S2S3	SC
76	willow flycatcher *Empidonax traillii*	ABPAE33040		Endangered	G5	S1S2	
77	woodnymph *Moneses uniflora*	PDPYR02010			G5	S3	2B.2


Little River Coho Habitat Improvement Project
Project Location Map
T7N R1E S3, S9-10
Crannell Quad
Humboldt County
Upstream end of project reach
Downstream end of project reach
Water
Gulch
River
South
PRIVATE
BM
198
400
200
3
10
N
S
E
W
Project Reach
0
0.1
0.2
Miles
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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Hall Creek Coho Habitat Improvement Project

Introduction:

The grantee will complete the Hall Creek Coho Habitat Improvement Project by installing 12 log structures along a 0.5 mile stretch of Hall Creek to create covered pools and more complex edge habitat within the project reach.

The project is necessary because an insufficient amount of pool depth and woody cover in pools and flatwater habitat units in Hall Creek was identified as a limiting factor to salmonids in the 2007 CDFW Stream Inventory Report. Addition of LWD will provide low velocity refuge for young of the year coho salmon during heavy runoff events, allow for deeper summertime pools, and maintain a complex geomorphic environment with increased edge habitat. Instream habitat enhancement using a variety of potential LWD augmentation methods can increase stream habitat complexity and shelter values allowing improved rearing habitat as well as secondary effects of improving spawning conditions and water quality.

Objectives:

The objectives of this project include:

1. Enhance pool depth at existing pools by fluvial scour adjacent to LWD installation sites

2. Enhance cover in existing pools by adding complex wood structures to the margins of the existing channel

3. Provide refuge for coho salmon from high velocity flows during large storm events

4. Create enhanced spawning habitat by substrate sorting adjacent to LWD structures, and

5. Facilitate the creation and sustainability of a complex geomorphic channel environment where fish can “pick and choose” from a diverse suite of habitat elements within Hall Creek rather than compete for the limited suitable existing locations.

Project Description:

Location:

The project is located along a 0.5 mile stretch of Hall Creek on the McAdams Ranch, 0.5 miles upstream from its confluence with Mad River. The center point of the stream reach is at 40.90600000: -124.01200000.

Project Set Up:
Contracting, management, landowner coordination, and oversight will be conducted by the PCFWWRA Project Manager and Assistant Manager/Field Staff.

On the ground implementation of the project will be designed, supervised, documented, and monitored by Pacific Watershed Associates:

- The PWA Principal Geologist will review field layout, make several site visits and review final reporting.

- The PWA Project Manager will manage day to day activities, coordinate and supervise heavy equipment and laborers, coordinate material procurement, work on final reporting and maps.

- The PWA Engineering Geologist will assist in developing and review the final site design plans, review the design in its geomorphic context to minimize identified risks, and provide the PWA Project Manager and Physical Scientist with recommendations for site specific and reach design.

- The PWA Physical Scientist will conduct pre-project layout and documentation and post-project documentation. They will assist in material procurement, and they will oversee installation of the LWD features and work closely with the construction crews to assure the project is implemented as designed.

- The PWA Physical Science Technician will assist in pre-project layout and documentation, assist in material procurement, and oversee post project erosion control and planting and other duties as assigned by the Project Manager.
- PWA GIS staff will create field maps and graphics for reporting.

- PWA Clerical staff will create invoicing and track budgets.

Actual construction will be undertaken by a trained and experienced heavy equipment contractor. The heavy equipment contractor will also be responsible for material procurement, construction of the LWD jams, installation of erosion control BMP's, and installation of anchoring devices within the LWD structures.

Materials:
Materials will include 200 riparian trees, 10 sets of LWD hardware (rebar, nuts, and plates), seed, straw, and logs.

Tasks:

Task A: Contracting, management, landowner coordination, and oversight will be conducted by PCFWWRA. All reporting and billing will be pursuant to contract and regulatory guidelines.

Task B: Planning and Implementation:

Create site specific plans with the following objectives:

- Provide scour holes and complex edge habitat through reaches which are currently mostly devoid of wood structure and the expected outcome should be consistent with and scaled to the proximal geomorphic environment
- Provide refuge from high velocity flows where it is lacking
- Route sediment out of the existing pools, which currently lack depth, without causing excessive erosion of the channel margins
- Provide shaded shelter for fish habitat and
- Facilitate the creation of more complex geomorphic conditions through the proposed project reach.

Procure large diameter (12”-30” dia.) wood from nearby upslope conifer forests. The logs and rootwads will be delivered via log trucks or end dumps and staged in areas proximal to the installation sites. Once the wood has been staged as close to its installation site as possible, an excavator will be used to move and position the material into its designed location. PWA staff will be on site to supervise final placement of each of the structures.

Install 12 in-channel log and root wad structures including some whole tree materials. Weave logs into existing live vegetation. The project will utilize living riparian trees as anchors by wedging the logs between them where feasible. In circumstances where riparian trees are not sufficient to anchor wood together laborers will fasten logs together using CDFW approved fastening techniques. During construction of the primary structural elements of the wood jams, medium and small woody debris will be incorporated into the structure to reduce its porosity and mimic natural wood recruitment at the jam site.

Deliverables:

Project deliverables include:

Install 12 woven log jams along 0.5 miles of Hall Creek. Upon completion of the project PCFWWRA shall submit a written completion report which contains: (1) general grant information, (2) location of work, (3) project access, (4) participating landowner’s name and address, (5) a description and analysis of the restoration and planning person hours expended, (6) a quantified description of the results of the project, including as-built construction logs, and number of LWD

structures, (7) dates of work and the number of person hours expended, (8) labeled before and after photos of selected restoration activities and techniques, (9) grant dollars spent and contributed and/or in kind services used to complete the project, and (10) GIS generated maps and shapefiles of project area.

Written consent documents signed by landowners or authorized land managing authorities unless applicant is the landowner. Consent documents must include:

- Statement that landowner(s) or land manager is aware of the proposed project;
- Landowner or land manager gives consent for the grantee to complete the proposed project with CDFW oversight and visitation;
- Landowner name(s) or land manager contact information; and
- Signature of landowner(s) or land manager.

Timelines:

- June 2015 – March 2017 – Project management, contracting, and land owner coordination.

- June 2015 to October 2015 - Procure trees and stage the log material to construct LWD features. Start installation of LWD features and winterize access roads at the end of the work season.

- June 2016 to October 2016 – Finalize LWD features and winterize access roads. It is anticipated that heavy equipment work will be completed by
- October 15th, 2016.

- Fall 2016 – Winter 2016 – Monitoring and reporting.

- February 28, 2017 – Final Report due

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the California Salmonid Stream Habitat Restoration Manual.

3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment

devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

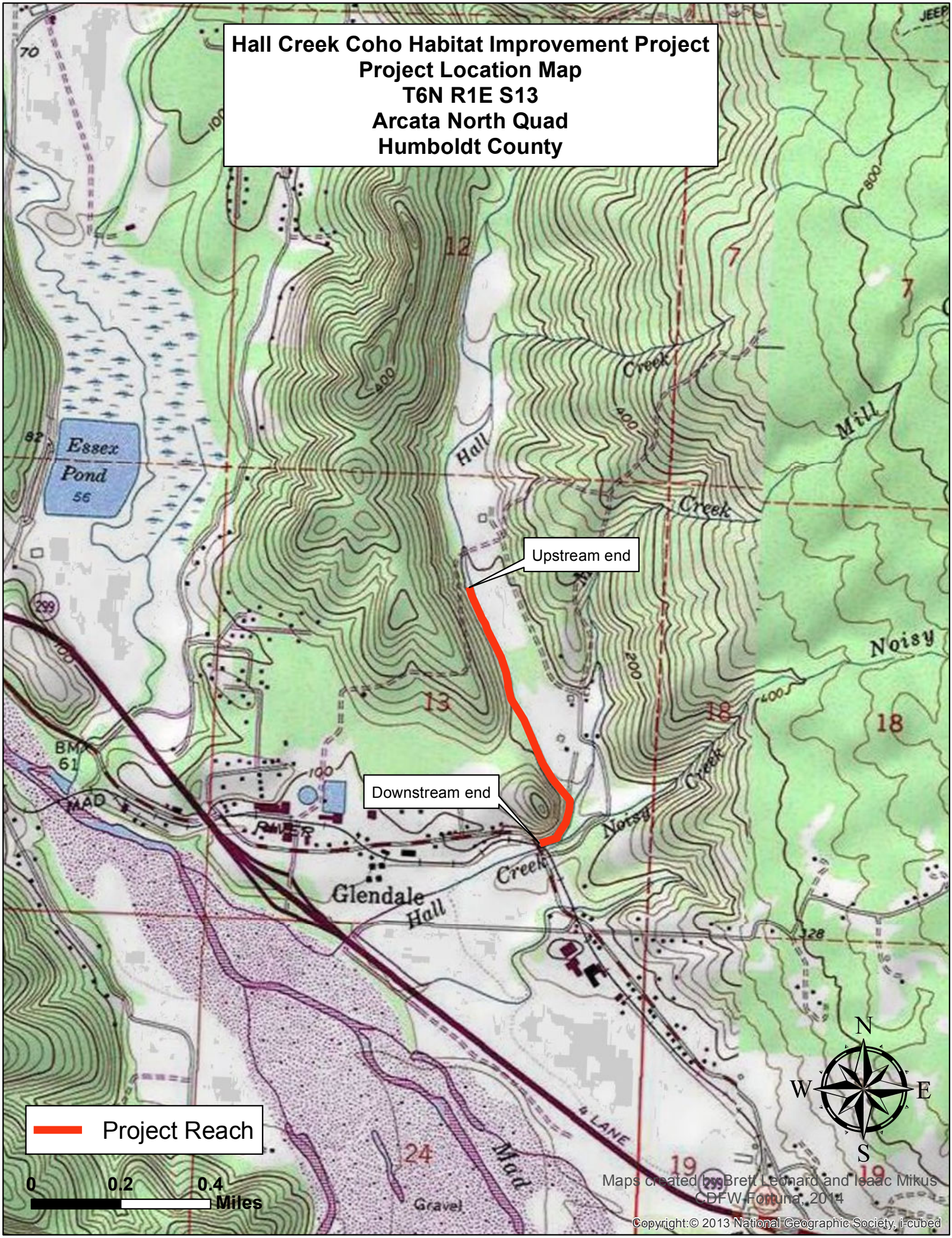
California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Arcata North Quad and Surrounding Quads for Hall Creek Coho Habitat Improvement Project HI 205 H 6N 1E Sections 13 Humboldt County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	California clapper rail *Rallus longirostris obsoletus*	ABNME05016	Endangered	Endangered	G5T1	S1	
2	California globe mallow *Iliamna latibracteata*	PDMAL0K040			G2G3	S2	1B.2
3	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
4	Del Norte salamander *Plethodon elongatus*	AAAAD12050			G4	S3	SC
5	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
6	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
7	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
8	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
9	Menzies' wallflower *Erysimum menziesii*	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
10	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
11	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
12	Northern Foredune Grassland	CTT21211CA			G1	S1.1	
13	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
14	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
15	Oregon polemonium *Polemonium carneum*	PDPLM0E050			G4	S1	2B.2
16	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
17	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
18	Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3			G4?T2	S2	1B.2
19	Sierra rush *Juncus nevadensis var. inventus*	PMJUN011Z5			G5T3T4	S1	2B.2
20	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
21	Sitka Spruce Forest	CTT82110CA			G1	S1.1	
22	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
23	Sphagnum Bog	CTT51110CA			G3	S1.2	
24	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Tracy's romanzoffia *Romanzoffia tracyi*	PDHYD0E030			G4	S2	2B.3
26	Waldo daisy *Erigeron bloomeri var. nudatus*	PDAST3M0M2			G5T4	S2?	2B.3
27	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G1	S1	1B.1
28	alpine marsh violet *Viola palustris*	PDVIO041G0			G5	S1S2	2B.2
29	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
30	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
31	beach layia *Layia carnosa*	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
32	black crowberry *Empetrum nigrum*	PDEMP03020			G5	S2?	2B.2
33	black-crowned night heron *Nycticorax nycticorax*	ABNGA11010			G5	S4	
34	bristle-stalked sedge *Carex leptalea*	PMCYP037E0			G5	S1	2B.2
35	coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A			G4T4	S3	SC
36	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
37	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
38	coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2			G2T2	S2	1B.2
39	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	SC
40	cylindrical trichodon *Trichodon cylindricus*	NBMUS7N020			G4G5	S2	2B.2
41	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
42	double-crested cormorant *Phalacrocorax auritus*	ABNFD01020			G5	S4	
43	eulachon *Thaleichthys pacificus*	AFCHB04010	Threatened		G5	S3	SC
44	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
45	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
46	fork-tailed storm-petrel *Oceanodroma furcata*	ABNDC04010			G5	S1	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
47	ghost-pipe *Monotropa uniflora*	PDMON03030			G5	S2	2B.2
48	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2
49	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
50	great egret *Ardea alba*	ABNGA04040			G5	S4	
51	green sturgeon *Acipenser medirostris*	AFCAA01030	Threatened		G3	S1S2	SC
52	green yellow sedge *Carex viridula ssp. viridula*	PMCYP03EM5			G5T5	S2	2B.3
53	inundated bog-clubmoss *Lycopodiella inundata*	PPLYC03060			G5	S1?	2B.2
54	lagoon sedge *Carex lenticularis var. limnophila*	PMCYP037A7			G5T5	S1	2B.2
55	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
56	long-eared myotis *Myotis evotis*	AMACC01070			G5	S4?	
57	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
58	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
59	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
60	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2S3	2B.2
61	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S1	1B.2
62	naked flag moss *Discelium nudum*	NBMUS2E010			G3G4	S1	2B.2
63	northern clustered sedge *Carex arcta*	PMCYP030X0			G5	S2	2B.2
64	northern meadow sedge *Carex praticola*	PMCYP03B20			G5	S2S3	2B.2
65	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
66	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
67	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
68	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
69	rhinoceros auklet *Cerorhinca monocerata*	ABNNN11010			G5	S3	
70	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
71	sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101			G5T2	S1	
72	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
73	seaside bittercress *Cardamine angulata*	PDBRA0K010			G5	S1	2B.1
74	seaside pea *Lathyrus japonicus*	PDFAB250C0			G5	S2	2B.1
75	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
76	snowy egret *Egretta thula*	ABNGA06030			G5	S4	
77	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
78	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
79	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
80	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S2	SC
81	twisted horsehair lichen *Bryoria spiralifera*	NLTEST5460			G3	S1S2	1B.1
82	western lily *Lilium occidentale*	PMLIL1A0G0	Endangered	Endangered	G1	S1	1B.1
83	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
84	western sand-spurrey *Spergularia canadensis var. occidentalis*	PDCAR0W032			G5T4?	S1	2B.1
85	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
86	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
87	white-footed vole *Arborimus albipes*	AMAFF23010			G3G4	S2S3	SC
88	willow flycatcher *Empidonax traillii*	ABPAE33040		Endangered	G5	S1S2	


Hall Creek Coho Habitat Improvement Project
Project Location Map
T6N R1E S13
Arcata North Quad
Humboldt County
Upstream end
Downstream end
Project Reach
0
0.2
0.4
Miles
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW-Fortuna, 2014
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Lower Jacoby Creek Off-Channel Rearing Habitat Restoration Project

Introduction:

Pacific Coast Fish, Wildlife and Wetlands Restoration Association (PCFWWRA) will restore approximately 1.94 acres of functioning off-channel winter rearing habitat for juvenile coho salmon and other salmonids in Jacoby Creek by reconnecting and restoring two off-channel ponds.

1. Historically, freshwater wetlands and tidal estuaries adjacent to Humboldt Bay have offered extensive winter rearing habitat for a variety of salmonid species (NMFS, 2012). The lower reaches of Jacoby Creek flowed through an expansive floodplain and wetland system before reaching Humboldt Bay (Laird, 2008). Over the last 150 years, the majority of the floodplains and wetlands around Humboldt Bay have been drained and claimed for pasture land. The current scarcity of low gradient, non-natal rearing opportunities for coho of the historic wetlands in the Jacoby Creek watershed establishes the importance of this area for non-natal rearing habitat improvements for coho. The *Recovery Strategy for California Coho Salmon* (CDFG, 2004) lists restoration of functioning flood plains and natural process where practicable (Task EP-HU-14) as a high priority. The project will accomplish this task by restoring two off-channel ponds and their connectivity to Jacoby Creek within the adjacent floodplain. The off-channel habitat will be restored within two historical meander bends of Jacoby Creek that were disconnected from the main channel during earlier agricultural activities.

2. The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

3. All habitat improvements will follow techniques in the California Stream Habitat Restoration Manual (Parts III, VI, VII, IX, XI and XII).

Objective(s):

The objectives of this project include:

1. At the Lower Pond Site, restoration will include construction of a 63-foot long off-channel alcove and 50-feet of log step-pool channel that will provide access to an existing 1.08 acre off-channel pond that has formed in a historical meander scar. Implementation of design plans at the Lower Pond will necessitate approximately 440 cubic yards of excavation and installation of 3 log weirs, 440 live willow stakes, 410 square yards of soil stabilization matting, 50 native trees, 80 native shrubs, 20 feet of 30-inch diameter HDPE culvert, and 520 feet of cattle exclusion fencing and a gate.

2. At the Upper Pond Site, restoration will include construction of a 56-foot long off-channel alcove, and 92-feet of step-pool channel that will provide

access to a newly constructed 0.45-acre off-channel pond, with an adjacent 0.23-acre emergent wetland, for a total of 0.68 acres of ponded area. Implementation of design plans at the Upper Pond will necessitate approximately 2,110 cubic yards of excavation and installation of 4 log weirs, 5 log sills, 2 log pond cover structures, 1,740 live willow stakes, 940 square yards of soil stabilization matting, 90 native trees, and 160 native shrubs.

3. Other components of the project include mobilization of equipment to the project site, installation and maintenance of erosion and sediment control measures (silt fence, seed mulch etc. as needed depending on site conditions), site clearing for construction access, and site restoration, including spreading of spoils on existing upland pasture, soil preparation, seeding and mulching (4.4 acres), restoration of gravel access roads (90 tons of gravel), and fish relocation by a qualified biologist.

Project Description:

Location:

The project is located within the Kokte Ranch and Nature Preserve, which is owned and managed by the Jacoby Creek Land Trust (JCLT). It is situated within the lower Jacoby Creek drainage, between Arcata and Eureka, and is part of the Humboldt Bay watershed. The project area is located approximately 1.6 miles upstream of the mouth of Jacoby Creek at Humboldt Bay. Coordinates of the Lower Pond site are 40.835209N, 124.062295W, and coordinates of the Upper Pond site are 40.833959N, 124.056604W as shown on the Project Location Map (Attachment 1), which is attached and made part of this agreement by this reference.

Project Set Up:

PCFWWRA personnel will be responsible for the project's performance, including all permitting, project management and grant administration functions.

The Project Manager will oversee all aspects of the project, both in the field and administratively. This includes coordination and problem solving with all agencies, landowners and subcontractors. Permits, landowner agreements and grant agreements are his responsibility to make sure they are in place and followed. He will ensure equipment and materials are present where and when they are needed. He often delivers materials on site as he reviews progress and completed work. He will view the work in the field and works regularly with technical consultants to make sure it is being done to the required standards. He will be responsible for the review and editing of all invoices and project reporting. His time is split between the field, meetings and the office.

The Assistant Project Manager/ Administrative Assistant will perform administrative assistant and assistant manager functions. They will draft subcontracts, invoices, permit applications and reports, working closely with the Project Manager. They will help track the progress, expenditures, and budget of the project. They also will perform some of the field documentation, communication with partners, and review/verify subcontractor invoices. They spend the majority of her time in the office, but periodically attend meetings with agencies and work in the field.

As their name implies, the Field Crew mainly works in the field, unless they are entering field information into a database. For this project, they will principally assist in setting up and maintaining fish exclusion, as well as assist in fish removal, dewatering and erosion prevention. They regularly handle tasks during implementation that are not handled by subcontractors such as water diversion inspection and the more technical aspects of biological monitoring and permit compliance. They do whatever is needed to keep implementation running on-site, whether that is staging materials, assisting with defining work locations and access sites, to many other field related project tasks. They will coordinate their activities with the Project Manager and quite often have oversight by the technical subcontractor for compliance purposes.

Michael Love & Associates, Inc. (MLA) will support PCFWWRA with contractor selection, project implementation and will perform post-implementation physical monitoring. It is anticipated that four staff from MLA will be participating in the project, including the Principal Engineer, Engineering Geomorphologist, Project Engineer and Staff Engineer.

Ross Taylor & Associates (RTA) will perform fish relocation services prior to construction if a qualified CDFW biologist is unavailable.

Selected Contractor: The heavy equipment will only be operated by a heavy equipment contractor with demonstrated successful experience on similar projects. The contractor will be determined after the grant contract is signed. Construction for the project will be conducted using standard heavy equipment, including but not limited to excavators, loaders, bulldozers, and trucks.

Materials:

At the Lower Pond Site, materials will include approximately 440 cubic yards of excavation and installation of 3 log weirs, 440 live willow stakes, 410 square yards of soil stabilization matting, 50 native trees, 80 native shrubs, 20 feet of 30-inch diameter HDPE culvert, and 520 feet of cattle exclusion fencing with a gate. At the Upper Pond Site, materials will include approximately 2,110 cubic yards of excavation and installation of 4 log weirs, 5 log sills, 2 log pond cover structures, 1,740 live willow stakes, 940 square yards of soil stabilization matting, 90 native

trees, and 160 native shrubs. Project materials will also include 90 tons of gravel for restoration of access roads and seed and mulch for erosion control and pasture restoration.

Tasks:

Tasks that will be performed using CDFW FRGP funding include:

Task 1: Project Management

PCFWWRA will perform all project management and contract administration functions. MLA will prepare invoices and progress reports to be submitted to PCFWWRA during the course of the project.

Task 2: Bidding and Contractor Selection

PCFWWRA will coordinate with local agencies to determine what, if any, project reviews and approvals are required prior to construction. MLA will assist PCFWWRA with local agency coordination and provide necessary documents for local agencies to review. PCFWWRA will select qualified contractors based upon their procurement of services policy. MLA will assist PCFWWRA with preparing bid documents and selection of a contractor. This task includes attending one meeting prior to bidding to coordinate project timing and preparation of bid documents. MLA will attend one on-site pre-bid meeting to describe the project to prospective contractors, and prepare a response to questions, necessary addendums, review of bids, and checking of references.

Task 3: Construction, Oversight and Support

PCFWWRA will contract with a qualified heavy equipment contractor and coordinate construction of the project. PCFWWRA will provide daily construction management and oversight, and resolution of contractual issues.

Prior to construction, a professional biologist will relocate fish and amphibians from the project site. Block nets/fencing will be set by PCFWWRA staff or other sub-contractors. The fish removal crew will make multiple passes with the electro-fishing gear to remove all fish and amphibians captured. Fish and amphibians will be relocated to appropriate habitat in Jacoby Creek, well away from the project area. The final task for this project will be completing the California Department of Fish and Wildlife relocation spreadsheet and a brief findings report. These reports will be completed within five working days.

The selected contractor will perform all construction work and will provide all material certifications.

MLA will provide construction stakeout. The stakeout will include establishment of elevation control, placement of stakes to denote the location and stationing of the proposed centerline and wood structure locations for both the Lower and

Upper Pond sites. Once staking is complete, it will be the obligation of the contractor to maintain the stake locations and to determine locations of non-staked items.

MLA, the project designers, will provide assistance with oversight of the project construction. MLA will perform part-time oversight during the implementation phase, including clarifying the intent of the design plans when necessary, checking grades, overseeing the channel grading and structure placement, and support with development of a final punch-list for the contractor.

MLA will attend one construction kickoff meeting and up to five weekly construction progress meetings. During those meetings, MLA will be available to make recommendations for addressing unforeseen conditions that arise and for make field changes, as necessary.

It is expected that construction may take approximately 6 weeks.

As-built plans will be prepared after construction by red-line markup of the construction documents with any changes that occurred during construction. Elevations will be surveyed at critical locations to verify the project was built as designed. As-Built elevations will be included on the red-line markup.

Task 4: Post-Implementation Monitoring and Maintenance Recommendations
Post-implementation monitoring will be conducted in accordance with requirements presented in the 2014 FRGP Proposal Solicitation Notice (PSN) and based on comments from the CDFW grant manager for the design project and engineering review. Post-construction monitoring requirements include physical, biological and water quality monitoring for three years after implementation. Monitoring and maintenance will be performed in accordance with the Jacoby Creek Monitoring and Maintenance Plan (MLA, 2014) provided in the Supplemental Information portion of this document.

Physical Monitoring
Post-implementation physical monitoring will be conducted by staff from MLA and will include the following:

Pre-and Post-Project Photo Monitoring
Photo monitoring will be conducted to document physical and vegetative response to the project and identify any issues of concern that may require maintenance. Photo monitoring will have two components: (1) photo-points with photos taken twice annually and (2) time-lapse photo monitoring.

Photo-points will be established as part of pre-construction activities from established locations that are benchmarked or located with GPS coordinates to

ensure consistent and comparable views. Photo locations will include the mouth of the alcove, connecting channel, log weirs, the Lower and Upper Ponds, the realigned ditch upstream of each pond, and areas that receive vegetation treatments. During the first three years after construction the photo-point monitoring will be conducted twice a year: once during focus period for fish usage (late fall through mid-spring) and once during the dry season.

The time-lapse monitoring will involve installing a minimum of two time-lapse "wildlife" cameras at each project site. Their fields-of-view will be established to focus on the alcove, connecting channel and pond water level. They will be set to take a photo at a regular interval (i.e. every 4 hours) during daylight hours. They will be operational from November 1 – May 31 (focus period for fish usage) of each year for the first three years following construction.

Observations based on the photo documentation will be summarized in the annual post-construction monitoring reports. Observed changes at each site will be noted in the reporting, with particular focus on:

- Functionality and stability of log weirs,
- Sedimentation patterns within the alcoves and step pools adjacent to the Jacoby Creek channel,
- Overall bank stability along the channel,
- Sedimentation within the ponds,
- Overall re-vegetation plant success, and
- Encroachment into the project area by invasive wetland vegetation.
- Additionally, the time-lapse photos will be used to note the frequency and timing that the ponds provide suitable ingress and egress hydraulic conditions for juvenile salmonids, and if and when the alcoves become disconnected from Jacoby Creek due to low streamflows and sedimentation at the mouth.

Survey of Hydraulic Features in Connecting Channels

Surveys will be conducted following the first three seasons after construction. Surveys will be conducted during the focus period for fish usage. At each site, the surveyed profile will include the alcove, pools and weirs, and the downstream end of the pond. At the Upper Pond site the entire constructed pond length will be included in the profile. The profile will also include water surface elevations. These surveys will be referenced to survey benchmarks and conducted with equipment with the minimum accuracy of an engineer's level or total station.

Sections and profiles will be presented in context of the as-built and design drawings to evaluate changes to channel and assess potential sedimentation.

During the survey, flow in the ditch at the head of each pond will be measured with a current meter, conditions permitting. This will permit use of the surveyed water surface profile to evaluate hydraulic performance of the connection channel. Measured water depth over log weirs and in pools within the connecting channel, and water surface drop heights will be compared to design criteria to evaluate fish access conditions.

Results from each monitoring survey will be processed and summarized in the annual post-construction monitoring reports.

Post-Project Annual Inspection

The physical monitoring during the first three years following construction will include annual inspection of the project. Following the end of this monitoring period, the Jacoby Creek Land Trust (JCLT) will continue to conduct annual inspections of the two project sites. Generally inspection shall occur at the beginning of the spring after high winter flows have subsided.

The Monitoring and Maintenance Plan specifies items to be inspected within the project area. For some items, it also includes thresholds that will trigger discussions with the project engineer and/or the fisheries resource agencies to determine the appropriate action, if any. These thresholds are not intended to be rigid, but may be adjusted based on experience and discussions with the project engineer and/or the fisheries resource agencies.

Physical Monitoring Reporting

An annual Physical Monitoring Report will be prepared each year for the three years following construction and will be provided to CDFW by December 30th of that monitoring year. The report will summarize monitoring activities, findings, and recommendations.

The annual report will also identify any issues identified by the annual Inspection that may warrant maintenance or other types of treatment. In the event that items of concern arise, the report will recommend actions to be initiated to further characterize its impact on project objectives and/or consultation with the appropriate resource agencies, including CDFW, to determine if a maintenance action is warranted.

Biological and Water Quality Monitoring

Surveys of the functional use of the off-channel habitat by the target species can be determined with biological sampling. Any biological sampling must be

conducted by a qualified fisheries biologist after proper handing permits have been obtained.

Biological monitoring at the Jacoby Creek off-channel project site has been conducted by CDFW biologists. Their current monitoring work is being supported under the contract number P1110524. CDFW biologists have been approved under the FRGP grant P1310520 to continue monitoring in the stream-estuary ecotone of Humboldt Bay, which includes lower Jacoby Creek, where the project is located (M. Wallace, CDFW, personal communication February 28, 2014). The monitoring is funded through 2017.

At the conclusion of the CDFW biological monitoring program for Jacoby Creek, or if CDFW must cease its monitoring activities for unforeseen reasons, PCFWWRA and the JCLT will meet CDFW staff and discuss possible means to continue the biological monitoring, including identify other funding sources and/or fisheries staff that may be of assistance.

Project Maintenance

If conditions at the project site exceed monitoring thresholds and maintenance may be necessary, MLA will attend meetings with appropriate resource agencies, including CDFW, to determine if a maintenance action is warranted. If action is warranted, MLA will provide construction oversight. JCLT and PCFWWRA will coordinate all permitting and project coordination. If necessary, heavy equipment or laborers may perform temporary periodic intervention to maintain or enhance the functional use of the off-channel habitat feature.

Final Report

Upon completion of the project, PCFWWRA will develop a written final completion report for submission to CDFW

Deliverables:

- As-Built Memorandum in pdf format
- Monitoring Memoranda in pdf format
- Final Report

Timelines:

- Assumed Notice to Proceed: July 1, 2015
- Construction July 1 - October 31, 2016
- As-Built Memorandum by November 30, 2016
- Physical Monitoring Reports Annually from December 30, 2017 to December 30, 2019
- Monitoring Memorandum by March 31, 2020
- Final Report by March 31, 2020

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Timing of work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to supervise the implementation of the water diversion plan and oversee the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.

    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.

    - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

    - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.

    - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

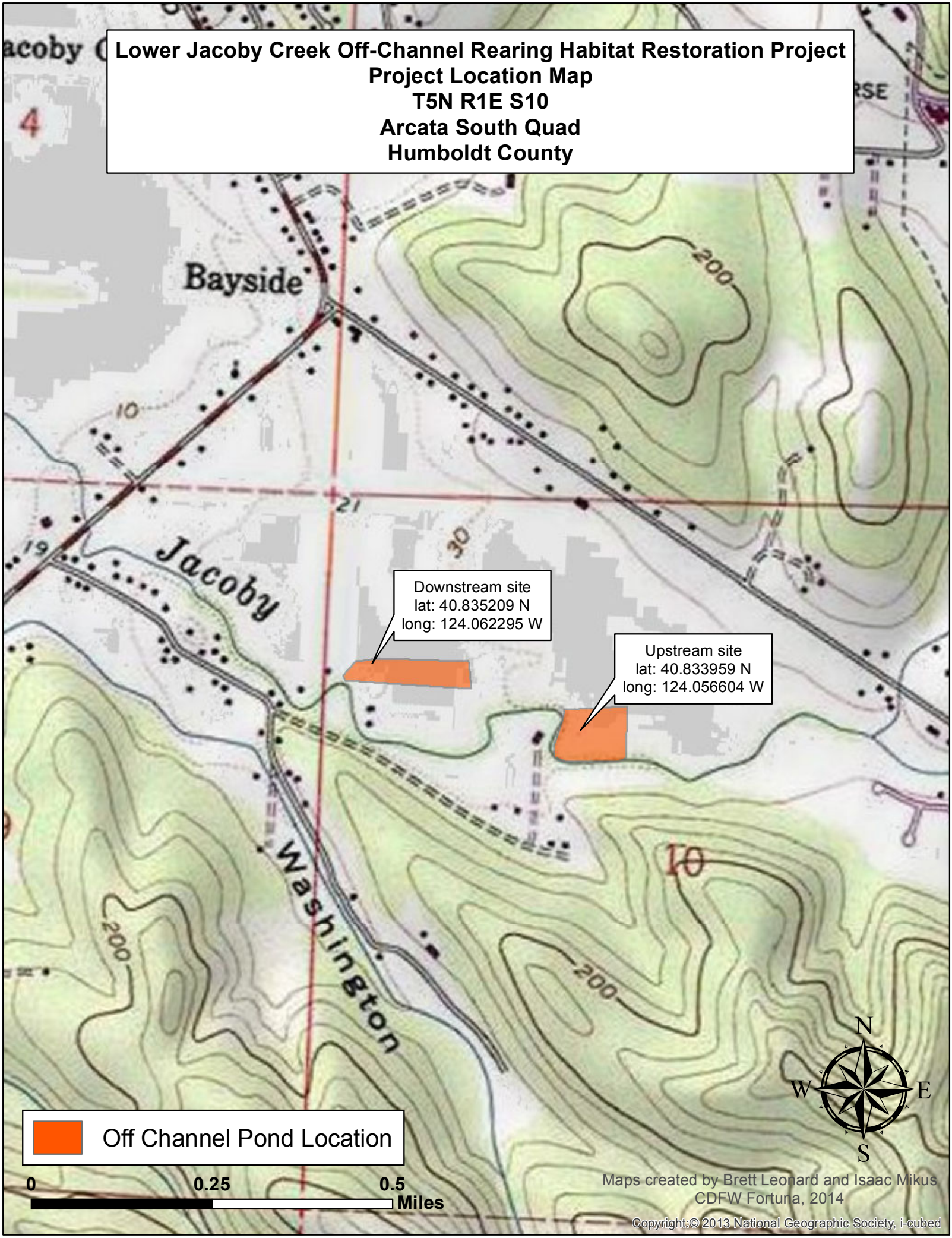
California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Arcata South Quad and Surrounding Quads for:
HI 225 Lower Jacoby Creek Off-Channel Rearing Habitat Restoration Project
T5N R1E Sections 9, 10
Humboldt County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	California clapper rail *Rallus longirostris obsoletus*	ABNME05016	Endangered	Endangered	G5T1	S1	
2	California globe mallow *Iliamna latibracteata*	PDMAL0K040			G2G3	S2	1B.2
3	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
4	Del Norte salamander *Plethodon elongatus*	AAAAD12050			G4	S3	SC
5	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
6	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
7	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
8	Kneeland Prairie pennycress *Noccaea fendleri ssp. californica*	PDBRA2P041	Endangered		G5?T1	S1	1B.1
9	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
10	Menzies' wallflower *Erysimum menziesii*	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
11	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
12	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
13	Northern Foredune Grassland	CTT21211CA			G1	S1.1	
14	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
15	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
16	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
17	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
18	Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3			G4?T2	S2	1B.2
19	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
20	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
21	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
22	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
23	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G1	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	alpine marsh violet *Viola palustris*	PDVIO041G0			G5	S1S2	2B.2
25	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
26	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
27	beach layia *Layia carnosa*	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
28	black-crowned night heron *Nycticorax nycticorax*	ABNGA11010			G5	S4	
29	bristle-stalked sedge *Carex leptalea*	PMCYP037E0			G5	S1	2B.2
30	coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A			G4T4	S3	SC
31	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
32	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
33	coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2			G2T2	S2	1B.2
34	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	SC
35	cylindrical trichodon *Trichodon cylindricus*	NBMUS7N020			G4G5	S2	2B.2
36	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
37	double-crested cormorant *Phalacrocorax auritus*	ABNFD01020			G5	S4	
38	eulachon *Thaleichthys pacificus*	AFCHB04010	Threatened		G5	S3	SC
39	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
40	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
41	ghost-pipe *Monotropa uniflora*	PDMON03030			G5	S2	2B.2
42	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2
43	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
44	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
45	great egret *Ardea alba*	ABNGA04040			G5	S4	
46	green sturgeon *Acipenser medirostris*	AFCAA01030	Threatened		G3	S1S2	SC
47	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
48	long-eared myotis *Myotis evotis*	AMACC01070			G5	S4?	
49	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
50	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
51	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2S3	2B.2
52	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S1	1B.2
53	northern clustered sedge *Carex arcta*	PMCYP030X0			G5	S2	2B.2
54	northern meadow sedge *Carex praticola*	PMCYP03B20			G5	S2S3	2B.2
55	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
56	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
57	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
58	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
59	sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101			G5T2	S1	
60	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
61	seaside bittercress *Cardamine angulata*	PDBRA0K010			G5	S1	2B.1
62	seaside pea *Lathyrus japonicus*	PDFAB250C0			G5	S2	2B.1
63	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S3	
64	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
65	snowy egret *Egretta thula*	ABNGA06030			G5	S4	
66	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
67	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
68	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
69	twisted horsehair lichen *Bryoria spiralifera*	NLTEST5460			G3	S1S2	1B.1
70	western lily *Lilium occidentale*	PMLIL1A0G0	Endangered	Endangered	G1	S1	1B.1
71	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
72	western sand-spurrey *Spergularia canadensis var. occidentalis*	PDCAR0W032			G5T4?	S1	2B.1
73	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
74	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
75	white-footed vole *Arborimus albipes*	AMAFF23010			G3G4	S2S3	SC
76	willow flycatcher *Empidonax traillii*	ABPAE33040		Endangered	G5	S1S2	


Lower Jacoby Creek Off-Channel Rearing Habitat Restoration Project
Project Location Map
T5N R1E S10
Arcata South Quad
Humboldt County
Bayside
Jacoby
Washington
Downstream site
lat: 40.835209 N
long: 124.062295 W
Upstream site
lat: 40.833959 N
long: 124.056604 W
Off Channel Pond Location
0
0.25
0.5
Miles
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
Copyright:© 2013 National Geographic Society, i-cubed

Mattole Flow Program: McKee Creek Water Storage and Forbearance

Introduction:

1. The project will be implemented by Sanctuary Forest, Inc.

2. Historic management practices in the McKee Creek watershed, combined with naturally-occurring steep slopes and erosive geology, have altered hydrologic processes by increasing rainwater run-off and decreasing groundwater infiltration and storage. These impacts have resulted in higher peak winter flows and lower summer flows to the detriment of coho salmon habitat and water storage for human consumption. Climate change, a pattern of longer dry seasons, and recent drought conditions have further illustrated the extreme need for improved water storage in the watershed. This project is necessary to improve habitat conditions for coho salmon and other salmonids by increasing storage of rainwater through installation of a 100,000 gallon tank and implementing restrictions on corresponding seasonal water rights. Increased water storage will reduce human consumption of water from McKee Creek during the dry season. Salmonids will benefit significantly from the resulting increase in stream flow and will be more resilient to drought conditions.

3. The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

4. Habitat improvement will follow all applicable techniques in the California Stream Habitat Restoration Manual.

Objective(s):

The specific objective of this project is to install two 50,000 gallon storage tanks and place restrictions on corresponding seasonal water rights to prevent summertime water diversion. Additionally this project will protect juvenile salmonids from injury by properly screening all diversion associated with the project.

The goal of this project is to directly improve juvenile anadromous fish habitat and passage by increasing summer stream flows and providing connectivity between pools during the low flow time of year. These goals will be accomplished by providing incentives to landowners (two families on jointly owned parcels) to protect habitat and reduce summer water withdrawals from McKee Creek. Specifically the project will enable landowners to forbear from pumping during the low flow season by increasing the size of their water storage system sufficient to last during the forbearance season. The landowners will be educated on how to operate the water storage system, including water use reductions through conservation and leak proofing, along with guidelines for habitat protection while filling and topping their tanks. Each landowner will sign a legally enforceable forbearance agreement with restrictions that protect fish

habitat, including the following: minimum stream flows below which no pumping is allowed; maximum pumping rates and minimum bypass flows; assigned pumping days to minimize cumulative impacts; and pump intake screens that comply with Grantor 2000 criteria.

Project Description:

Location:

The project will take place on private property adjoining McKee Creek approximately 800 feet upstream of its confluence with the Mattole River mainstem at river mile 52.8. The project site is located at 40.061167N, 123.962861W.

Project Set Up:

The Grantee will be the project lead and primary responsible organization for the project. The Project Manager will be responsible for project oversight and ensuring all tasks are completed and project deliverables are met. The Coordinator will work with the landowners to develop and execute the forbearance agreement and finalize the water management plan, supervise all contractors, order materials and coordinate delivery. The Landowner monitor will manage all landowner notifications for the forbearance program, perform annual monitoring and manage all landowner files. The Bookkeeper/Grant Manager will track budgets and prepare all invoicing. A subcontracted legal consultant will help with drafting, reviewing and/or editing all legal agreements associated with the project. A subcontracted engineer will review plans and designs for all tank sites. Subcontracted heavy equipment will prepare sites for tank installations. Staff positions including laborer, staff pipe installer, and staff trench operator will work along with the subcontracted installation crew, electrician, plumber and laborers to install water tanks and associated hardware, pumps, electrical, and water lines.

Materials:

Materials used to implement the project include two 50,000-gallon water storage systems including one source pump retrofit, two pressure pumps, 4,000 feet of plastic pipe, two leak safety and valves, two fish screens, two water clarity filters, two electrical controls and associated parts, two water meters, 40 yards of sand, 270 yards of gravel, one pump shed, and mulch and erosion control materials.

Tasks:

Task 1: Tank Installation:

Install two 50,000-gallon water storage systems on two jointly owned parcels adjoining McKee Creek for two families with an accompanying forbearance agreement that prohibits pumping during the dry season

when flows drop below the forbearance threshold and estimated for the period June 1- December 1 in drought years. The following tasks will be completed for all participants:

- Complete Participant Water Management Plan: Finalize development of participant Water Management Plan including type and size of tank storage, exact location of tank and trench locations (requiring archaeology and botany site clearance first), system components needed to connect storage to existing system, leak safety and controls, and participant cost share tasks and responsibilities.

- Finalize and record forbearance agreement: Landowner specific information is entered into the template forbearance document. After review by participant and land trust attorneys, documents are signed and recorded, securing the interest in the land.

- Apply for and obtain site specific permits: Using the pre-determined permitting process, site specific applications are submitted and necessary permits are obtained. Water rights for storage will be developed based on purpose of water use with a different process for residential participants and institutional participants.

- Install tank and associated water system improvements: The tank or tanks are installed along with other plumbing needed to facilitate use of the stored water. Installation tasks include site preparation; tank assembly; trenching and piping from tank to house; pressure pump and small pressure tank installation if needed; plumbing and electrical hook-ups; meter installation; Grantor/NOAA compliant fish screen installations; and filtration system installation.

- Finalize water management plan: The template water management plan is modified to reflect the specifics of the final configuration of the upgraded water system and the water consumption patterns of the participant.

Deliverables:

- Copies of two executed forbearance agreements.

- Two landowner Water Management Plans.

- Installation of two 50,000 gallon water storage systems.

- Installation of Grantor compliant fish screens for all diversions associated with the project.

- Documentation of Compliance Monitoring.

- Final Project Report as described in Section 7.02, including discussion of: a) implementation issues, if any; b) monitoring and adaptive management issues such as landowner compliance; and c) monitoring results.

Timelines:

- June 2015 through Aug 2015: Finalize pumping restrictions and permit process; develop and finalize water system & water management plan; execute forbearance agreement; obtain permits.

- September 2015 through December 2015: Install water tanks, water system modifications and Grantor compliant fish screens at all diversion points.

- September 2016 through 2031: Conduct landowner compliance monitoring.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

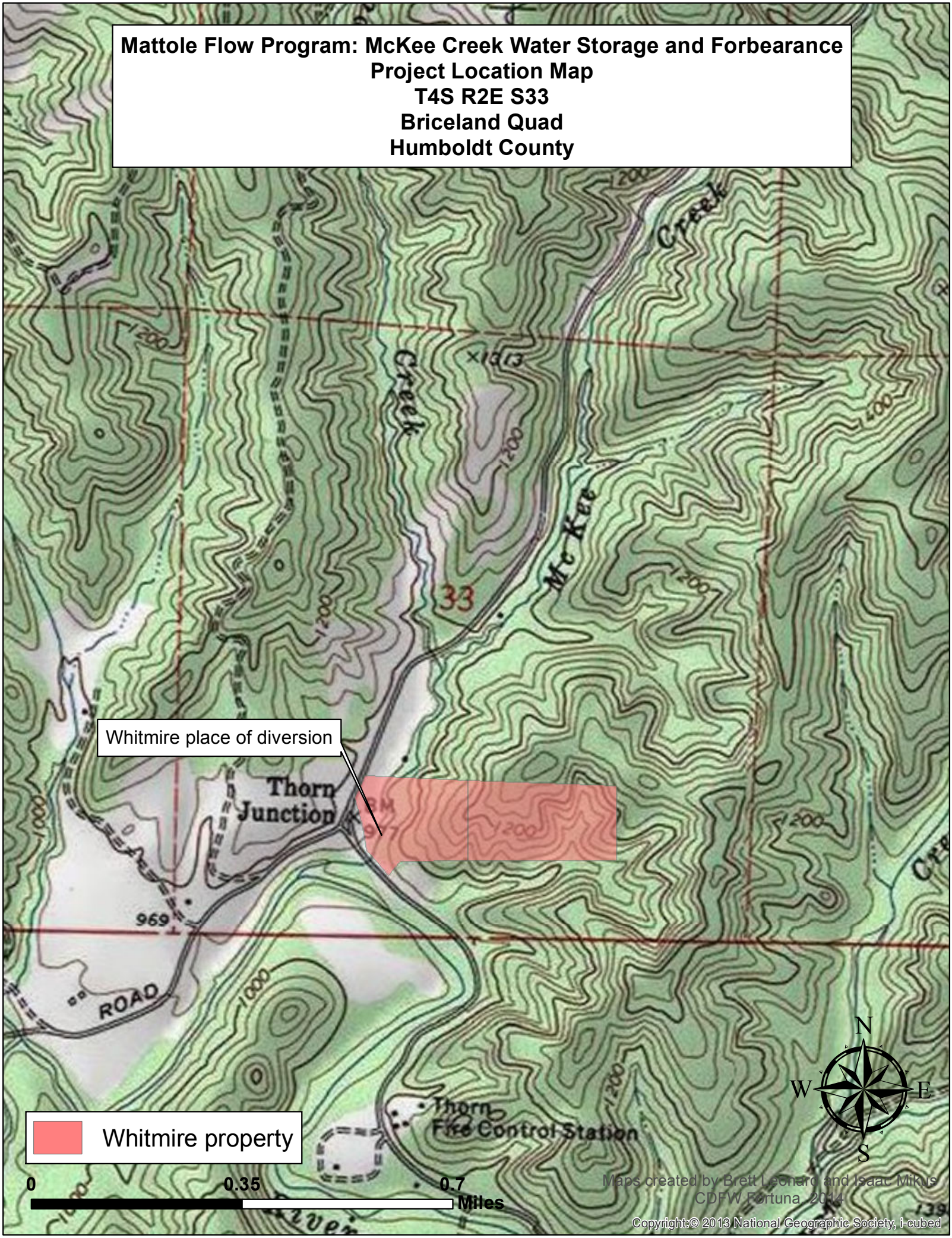
2. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Briceland Quad and Surrounding Quads for:
WC D013 Mattole Flow Program: McKee Creek Water Storage and Forbearance
H T4S R2E Section 33
Humboldt County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
2	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
3	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
4	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
5	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
6	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
7	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
8	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
9	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
10	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
11	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
12	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
13	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
14	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
15	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
16	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	SC
17	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
18	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
19	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
20	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2
21	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
22	little willow flycatcher *Empidonax traillii brewsteri*	ABPAE33041		Endangered	G5T3T4	S1S2	
23	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
24	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2S3	2B.2
25	mountain shoulderband *Helminthoglypta arrosa monticola*	IMGASC2035			G2G3T1	S1	
26	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
27	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
28	small groundcone *Kopsiopsis hookeri*	PDORO01010			G5	S1S2	2B.3
29	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
30	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
31	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
32	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2

Mattole Flow Program: McKee Creek Water Storage and Forbearance
Project Location Map
T4S R2E S33
Briceland Quad
Humboldt County



Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014

Supply Creek Restoration Project

Introduction:

The Hoopa Valley Tribe Fisheries Department will enhance the capacity of anadromous habitat that displays resiliency to the 2014 drought, and increase and enhance rearing and high flow velocity refugia for coho salmon through implementation of instream restoration on levee confined lower Supply Creek. This project is necessary as Supply Creek has high intrinsic potential for coho salmon, but is currently constrained by levees, which impairs the streams ability to provide over-summer and wintering habitat for coho and reduces the channel's ability to store gravel and large wood critical for all life stages. This project will substantially address existing conditions that severely limit coho recovery within this watershed (winter rearing habitat and drought resilient summer rearing habitat), providing large quantities of high quality coho off-channel and floodplain habitat, addressing the factors identified as most limiting within this core population.

1. The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

2. All habitat improvement will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* Parts VII, IX, and XI, XII (Flosi et al 1998 and 2002).

Objective(s):

- Provide immediate high quality winter and summer juvenile coho natal and non-natal rearing habitat (emphasizing winter rearing) and increase the amount and quality of drought resilient habitats by breaching levees and constructing off-channel ponds, seasonal wetlands, floodplains, and side channel habitat.

- Encourage channel restoration over time using a process-based restoration approach that increases drought resiliency and restores channel form, floodplain connectivity, habitat complexity, riparian function, and salmon habitat for all life stages.

- Provide access to and restore high quality habitat blocked by the 1964 levees, allowing coho access to complex backwater and seasonal wetlands throughout the summer and winter rearing season not currently available.

- Improve drought resiliency with large wood additions providing improved cover, gravel sorting, and increasing channel complexity within the cold water refuge Supply Creek provides.

- Improve shading, food supply, and future large wood loading, to drought resilient habitats through riparian enhancements (floodplain lowering and plantings).

Project Description:

Location:

The project is located approximately 0.1 miles up Supply Creek, tributary to Trinity River at river mile 12.3, tributary to the Klamath River, tributary to the Pacific Ocean in the County of Humboldt, State of California; 41.22083300 north latitude, 123.67555600 west longitude at the downstream end.

Project Set Up:

The Habitat Division Lead will track the project budget, develop and submit invoices, oversee construction, remove fish, and supervise riparian planting and maintenance. The Riparian Ecologist will supervise riparian planting and maintenance. The Fisheries Biologist will remove fish. The Technician IIIs will remove fish, and provide riparian planting and maintenance support. The Roads Department Director will provide oversight and implement construction. The Heavy Equipment Subcontractor will complete project management and grant administration, apply for and complete all permits and environmental compliance, implement construction, and source large wood. The Engineering Subcontractor will complete project management and grant administration, oversee construction and complete post project evaluation monitoring. The Biological Subcontractor will oversee construction.

Materials:

Materials necessary for this project include approximately 1,260 tons of boulders, cobble, and gravel; seventy ton of ¼ to 1 ton rock slope protection; 200 pieces of large wood including rootwads, 400 clusters of riparian plants; and 5,000 feet of water diversion pipe.

Tasks:

Task 1. Project Management

The Grantee, Heavy Equipment Subcontractor, and Engineering Subcontractor, will complete project management and grant administration including reports and billing. The Habitat Division Lead will track the project budget and develop and submit invoices. Annual reports will be generated annually.

Task 2. Environmental Compliance and Permitting

The Grantee and Heavy Equipment Subcontractor will apply for and complete all necessary federal, state, and tribal permits; and minimize human and environmental impacts.

Task 3. Project Implementation.

The Heavy Equipment Subcontractor will implement construction aspects of the project. Excavate 122,000 cubic yards (cy) of material and construct and place habitat and engineered features. Conduct all construction work during the dry season. The Heavy Equipment

Subcontractor will source large wood with rootwads. Construction will be overseen by the Engineering Subcontractor, Biological Subcontractor, and the Habitat Division Lead. Fish removal before construction and installation of fish barriers isolating work areas from the channel Riparian planting will be performed by the Hoopa Valley Fisheries Department under the supervision of the Riparian Ecologist and Habitat Division Lead utilizing Tribal Technicians and Tribal CCC volunteers. The Supply Creek project is subdivided into three distinct work areas: a) the 9.8 acre Northwest Restoration Area; b) the 7.4 acre Southern Restoration Area; and c) the 17.7 acre Northeast Restoration Area.

a) Northwest Restoration Area. Construct a 1,400 ft secondary channel to provide seasonal surface flow through a metered surface water connection to approximately 0.2 acres of side channel, 0.5 acres of seasonal wetland, and 0.2 acres of pond habitat that flows through approximately 2.25 acres of riparian habitat. Construct the side channel entrance to be dry when mainstem flows fall below 15 cfs. Install a rectangular natural stone weir to meter flows into the secondary channel complex to achieve side channel flow objectives. Construct the weir entrance to overtop as mainstem flows surpass 140 cfs. Construct a short return channel to overtop as the new secondary channel flows reach 25 cfs, and return flows in excess of 25 cfs back to mainstem Supply Creek.

   Construct the pond to have a maximum depth greater than 4 ft to maintain open water. Construct pond margins with topographic variability including shallow benches and gently sloping banks to support wetland plants. Construct approximately 0.5 acres directly upstream of the pond to slowly inundate as flows in the secondary channel reach 25 cfs. Lower approximately 2.25 acres of fill adjacent to the pond, wetland, and secondary channel to a design bench elevation inundated by the higher range of channel flows. Construct a 100 ft long alcove to provide velocity refuge as juvenile salmonids migrate into the secondary channel complex.

   Add large wood habitat structures to all constructed secondary channel, pond, and seasonal wetland features to meet depth, velocity, and cover criteria. Structures within the secondary channel will include approximately 200 pieces of wood. Use large wood in the northern secondary channel complex primarily comprised of salvaged alders, cottonwood, and willows from onsite construction activities. Use 2 to 3 ft boulders to provide velocity refuge within the riffle and pool sequences upstream and downstream of the pond and wetland.

   Construct an alcove in the downstream secondary channel confluence with Supply Creek, providing velocity refuge from Supply

Creek. Construct the secondary channel with alternating pool riffle sequences and an average grade of 3%. Provide up to 1,400 feet of seasonal high flow channel habitat (approximately 0.2 acres), up to 0.5 acres of wetland habitat, 0.2 acres pond habitat with a depth ≥ 4 ft, and approximately 2.25 acres of bench surfaces designed to be suitable riparian habitat.

b) Southern Restoration Area. Lower approximately 2.4 acres of adjacent right bank fill to a floodplain design elevation inundated by the Q1.25 flood (approximately 860 cfs). Construct the right bank floodplain to the design width of 150 ft.

c) Northeast Restoration Area. Construct two boulder and large wood habitat structures within the mainstem of Supply Creek. Construct the large wood habitat structures to direct 90% of streamflows up to a 1.25-year event into new mainstem channel alignments, after which the upper bar surfaces will be overtopped. Construct mainstem channel large wood features of Douglas fir and pine with root wads and branches intact. Ballast large wood placements in bar features with large boulders (2 to 3 ft in diameter) and cobble. Construct bar features are along the right bank of Supply Creek, adjacent to Bair Road. Add smaller wood along the left bank woven into existing vegetation.

Task 4. Riparian Planting and Maintenance. Plant a combination of locally adapted species that are expected to provide large wood in the future and are resistant to replacement by invasive species. Obtain plany materials from commercial nurseries. Collect other plant materials on-site, including cuttings and salvaged willow clumps. Collect seeds of locally-adapted native plants from within the watershed for planting at Supply Creek.

Maintain riparian planting under the supervision of the Riparian Ecologist and Habitat Division Lead using Tribal Technician IIIs and Tribal CCC volunteers. Conduct post-planting maintenance of the planted areas for a period of up to five years. Irrigate areas that are high enough above the water table to dry out early in the growing season for up to three years. Irrigate using gasoline-powered pumps and hand-watering or overhead sprinklers.

Task 5. Monitoring.

Conduct pre-project baseline monitoring prior to implementation. The Grantee and Engineering Subcontractor will perform post project evaluation monitoring including physical monitoring of the project to ensure that the constructed channel is functioning using as built criteria, long profile surveys, cross-sectional surveys, photo monitoring, and

vegetation survival monitoring. Perform post-project and effectiveness monitoring for the off-channel features. Maintain and enhance existing fisheries outmigrant monitoring and stream gaging stations on Supply Creek. Participate in the Coho Ecology Project.

Deliverables:

Final landowner access agreement, subcontracts, progress reports, invoices, annual reports, as-built survey, monitoring report and final report.

Timelines:

- Task 1. Project Management (June 1, 2015 – March 1, 2017).
- Task 2. Environmental Compliance and Permitting (June 1, 2015 - July 1, 2016).
- Task 3. Project Implementation (June 1, 2016 - October 1, 2016).
- Task 4. Riparian Maintenance (June 1, 2016 - March 1, 2017).
- Task 5. Monitoring (June 1, 2015 – March 1, 2017).

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.

    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.

    - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

- The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.

- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*, Volume I, and Volume II Part XI and Part XII. The Grantee/landowner will maintain the new crossing, inspect the crossing in a timely manner and remove debris as necessary during the storm season.

4. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

5. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

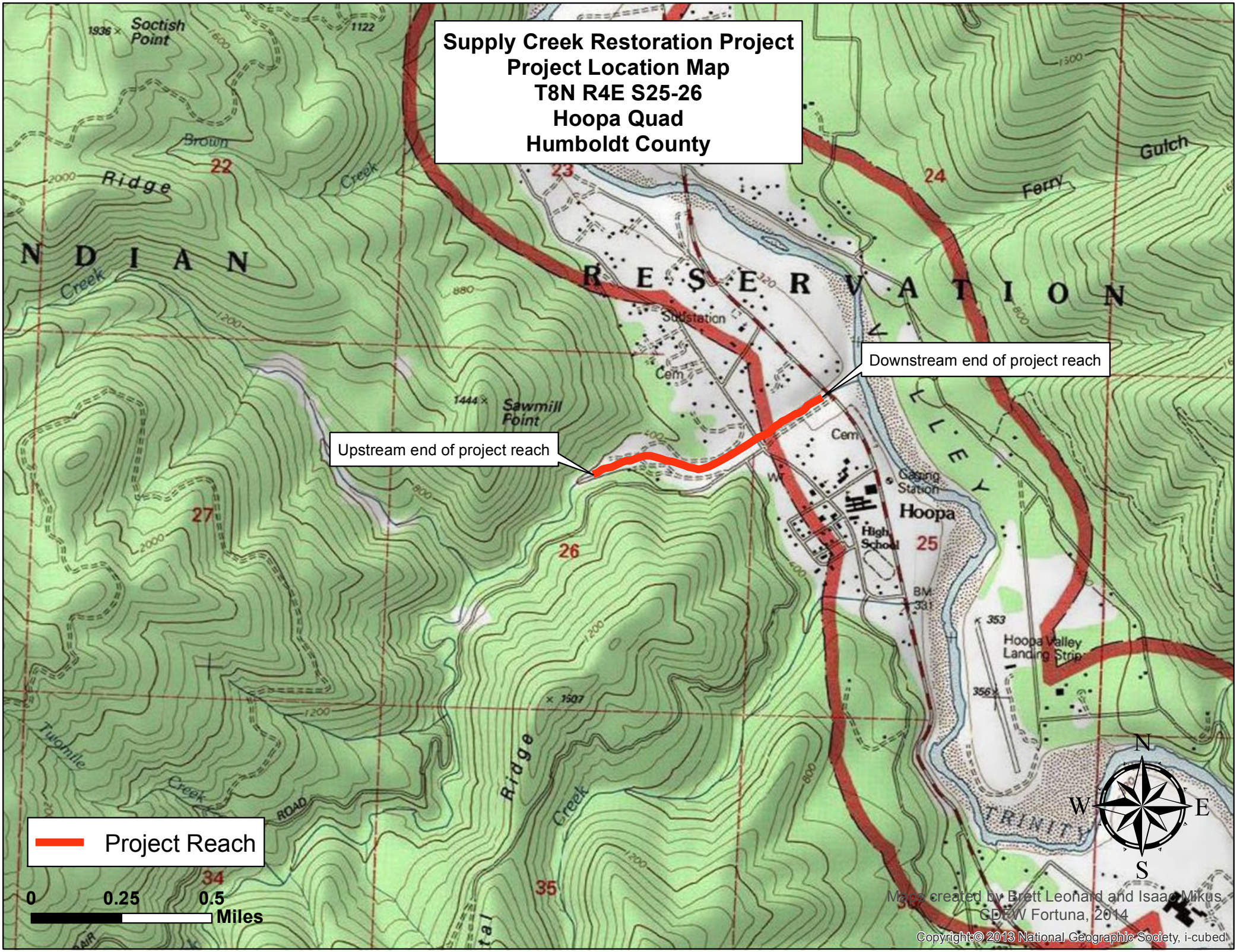
6. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species Within the Hoopa Quad and Surrounding Quads for Supply Creek Restoration Project HI D016
H 8N 4E Sections: 25, 26 Humboldt County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Bald Mountain milk-vetch *Astragalus umbraticus*	PDFAB0F990			G4	S2	2B.3
2	California globe mallow *Iliamna latibracteata*	PDMAL0K040			G2G3	S2	1B.2
3	California wolverine *Gulo gulo*	AMAJF03010		Threatened	G4	S1	
4	Del Norte salamander *Plethodon elongatus*	AAAAD12050			G4	S3	SC
5	Gasquet rose *Rosa gymnocarpa var. serpentina*	PDROS1J1V1			G5T2	S2	1B.3
6	Heckner's lewisia *Lewisia cotyledon var. heckneri*	PDPOR04052			G4T3	S3	1B.2
7	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
8	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
9	Klamath/North Coast Fall/Winter Run Chinook Salmon River	CARB2332CA			GNR	SNR	
10	Klamath/North Coast Interior Headwater Fishless Stream	CARB2220CA			GNR	SNR	
11	Klamath/North Coast Rainbow Trout Stream	CARB2312CA			GNR	SNR	
12	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
13	Pacific fuzzwort *Ptilidium californicum*	NBHEP2U010			G3G4	S3?	4.3
14	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
15	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
16	Sonoma canescent manzanita *Arctostaphylos canescens ssp. sonomensis*	PDERI04066			G3G4T2	S2	1B.2
17	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
18	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
19	Tracy's sanicle *Sanicula tracyi*	PDAPI1Z0K0			G4	S4	4.2
20	Trinity shoulderband *Helminthoglypta talmadgei*	IMGASC2630			G2	S2	
21	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
22	Yuma myotis *Myotis yumanensis*	AMACC01020			G5	S4?	
23	bensoniella *Bensoniella oregona*	PDSAX02010		Rare	G3	S2	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	chinook salmon - spring-run Klamath-Trinity Rivers pop. *Oncorhynchus tshawytscha*	AFCHA02056			G5	S1S2	SC
25	coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A			G4T4	S3	SC
26	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
27	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
28	elongate copper moss *Mielichhoferia elongata*	NBMUS4Q022			G4	S2	2B.2
29	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
30	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
31	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2
32	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
33	hooded lancetooth *Ancotrema voyanum*	IMGAS36130			G1G2	S1S2	
34	long-legged myotis *Myotis volans*	AMACC01110			G5	S4?	
35	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
36	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
37	northern meadow sedge *Carex praticola*	PMCYP03B20			G5	S2S3	2B.2
38	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
39	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
40	pale yellow stonecrop *Sedum laxum ssp. flavidum*	PDCRA0A0L2			G5T3Q	S3.3	4.3
41	robust false lupine *Thermopsis robusta*	PDFAB3Z0D0			G2	S2	1B.2
42	ruffed grouse *Bonasa umbellus*	ABNLC11010			G5	S4	
43	silver-haired bat *Lasionycteris noctivagans*	AMACC02010			G5	S3S4	
44	slender silver moss *Anomobryum julaceum*	NBMUS80010			G4G5	S2	4.2
45	small groundcone *Kopsiopsis hookeri*	PDORO01010			G5	S1S2	2B.3

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
47	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
48	water bulrush *Schoenoplectus subterminalis*	PMCYP0Q1G0			G4G5	S3	2B.3
49	wayside aster *Eucephalus vialis*	PDASTEC0A0			G3	S1	1B.2
50	western pearlshell *Margaritifera falcata*	IMBIV27020			G4G5	S1S2	
51	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
52	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
53	willow flycatcher *Empidonax traillii*	ABPAE33040		Endangered	G5	S1S2	


Supply Creek Restoration Project
Project Location Map
T8N R4E S25-26
Hoopa Quad
Humboldt County
Downstream end of project reach
Upstream end of project reach
Project Reach
0
0.25
0.5
Miles
N
S
E
W
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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Bobcat Run Riparian Restoration

Introduction:

California Conservation Corps will install bioengineered structures along eroding stream banks of Bobcat Run to reduce future erosion and sediment delivery to coho salmon spawning and rearing habitat.

1. Bobcat Run has been identified as the highest sediment yielding Class I tributary to Howe Creek by the Blue Slide Grizzly Bluff Planning Assessment and The Howe Creek Ranch Plan. Excessive erosion and sediment delivery is attributed to previous land use which converted old growth forest habitat to livestock grazing land with a significant lack of riparian vegetation. Monitoring has indicated approximately 11,520 cubic yards of sediment from Bobcat Run is delivered to Howe Creek and the lower Eel River annually, which significantly reduces spawning and rearing habitat quality for coho salmon. The bare slopes along Bobcat Run will continue to deliver fine sediments to Howe Creek and ultimately the lower Eel River until they are stabilized with vegetation. This project will improve the problem through installation of bioengineered willow fascines and planting willow along 0.4 acres of eroding stream banks within the Bobcat Run riparian corridor.

2. The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

3. All habitat improvement will follow techniques in the California Stream Habitat Restoration Manual (Parts VI, VII and XI).

Objective(s):

The project area is a reach along Bobcat Run where lack of riparian vegetation has destabilized the riparian corridor, leading to excessive erosion and associated sediment delivery that is currently degrading salmonid habitat downstream. This project will significantly improve the problem by meeting the following objectives:

- Improve slope stability by installing bioengineered willow fascines along currently eroding stream banks.
- Reduce erosion by re-vegetating the riparian corridor through planting of willow stakes/sprigs.
- Prevent approximately 231 cubic yards of sediment from entering Howe Creek annually.
- Terraces created by willow fascines will increase the amount of stable substrate necessary for additional plant growth that will reduce erosion.

Project Description:

Location:

The project area is located along Bobcat Run, which is tributary to Howe Creek, a Class I tributary to the Eel River. The confluence of Bobcat Run and Howe Creek is approximately 2 miles upstream of the Eel River. The project area lies within the Howe Creek Ranch approximately 3.2 miles west of the city of Rio Dell. The upstream terminus of the project area is located at 40.48726N, 124.17717W, and the downstream extent is located at 40.48823N, 124.17289W as shown on the Project Location Map (Attachment 1), which is made part of this agreement by this reference.

Project Set Up:

Project tasks will be conducted by Grantee personnel according to the following information:

- The Fish Habitat Specialist will:
  - Conduct contract oversight.
  - Determine onsite logistics including flagging of willow borrowing and staging sites and crew access trails.
  - Provide direction to the Fish Habitat Assistant and Grantee Corpsmembers for all aspects of project implementation.
  - Coordinate with the CDFW project manager to conduct post-project monitoring, including photographic monitoring.

- The Fish Habitat Assistant will:
  - Coordinate with the CDFW project manager to conduct pre-project monitoring.
  - Assist the Fish Habitat Specialist in determining project logistics.
  - Provide direction to Grantee Corpsmembers.
  - Coordinate with the CDFW project manager to conduct post-project monitoring, including photographic monitoring.

- Grantee Corpsmembers will:
  - Provide hand labor for project implementation under the direction of the Fish Habitat Specialist and the Fish Habitat Assistant.

Materials:

Materials that will be utilized to implement this project include 25 rolls of jute twine; over 2,250 willow stakes; and 2,200 feet of willow fascines. Willow material will be collected from sources at or near the project site.

Tasks:

Task 1: Contract Oversight

The Fish Habitat Specialist will be responsible for contract oversight. Contract oversight will involve all project coordination and administrative tasks necessary to complete the project including and not limited to obtaining permits, securing agreements, scheduling, implementation oversight, invoicing, reporting and agency and landowner communications.

Task 2: Pre-Project Monitoring

The Fish Habitat Assistant will coordinate with CDFW project manager to conduct pre-project monitoring according to guidelines stated in the 2014-2015 Forest and Drought Proposal Solicitation Notice. Photo points will be established to document project effectiveness.

Task 3: Site Preparation

The Fish Habitat Specialist along with the Fish Habitat Assistant will flag sites to designate willow borrowing and staging areas and crew access trails as needed and plan onsite logistics.

Task 4: Project Implementation

Under the direction of the Fish Habitat Specialist and Fish Habitat Assistant, Grantee Corpsmembers will use loppers, hand shears, chainsaws and pole saws to cut willow to designated lengths and sizes to create willow sprigs and willow fascines. Fascines will be bundled with jute twine. Willow sprigs and fascines will be installed in accordance with Chapter VII of the CDFW California Salmonid Stream Habitat Restoration Manual (Flosi et al.1998).

- Corpsmembers will cut and bundle willow from nearby and adjacent sites.

- Willow fascines will be installed horizontally along the entire slope and anchored with willow stakes. Willow fascines provide immediate erosion control by shortening the slope with the installed bundle, and the strength of the structure improves over time as it grows.

- Two features will be planted with willow stakes and willow fascines.
  - At Feature 1, 100 linear feet of willow fascine and 250 willow stakes will be installed. The stakes will be driven into spaces between existing rip rap rock and used to hold the willow fascines in place. The willow fascines will be installed in two rows along the length of the feature.

- At Feature 2, 2,100 linear feet of willow fascine and 2,000 willow stakes will be installed on 3-foot centers. Additional stakes will be used to anchor the willow fascines in place.

Task 5: Invasive Species Management

To prevent the introduction or spreading of invasive species, the Grantee will ensure all equipment, tools and clothing of each crew member is effectively cleaned as often as necessary.

Task 6: Post-Project Monitoring

The Fish Habitat Specialist and Fish Habitat Assistant will coordinate with the CDFW project manager to conduct post-project monitoring including photographic monitoring. Post-project photos will be taken at each pre-established monitoring point to allow comparison with pre-project photos.

Deliverables:

- Installation of 2,200 linear feet of willow fascines and over 2,250 willow stakes within 0.4 acres of riparian area adjacent to Bobcat Run.

- Results of pre- and post-implementation monitoring including photos taken at established photo points for comparison purposes.

- A project completion report (Final Report) that includes 1) general grant information, 2) location of work, 3) project areas, 4) participating landowner's name and address, 5) a description and analysis of the restoration and planning techniques used, 6) a description of the results of the project, 7) dates of work and the number of person hours expended, 8) labeling before and after photos of selected restoration activities and techniques, and 10) grant dollars spent and contributed matching funds and/ or in-kind services used to complete the project.

Timelines:

- June 2015 - Coordinate with landowners for project access, submit 1600 notification, and procure project materials.

- July through October 2015 – Conduct pre-project monitoring and site preparation.

- October through December 2015 – Project implementation. Also see Bullet 4 of Additional Requirements.

- January through February 2016 – Conduct post-project monitoring.

- January 2017- Revisit sites to evaluate need for additional work.

- February through March 1, 2017 – Conduct post-project photo monitoring and prepare and submit the Final Report and final invoice.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Timing of work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. Project implementation will follow techniques described in the California Salmonid Stream Habitat Restoration Manual (Parts VI, VII and XI).

3. Sites which are expected to erode and deliver sediment to the stream are the only locations where work will be authorized for reimbursement under the terms of this agreement. Reimbursement will not be authorized for work done to improve aesthetics only.

4. Planting/installation of willow structures will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of willow survival.

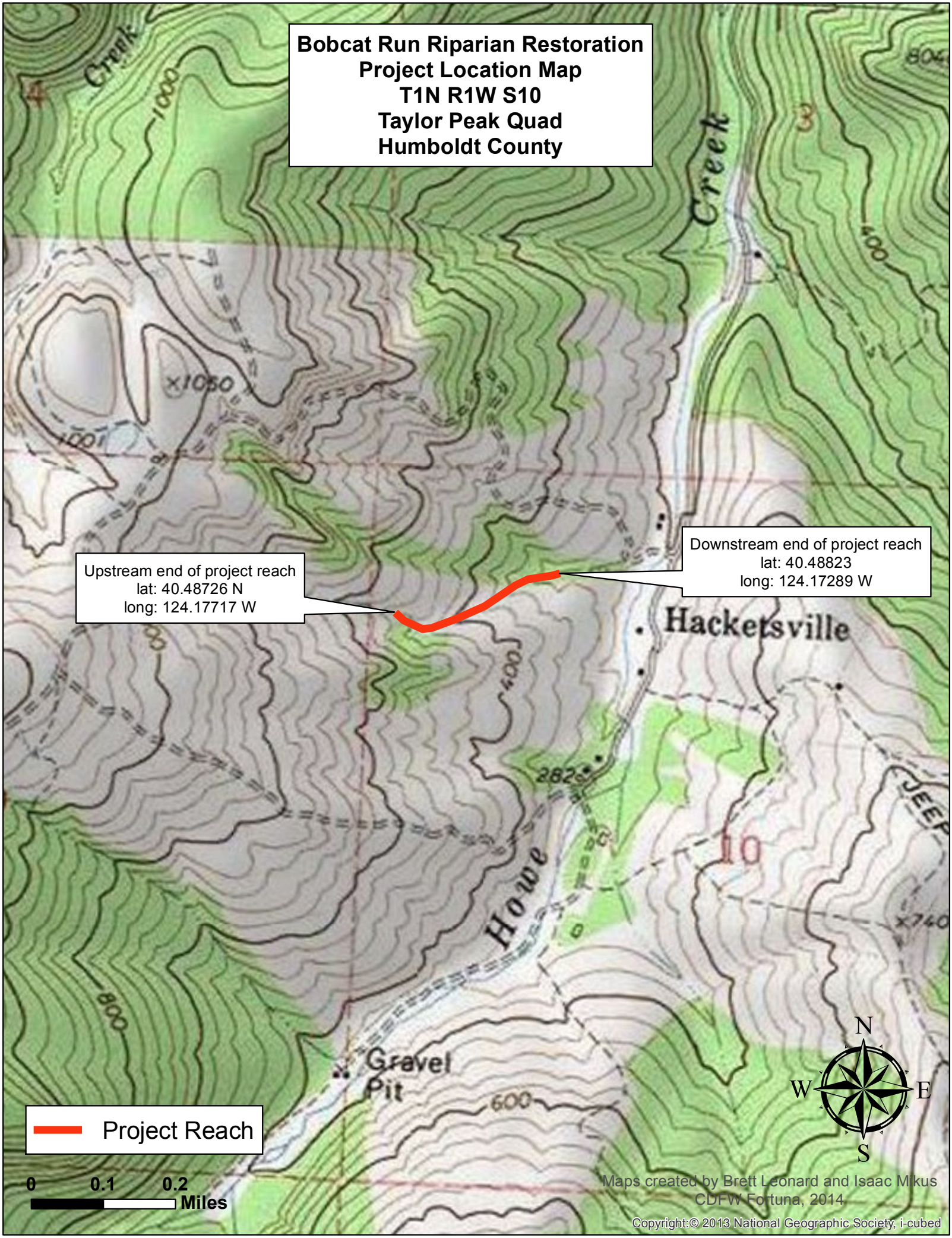
5. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Taylor Peak Quad and Surrounding Quads for:
HR D045 Bobcat Run Riparian Restoration
H 1N 1W Section 10
Humboldt County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Coastal Douglas Fir Western Hemlock Forest	CTT82410CA			G4	S2.1	
2	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
3	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
4	Hitchcock's blue-eyed grass *Sisyrinchium hitchcockii*	PMIRI0D0S0			G2	S1	1B.1
5	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
6	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
7	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
8	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
9	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
10	Oregon polemonium *Polemonium carneum*	PDPLM0E050			G4	S1	2B.2
11	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
12	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
13	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
14	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
15	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
16	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
17	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G1	S1	1B.1
18	Yuma myotis *Myotis yumanensis*	AMACC01020			G5	S4?	
19	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
20	beach layia *Layia carnosa*	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
21	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
22	coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A			G4T4	S3	SC
23	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2			G2T2	S2	1B.2
25	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	SC
26	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
27	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
28	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2
29	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
30	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
31	great egret *Ardea alba*	ABNGA04040			G5	S4	
32	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
33	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2
34	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
35	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
36	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S1	1B.2
37	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
38	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
39	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
40	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
41	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
42	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
43	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S3	
44	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
45	slender silver moss *Anomobryum julaceum*	NBMUS80010			G4G5	S2	4.2
46	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
47	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
48	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
49	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
50	western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Proposed Threatened	Endangered	G5T3Q	S1	
51	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2


Bobcat Run Riparian Restoration
Project Location Map
T1N R1W S10
Taylor Peak Quad
Humboldt County
Upstream end of project reach
lat: 40.48726 N
long: 124.17717 W
Downstream end of project reach
lat: 40.48823
long: 124.17289 W
Hacketsville
Howe
Gravel Pit
Project Reach
0 0.1 0.2 Miles
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
Copyright:© 2013 National Geographic Society, i-cubed

Upper Mattole Coho Habitat Enhancement Phase II

Introduction:

Grantee will implement the Upper Mattole Coho Habitat Enhancement Phase II. The lack of large woody debris (LWD) in the stream channel has affected the quality and quantity of salmonid habitat within the Mattole River watershed by reducing the amount of large channel forming features and by reducing the complex cover for salmonids. Salmonid recovery plans recommend increasing stream habitat complexity by installing large woody material.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. All habitat restoration improvements will follow techniques in the California Salmonid Stream Habitat Restoration Manual, Part VII. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

The specific objective of this project is to install 15 large woody debris (LWD) features consisting of 68 logs and 54 tons of boulders along a total of 2,540 feet of Mattole River and Mill Creek, tributary to Mattole River. The placement of these LWD and boulder features will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels, increasing the quality and quantity of rearing habitat within the project reach, and by providing velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids.

Monitoring of physical habitat parameters will be conducted before and after implementation. To identify physical responses to the restoration effort, habitat characteristics and metrics of instream wood for the pre- and post-implementation phases of the project will be compared. Monitoring and evaluation guidelines from the California Salmonid Stream Habitat Restoration Manual (Part VIII) will be followed. All structures will be evaluated in accordance with the Stream Habitat Enhancement Project Evaluation Individual Structure or Site Form. Monitoring results will be included in the final report.

Project Description:

Location:

The Grantee will conduct work along two sections of Mattole River and one section of Mill Creek. The Mattole River reaches are as follows: “Frosty Acres” is located just upstream of the confluence of Pipe Creek (river mile 59.2) and includes approximately 540 feet of the mainstem, “Whitethorn Grove” is located at the confluence of Upper Mill Creek and the Upper Mattole mainstem (river mile 56.2) and includes approximately 1500 feet of the mainstem. The location of the project center point is approximately 39.9807º north latitude, 123.9333º west

longitude. The "Upper Mill Creek" reach extends 500 feet, starting from the confluence with the Mattole mainstem. The location of the Mill Creek project is approximately 40.0315º north latitude, 123.9560º west longitude at the downstream end, as depicted in the Project Location Map.

Project Set Up:

Grantee Project Manager will manage the overall project including subcontracts, grant agreements, permits, and supervision of SFI supporting staff. Grantee Project Assistant Manager & Field Staff will be responsible for project coordination with the subcontractors, materials purchase and delivery, invoicing and grant reporting; pre and post project monitoring and will also assist the project manager as needed. Grantee Bookkeeper and Grants Manager will manage the grant and subcontract budgets and perform all invoicing and payments.

Subcontractor Pacific Watershed Associates (PWA) is the main subcontractor for the Frosty Acres project, providing site assessment, design, and implementation oversight. PWA has partitioned the work elements for each task to varying personnel to keep costs down where appropriate but to assure project success with little to no risk for property owners and critical infrastructure. The general task for each personnel cost category in the budget is as such:

PWA Principal Geologist will review field layout, make several site visits and review final reporting, PWA Project Manager will manage day to day activities, coordinate and supervise heavy equipment installation of LWD features and work closely with the construction crews to assure the project is implemented as designed. Project Manager will also specify material procurement, and work on final reporting and maps. PWA Engineering Geologist will assist in developing and review the final site design plans, review the design in its geomorphic context to minimize identified risks, and provide the PWA Project Manager and Physical Scientist with recommendations for site specific and reach design. PWA GIS Staff will create field maps and graphics for reporting.
PWA Clerical Staff will create invoicing and track budgets.

Subcontractor Mattole Salmon Group (MSG) will be the implementation subcontractor for the Frosty Acres project and the sole subcontractor for both design and implementation of the Whitethorn Grove project. On the Frosty Acres project, MSG will be responsible for construction of the LWD jams, installation of erosion control BMP's, and installation of anchoring devices within the LWD structures. On the Whitethorn Grove project, MSG will be responsible for site assessment, project design and implementation including heavy equipment installation of LWD features and supervision of the construction crews to assure the project is implemented as designed. MSG Project Manager & Construction Supervisor responsibilities include managementtasks such as subcontracts and budgets, as well as implementation and field supervision. For the Whitethorn Grove, additional responsibilities include site assessment, project and structure

design including final plans, material specifications, and reporting documents including as built drawings and maps. MSG Bookkeeper will create invoicing and track budgets. MSG Equipment Operator equipment operator will operate all heavy equipment as needed for placement and installation of logs and boulders, including excavator, bulldozer, log skidder, dump truck and trailer, and crane truck and trailer. MSG Laborer (specialist construction) will perform all skilled implementation tasks including anchoring of logs and boulders to each other and to the trees selected for anchoring. MSG Labor: The MSG laborer will perform all general labor including debarking of logs and erosion control work as well as assist the laborer specialist with all skilled implementation tasks.

Materials:

A total of 15 LWD features, consisting of 68 logs and 54 tons, will be constructed and anchored with 1" threaded rebar, nuts, washers, 5/8" galvanized cable, cable clamps, and waterproof epoxy glue, or by wedging into riparian trees without using anchoring materials.

Tasks:

Task 1: Install Instream Habitat Features

Install 15 LWD features including 68 pieces of LWD and 54 tons of boulders will be installed along approximately 2,540 feet of Mattole River and Mill Creek. All structures will consist of 3-9 logs fastened together and including root wads wherever feasible. Seven of these structures will also be anchored to boulders. Work will consist of the following:

- All of the logs will be conifer, either Redwood or Douglass Fir
- Structures will be anchored in place using standard cabling and pinning techniques. The structures include logs with and without rootwads with an average diameter of 20 inches and length of 40 feet
- Utilize traditional placing and anchoring methods with structure designs in accordance with the CDFW restoration manual chapter VII

Frosty Acres

- Install a total of 4 instream wood structures
- A total of 28 logs (17,920 board feet) are estimated for all 4 of the structures
- Most of the logs (~80%) will be supplied from another site

Whitethorn Grove

- Install a total of 9 instream wood structures
- A total of 40 logs (37,120 board feet) are estimated for all 7 of the structures
- A total of 18 boulders will be used for anchoring features

Upper Mill Creek

- Install a total of 2 instream wood structures including 7 pieces of LWD

Task 2: Erosion Control

Mulching will take place as sites are completed on all exposed soils which may deliver sediment to a stream in order to avoid unforeseen erosion. Vegetation planting will be minimal and limited to areas that are opened up from equipment access and areas within the riparian corridor that are thinned to promote conifer and herbaceous vegetation. Native tree seedlings and shrubs will be purchased as feasible and will likely include Oregon Ash, Big Leaf Maple, Alder, Thimbleberry, and Redwood.

Deliverables:

A total of 15 features consisting of 68 logs and 54 tons of boulders will be constructed within a total of 2,540 feet of Mattole River and Mill Creek. Approximately 40 pieces of LWD will be anchored with boulders using anchoring materials to create complex features. Approximately 28 pieces of LWD will be anchored together and to riparian trees to create complex features.

Timelines:

- June 1, 2015 through July 31, 2015, conduct pre-project monitoring
- August 1, 2015 through October 31, 2015, finalize project design and permitting
- July 1, 2016 through October 31, 2016, July 1, 2017 through October 31, 2017, install LWD features within approved project reaches. Erosion control will be installed as project features are completed.
- October 1, 2017 through December 31, 2017, conduct post project monitoring and final report writing

Additional Requirements:

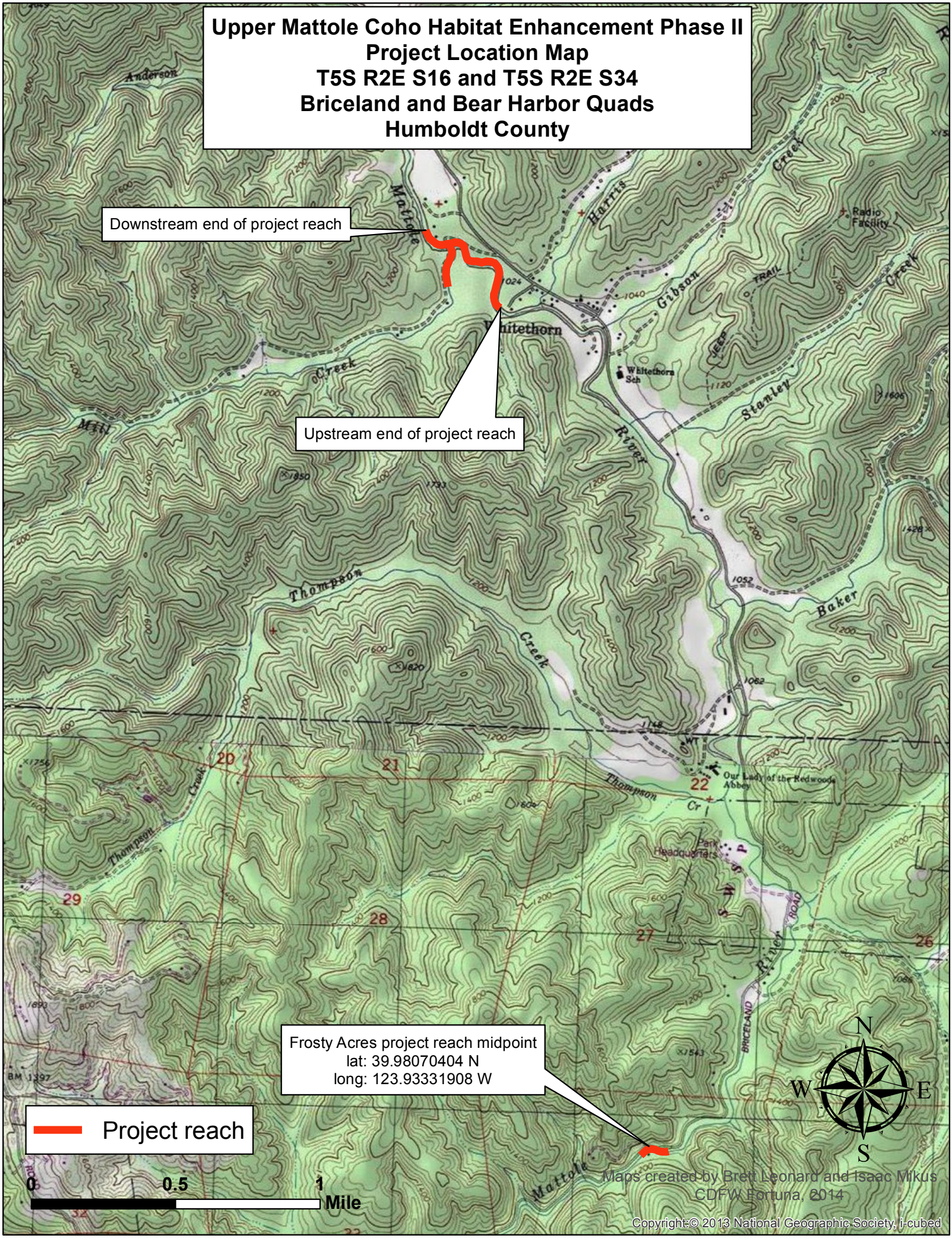
1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Briceland and Bear Harbor Quad and Surrounding Quads for:
HI 146 Upper Mattole Coho Habitat Enhancement Phase II
H 5S 2E Sections: 16, 34
Humboldt County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
2	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
3	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
4	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
5	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
6	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
7	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
8	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
9	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
10	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
11	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
12	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
13	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
14	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
15	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
16	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
17	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	SC
18	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
19	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
20	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
21	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
22	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
23	little willow flycatcher *Empidonax traillii brewsteri*	ABPAE33041		Endangered	G5T3T4	S1S2	
24	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
25	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
26	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2S3	2B.2
27	mountain shoulderband *Helminthoglypta arrosa monticola*	IMGASC2035			G2G3T1	S1	
28	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
29	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
30	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
31	small groundcone *Kopsiopsis hookeri*	PDORO01010			G5	S1S2	2B.3
32	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
33	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
34	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
35	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2


Upper Mattole Coho Habitat Enhancement Phase II
Project Location Map
T5S R2E S16 and T5S R2E S34
Briceland and Bear Harbor Quads
Humboldt County
Downstream end of project reach
Upstream end of project reach
Frosty Acres project reach midpoint
lat: 39.98070404 N
long: 123.93331908 W
Project reach
0
0.5
1
Mile
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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Klamath River Tributary Fish Passage Improvement Project (2015 – 2017)

Introduction:

Grantee's North Coast Coho Project will implement the Klamath River Tributary Fish Passage Improvement Project (2015 – 2017). This project will ensure both juvenile and adult fish passage into high quality thermal refugia areas during critical periods of migration. Access to cold, clean tributaries of the main-stem Klamath, Salmon and Scott River during low flow, high temperature summer and fall months is critical for both migration and rearing within the Klamath River system. The Mid Klamath Subbasin Fisheries Resource Recovery Plan calls for the identification and implementation of improved fish passage, as well as the assessment and evaluation of long-term restoration projects.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. All habitat restoration improvements will follow techniques in the California Salmonid Stream Habitat Restoration Manual, Part VII, IX, X, XI, and XII. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

The specific objective of this project is to improve juvenile and adult salmonid fish passage to over 70 tributaries in the Middle Klamath, Salmon and Lower Scott River Subbasins through manual modification of seasonal barriers. Re-connecting tributaries to main-stem river corridors provides for significant remediation of all limiting factors affecting salmonids in the Klamath River Basin, including: water quality, water quantity, and habitat quantity and quality. Cold water tributaries provide critical habitat during the juvenile and adult life stages of salmonids, especially during low flow, high water temperature drought years.

Project Description:

Location:

The Grantee will conduct work on tributaries to the middle Klamath River including:

- Aikens Creek - Township 10N, Range 5E, Section 30 of the Weitchpec 7.5 Minute U.S.G.S. Quadrangle, 41.2287^0 N latitude and -123.6522^0 W longitude, Humboldt County
- Beaver Creek - Township 46N, Range 8W, section 6 of the McKinley Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.8691^0 N latitude and -122.8169^0 W longitude, Siskiyou CountyBluff Creek - Township 10N,

Range 5E, section 19 of the Weitchpec 7.5 Minute U.S.G.S. Quadrangle, 41.2403^0 N latitude and -123.6526^0 W longitude, Humboldt County

- Boise Creek –Township 10N, Range 5E, section 11 of the Orleans 7.5 Minute U.S.G.S. Quadrangle, 41.2827^0 N latitude and -123.5757^0 W longitude, Humboldt County
- Cade Creek – Township 16N , Range 7E , section 1 of the Slater Butte 7.5 Minute U.S.G.S. Quadrangle, 41.8073^0 N latitude and -123.3491^0 W longitude Siskiyou County
- Camp Creek - Township 10N, Range 5E, section 1 of the Orleans 7.5 Minute U.S.G.S. Quadrangle, 41.2928^0 N latitude and -123.562450198356^0 W longitude Humboldt County
- China Creek - Township 16N, Range 8E, section 5 of the Slater Butte 7.5 Minute U.S.G.S. Quadrangle, 41.8000^0 N latitude and -123.3141^0 W longitude Siskiyou County
- Clear Creek – Township 15N , Range 7E , section 7 of the Clear Creek 7.5 Minute U.S.G.S. Quadrangle, 41.7097^0 N latitude and -123.4480^0 W longitude, Siskiyou County
- Coon Creek - Township 14N, Range 6E, section 16 of the Ukonom Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.6126^0 N latitude and -123.4966^0 W longitude, Siskiyou County
- Cottonwood Creek - Township 47N, Range 6W, section 28 of the Hornbrook 7.5 Minute U.S.G.S. Quadrangle, 41.8888^0 N latitude and -122.5435^0 W longitude, Siskiyou County
- Bogus Creek – Township 47N , Range 5W, section 17 of the Iron Gate Reservoir 7.5 Minute U.S.G.S. Quadrangle, 41.9292^0 N latitude and -122.4432^0 W longitude, Siskiyou County
- Crawford (Orleans RD) Creek - Township 10N, Range 5E, section 2 of the Orleans 7.5 Minute U.S.G.S. Quadrangle, 41.2954^0 N latitude and -123.5654^0 W longitude, Humboldt County
- Crawford (Happy Camp RD) Creek - Township 15N, Range 7E, section 31 of the Clear Creek 7.5 Minute U.S.G.S. Quadrangle, 41.648^0 N latitude and -123.4640^0 W longitude, Siskiyou County
- Dillon Creek – Township 14N, Range 6E, section 30 of the Dillon Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.5760^0 N latitude and -123.5388^0 W longitude, Siskiyou County

- Elk Creek - Township 16N, Range 7E, section 15 of the Happy Camp 7.5 Minute U.S.G.S. Quadrangle, 41.7808^0 N latitude and -123.3942^0 W longitude, Siskiyou County
- Fort Goff Creek - Township 47N, Range 12W, section 32 of the Slater Butte 7.5 Minute U.S.G.S. Quadrangle, 41.8637^0 N latitude and -123.2575^0 W longitude, Siskiyou County
- Grider Creek - Township 46N, Range 12W, section 11 of the Seiad Valley 7.5 Minute U.S.G.S. Quadrangle, 41.8413^0 N latitude and -123.2072^0 W longitude, Siskiyou County
- Hopkins Creek - Township 9N, Range 4E, section 1 of the Weitchpec 7.5 Minute U.S.G.S. Quadrangle, 41.2033^0 N latitude and -123.6616^0 W longitude, Humboldt County
- Horse Creek - Township 46N, Range 10W, section 16 of the Horse Creek 7.5 Minute U.S.G.S. Quadrangle, 41.8237^0 N latitude and -123.0049^0 W longitude, Siskiyou County
- Ikes Creek - Township 11N, Range 6E, section 9 of the Orleans 7.5 Minute U.S.G.S. Quadrangle, 41.3627^0 N latitude and -123.4933^0 W longitude, Humboldt County
- Independence Creek - Township 15N, Range 7E, section 31 of the Clear Creek 7.5 Minute U.S.G.S. Quadrangle, 41.6583^0 N latitude and -123.4511^0 W longitude, Siskiyou County
- Indian Creek - Township 16N, Range 7E, section 11 of the Happy Camp 7.5 Minute U.S.G.S. Quadrangle, 41.7901^0 N latitude and -123.3786^0 W longitude, Siskiyou County
- Irving Creek - Township 12N, Range 6E, section 4 of the Somes Bar 7.5 Minute U.S.G.S. Quadrangle, 41.4679^0 N latitude and -123.5003^0 W longitude, Siskiyou County
- King Creek – Township 14N , Range 6E, section 10 of the Ukonom Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.6181^0 N latitude and -123.4725^0 W longitude
- Little Grider Creek - Township 16N, Range 7E, section 15 of the Happy Camp 7.5 Minute U.S.G.S. Quadrangle, 41.7839^0 N latitude and -123.3947^0 W longitude, Siskiyou County
- Little Horse Creek - Township 16N, Range 8E, section 17 of the Slater Butte7.5 Minute U.S.G.S. Quadrangle, 41.7848^0 N latitude and -123.31850^0 W longitude, Siskiyou County

- Little Humbug Creek - Township 46N, Range 9W, section 13 of the McKinley Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.8356^0 N latitude and -122.8425^0 W longitude, Siskiyou County
- Oak Flat Creek - Township 15N, Range 7E, section 5 of the Clear Creek 7.5 Minute U.S.G.S. Quadrangle, 41.7291^0 N latitude and -123.4357^0 W longitude, Siskiyou County
- O'Neil Creek - Township 46N, Range 11W, section 22 of the Hamburg 7.5 Minute U.S.G.S. Quadrangle, 41.8103^0 N latitude and -123.1153^0 W longitude, Siskiyou County
- Pearch Creek - Township 11N, Range 6E, section 29 of the Orleans 7.5 Minute U.S.G.S. Quadrangle, 41.3122^0 N latitude and -123.5251^0 W longitude, Humboldt County
- Portuguese (Happy Camp RD) Creek - Township 46N, Range 12W, section 4 of the Seiad Valley 7.5 Minute U.S.G.S. Quadrangle, 41.8583^0 N latitude and -123.2473^0 W longitude, Siskiyou County
- Red Cap Creek –Township 10N, Range 5E, section 15 of the Orleans 7.5 Minute U.S.G.S. Quadrangle, 41.2586^0 N latitude and -123.6047^0 W longitude, Humboldt County
- Rock Creek - Township 13N, Range 6E, section 19 of the Dillon Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.5120^0 N latitude and -123.5304^0 W longitude, Siskiyou County
- Rodgers Creek - Township 12N, Range 6E, section 10 of the Somes Bar 7.5 Minute U.S.G.S. Quadrangle, 41.4450^0 N latitude and -123.4906^0 W longitude, Siskiyou County
- Sandy Bar Creek - Township 13N, Range 12E, section 29 of the Bark Shanty Gulch 7.5 Minute U.S.G.S. Quadrangle, 41.4858^0 N latitude and -123.5185^0 W longitude, Siskiyou County
- Seiad Creek - Township 46N, Range 12W, section 11 of the Seiad Valley 7.5 Minute U.S.G.S. Quadrangle, 41.8429^0 N latitude and -123.2117^0 W longitude, Siskiyou County
- Slate Creek - Township 10N, Range 5E, section 19 of the Fish Lake 7.5 Minute U.S.G.S. Quadrangle, 41.2500^0 N latitude and -123.6436^0 W longitude, Humboldt County
- Stanshaw Creek - Township 13N, Range 6E, section 32 of the Bark Shanty Gulch 7.5 Minute U.S.G.S. Quadrangle, 41.4764^0 N latitude and -123.5122^0 W longitude, Siskiyou County

- Swillup Creek - Township 14N, Range 6E, section 16 of the Dillon Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.6083^0 N latitude and -123.5011^0 W longitude, Siskiyou County
- Thompson Creek - Township 17N, Range 8E, section 17 of the Slater Butte 7.5 Minute U.S.G.S. Quadrangle, 41.8635^0 N latitude and -123.3085^0 W longitude, Siskiyou County
- Ti Creek - Township 13N, Range 6E, section 17 of the Dillon Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.52540^0 N latitude and -123.5290^0 W longitude, Siskiyou County
- Titus Creek - Township 15N, Range 7E, section 9 of the Clear Creek 7.5 Minute U.S.G.S. Quadrangle, 41.671302^0 N latitude and -123.4303^0 W longitude, Siskiyou County
- Tom Martin Creek - Township 46N, Range 10W, section 31 of the Hamburg 7.5 Minute U.S.G.S. Quadrangle, 41.7839^0 N latitude and -123.0422^0 W longitude, Siskiyou County
- Ukonom Creek – Township 14N , Range 6E, section 10 of the Ukonom Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.6165^0 N latitude and -123.4848^0 W longitude, Siskiyou County
- Ullathorne Creek - Township 10N, Range 5E, section 2 of the Orleans 7.5 Minute U.S.G.S. Quadrangle, 41.2911^0 N latitude and -123.5708^0 W longitude, Humboldt County
- Walker Creek - Township 46N, Range 11W, section 18 of the Hamburg 7.5 Minute U.S.G.S. Quadrangle, 41.8363^0 N latitude and -123.1716^0 W longitude, Siskiyou County
- Whitmore Creek - Township 11N, Range 6E, section 20 of the Orleans 7.5 Minute U.S.G.S. Quadrangle, 41.3352^0 N latitude and -123.5114^0 W longitude, Humboldt County
- Wilson Creek - Township 11N, Range 6E, section 20 of the Orleans 7.5 Minute U.S.G.S. Quadrangle, 41.3299^0 N latitude and -123.5213^0 W longitude, Humboldt County

Tributaries to the Salmon River:

- Merrill Creek - Township 11N, Range 6E, section 3 of the Somes Bar 7.5 Minute U.S.G.S. Quadrangle, 41.3789^0 N latitude and -123.4729^0 W longitude, Siskiyou County
- Butler Creek - Township 10N, Range 7E, section 20 of the Orleans Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.3366^0 N latitude and -123.4093^0 W longitude, Siskiyou County

- Wooley Creek - Township 11N, Range 7E, section 6 of the Somes Bar 7.5 Minute U.S.G.S. Quadrangle, 41.3770^0 N latitude and -123.4225^0 W longitude, Siskiyou County
- Crapo Creek - Township 10N, Range 7E, section 3 of the Forks of Salmon 7.5 Minute U.S.G.S. Quadrangle, 41.2922^0 N latitude and -123.3628^0 W longitude, Siskiyou County
- Nordheimer Creek - Township 10N, Range 7E, section 3 of the Forks of Salmon 7.5 Minute U.S.G.S. Quadrangle, 41.2967^0 N latitude and -123.3597^0 W longitude, Siskiyou County
- Knownothing Creek - Township 10N, Range 8E, section 20 of the Youngs Peak 7.5 Minute U.S.G.S. Quadrangle, 41.2434^0 N latitude and -123.2917^0 W longitude, Siskiyou County
- Methodist Creek - Township 39N, Range 12W, section 30 of the Cecilville 7.5 Minute U.S.G.S. Quadrangle, 41.2217^0 N latitude and -123.2494^0 W longitude, Siskiyou County
- Indian Creek - Township 39N, Range 12W, section 32 of the Cecilville 7.5 Minute U.S.G.S. Quadrangle, 41.2112^0 N latitude and -123.2324^0 W longitude, Siskiyou County
- Black Bear Creek - Township 38N, Range 12W, section 4 of the Cecilville 7.5 Minute U.S.G.S. Quadrangle, 41.2041^0 N latitude and -123.2247^0 W longitude, Siskiyou County
- St. Claire Creek - Township 38N, Range 12W, section 25 of the Cecilville 7.5 Minute U.S.G.S. Quadrangle, 41.1409^0 N latitude and -123.1724^0 W longitude, Siskiyou County
- Cecil Creek - Township 38N, Range 11W, section 29 of the Cecilville 7.5 Minute U.S.G.S. Quadrangle, 41.1389^0 N latitude and -123.1282^0 W longitude, Siskiyou County
- East Fork of the Salmon River - Township 38N, Range 11W, section 21 of the Grasshopper Ridge 7.5 Minute U.S.G.S. Quadrangle, 41.1539^0 N latitude and -123.1087^0 W longitude, Siskiyou County
- Cronan Creek - Township 40N, Range 12W, section 23 of the Sawyers Bar 7.5 Minute U.S.G.S. Quadrangle, 41.3132^0 N latitude and -123.1919^0 W longitude, Siskiyou County
- Jackass Gulch - Township 40N, Range 11W, section 30 of the Sawyers Bar 7.5 Minute U.S.G.S. Quadrangle, 41.3024^0 N latitude and -123.1583^0 W longitude, Siskiyou County

- Glasgow Creek - Township 40N, Range 12W, section 25 of the Sawyers Bar 7.5 Minute U.S.G.S. Quadrangle, 41.3065^0 N latitude and -123.1656^0 W longitude, Siskiyou County
- Kelly Gulch- Township 40N, Range 12W, section 24 of the Sawyers Bar 7.5 Minute U.S.G.S. Quadrangle, 41.3156^0 N latitude and -123.1686^0 W longitude, Siskiyou County
- White's Gulch - Township 40N, Range 11W, section 26 of the Tanners Peak 7.5 Minute U.S.G.S. Quadrangle, 41.2983^0 N latitude and -123.0837^0 W longitude, Siskiyou County
- Little North Fork Salmon River - Township 40N, Range 12W, section 24 of the Sawyers Bar 7.5 Minute U.S.G.S. Quadrangle, 41.3208^0 N latitude and -123.1770^0 W longitude, Siskiyou County
- North Russian Creek - Township 40N, Range 10W, section 19 of the Tanners Peak 7.5 Minute U.S.G.S. Quadrangle, 41.3266^0 N latitude and -123.0568^0 W longitude, Siskiyou County
- South Russian Creek - Township 40N, Range 10W, section 19 of the Tanners Peak 7.5 Minute U.S.G.S. Quadrangle, 41.3266^0 N latitude and -123.0568^0 W longitude, Siskiyou County

Tributaries to the Lower Scott River:

- Boulder Creek - Township 44N, Range 11W, section 27 of the Scott Bar 7.5 Minute U.S.G.S. Quadrangle, 41.6341^0 N latitude and -123.0993^0 W longitude, Siskiyou County
- Middle Creek - Township 44N, Range 11W, section 16 of the Scott Bar 7.5 Minute U.S.G.S. Quadrangle, 41.6686^0 N latitude and -123.1089^0 W longitude, Siskiyou County
- Thompkins Creek - Township 44N, Range 11W, section 10 of the Scott Bar 7.5 Minute U.S.G.S. Quadrangle, 41.6811^0 N latitude and -123.0973^0 W longitude, Siskiyou County

As depicted in Exhibit B, Project Location Maps which are attached and made part of this agreement by this reference

Project Set Up:

Salmon River Restoration Council (SRRC) will subcontract with the Mid Klamath Watershed Council (MKWC) to implement treatments on the Mid Klamath Tributaries in coordination with the SRRC Fisheries Program. MKWC will play a critical role in organizing volunteer workdays, providing outreach to landowners and organizing workforce to implement these treatments.

Materials:
Waders and boots, office supplies and miscellaneous field supplies.

Tasks:
Task 1.
Coordinate with all collaborators to prioritize treatments, discuss techniques and standardize protocol (March 2015, March 2016). Conduct an assessment of juvenile and adult fish passage on tributaries of the Klamath, Salmon, and Lower Scott identified in this proposal to identify barriers and record qualitative features (April – May 2015, April – May 2016). Collect data at tributary mouths and other barriers, including channel width, depth, and gradient. This data will add to data collected on Klamath, Scott and Salmon tributaries through a project funded by the National Fish & Wildlife Foundation.

Task 2.
Use assessment data to develop a strategic plan for modification of fish barrier sites. This plan will include the use of community volunteer crews to treat identified sites in a timely manner (May 2015, May 2016).

Task 3.
Modify identified barriers to allow for juvenile and adult salmonid fish passage (May – November 2015, May – November 2016). Step-and-pool fishway is the primary model to be used for modification. In some cases, creek mouths with large, shallow alluvial fans will be channelized to improve fish passage and minimize solar heating. No machinery will be used.

Task 4.
Photo points will be taken before, during, and after the modifications to document methods used on each site and provide a reference for future years (ongoing). Video will also be taken at select sites.

Task 5.
Data will be shared with all interested parties to increase understanding of fish passage issues at tributary mouths and develop appropriate scaled projects to address the issue (ongoing).

Task 6.
Conduct outreach to private landowners at creek mouths identified as having fish passage issues to gain access for assessment and modification, if needed, of potential fish passage barriers (ongoing). Signs will be posted at locations where swimmer's dams or push-up dams are chronically affecting fish passage educating landowners and river users about the need for appropriate construction of these features.

Deliverables:

- Maps of project areas with identification and type of fish barriers.
- Before, during, and after photo points of project sites. Video of creek mouths, volunteer workdays, and fish barriers.
- Data on improvements to fish passage: fish usage, velocity, pool depths, barrier heights, channel gradient, cover and temperature measurements before and after treatment.
- Community participation in at least six volunteer workdays to manually modify barriers to allow for fish passage.
- Posting of educational signs about fish passage in swimmers dams at public swimming holes.
- Agreements with landowners to access potential fish barriers on private lands.
- Quarterly progress reports, a draft final, and Final Report describing the project, and a summary of findings and results.
- PowerPoint presentation and a poster reporting project accomplishments and findings.

Timelines:

- March 2015, March 2016: Convene a coordination meeting with the Mid Klamath Watershed Council, the Karuk Tribe Fisheries Program, Salmon River Restoration Council, and USFS Fisheries to standardize survey protocol, establish techniques and discuss priorities.

- April-May 2015, April-May 2016: Develop assessment prioritization strategy. Begin assessment of tributaries for fish passage barriers and pre biological monitoring at sites marked for implementation. Begin outreach to private landowners.

- May-July 2015, May-July 2016: Implement treatments on prioritized sites for juvenile fish passage. Collect photo-points and implement pre and post structural and biological monitoring. Coordinate two volunteer workdays and begin public outreach campaign.

- August-October 2015, August-October 2016: Implement treatments on prioritized sites for adult fish passage and monitor implementations. Coordinate one volunteer workday.

- October 2015, October 2016: Monitor adult fish passage sites. Begin developing final reports.

- November-December 2015, November 2016 – March 2017: Publish and distribute final reports and findings.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:
   - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
   - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
   - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
   - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.
   - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. All crossings treated in fish bearing reaches of streams will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and the criteria for adult and juvenile salmonid fish passage as described in Volume II, Part IX of the *California Salmonid Stream*

Habitat Restoration Manual.

4. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*.

5. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Project Quads and Surrounding Quads for:
Klamath River Tributary Fish Passage Improvement Project,2015-2017
T9N,R41,S1;T10N,R5E,S1,2,11,15,19&30;T10N,R7E,S3&20;T10N,R8E,S20;T11N,R6E,S3,9,20&29;T11N,R7E,S6;T12N,R6E,S4,10&16;T13N,R12E,S29;T13N,R6E,S17,19&32;T14N,R6E,S10,16,21&30;T15N,R7E,S5,7,9&31;T16N,R7E,S1,11&15;T16N,R8E,S5&17;T17N,R8E,S17;T38N,R11W,S21&29;T38N,R12W,S4,25,30&32;T40N,R10W,S19;T40N,R11W,S26&30;T40N,R12W,S23,24&25;T44N,R11W,S10,16&27;T46N,R10W,S16&31;T46N,R11W,S18&22;T46N,R12W,S4&11;T46N,R8W,S6;T46N,R9W,S13;T47N,R12W,S32;T47N,R5W,S17;T47N,R6W,S28;
Humboldt and Siskiyou Counties

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	A terrestrial snail *Monadenia fidelis leonina*	IMGASC7037			G4G5T1T2	S1S2	
2	American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
3	American saw-wort *Saussurea americana*	PDAST8B020			G5	S1	2B.2
4	Applegate stonecrop *Sedum oblanceolatum*	PDCRA0A0T0			G3	S1	1B.1
5	Ashland thistle *Cirsium ciliolatum*	PDAST2E0P0		Endangered	G3	S1	2B.1
6	Bald Mountain milk-vetch *Astragalus umbraticus*	PDFAB0F990			G4	S2	2B.3
7	California globe mallow *Iliamna latibracteata*	PDMAL0K040			G2G3	S2	1B.2
8	California wolverine *Gulo gulo*	AMAJF03010		Threatened	G4	S1	
9	Cascade grass-of-Parnassus *Parnassia cirrata var. intermedia*	PDSAX0P044			G5T3	S3	2B.2
10	Cascade stonecrop *Sedum divergens*	PDCRA0A0B0			G5?	S2	2B.3
11	Cascades frog *Rana cascadae*	AAABH01060			G3G4	S3	SC
12	Coast Range lomatium *Lomatium martindalei*	PDAPI1B140			G5	S3	2B.3
13	Darlingtonia Seep	CTT51120CA			G4	S3.2	
14	Del Norte salamander *Plethodon elongatus*	AAAAD12050			G4	S3	SC
15	Detling's silverpuffs *Microseris laciniata ssp. detlingii*	PDAST6E0A1			G4T3	S1	2B.2
16	Dudley's rush *Juncus dudleyi*	PMJUN01390			G5	S1	2B.3
17	Engelmann spruce *Picea engelmannii*	PGPIN03030			G5	S2	2B.2
18	English Peak greenbrier *Smilax jamesii*	PMSMI010D0			G2	S2	1B.3
19	Gasquet rose *Rosa gymnocarpa var. serpentina*	PDROS1J1V1			G5T2	S2	1B.3
20	Gentner's fritillary *Fritillaria gentneri*	PMLIL0V080	Endangered		G1	S1	1B.1
21	Greene's mariposa-lily *Calochortus greenei*	PMLIL0D0H0			G3	S3	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
22	Heckner's lewisia *Lewisia cotyledon var. heckneri*	PDPOR04052			G4T3	S3	1B.2
23	Henderson's fawn lily *Erythronium hendersonii*	PMLIL0U070			G4	S2	2B.3
24	Henderson's horkelia *Horkelia hendersonii*	PDROS0W090			G1G2	S1	1B.1
25	Henderson's triteleia *Triteleia hendersonii*	PMLIL21070			G4	S1	2B.2
26	Holzinger's orthotrichum moss *Orthotrichum holzingeri*	NBMUS560E0			G3	S2	1B.3
27	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
28	Howell's tauschia *Tauschia howellii*	PDAPI27050			G2	S2	1B.3
29	Howell's violet *Viola howellii*	PDVIO040U0			G4	S1	2B.2
30	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
31	Jaynes Canyon buckwheat *Eriogonum diclinum*	PDPGN081S0			G3	S2S3	1B.3
32	Karok hesperian *Vespericola karokorum*	IMGASA4040			G2	S2	
33	Klamath Mountain buckwheat *Eriogonum hirtellum*	PDPGN082T0			G3	S3	1B.3
34	Klamath gentian *Gentiana plurisetosa*	PDGEN060V0			G2G3	S2	1B.3
35	Klamath largescale sucker *Catostomus snyderi*	AFCJC02200			G3	S2	SC
36	Klamath/No Coast Spring Run Chinook/Summer Steelhead Stream	CARB2333CA			GNR	SNR	
37	Klamath/North Coast Fall/Winter Run Chinook Salmon River	CARB2332CA			GNR	SNR	
38	Klamath/North Coast Interior Headwater Fishless Stream	CARB2220CA			GNR	SNR	
39	Klamath/North Coast Rainbow Trout Stream	CARB2312CA			GNR	SNR	
40	Koehler's rockcress *Boechera koehleri*	PDBRA060Z0			G3	S2	1B.3
41	Lost River sucker *Deltistes luxatus*	AFCJC12010	Endangered	Endangered	G1	S1	
42	Lyall's tonestus *Tonestus lyallii*	PDASTE0050			G5	S1	2B.3

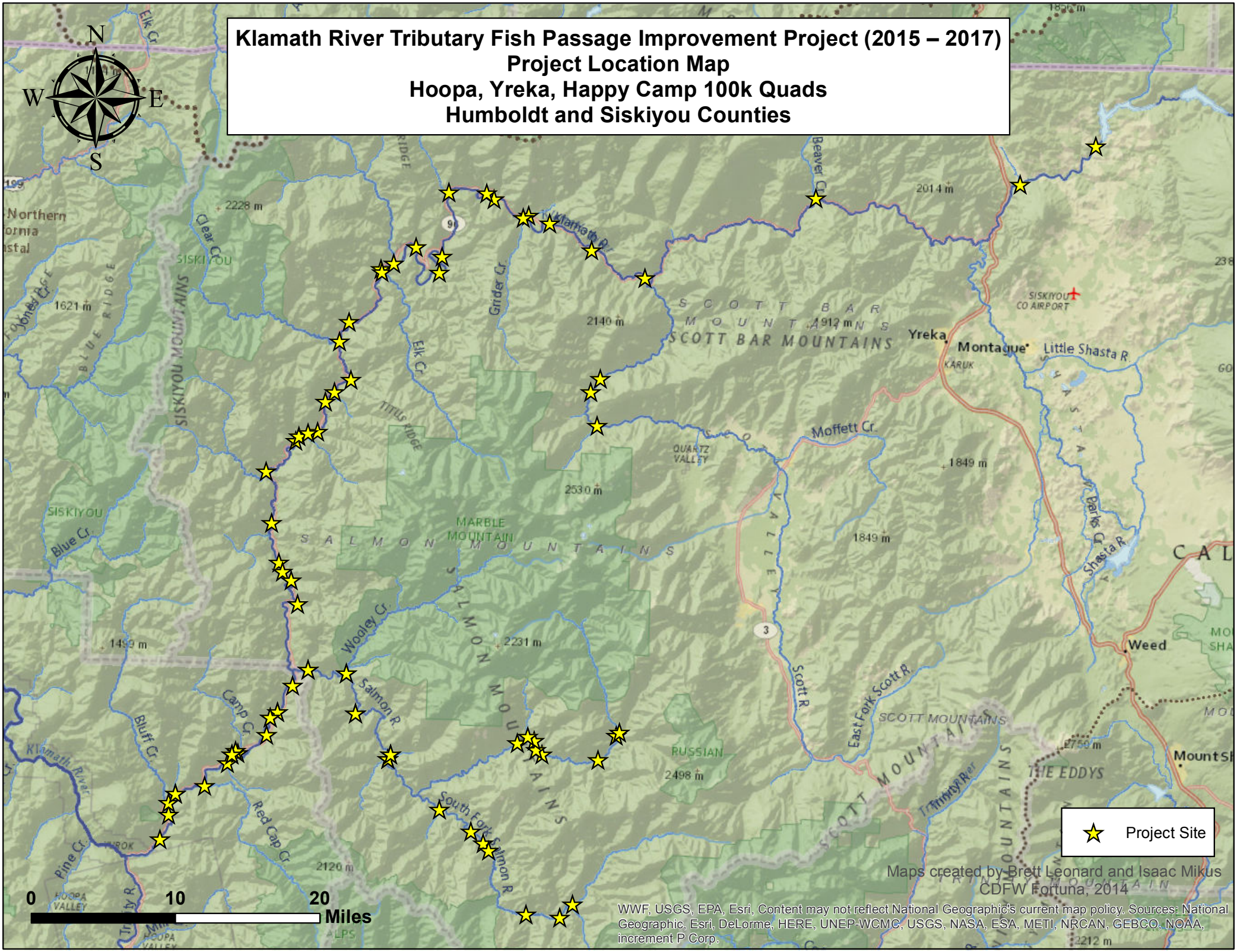
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
43	Marble Mountain campion *Silene marmorensis*	PDCAR0U0Z0			G2	S2	1B.2
44	Mcdonald's rockcress *Arabis mcdonaldiana*	PDBRA06150	Endangered	Endangered	G2	S2	1B.1
45	Mt. Eddy draba *Draba carnosula*	PDBRA112T0			G2	S2	1B.3
46	Oregon fireweed *Epilobium oreganum*	PDONA060P0			G2	S2	1B.2
47	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
48	Oregon polemonium *Polemonium carneum*	PDPLM0E050			G4	S1	2B.2
49	Oregon sedge *Carex halliana*	PMCYP035M0			G4G5	S2	2B.3
50	Pacific fuzzwort *Ptilidium californicum*	NBHEP2U010			G3G4	S3?	4.3
51	Pacific marten *Martes caurina*	AMAJF01030			G5	S3	
52	Pacific silver fir *Abies amabilis*	PGPIN01010			G5	S3	2B.3
53	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
54	Peck's lomatium *Lomatium peckianum*	PDAPI1B1G0			G4	S1	2B.2
55	Regel's rush *Juncus regelii*	PMJUN012D0			G4?	S1	2B.3
56	Robbins' pondweed *Potamogeton robbinsii*	PMPOT030Z0			G5	S3	2B.3
57	Rolle's rockcress *Boechera rollei*	PDBRA064H0			G1	S1	1B.1
58	Scott Bar salamander *Plethodon asupak*	AAAAD12560		Threatened	G1G2	S1S2	
59	Scott Mountain bedstraw *Galium serpenticum ssp. scotticum*	PDRUB0N1Y6			G4G5T2	S2	1B.2
60	Scott Mountain sandwort *Minuartia stolonifera*	PDCAR0G110			G2	S2	1B.3
61	Scott Valley buckwheat *Eriogonum umbellatum var. lautum*	PDPGN086UX			G5T1	S1	1B.1
62	Scott Valley phacelia *Phacelia greenei*	PDHYD0C1V0			G2	S2	1B.2
63	Shasta chaenactis *Chaenactis suffrutescens*	PDAST200H0			G3	S3	1B.3

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
64	Siskiyou Mountains salamander *Plethodon stormi*	AAAAD12180		Threatened	G2G3	S1S2	
65	Siskiyou fireweed *Epilobium siskiyouense*	PDONA06100			G3	S3	1B.3
66	Siskiyou ground beetle *Nebria gebleri siskiyouensis*	IICOL6L091			G4G5T4	S1S2	
67	Siskiyou mariposa-lily *Calochortus persistens*	PMLIL0D140	Candidate	Rare	G1	S1	1B.2
68	Siskiyou paintbrush *Castilleja elata*	PDSCR0D213			G3	S2S3	2B.2
69	Siskiyou phacelia *Phacelia leonis*	PDHYD0C2N0			G3	S3	1B.3
70	Siskiyou shoulderband *Monadenia chaceana*	IMGASC7150			G2G3	S2	
71	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
72	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
73	Tracy's beardtongue *Penstemon tracyi*	PDSCR1L6A0			G1	S1	1B.3
74	Tracy's sanicle *Sanicula tracyi*	PDAPI1Z0K0			G4	S4	4.2
75	Trinity Alps ground beetle *Nebria sahlbergii triad*	IICOL6L081			G1T1	S1	
76	Trinity Mountains rockcress *Arabis rigidissima var. rigidissima*	PDBRA061R2			G3T2	S2	1B.3
77	Trinity shoulderband *Helminthoglypta talmadgei*	IMGASC2630			G2	S2	
78	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
79	Waldo daisy *Erigeron bloomeri var. nudatus*	PDAST3M0M2			G5T4	S2?	2B.3
80	Waldo rockcress *Arabis aculeolata*	PDBRA06010			G4	S2	2B.2
81	Wawona riffle beetle *Atractelmis wawona*	IICOL58010			G1G3	S1S2	
82	Wilkin's harebell *Campanula wilkinsiana*	PDCAM020Z0			G2	S2	1B.2
83	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
84	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
85	blushing wild buckwheat *Eriogonum ursinum var. erubescens*	PDPGN08632			G3G4T2	S2	1B.3
86	broad-nerved hump moss *Meesia uliginosa*	NBMUS4L030			G4	S3	2B.2
87	brook pocket moss *Fissidens aphelotaxifolius*	NBMUS2W290			G3G4	S1	2B.2
88	bunchberry *Cornus canadensis*	PDCOR01040			G5	S2	2B.2
89	buttercup-leaf suksdorfia *Hemieva ranunculifolia*	PDSAX0W010			G5	S2	2B.2
90	chinook salmon - spring-run Klamath-Trinity Rivers pop. *Oncorhynchus tshawytscha*	AFCHA02056			G5	S1S2	SC
91	coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A			G4T4	S3	SC
92	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
93	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
94	crested sideband *Monadenia cristulata*	IMGASC7120			G1G2	S1S2	
95	downy sideband *Monadenia callipeplus*	IMGASC7110			G1G2	S1S2	
96	elongate copper moss *Mielichhoferia elongata*	NBMUS4Q022			G4	S2	2B.2
97	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
98	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
99	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2
100	gray wolf *Canis lupus*	AMAJA01030	Endangered	Candidate Endangered	G4	S1	
101	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
102	great gray owl *Strix nebulosa*	ABNSB12040		Endangered	G5	S1	
103	hairy marsh hedge-nettle *Stachys pilosa*	PDLAM1X1A0			G5	S2	2B.3
104	hooded lancetooth *Ancotrema voyanum*	IMGAS36130			G1G2	S1S2	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
105	horned butterwort *Pinguicula macroceras*	PDLNT01040			G5	S2S3	2B.2
106	large-flowered triteleia *Triteleia grandiflora*	PMLIL21060			G4G5	S1	2B.1
107	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
108	little-leaved huckleberry *Vaccinium scoparium*	PDERI180Y0			G5	S3	2B.2
109	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
110	montane peaclam *Pisidium ultramontanum*	IMBIV51220			G1	S1	
111	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
112	northern meadow sedge *Carex praticola*	PMCYP03B20			G5	S2S3	2B.2
113	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
114	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
115	northwestern moonwort *Botrychium pinnatum*	PPOPH010V0			G4?	S2	2B.3
116	obtuse starwort *Stellaria obtusa*	PDCAR0X0U0			G5	S3.3	4.3
117	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
118	pale yellow stonecrop *Sedum laxum ssp. flavidum*	PDCRA0A0L2			G5T3Q	S3.3	4.3
119	pendulous bulrush *Scirpus pendulus*	PMCYP0Q160			G5	S1	2B.2
120	prairie falcon *Falco mexicanus*	ABNKD06090			G5	S4	
121	rattlesnake fern *Botrypus virginianus*	PPOPH010H0			G5	S2	2B.2
122	red-wool saxifrage *Saxifraga rufidula*	PDSAX0U1H0			G5?	S1	2B.3
123	robust false lupine *Thermopsis robusta*	PDFAB3Z0D0			G2	S2	1B.2
124	ruffed grouse *Bonasa umbellus*	ABNLC11010			G5	S4	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
125	shortnose sucker *Chasmistes brevirostris*	AFCJC03010	Endangered	Endangered	G1	S1	
126	showy raillardella *Raillardella pringlei*	PDAST7X030			G3	S3	1B.2
127	silver-haired bat *Lasionycteris noctivagans*	AMACC02010			G5	S3S4	
128	single-flowered mariposa-lily *Calochortus monanthus*	PMLIL0D0W0			GH	SH	1A
129	slender silver moss *Anomobryum julaceum*	NBMUS80010			G4G5	S2	4.2
130	slender-stemmed androsace *Androsace filiformis*	PDPRI02040			G4	S1	2B.3
131	small groundcone *Kopsiopsis hookeri*	PDORO01010			G5	S1S2	2B.3
132	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
133	subalpine fir *Abies lasiocarpa var. lasiocarpa*	PGPIN01072			G5T5	S3	2B.3
134	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
135	thread-leaved beardtongue *Penstemon filiformis*	PDSCR1L2A0			G3	S3	1B.3
136	topaz juga *Juga acutifilosa*	IMGASK4010			G2	S2	
137	tundra thread moss *Pohlia tundrae*	NBMUS5S1B0			G2G3	S2S3	2B.3
138	water bulrush *Schoenoplectus subterminalis*	PMCYP0Q1G0			G4G5	S3	2B.3
139	western pearlshell *Margaritifera falcata*	IMBIV27020			G4G5	S1S2	
140	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
141	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
142	willow flycatcher *Empidonax traillii*	ABPAE33040		Endangered	G5	S1S2	
143	yellow-based sideband *Monadenia infumata ochromphalus*	IMGASC7051			G2T1	S1	


Klamath River Tributary Fish Passage Improvement Project (2015 – 2017)
Project Location Map
Hoopa, Yreka, Happy Camp 100k Quads
Humboldt and Siskiyou Counties
N
W
E
S
Project Site
0
10
20
Miles
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
WWF, USGS, EPA, Esri, Content may not reflect National Geographic's current map policy. Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
Yreka
Montague
Weed
Mount Shasta
Little Shasta R
Moffett Cr
Grider Cr
Elk Cr
Clear Cr
Beaver Cr
Titus Ridge
Quartz Valley
Scott Bar Mountains
Salmon Mountains
Marble Mountain
Scott Mountains
Scott R
East Fork Scott R
Salmon R
Wooley Cr
Camp Cr
Bluff Cr
Red Cap Cr
South Fork Salmon R
Blue Cr
Pine Cr
Trinity R
Siskiyou Mountains
Blue Ridge
Jones Cr
Siskiyou Co Airport
Karuk
Quartz Valley
Hoopa Valley
The Eddys
Russian
2228 m
2014 m
1621 m
2140 m
2912 m
2530 m
1849 m
1459 m
2231 m
2498 m
2120 m
2750 m
2212 m

Fish Creek Fish Passage Improvement Project

Introduction:

Grantee's North Coast Coho Project will implement the Fish Creek Fish Passage Improvement Project. A culvert constructed in 1919 is located at the crossing of Fish Creek and Hwy 254. Since construction the culvert has been either a near complete or complete barrier to fish passage. Current reports suggest that it is, due to velocities within the culvert, a complete barrier to all life stages of anadromous salmonids. In 2005, Fish Creek was ranked as the highest priority project during a Caltrans District 1 Study. The culvert does not meet CDFW or NOAA Fisheries fish passage criteria and should be replaced with a structure that provides unimpeded fish passage. This project will enable the partners (Trout Unlimited, 5C Program, State Coastal Conservancy, Caltrans, California State Parks, CDFW and associated consultants/engineers) to bring project designs from 65% to 100% designs and replace the current barrier with crossing that will allow coho salmon to migrate up Fish Creek at all life stages.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. All habitat restoration improvements will follow techniques in the California Salmonid Stream Habitat Restoration Manual, Part VII, IX, X, XI, and XII. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

The specific objective of the project is to replace an undersized and oversteepened arch culvert to allow for full passage of adults and juvenile salmonids at the full range of migration flows. To install the 19.9' wide by 11' deep by approximately 110' long arch with 6" jumps every 10' within the culvert. The channel slopes upstream and downstream of the culvert will be set at 3%, which roughly matches the local slope upstream of the sediment wedge. The culvert will be 2.75 ft. higher in elevation than the existing culvert outlet and 1.5 ft. lower than the existing culvert inlet. The outlet end of the box will be filled with engineered streambed mix.

Alternative shoring methods will be used to minimize the excavation width and impact on redwood roots. The design would meet criteria for fish passage but would not meet flood flow capacity for the Q100 year flows. This design would have greater root disturbance than the other alternatives due to the 250' upstream channel excavation disturbance. LWD will be used in grade control as it is a natural gradient control elsewhere in Fish Creek. Given the location of the project near the bottom of the Fish Creek watershed, the benefits of the project will be the opening of nearly 2.34 miles of fish habitat and the connectivity of sediment (spawning gravels) and debris (large wood debris, etc.) from the 5.2 miles of stream in the upper watershed through the 440 feet of creek to the mainstem South Fork Eel River.

Project Description:

Location:

The Grantee will conduct work at a crossing located 440 feet upstream from the confluence of Fish Creek and the South Fork Eel River. The location of the project is approximately 40.2228º north latitude and 123.8013º west longitude as depicted in the Project Location Map.

Project Set Up:

Grantee Project Manager and Project Coordinator will manage contracting and report writing for the execution of this grant with assistance from the Coastal Conservancy and other project partners as necessary. Geotechnical investigation services, expected to be performed by CalTrans, will be bid out to eligible contractors. Grantee will manage the data and files and turn it over to appropriate engineers for inclusion in the design plans, bringing the existing plans from 65%, to 90%, and then to 100% completion. In conjunction with this process, Grantee staff will consult with appropriate biologist/botanists to generate field inventories and specialist reports necessary for project permitting. Reporting will completed by Grantee.

Project implementation will be carried out by qualified subcontractors and will be overseen by Caltrans inspectors and Grantee staff in partnership with the 5C Program to ensure that all BMPs are adhered to, safety regulations are followed, and all design details are translated into the completed structure. A Subcontractor with Heavy Equipment/General Construction expertise will be selected to focus on: mobilization; construction access; erosion and sediment control; water management and dewatering; furnishing materials; construction work and material testing. Grantee will seek out a multidisciplinary consulting firm specializing in transportation and bridge design, surveying, and construction management. During implementation, the selected subcontractor will perform construction observation and inspection for the construction of the bridge and the roadway.

Subcontracted Consulting engineers were retained from New Field Engineers to complete a preliminary design proposal and developed three project alternatives modeling various flow levels under a bridge span. The alternatives were necessary because the 100-year flows could not be contained while maintain fish passage and reducing/minimizing impacts to existing redwood trees in all considered alternatives. The preferred alternative design does not contain the 100-year flow under the structure due to the nature of the overbank floodplain width at this site and it is expected that this will delay NMFS design approval for an undetermined length of time. Permitting and CEQA/NEPA are pending the design review and approval.

Materials:

One ConSpan B-series bridge will be installed, 154 cubic yards of concrete for bridge footers, 16 v-shaped step weirs, 55 cubic yards of concrete for grand control structure, 10,000 square feet of asphalt, shoring materials, 200 linear feet of guardrail, 80 cubic yards of topsoil, 370 cubic yards of streambed strata, 295 tons of streambed strata, 4,000 cubic yards of concrete, 10,455 pounds of concrete reinforcement, 286 cubic yards of flowable fill, 335 tons of aggregate base, 4 terminal sections, 224 linear feet of paint fog-line, 20 tons of ¼ ton class rock slope protection, 2,040 SY of Type D erosion control, 920 linear feet of fiber rolls.

Tasks:

Task 1. Final Design and Engineering:

Design & Engineering will be completed with match funding prior to construction

- Final design plans & engineering specifications
- Senior review of final plans & Site Visit for construction layout
- Contractor Selection Process
- CDFW/NMFS engineering review and approval

Task 2. Permitting:

- Stream Alteration Agreement Notification (CDFG 1602 permit). TU will be responsible for obtaining & complying with this required permit prior to project construction activities

- Caltrans permitting staff, with assistance from TU staff and Federal agency staff, as necessary, will complete the required state and federal permitting as well as encroachment permits from CalTrans and State Parks.

Task 3. Implementation/Construction:

Pre-Construction Activities

- Mobilization of equipment to the project site, installation and maintenance of erosion and sediment control measures (silt fence, seed mulch etc., as site conditions dictate), maintenance of traffic (signage, Temporary Traffic Bypass Road, and flag-person, etc).

Bridge Construction

- Flows in the stream channel will be diverted around the project area (possibly using a gravity bypass or pump clear-water diversion). A CDFW fish biologist could assist contractor fish relocation prior to installation of the clear-water diversions. Dewatering of the work area will be conducted with a pump and infiltrated back into the ground on a flat area away from the stream and river channels.

- Construction for the stream channel and bridge will be conducted using standard heavy equipment, including but not limited to excavators, loaders, bulldozers, and trucks. The heavy equipment will be operated by a heavy equipment contractor to be determined after the grant contract is signed.

- Construction equipment will emit hydrocarbon fumes. Excavation and grading will only occur in a small area, adjacent to the creek, where soils are generally moist. Fugitive dust emissions should not create a significant adverse impact on air quality during construction. Water for control of dust during excavation and grading operations will be on-site and used accordingly. The project plans and specifications will include requirements for the contractor to control fugitive dust emissions and follow state laws regarding vehicle emissions.

- Excavation and removal of the culvert and roadfill, the installation of the new pre-manufactured concrete structure and the subsequent natural adjustment of the streambed gradient may have a short-term effect on sediment levels downstream of the project area. Construction activities are subject to water quality limitations imposed by the NCRWQCB specific to turbidity and sediment. Turbidity levels will be visually monitored throughout construction. As mandated by the NCRWQCB, the project will not shall place, discharge, dispose of, or deposit in such a manner as to permit to pass into the waters of the state, any substances or materials, including, but not limited to, soil, silt, bark, slash, sawdust, or petroleum, in quantities deleterious to fish, wildlife, beneficial functions of riparian zones, or the quality and beneficial uses of water within the State. The installation of an oil-trapping absorbent floating boom immediately downstream of the project area as well as revegetation of all disturbed areas will ameliorate these impacts. If pumping of ponding groundwater out of the construction area is necessary, the water will be discharged to the ground in a vegetated flat area at least 25 feet from the top of the bank. The proposed length of the pre-manufactured

- Conspan bridge is ~110 feet and will be set on a concrete footing to assure structural stability. After the footings, conspan sections, and wingwalls are installed, structural backfill will be placed and compacted with a manual whacker, or other suitable equipment, to compaction specifications. Using this construction method, there should be little potential for ponding of water but if pumping is necessary, water will be discharged to the ground in a vegetated area at least 25 feet from the top of the bank to a flat area. The vegetation will provide natural filtration of any sediment in the

discharge water before it reaches the stream. ½-ton rockslope protection will be installed along the wingwalls to minimize scour.

- The disturbed roadway will be surfaced and the guardrail and center line/fog line striping will be installed.

- Once the bridge is deemed safe for travel, the temporary detour will be removed. The oil-absorbing boom, diversion structure and fine meshed block nets will also be removed once construction is complete.

- All excavation work within, or adjacent to, the stream will be done during the dry period specified in a CDFG 1602 agreement (typically from June 15 -October 15).

- No fill material will be placed within the annual high water mark or in a location that could potentially deliver to the stream.

- Clearing and grubbing will require removal of few conifer trees (<25 years) from the roadfill and those rootwads and other suitable material will be retained for placement in the upstream and downstream sections of the crossing.

- Erosion Control & Spoils Disposal
  - Upon project completion the necessary final erosion controls will be implemented at the project site. All disturbed areas including the new inboard and outboard fillslopes and adjacent streambanks will be revegetated with native seed species/plantings and mulched with certified weed-free material. The newly excavated streambanks will be stabilized as applicable for the project site. Any excess spoils material will be end-hauled to a pre-approved temporary or permanent disposal site and either re-used or permanently stabilized to prevent erosion. Spoils storage will be in accordance with the 1602 and RGP12 permit conditions, and stored in a manner as not to deliver to a stream.

<u>Task 4. Post Implementation Monitoring:</u>

- Photographic Monitoring
  - Photo documentation of pre-project & post-project conditions will be completed. Photo monitoring for pre/during/post construction activities will be implemented, including high/low flows and turbidity.
- Longitudinal/Thalweg Profile
  - Pre-project longitudinal and thalweg surveys have been completed. A Post-project longitudinal profile survey will also be completed

immediately following construction and one year after construction to assess stream grade changes.

Biological Monitoring

- Spawning and presence/absence surveys will be conducted after project completion. Spawning surveys will be conducted during adult migration flows for at least two years following project construction. It is anticipated that CDFG fisheries staff will continue surveys after the two year monitoring period.

Deliverables:

- Final design plans and technical specifications (Hard copy plan sets and/or PDF format copies).
- As-Built Survey and Memorandum in digital PDF format and hard copy (3)
- Permit & Environmental compliance documentation.
- Quarterly Progress Reports summarizing work performed during the reporting period.
- Digital PDF format of the final engineer's estimate of probable construction cost
- A monitoring report that details the post implementation monitoring results will also be made available.
- Post Implementation Longitudinal Profile
- Pre and post-project photo monitoring documentation and monitoring reports.
- Draft Report summarizing the results of the project. This will include a statement of purpose, the scope of the project, final cost breakdowns, and a description of the approach and techniques used during the project.
- Final Report that will be revised to address the comments made by the Contract Manager on the draft report.

Timelines:

Task 1: GEOTECHNICAL INVESTIGATION - April 2014-April 2015 (or prior to Executable Grant Agreement)

Task 2: DESIGN AND ENGINEERING - July 2015 - May 2016

- 65-90% Designs - December 2015
- 90% Designs - January 2016
- 100% Designs - March 2016
- Design/Engineering - Completed May 2016

Task 3: PERMITTING - Completed: May 2017

Task 4: PROJECT CONSTRUCTION - September 15, 2017 - October 31, 2017

Task 5: POST CONSTRUCTION IMPLEMENTATION MONITORING - November 2017-June 2018

Task 6: PROGRESS AND FINAL REPORTS - March 2019

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.

    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.

    - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

    - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.

- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. The bridge design and installation will meet flow carrying capacity required for a 100-year flood event as identified by specifications determined by National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Wildlife (CDFW), for adult and juvenile salmonid fish passage. The project will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and criteria for fish passage as described in Volume II, Part IX, of the *California Salmonid Stream Habitat Restoration Manual*. The engineered plans for the bridge (culvert) installation shall be visually reviewed and authorized by NOAA Fisheries or California Department of Fish and Wildlife engineers prior to commencement of work.

4. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*, Volume I, and Volume II Part XI and Part XII. The Grantee/landowner will maintain the new crossing, inspect the crossing in a timely manner and remove debris as necessary during the storm season.

5. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

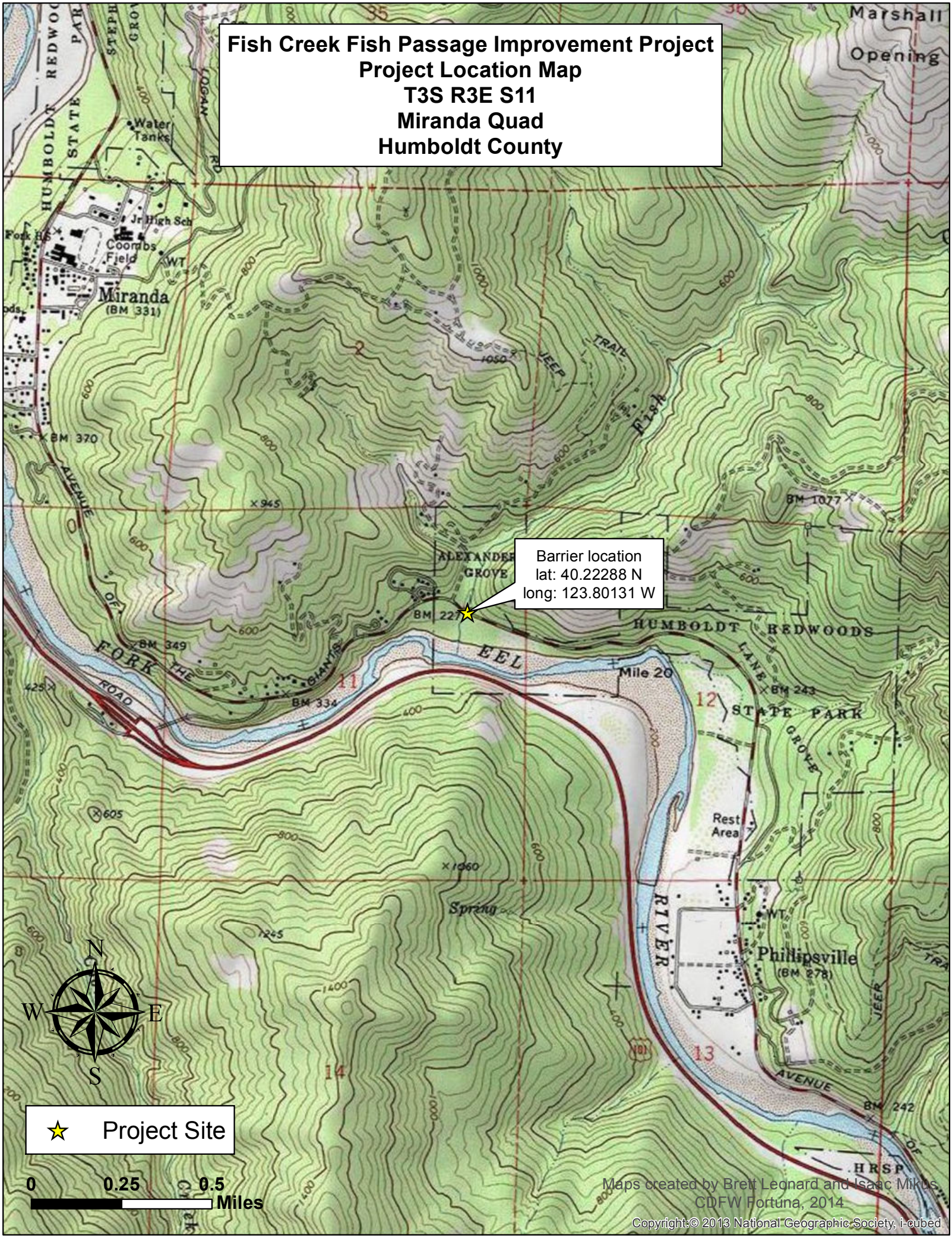
6. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

7. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Miranda Quad and Surrounding Quads for Fish Creek Fish Passage Improvement Project FP 216 H 3S, 3E Section 11 Humboldt County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
2	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
3	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
4	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
5	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
6	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
7	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
8	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
9	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
10	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
11	Ten Mile shoulderband *Noyo intersessa*	IMGASC5070			G2	S2	
12	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
13	beaked tracyina *Tracyina rostrata*	PDAST9D010			G1	S1	1B.2
14	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
15	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	SC
16	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
17	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
18	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2
19	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
20	little willow flycatcher *Empidonax traillii brewsteri*	ABPAE33041		Endangered	G5T3T4	S1S2	
21	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
22	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
23	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
24	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
25	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G5	S3	2B.3
26	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
27	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
28	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
29	small groundcone *Kopsiopsis hookeri*	PDORO01010			G5	S1S2	2B.3
30	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
31	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
32	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2


Fish Creek Fish Passage Improvement Project
Project Location Map
T3S R3E S11
Miranda Quad
Humboldt County
Barrier location
lat: 40.22288 N
long: 123.80131 W
Project Site
0 0.25 0.5 Miles
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
Copyright© 2013 National Geographic Society, i-cubed

Redi-mix Concrete Plant Riparian Enhancement Project

Introduction:

Salmon Protection and Watershed Network (SPAWN) will implement the Redi-mix Concrete Plant Riparian Enhancement Project. The purpose of the project is to plant numerous native conifers/hardwoods and removing invasive plants in the riparian zone in the lower part of the Watershed along a one-mile stretch of creek near the confluence of Lagunitas and Nicasio Creeks, and re-dedicating 0.25 acres of concrete parking area into native riparian forest.

Permit Disclosure: The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

All habitat improvement will follow techniques in the California Stream Habitat Restoration Manual (list appropriate section of manual)

Objective(s):

The objective is to enhance the Lagunitas Creek riparian zone by dedicating a 20' by 500' gravel parking area back to native riparian conditions and increase native hardwoods/conifers to a one- mile stretch of riparian habitat along the Lagunitas Creek. This project would directly address these recovery goals by adding conifer/hardwood plants and trees that will eventually add large woody debris to the stream and enhance salmonid rearing, spawning, and refuge habitat, increase the canopy shade cover to the creek, regulate stream temperature, expand the riparian habitat along the Redi-mix concrete plant to capture and filter stormwater runoff; and enhance biodiversity in the riparian corridor that will offer dynamic riparian habitat and niches for conifers/hardwoods to self-perpetuate.

Project Description:

Location:

The project is located directly at the confluence of Lagunitas and Nicasio Creeks at the recently closed Redi-Mix Concrete plant and along a one-mile stretch of riparian habitat approximately 6.29 miles upstream of Tomales Bay. The concrete plant is near the intersection of Platform Bridge Road and Point Reyes-Petaluma Road. The project begins at the concrete plant and covers one-mile stretch of riparian zone downstream of the concrete plant, on the northern side of the creek. The riparian rededication zone is located along the southern edge of the concrete plant closest to the creek, and the riparian enhancement of hardwood/conifer planting area will occur on the floodplains and clearings along the one mile stretch of the northern side of the creek. The coordinates of the project are 38.07044200° N lat.: 122.76953100° W long. - Redi-Mix Concrete plant, upstream portion of project and 38.08049700° N lat.: 122.78013600° W

long. – Ranch, downstream portion of the project. See attached topographic map in supplementary documents.

Project Set Up:
This habitat restoration project will be implemented by SPAWN by restoring a portion of Lagunitas Creek adjacent to a recently closed concrete plant.

Materials:
Conifer/hardwood plants and trees; native riparian plants, top soil, wood chips

Tasks:
Task 1: Project Administration

The Executive Director, Biologist/ Job Foreman, and Project Manager of SPAWN will:

- Coordinate all work and contracts with Black Mountain Ranch.
- Draft and finalize contracts with subcontractors and the Black Mountain Ranch.
- Manage the contract budgets with engineers, subcontractors, and CDFW.
- Apply for CDFW and County permits.
- Generate quarterly labor reports
- Submit financial and performance results
- Draft and submit final report to Department of Fish and Wildlife
- Order machinery, heavy equipment, topsoil, wood chips, erosion control fabric, irrigation equipment, delivery, and coordinate trucking and hauling
- Hire subcontractors

Task 2: Outreach

Outreach and volunteer recruitment will be important for this project. The Project Manager, Biologist/ Job Foreman, and Interns of SPAWN will:

- Use tools available (website, email lists, flyers, facebook, local meetings) to recruit volunteers.
- Print flyers, mailings, etc to recruit public participation
- Organize at least three workshops for the public to discuss and demonstrate the importance of healthy riparian corridors and their influence on the salmon lifecycle to the public. The workshop will also

provide training on how to mitigate stormwater runoff by slowing, spreading, and sinking it, and demonstrate how to identify and plant native plants, and discuss the importance of removing invasive plants.

The SPAWN Interns will:

- Live at, and conduct outreach work from SPAWN house

Task 3: Nursery Operations and Native Plant Propagation

The plants for the project will be supplied by the SPAWN nursery. The Project Manager, Biologist/ Job Foreman, SPAWN interns, Nursery Manager, and volunteers will:

- Collect conifer, hardwood, and other riparian seeds; propagate, and grow up plants for out-planting.
- Organize plants and distribute them to the project site using the SPAWN truck.

Task 4: Concrete Plant

Streamline Engineering-with the assistance of the Project Manager, Biologist/ Job Foreman, and Interns of SPAWN- will:

- Perform a topographic survey of the riparian corridor area to be expanded.

Streamline Engineering will:

- Prepare a grading plan, hydraulic calculations, an erosion control plan, develop specs and diagrams for constructions, drive to and from the site, and work toward obtaining a grading permit for the county.
- Oversee the construction process.

The Two heavy equipment operators and one contractor laborer will:

- Drive a field vehicle carrying tools to the site during construction
- Use hydraulic hammer, excavator, and front-end loader to break-up and remove concrete and gravel.
- Use excavator and front-end loader to grade expanded riparian corridor in three areas.
- Use heavy excavator and front-end loader to till and remove gravel berms, and install topsoil to make soil suitable for planting.

- Use soil compactor to compact soil and stabilize graded area for planting.
- Use water truck to spray on gravel to keep dust down and keep soil wet for best compaction.

The Executive Director, Project Manager, and Biologist/ Job Foreman will oversee the construction process. The Executive Director, Project Manager, Biologist/ Job Foreman, Nursery Manager, SPAWN Interns, and volunteers will:

- Deliver hand tools to the site using the SPAWN truck
- Remove non-native species, including but not limited to ivy, vinca, and blackberry in a quarter acre area at the concrete plant
- Lay erosion control fabric at the three riparian re-dedication areas.
- Plant these 400 conifer/hardwood plants and trees by hand with the use of a two-man auger.
- Plant native species of plants according to the riparian plant plan and install woodchips around the plants. •Install wood chip mulch to the newly expanded riparian buffer.
- Install drip line irrigation to the plants
- Monitor plant survival
- Maintain plants for up to five years and replace dead plants.

The trucking operator will:

- Drive truck to and from the site to haul concrete and gravel off the site and dispose of properly The Executive Director, Project Manager, and Biologist/ Job Foreman will:
- Conduct Biologically-sensitive species surveys before construction to comply with CDFW permit requirements.

Task 5: Riparian/ Floodplain Restoration

The Project Manager, Biologist/Job Foreman, Nursery Manager, SPAWN interns, and volunteers will:

- Plant 1,000 Conifer/hardwoods along the floodplain and terraces along the creek
- Remove non-native vegetation near the plantings

- Water the plants using a water tank in the SPAWN truck and backpack sprayers once every other week during the summer months.
- Monitor plant survival.
- Maintain plants for up to five years and replace dead plants.
- Conduct Biologically-sensitive species surveys before construction to comply with CDFW permit requirements.

Task 6: Future Maintenance

The Project Manager, Biologist/ Job Foreman, Nursery Manager, Interns, and volunteers will:

- Weed the areas of riparian re-creation at the concrete plant
- Weed areas around the conifer/hardwoods plants planted along the riparian floodplain

Deliverables:

- 1000 conifer/hardwood plants, shrubs, and trees planted along riparian area downstream from concrete plant.
- 0.25 acres of concrete parking area removed.
- 0.25 acres of native riparian habitat created.
- 400 plants planted at riparian re-dedication area with temporary irrigation system
- Three public workshops
- Pre and Post-project Photographs
- Monitoring Plan
- Final Report

Timelines:

- December 2014 to February 2015 – Collect conifer/ hardwood seeds and propagate in nursery
- April 2015 – Apply for permits.
- June 2015 – Subcontractor contracts
- August to October 2015 – Begin preparing concrete plant site. Remove concrete and gravel. Grade bank to engineered specifications, till and incorporate topsoil, plant site, install irrigation.
- October 2015 to February 2016 – Begin planting floodplain with trees and plants in stock, remove invasive plants

- May to November 2016 – Finish removing invasive species, water plants according to schedule.
- May 2017 – Monitor plants and replace any that die.
- June to October 2018 – Water plants according to schedule.
- October to December 2018 – Maintain plantings and weed around conifer/hardwood plants
- December 3rd 2018 – Final Report.
- January 2018 to January 2020 – Maintain plantings and weed around conifers/hardwoods

Time frame (the season's work window): June 15 – October 31

Additional Requirements:

1. The Grantee will not proceed with on-the-ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corps of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
    - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
    - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.

- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*

3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

4. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

5. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the California Salmonid Stream Habitat Restoration Manual.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
724435 Redi-mix concrete plant riparian enhancement project

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S4	SC
2	Baker's goldfields *Lasthenia californica ssp. bakeri*	PDAST5L0C4			G3TH	SH	1B.2
3	Baker's larkspur *Delphinium bakeri*	PDRAN0B050	Endangered	Endangered	G1	S1	1B.1
4	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
5	Bolander's water-hemlock *Cicuta maculata var. bolanderi*	PDAPI0M051			G5T3T4	S2	2B.1
6	California beaked-rush *Rhynchospora californica*	PMCYP0N060			G1	S1	1B.1
7	California black rail *Laterallus jamaicensis coturniculus*	ABNME03041		Threatened	G4T1	S1	
8	California clapper rail *Rallus longirostris obsoletus*	ABNME05016	Endangered	Endangered	G5T1	S1	
9	California freshwater shrimp *Syncaris pacifica*	ICMAL27010	Endangered	Endangered	G1	S1	
10	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
11	California tiger salamander *Ambystoma californiense*	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SC
12	Central Dune Scrub	CTT21320CA			G2	S2.2	
13	Coastal Terrace Prairie	CTT41100CA			G2	S2.1	
14	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
15	Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1			G5T1	S1	1B.2
16	Franciscan thistle *Cirsium andrewsii*	PDAST2E050			G3	S3	1B.2
17	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
18	Kellogg's horkelia *Horkelia cuneata var. sericea*	PDROS0W043			G4T2	S2?	1B.1
19	Koch's cord moss *Entosthodon kochii*	NBMUS2P050			G1	S1	1B.3
20	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
21	Marin County navarretia *Navarretia rosulata*	PDPLM0C0Z0			G2?	S2?	1B.2
22	Marin checker lily *Fritillaria lanceolata var. tristulis*	PMLIL0V0P1			G5T2	S2	1B.1
23	Marin checkerbloom *Sidalcea hickmanii ssp. viridis*	PDMAL110A4			G3T1T2	S1S2	1B.3
24	Marin elfin butterfly *Callophrys mossii marinensis*	IILEPE2207			G4T1	S1	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Marin hesperian *Vespericola marinensis*	IMGASA4140			G2	S2	
26	Marin knotweed *Polygonum marinense*	PDPGN0L1C0			G2Q	S2	3.1
27	Marin manzanita *Arctostaphylos virgata*	PDERI041K0			G2	S2	1B.2
28	Marin western flax *Hesperolinon congestum*	PDLIN01060	Threatened	Threatened	G2	S2	1B.1
29	Mason's ceanothus *Ceanothus masonii*	PDRHA04200		Rare	G1	S1	1B.2
30	Mason's lilaeopsis *Lilaeopsis masonii*	PDAPI19030		Rare	G2	S2	1B.1
31	Mount Tamalpais bristly jewelflower *Streptanthus glandulosus ssp. pulchellus*	PDBRA2G0J2			G4T2	S2	1B.2
32	Mt. Tamalpais manzanita *Arctostaphylos montana ssp. montana*	PDERI040J5			G3T3	S3	1B.3
33	Mt. Tamalpais thistle *Cirsium hydrophilum var. vaseyi*	PDAST2E1G2			G2T2	S2	1B.2
34	Mt. Vision ceanothus *Ceanothus gloriosus var. porrectus*	PDRHA040F7			G3G4T2	S2	1B.3
35	Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	IILEPJ608C	Endangered		G5T1	S1	
36	Napa false indigo *Amorpha californica var. napensis*	PDFAB08012			G4T2	S2	1B.2
37	North Coast phacelia *Phacelia insularis var. continentis*	PDHYD0C2B1			G2T1	S1	1B.2
38	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
39	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
40	Northern Maritime Chaparral	CTT37C10CA			G1	S1.2	
41	Northern Vernal Pool	CTT44100CA			G2	S2.1	
42	Opler's longhorn moth *Adela oplerella*	IILEE0G040			G2	S2	
43	Peninsula coast range shoulderband *Helminthoglypta nickliniana awania*	IMGASC2361			G3T1	S1	
44	Petaluma popcornflower *Plagiobothrys mollis var. vestitus*	PDBOR0V0Q2			G4?TX	SX	1A
45	Pitkin Marsh lily *Lilium pardalinum ssp. pitkinense*	PMLIL1A0H3	Endangered	Endangered	G5T1	S1	1B.1
46	Point Reyes blennosperma *Blennosperma nanum var. robustum*	PDAST1A022		Rare	G4T2	S2	1B.2
47	Point Reyes blue butterfly *Plebejus icarioides parapheres*	IILEPG801D			G5T1T2	S1S2	
48	Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012			G5T2	S2.2	1B.2

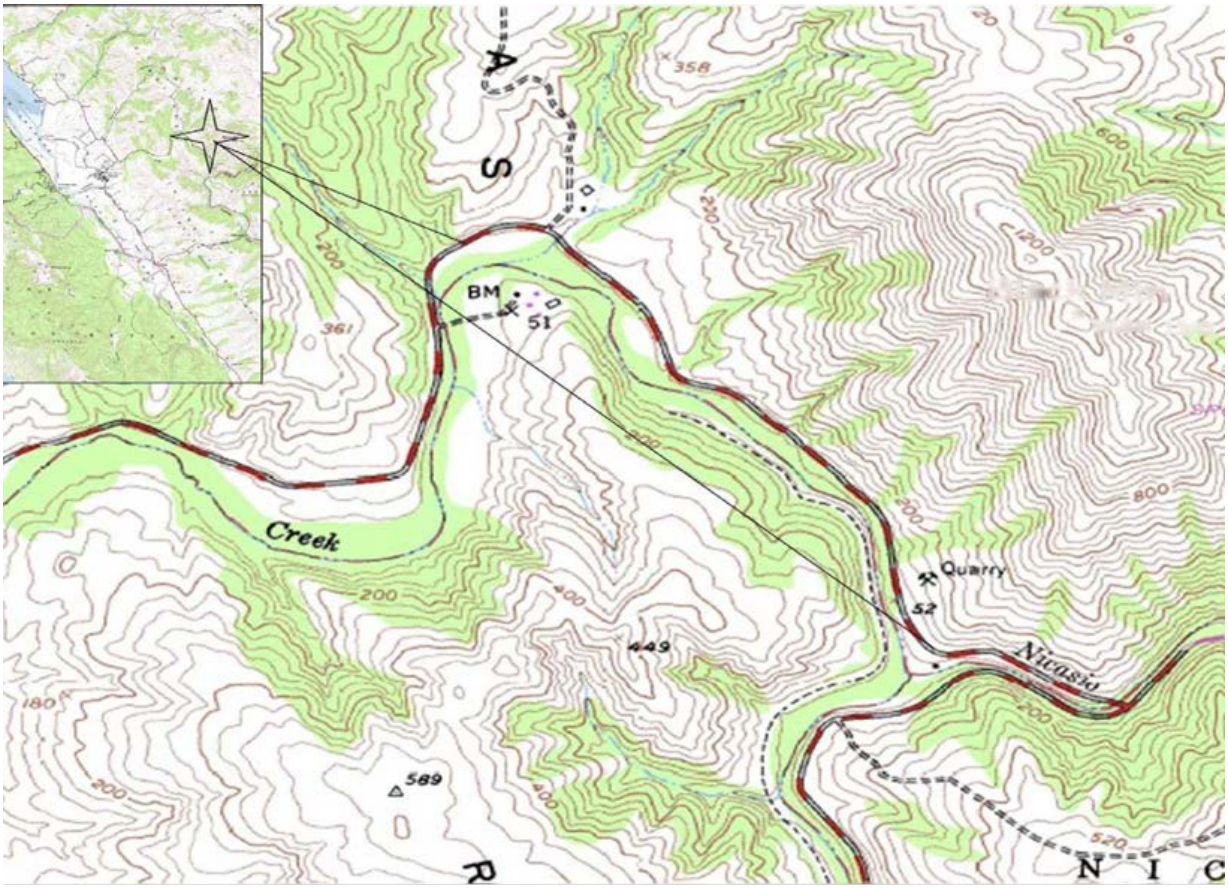
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
49	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
50	Point Reyes jumping mouse *Zapus trinotatus orarius*	AMAFH01031			G5T1T3Q	S1S3	SC
51	Point Reyes meadowfoam *Limnanthes douglasii ssp. sulphurea*	PDLIM02038		Endangered	G4T2	S2	1B.2
52	Point Reyes mountain beaver *Aplodontia rufa phaea*	AMAFA01012			G5T2	S2	SC
53	Point Reyes paintbrush *Castilleja leschkeana*	PDSCR0D1R0			GH	SH	1A
54	Point Reyes rein orchid *Piperia elegans ssp. decurtata*	PMORC1X011			G4T1	S1	1B.1
55	Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3			G4?T2	S2	1B.2
56	Raiche's red ribbons *Clarkia concinna ssp. raichei*	PDONA050A2			G5?T1	S1	1B.1
57	Ricksecker's water scavenger beetle *Hydrochara ricksecker*i	IICOL5V010			G2?	S2?	
58	Sacramento splittail *Pogonichthys macrolepidotus*	AFCJB34020			G2	S2	SC
59	San Bruno elfin butterfly *Callophrys mossii bayensis*	IILEPE2202	Endangered		G4T1	S1	
60	San Francisco Bay Area leaf-cutter bee *Trachusa gummifera*	IIHYM80010			G1	S1	
61	San Francisco Bay spineflower *Chorizanthe cuspidata var. cuspidata*	PDPGN04081			G2T1	S1	1B.2
62	San Francisco forktail damselfly *Ischnura gemina*	IIODO72010			G2	S2	
63	San Francisco owl's-clover *Triphysaria floribunda*	PDSCR2T010			G2	S2.2	1B.2
64	San Pablo song sparrow *Melospiza melodia samuelis*	ABPBXA301W			G5T2?	S2?	SC
65	Serpentine Bunchgrass	CTT42130CA			G2	S2.2	
66	Sonoma alopecurus *Alopecurus aequalis var. sonomensis*	PMPOA07012	Endangered		G5T1Q	S1	1B.1
67	Sonoma spineflower *Chorizanthe valida*	PDPGN040V0	Endangered	Endangered	G1	S1	1B.1
68	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S3	
69	Tamalpais jewelflower *Streptanthus batrachopus*	PDBRA2G050			G1	S1	1B.3
70	Tamalpais lessingia *Lessingia micradenia var. micradenia*	PDAST5S063			G2T1T2	S1S2	1B.2
71	Tamalpais oak *Quercus parvula var. tamalpaisensis*	PDFAG051Q3			G4T2	S2	1B.3

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
72	Thurber's reed grass *Calamagrostis crassiglumis*	PMPOA17070			G3Q	S2?	2B.1
73	Tiburon buckwheat *Eriogonum luteolum var. caninum*	PDPGN083S1			G5T2	S2	1B.2
74	Tiburon paintbrush *Castilleja affinis var. neglecta*	PDSCR0D013	Endangered	Threatened	G4G5T1	S1	1B.2
75	Tidestrom's lupine *Lupinus tidestromii*	PDFAB2B3Y0	Endangered	Endangered	G1	S1	1B.1
76	Tomales isopod *Caecidotea tomalensis*	ICMAL01220			G2	S2	
77	Tomales roach *Lavinia symmetricus ssp. 2*	AFCJB19022			G4T2T3	S2S3	SC
78	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
79	Williams' bronze shoulderband *Helminthoglypta stiversiana williamsi*	IMGASC2034			G2G3T1	S1	
80	alkali milk-vetch *Astragalus tener var. tener*	PDFAB0F8R1			G2T2	S2	1B.2
81	ashy storm-petrel *Oceanodroma homochroa*	ABNDC04030			G2	S2	SC
82	beach layia *Layia carnosa*	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
83	bent-flowered fiddleneck *Amsinckia lunaris*	PDBOR01070			G2?	S2?	1B.2
84	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
85	blue coast gilia *Gilia capitata ssp. chamissonis*	PDPLM040B3			G5T2	S2	1B.1
86	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
87	bristle-stalked sedge *Carex leptalea*	PMCYP037E0			G5	S1	2B.2
88	bumblebee scarab beetle *Lichnanthe ursina*	IICOL67020			G2	S2	
89	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S3	SC
90	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
91	coast yellow leptosiphon *Leptosiphon croceus*	PDPLM09170			G1	S1	1B.1
92	coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2			G4T2T3	S2S3	1B.2
93	coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2			G2T2	S2	1B.2
94	coastal triquetrella *Triquetrella californica*	NBMUS7S010			G1	S1	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
95	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
96	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
97	elongate copper moss *Mielichhoferia elongata*	NBMUS4Q022			G4	S2	2B.2
98	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
99	fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0			G2	S2	1B.2
100	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	
101	golden larkspur *Delphinium luteum*	PDRAN0B0Z0	Endangered	Rare	G1	S1	1B.1
102	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
103	great egret *Ardea alba*	ABNGA04040			G5	S4	
104	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
105	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
106	marsh microseris *Microseris paludosa*	PDAST6E0D0			G2	S2	1B.2
107	monarch butterfly *Danaus plexippus*	IILEPP2010			G5	S3	
108	northern curly-leaved monardella *Monardella sinuata ssp. nigrescens*	PDLAM18162			G3T2	S2	1B.2
109	northern harrier *Circus cyaneus*	ABNKC11010			G5	S3	SC
110	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
111	osprey *Pandion haliaetus*	ABNKC01010			G5	S3	
112	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
113	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
114	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
115	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T2	S2.2	1B.2
116	robust spineflower *Chorizanthe robusta var. robusta*	PDPGN040Q2	Endangered		G2T1	S1	1B.1
117	robust walker *Pomatiopsis binneyi*	IMGASJ9010			G1	S1	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
118	rose leptosiphon *Leptosiphon rosaceus*	PDPLM09180			G1	S1	1B.1
119	round-leaved filaree *California macrophylla*	PDGER01070			G2	S2	1B.1
120	saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A			G5T2	S2	SC
121	sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101			G5T2	S1	
122	seaside bittercress *Cardamine angulata*	PDBRA0K010			G5	S1	2B.1
123	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
124	showy rancheria clover *Trifolium amoenum*	PDFAB40040	Endangered		G1	S1	1B.1
125	silver-haired bat *Lasionycteris noctivagans*	AMACC02010			G5	S3S4	
126	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2Q	S2	
127	supple daisy *Erigeron supplex*	PDAST3M3Z0			G2	S2	1B.2
128	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
129	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
130	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
131	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
132	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S2	SC
133	water star-grass *Heteranthera dubia*	PMPON03010			G5	S1	2B.2
134	western leatherwood *Dirca occidentalis*	PDTHY03010			G2G3	S2S3	1B.2
135	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
136	western red bat *Lasiurus blossevillii*	AMACC05060			G5	S3?	SC
137	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
138	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
139	whiteworm lichen *Thamnolia vermicularis*	NLTES43860			G3G5	S1	2B.1
140	woolly-headed gilia *Gilia capitata ssp. tomentosa*	PDPLM040B9			G5T2	S2	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
141	woolly-headed spineflower *Chorizanthe cuspidata var. villosa*	PDPGN04082			G2T2	S2	1B.2
142	yellow warbler *Dendroica petechia brewsteri*	ABPBX03018			G5T3?	S2	SC


BM
51
Creek
Quarry
52
Nicasio
589
449
358
361
200
400
600
800
1200
180
520

Lagunitas Creek Winter Habitat Enhancement Implementation – Phase I

Introduction:

Marin Municipal Water District will implement winter habitat enhancement projects that will reconnect the base flow channel to floodplain channels to provide refuge from high winter flows, allowing increased overwinter survival of juvenile coho salmon and steelhead. The projects will also enhance habitat within the main, base flow channel of Lagunitas Creek, where high flow refugia habitat will be installed. In addition, habitat enhancement featured will be installed along the reconnected floodplain channels.

Permit Disclosure: The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

The Grantee will follow techniques in the California Stream Habitat Restoration Manual (list appropriate section of manual)

Objective(s):

The objective will improve winter habitat and refuge for coho, and increase the winter habitat carrying capacity for salmonids in Lagunitas Creek, by constructing habitat enhancement work at five sites identified in recently completed (2013) assessment and design reports.

Project Description:

Location:

The project sites are all within the Tocaloma reach of lower Lagunitas Creek and all are on lands owned by the National Park Service, Golden Gate National Recreation Area. The approximate center of the project area is at coordinate point: 38.05000000° N lat: 122.76000000° W long. (GCS NAD83, Decimal Degrees), which corresponds to the intersection of Sir Francis Drake Blvd. and Platform Bridge Road, east of the town of Olema. One site (Tocaloma Floodplain site) is located a down distance downstream, off of Platform Bridge Road, and a cluster of four sites (Site #'s 3 – 6) are located a short distance upstream, in the vicinity of where the tributary stream known as McIsaac Creek intersection Lagunitas Creek.

The Lagunitas Creek watershed is located in western Marin County, west of Fairfax and east of Point Reyes Station, CA. From the summit of Mt. Tamalpais, the watershed drains northwest and into Tomales Bay. The portion of Lagunitas Creek watershed included in this proposal is between Shafter Bridge (at the

confluence of Lagunitas Creek & San Geronimo Creek) and the Highway 1 Bridge (in Point Reyes Station). The project work will be implemented in the Tocaloma reach of lower Lagunitas Creek, which is in the vicinity of the intersection of Sir Francis Drake Blvd and Platform Bridge Road.

Project Set Up:

The Marin Municipal Water District (MMWD) will construct winter habitat enhancement projects at five (5) sites within the Tocaloma reach of Lagunitas Creek. The project sites are referred to as:

- Tocaloma Floodplain Enhancement;
- Site #3 – McIsaac Upstream Bar Apex Jam;
- Site #4 – McIsaac Upstream Log Debris Retention Jam 1;
- Site #5 – McIsaac Upstream Log Debris Retention Jam 2; and
- Site #6 – McIsaac Downstream Bar Apex Jam

Implementation will entail construction of the enhancement sites to the engineered design plans and specifications provided in the two design documents previously prepared for this project:

- Tocaloma Floodplain Enhancement Project (Balance Hydrologics, Inc. 2013); and
- Basis of Design Report for the Lagunitas Creek Salmonid Winter Habitat Enhancement Project (Kamman Hydrology & Engineering, Inc. 2013*)
  *note - this document will have been updated to 2014 by the time the project is underway.

Materials:

Logs, logs with rootwads, boulders, and willow poles

Tasks:

Project Tasks

With these guidelines established, the site specific projects have been designed. Implementation will involve the project tasks described below.

Task 1: Engineering Consultation

MMWD will consult with a licensed professional to provide engineering, hydrology, and design services, as needed, through the completion of environmental compliance and project construction. MMWD anticipates some onsite construction monitoring services will be needed and it is possible that design modifications could become necessary through the environmental review, permitting, and construction implementation. These services will be conducted under the supervision of a license engineer.

Task 2: Environmental Compliance and National Park Service Approval
California Department of Fish and Wildlife is the lead CEQA agency for this project. MMWD will collaborate with CDFW through the CEQA review, since MMWD has obtained considerable information on the sensitive resources of Lagunitas Creek.

MMWD will obtain a CDFW 1600 Streambed Alteration Agreement and project approval from the National Park Service. MMWD will conduct the environmental review needed to complete the 1600 application, which includes botanical and wildlife surveys (specifically bat and bird surveys).

Lagunitas Creek provides habitat for four federally listed species: coho salmon, steelhead, CA red-legged frogs, and CA freshwater shrimp. Pre-construction surveys for red-legged frogs will be conducted by MMWD's Aquatic Ecologist. In the unlikely event of encountering red-legged frogs, frogs will be relocated to suitable habitat downstream, as authorized by USFWS.

California freshwater shrimp occur in the Tocaloma reach of Lagunitas Creek and have been well documented by annual surveys for shrimp, sponsored by MMWD. Mitigation measures for impacts and avoidance of freshwater shrimp will be developed for the project.

Northern spotted owls are known to breed near the project area and construction activities will be limited to the owl non-breeding season, August 1 to October 31.

Other species and sensitive biological resources that will be addressed include: California red-legged frog, marbled murrelet, western pond turtle, foothill yellow-legged frog, and bats. Cultural resource issues will also be addressed.

Task 3: Construction Contracting
MMWD will select a contractor for construction implementation through a competitive bidding process with qualified contractors. Contractor qualifications will be developed prior to putting the project out to bid. MMWD will perform all construction contract management, which will include onsite monitoring during construction implementation.

Task 4: Project Construction Implementation
Project site construction will be implemented as specified in the Project Site Plans. The site specific construction activities are listed below for each site. These activities are listed and priced in the Detailed Budget Sheets.

Site: Tocaloma Floodplain Enhancement

Project construction elements will include:

- Mobilization/Demob
- Temporary Site Protection
- Field Engineering
- Earthwork
- Clearing and Grubbing
- Permanent Erosion Control
- Habitat Features and Bank Protection

The design is to grade and re-create about 850-foot of a long side channel to run through an open, grassy floodplain adjacent to the dense willow/alder-dominated riparian corridor of the creek. Grading will be kept to a minimum to: connect the upstream end of the side channel to the base-flow channel of Lagunitas Creek; retain existing low lying areas within the channel alignment; and terminate before reconnecting with the creek at the downstream end, allowing flows within the side channel to complete the connection back to Lagunitas Creek. Habitat features, including large logs and rootballs, will be installed within the re-created side channel. Bank stabilization of the side channel slopes will be achieved using biotechnical methods (i.e., willow plantings). Spoils from the grading will be disposed and stabilized onsite, spread out on an upland slope along and below adjacent Platform Bridge Road. Additional project details are described in the provided in the Site Construction Specifications for the Tocaloma Floodplain Enhancement Project, incorporated into this scope of work by reference.

Site #3 – McIsaac Upstream Bar Apex Jam
Project Site #3 construction elements will include:

- Mobilization/Demob
- Clear Vegetation
- Equipment Access Route
- Creek Diversion
- Bar Apex Jam Construction
- Construction Dewatering
- High Flow Channel Improvements
- Revegetation

Winter habitat enhancement work at this site will include construction of a bar apex jam and high flow channel improvements. This work will require creek diversion and construction dewatering and there will be site revegetation. These elements are described below.

Log Bar Apex Jam (BAJ) designs are based on natural log jams in large rivers. For purposes of this project, BAJs are being used to rejuvenate and increase the magnitude, frequency and duration of flow through existing high flow channels on

the Lagunitas Creek floodplain. This is achieved by constructing an appropriately located large wood structure that will reduce channel conveyance area and raise (backwater) levels to more easily split and deflect high flows between the mainstem channel and floodplain side channel. The BAJ at Site #3 (and at Site #6 described below) will be located on the mainstem Lagunitas Creek at existing side channel entrance locations.

High flow channel enhancement entails wood debris removal and excavation. During construction, some large wood and vegetation debris removal will be completed along the alignments of targeted high flow side channels to enhance the initial flow of water and energy through them. This material will also serve as rack for BAJ construction. Typically, short alluvial levees have formed across the mouth of side channel inlets. Very limited excavation and lowering of the short alluvial levees may be implemented to enhance the exchange of water from mainstem to side channel, only if excavated material can be reused in construction of log structures.

Clear water creek diversion will be needed because flow in Lagunitas Creek is perennial with expected baseflows estimated at 8.0-cfs during the summer construction season. A significant consideration during construction will be minimizing impacts on creek water quality and aquatic habitat when disturbing channel bed and banks. Diverting water around construction areas is the best approach to minimizing impacts. Cofferdams constructed of sand bags, gravel bags, or similar and secured with visqueen will be constructed and keyed in at creek channel upstream of the work area. Water will be pumped or flow by gravity from the upstream side of the cofferdam through one or more flexible hose or PVC pipe that will run the work area then back into the creek at an outfall located downstream from the work area. Alternative clear water diversions may include installing sheet piling to segregate and dewater only a portion of the creek channel. Additional details on creek diversions is described in the Basis for Design Report, incorporated into this scope of work by reference.

Dewatering is anticipated for the construction of the Bar Apex Jams at Site #3 (and Site #6 described below) because the creek channel is composed of alluvium. Dewatering systems shall be designed during construction based on site-specific conditions. The construction contractor will be required to dewater construction areas to provide for proper excavation and filling. Although dewatering methods are left to the discretion of the contractor, the contractor shall prepare a dewatering plan to be approved by the construction manager prior to beginning work. The dewatering system will employ best management practices and be maintained in a manner that will not cause adverse disturbance to water quality and the environment. Additional details on dewatering are described in the Basis for Design Report, incorporated into this scope of work by reference.

Site #4 – McIsaac Upstream Log Debris Retention Jam 1
Project construction elements will include:

- Mobilization/Demob
- Clear Vegetation
- Equipment Access Route
- Creek Diversion
- Log Debris Retention Jam Construction
- High Flow Channel Improvements
- Revegetation

Winter habitat enhancement work at this site will include construction of a log retention jam and high flow channel improvements. This work will require creek diversion and construction dewatering and there will be site revegetation. The log retention jam is described below and the other elements will be as described for Site #3, above.

Log Debris Retention Jam (LDRJ) are designed to be channel spanning array/line of logs driven vertically into the bed that will act as a sieve to capture and retain woody debris and ultimately sediment. These structures have been termed “trashracks” and “flood fencing”. For this project, MMWD will pre-install large wood cross-pieces (horizontal) to accelerate their performance. The desired function of these structures is to ultimately raise local channel bed grades and raise water elevations in the channel and along banks to backwater overbank flows into existing side-channels. LDRJs are more passive than the BAJs and are selected in channel reaches that are narrower and more entrenched relative to the adjacent floodplain surface.

Site #5 – McIsaac Upstream Log Debris Retention Jam 2
Project construction elements will include:

- Mobilization/Demob
- Clear Vegetation
- Equipment Access Route
- Creek Diversion
- Log Debris Retention Jam Construction
- High Flow Channel Improvements
- Revegetation

Winter habitat enhancement work at this site will include construction of a log retention jam and high flow channel improvements. This work will require creek diversion and construction dewatering and there will be site revegetation. The log retention jam will be as described for Site #4 above and the other elements are as described for Site #3, above.

Site #6 – McIsaac Downstream Bar Apex Jam
Project construction elements will include:

- Mobilization/Demob
- Clear Vegetation
- Equipment Access Route
- Creek Diversion
- Bar Apex Jam Construction
- Construction Dewatering
- High Flow Channel Improvements
- Revegetation

Winter habitat enhancement work at this site will include construction of a bar apex jam and high flow channel improvements. This work will require creek diversion and construction dewatering and there will be site revegetation. These elements will be as described for Site #3 above.

Task 5 – Monitoring
Monitoring will follow DFG protocols as well as protocols developed by MMWD. MMWD will conduct preconstruction monitoring and post-construction monitoring for the first five years following project site construction. The monitoring elements will include:

Photographic Monitoring:
Pre- and post-project photo monitoring from established photo points, as well as photographs during construction.

Flow Monitoring:
Pre- and post-construction stream flow monitoring, specifically at the structural features constructed and in the floodplain channel designed to be re-inundated. Monitoring will include site inspections at various flow stages and will use photographs, video, and flow staff plates. Monitoring stations will be established at the inlet and outlet of floodplain channels that have been designed to be re-inundated, and MMWD will document when the floodplain channel features become active and/or disconnected from the base flow channel.

Biological Monitoring:
MMWD conducts extensive salmonid survey monitoring in Lagunitas Creek, that includes juvenile, spawner, and smolt surveys; Lagunitas Creek is an established life-cycle monitoring station in the Coastal Monitoring Plan (CMP). Through that effort, MMWD will track the long-term status of coho and steelhead in the watershed.

Water Quality Monitoring:
MMWD will selectively monitor temperature and dissolved oxygen in the floodplain channels that are re-inundated at the project sites, if water persists through the summer and early fall.

Reporting:
For the first five years after construction, an annual monitoring report will be generated to document project site conditions and effectiveness. A post-construction monitoring report will also be prepared and submitted as part of the final grant reporting, at the closure of the grant funding period.

Deliverables:
Lagunitas Creek Watershed Winter Habitat Enhancement Implementation – Phase I, will produce the following deliverables listed below.

A. Winter habitat enhancement features installed at the following five (5) project sites:
- Site - Tocaloma Floodplain Enhancement;
- Site #3 – McIsaac Upstream Bar Apex Jam;
- Site #4 – McIsaac Upstream Log Debris Retention Jam 1;
- Site #5 – McIsaac Upstream Log Debris Retention Jam 2; and
- Site #6 – McIsaac Downstream Bar Apex Jam

B. Project monitoring reports with photographs and effectiveness monitoring data; a post-construction report and two annual monitoring reports, during the grant performance period.

C. Final grant completion report.

Timelines:
Project activities will begin in the summer of 2015 and will continue for three years, until the summer of 2018. The proposed work will occur according to the following schedule:

- June 2015: Finalize Work Plan
- July 2015 – May 2016: Environmental review & permitting; contractor selection.
- June 2016 – Dec. 2016: Construction Implementation and monitoring.
- Jan. 2017– May 2017: Monitoring and reporting.
- June 2017 – Dec. 2017: Construction implementation, as needed, and monitoring.
- Jan. 2018– May 2018: Monitoring and reporting.
- June 2018 – Aug. 2018: Final grant reporting to CDFW.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
    - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
    - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.
    - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the California Salmonid Stream Habitat Restoration Manual.

4. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

Black Mountain Creek Sediment Reduction and Fish Passage Project

Introduction:

The Marin Resource Conservation District (RCD) will prevent 6,267 cubic yards of sediments from entering Lagunitas Creek and improve fish passage of coho and steelhead at three (3) stream crossings. The need for the Black Mountain Creek Sediment Reduction and Fish Passage is to address and alleviate the loading of fine sediments which affect the fisheries habitat and water quality in the Lagunitas Creek and its tributary streams. Additionally, this project will restore coho salmon passages by upgrading or decommissioning eroded stream—Black Mountain Creek is a Class 1 tributary stream to Lagunitas in which steelhead have been documented and is possibly historical presence of coho salmon.

The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

All habitat improvement will follow techniques in the California Stream Habitat Restoration Manual Part X and XII.

Objective(s):

1. Impalement sediment control plans at 31 sites and along 3.25 miles of road to prevent 6,267 cubic yards of sediments from entering Lagunitas Creek.

2. Decommission one (1) stream crossing and upgrade two (2) others to improve fish passage of target species coho salmon and steelhead trout.

Project Description:

Location:

The Project is located in the Black Mountain Creek subwatershed in western Marin County, CA (Figure 1). Specifically, the project area lies to the immediate north, northwest of Black Mountain, North of Lagunitas Creek, Point Reyes-Petaluma Road, and the Gallagher Ranch, 1 mile east of the village of Point Reyes Station, and to the immediate south of Tomassini Canyon. The mouth of Black Mountain Creek, the main Project area tributary to Lagunitas Creek is situated approximately 5.75 miles upstream from the mouth of Lagunitas Creek, and 2.55 miles upstream from the Highway 1 Bridge crossing of Lagunitas Creek. The downstream extent of the project is located approximately 0.19 miles upstream on Black Mountain Creek from its confluence with Lagunitas Creek, and approximately 0.10 miles upstream from the Point Reyes Petaluma Road crossing of Black Mountain Creek (Figure 2).

38.09785800 : -122.77893000 - Northern Extent of Project
38.07515200 : -122.78776800 - Southern Extent of Project
38.08618800 : -122.76943200 - Eastern Extent of Project
38.08580500 : -122.79472800 - Western Extent of Project

Project Set Up:

Marin RCD staff, including the Executive Director and Environmental Planner, will oversee project activities including supervision of consultant and construction contractors, managing timelines and budgets, and submittal of monthly progress reports. Contacts with DFW, the Marin Agricultural Land Trust and consulting biologists will be developed and/or maintained by the Environmental Planner. The Environmental Planner will also develop a Landowner Cooperative Agreement to coordinate all phases of project planning, permitting, construction and monitoring. Marin RCD Bookkeeper will create monthly invoices. Project information will be incorporated into the Marin RCD GIS database for monitoring over a 10-year period, which will be handled by the Conservation Scientist of the Marin RCD.

Project layout and technical oversight of on-the-ground work will be conducted by professional engineering staff at Stetson Engineers Inc including: Supervising Project Engineer Senior III, Geologist, Engineering Assistant I, GIS Specialist I, Senior Associate Engineer. A Wildlife Biologist will monitor and conduct species surveys as required. Charles Hope Construction will conduct heavy equipment operations for implementation of project.

Materials:

Riparian plants, road rock, rip rap, corrugated metal pipe, exclusionary fencing are materials that will be utilized for project.

Tasks:

1. Oversee project activities including supervision of consultant and construction contractors, managing timelines and budgets, and submittal of monthly progress reports and final report.

2. Final designs for site # 222, #223, and #241

3. Project layout and technical oversight.

4. Implementation of road upgrading and decommissioning including:

Road Decommission

Eleven sediment delivery sites and 0.96 miles of road will be decommissioned. Of the sites to be decommissioned, six (6) are stream crossings, two (2) are bank erosion sites adjacent to roads, and three (3) are point sources where sediment laden road runoff is connected to the stream network through rills and gullies. At the stream crossings (Site #214, 215, 216, 234, 238, 241) decommissioning will involve the excavation and removal of all associated fills from the streams and laying back the banks of the excavated crossings to 2:1 slopes. The hydrologically connected road lengths adjacent to these sites will be decommissioned through outsloping of the road surfaces and the installation of cross road drains. Site #241, a series of four (4) grade control structures will be installed sub-grade in the stream bed to ensure that the Black Mountain Creek channel will not head cut following removal of the stream crossing. In addition, 400 cubic yards of material will be excavated from both streambanks immediately upstream of the crossing, where an abandoned road and a landing are impinging on the channel. These banks will also be laid back to 2:1 slopes. Decommissioning at the areas of bank erosion (Site# 242, 244) will involve excavating over-steepened fills impinging on the Black Mountain Creek channel from an abandoned road. The streambanks at these sites will be laid back to 2:1 slopes and the excavated material will be removed. The hydrologically connected road lengths adjacent to these sites will be decommissioned through outsloping of the road surfaces and the installation of cross road drains. The three (3) point sources of road runoff (Site# 217, 233, 243) will be decommissioned by dewatering the rills and gullies connecting these road lengths to the stream network. This will involve in-place outsloping of the roadbed and installation of cross road drains throughout the length of the hydrologically connected roads.

Road Upgrade

Twenty (20) sediment delivery sites and 2.29 miles of hydrologically connected road will be upgraded to reduce the amount of anthropogenic sediment delivery. Of the sites to be upgraded, four (4) are stream crossings, two (2) are landslides, five (5) are ditch relief culvert sites, eight (8) are point sources where sediment laden road runoff is connected to the stream network, and one (1) is a spring site
At each of the stream crossings (Site# 219, 222, 223, 245) road upgrading will involve removal of the existing undersized culverts, excavation of the crossings down to the natural stream grade, and installation of new culverts that are appropriately sized for the 100-year return storm event. At Site# 219 and 245, the new culverts will be installed at the natural grade of the stream, at the bottom of fill, and oriented in the axis of the natural channel. Critical dips will be installed at the hinge of each crossing to prevent possible stream diversions. Site# 222 and 223 are located on Black Mountain Creek, a Class I stream. These two stream crossings are situated within the floodplain of the creek, and the 100-year flood elevation at Site# 222 and 223 is above and out of channel banks. To ensure that floodplain function will not be disrupted and to provide for fish passage, these two

stream crossings will be upgraded with oversized elliptical annular pipe arches. The pipe arches will be installed one (1) ft below the natural stream grade and will contain a natural gravel-bottomed channel through the entirety of their length. The fillslopes of Site# 222 and 223 will be armored with riprap to ensure against failure if they are overtopped.

The hydrologically connected road lengths adjacent to each of the stream crossing sites will also be upgraded. Hydrologic disconnection will be achieved through road shaping and road drainage treatments, such as road outsloping, installation of rolling dips, and the installation of ditch relief culverts, where deemed necessary to drain wet cutbanks and springs. Road rock will also be applied to the upgrade roads to reduce wear and limit the production of fine sediments on the road surface.

Each of the landslide locations (Site#218, 226) are associated with perennial springs and slumping of the upslope area. Unstable road fills along the outboard edge of the road will be excavated and removed at Site# 218. Further, a ditch will be cut along the inboard road length and 2 ditch relief culverts will be installed and downspouted to drain spring overflows and weeping cutbanks, and to prevent saturation of the road prism and slide block. At Site #226, past road failures associated with slope creep and road prism saturation has led to the purposeful ditching and diversion of perennial spring flows into the adjacent watershed. This has led to gully formation. Past attempts to stabilize the gully by installing check dams, has largely failed, and the gully continues to erode, enlarge, and deliver sediments to Black Mountain Creek. In order to drain the springy creep slope and prevent gully formations and diversions, a series of ditch relief culverts will be installed and downspouted to the point of channel initiation below the road in the spring's natural catchment . At the point of discharge, riprap will be installed as energy dissipation to slow flows, and prevent incision and erosion of the stream channel. The road approaches at these two sites will be hydrologically disconnected through road shaping and road drainage treatments, such as road outsloping, installation of rolling dips, and the installation of ditch relief culverts. On the treatment roads that currently contain rock, road rock will be replaced at those areas disturbed by the project.

Thirteen sites were identified on upgrade roads where sediment laden road surface runoff was entering the channel environment through hydrologically connected ditch relief culverts or point source outfalls (Site# 220, 221, 224, 225, 227, 228, 229, 230, 231, 232, 235, 237, 246). The hydrologically connected road reaches draining to these sites will be upgraded, and their connectivity to the stream disconnected through road shaping and road drainage treatments such as road outsloping, the installation of rolling dips, and the installation of ditch relief culverts. Road rock will be replaced at those areas disturbed by the project that are currently rocked.

One spring site (Site # 236) will be upgraded to prevent the delivery of road related sediments to the head of a class II stream channel. The spring, located in a headwall swale on the inboard side of the road feeds a cattle trough down slope of the road and adjacent to the point of channel initiation. The road and ditch adjacent to the spring, along with the area around the trough are saturated by the spring flows. Trampling by cattle in this area is readily displacing soil particles, which are transported to the head of the stream. Exclusionary fencing in the area of the spring and the ditch, installation of a ditch relief culvert to improve spring drainage overflow, and rocking of the area around the cattle trough will be implemented to prevent further erosion. The hydrologically connected road reaches draining to this sites will be upgraded, and their connectivity to the stream disconnected through road shaping and road drainage treatments such as road outsloping, the installation of rolling dips, and the installation of ditch relief culverts. On the treatment roads that currently contain rock, road rock will be replaced at those areas disturbed by the project surface.

Deliverables:

1) Monthly progress reports;

2) Final design drawings for site # 222, #223, and #241;

3) Final implementation report summarizing all work completed as part of the project, including miles of road treated (decommissioned, upgraded, and converted from road to trail), number of sites implemented, total sediment saved through project implementation, final log of road treatments; before and after photo documentation of each treatment site and representative road reaches, treatment maps of project sites, and;

4) GIS database of work locations with detailed attribute table of work completed.

Timelines:

- Project management (Marin RCD) (June 2015 to March 2017).

- Final designs for site # 222, #223, and #241 (Stetson Engineers) (June-July 2015);

- Project layout and technical oversight (Stetson Engineers) (June 2015-March 2017);

- Implementation of road upgrading and decommissioning (Charles Hope Construction) (June 2015-October 2016)

- On-the-ground work window: June 15 – October 31

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Timing of work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:
   - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
   - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
   - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
   - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.
   - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. Final structure design and placement of habitat structures will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

4. All road decommissioning will be done in accordance with techniques

described in the Handbook for Forest and Ranch Roads, (PWA, 1994c.) and the *California Salmonid Stream Habitat Restoration Manual*, Volume II, Part X. All road upgrade and decommissioning sites and techniques shall be approved by the Grantor Project Manager before any equipment work takes place.

5. All crossings treated in fish bearing reaches of streams will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and the criteria for adult and juvenile salmonid fish passage as described in Volume II, Part IX of the *California Salmonid Stream Habitat Restoration Manual*.

6. Seeding and mulching of all exposed soils shall be done for all slopes which may deliver sediment to a stream. Woody debris will be concentrated on finished slopes adjacent to stream crossings. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. Mulching and seeding will take place as sites are completed to avoid unforeseen erosion. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

7. Sites which are expected to erode and deliver sediment to the stream are the only locations where work will be authorized for reimbursement under the terms of this agreement. Reimbursement will not be authorized for work done to improve aesthetics only.

8. The landowner or responsible party must sign an access agreement stating they agree to maintain the erosion control project for a period of not less than 10 years. Maintenance will consist of repair to the road or stream crossing to a level that will effectively reduce sediment from entering the stream. In the event of an act of nature which results in partial or complete failure of the project, the landowner or applicant will not be held responsible for costs incurred after the act of nature. Acts of nature include, but are not limited to floods, earthquakes, volcanic eruptions, and wind storms.

9. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
724540 Black Mountain Creek Sediment Reduction and Fish Passage Project

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S4	SC
2	Baker's goldfields *Lasthenia californica ssp. bakeri*	PDAST5L0C4			G3TH	SH	1B.2
3	Baker's larkspur *Delphinium bakeri*	PDRAN0B050	Endangered	Endangered	G1	S1	1B.1
4	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
5	Bolander's water-hemlock *Cicuta maculata var. bolanderi*	PDAPI0M051			G5T3T4	S2	2B.1
6	California beaked-rush *Rhynchospora californica*	PMCYP0N060			G1	S1	1B.1
7	California black rail *Laterallus jamaicensis coturniculus*	ABNME03041		Threatened	G4T1	S1	
8	California clapper rail *Rallus longirostris obsoletus*	ABNME05016	Endangered	Endangered	G5T1	S1	
9	California freshwater shrimp *Syncaris pacifica*	ICMAL27010	Endangered	Endangered	G1	S1	
10	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
11	California tiger salamander *Ambystoma californiense*	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SC
12	Central Dune Scrub	CTT21320CA			G2	S2.2	
13	Coastal Terrace Prairie	CTT41100CA			G2	S2.1	
14	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
15	Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1			G5T1	S1	1B.2
16	Franciscan thistle *Cirsium andrewsii*	PDAST2E050			G3	S3	1B.2
17	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
18	Kellogg's horkelia *Horkelia cuneata var. sericea*	PDROS0W043			G4T2	S2?	1B.1
19	Koch's cord moss *Entosthodon kochii*	NBMUS2P050			G1	S1	1B.3
20	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
21	Marin County navarretia *Navarretia rosulata*	PDPLM0C0Z0			G2?	S2?	1B.2
22	Marin checker lily *Fritillaria lanceolata var. tristulis*	PMLIL0V0P1			G5T2	S2	1B.1
23	Marin checkerbloom *Sidalcea hickmanii ssp. viridis*	PDMAL110A4			G3T1T2	S1S2	1B.3
24	Marin elfin butterfly *Callophrys mossii marinensis*	IILEPE2207			G4T1	S1	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Marin hesperian *Vespericola marinensis*	IMGASA4140			G2	S2	
26	Marin knotweed *Polygonum marinense*	PDPGN0L1C0			G2Q	S2	3.1
27	Marin manzanita *Arctostaphylos virgata*	PDERI041K0			G2	S2	1B.2
28	Marin western flax *Hesperolinon congestum*	PDLIN01060	Threatened	Threatened	G2	S2	1B.1
29	Mason's ceanothus *Ceanothus masonii*	PDRHA04200		Rare	G1	S1	1B.2
30	Mason's lilaeopsis *Lilaeopsis masonii*	PDAPI19030		Rare	G2	S2	1B.1
31	Mount Tamalpais bristly jewelflower *Streptanthus glandulosus ssp. pulchellus*	PDBRA2G0J2			G4T2	S2	1B.2
32	Mt. Tamalpais manzanita *Arctostaphylos montana ssp. montana*	PDERI040J5			G3T3	S3	1B.3
33	Mt. Tamalpais thistle *Cirsium hydrophilum var. vaseyi*	PDAST2E1G2			G2T2	S2	1B.2
34	Mt. Vision ceanothus *Ceanothus gloriosus var. porrectus*	PDRHA040F7			G3G4T2	S2	1B.3
35	Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	IILEPJ608C	Endangered		G5T1	S1	
36	Napa false indigo *Amorpha californica var. napensis*	PDFAB08012			G4T2	S2	1B.2
37	North Coast phacelia *Phacelia insularis var. continentis*	PDHYD0C2B1			G2T1	S1	1B.2
38	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
39	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
40	Northern Maritime Chaparral	CTT37C10CA			G1	S1.2	
41	Northern Vernal Pool	CTT44100CA			G2	S2.1	
42	Opler's longhorn moth *Adela oplerella*	IILEE0G040			G2	S2	
43	Peninsula coast range shoulderband *Helminthoglypta nickliniana awania*	IMGASC2361			G3T1	S1	
44	Petaluma popcornflower *Plagiobothrys mollis var. vestitus*	PDBOR0V0Q2			G4?TX	SX	1A
45	Pitkin Marsh lily *Lilium pardalinum ssp. pitkinense*	PMLIL1A0H3	Endangered	Endangered	G5T1	S1	1B.1
46	Point Reyes blennosperma *Blennosperma nanum var. robustum*	PDAST1A022		Rare	G4T2	S2	1B.2
47	Point Reyes blue butterfly *Plebejus icarioides parapheres*	IILEPG801D			G5T1T2	S1S2	
48	Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012			G5T2	S2.2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
49	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
50	Point Reyes jumping mouse *Zapus trinotatus orarius*	AMAFH01031			G5T1T3Q	S1S3	SC
51	Point Reyes meadowfoam *Limnanthes douglasii ssp. sulphurea*	PDLIM02038		Endangered	G4T2	S2	1B.2
52	Point Reyes mountain beaver *Aplodontia rufa phaea*	AMAFA01012			G5T2	S2	SC
53	Point Reyes paintbrush *Castilleja leschkeana*	PDSCR0D1R0			GH	SH	1A
54	Point Reyes rein orchid *Piperia elegans ssp. decurtata*	PMORC1X011			G4T1	S1	1B.1
55	Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3			G4?T2	S2	1B.2
56	Raiche's red ribbons *Clarkia concinna ssp. raichei*	PDONA050A2			G5?T1	S1	1B.1
57	Ricksecker's water scavenger beetle *Hydrochara ricksecker*i	IICOL5V010			G2?	S2?	
58	Sacramento splittail *Pogonichthys macrolepidotus*	AFCJB34020			G2	S2	SC
59	San Bruno elfin butterfly *Callophrys mossii bayensis*	IILEPE2202	Endangered		G4T1	S1	
60	San Francisco Bay Area leaf-cutter bee *Trachusa gummifera*	IIHYM80010			G1	S1	
61	San Francisco Bay spineflower *Chorizanthe cuspidata var. cuspidata*	PDPGN04081			G2T1	S1	1B.2
62	San Francisco forktail damselfly *Ischnura gemina*	IIODO72010			G2	S2	
63	San Francisco owl's-clover *Triphysaria floribunda*	PDSCR2T010			G2	S2.2	1B.2
64	San Pablo song sparrow *Melospiza melodia samuelis*	ABPBXA301W			G5T2?	S2?	SC
65	Serpentine Bunchgrass	CTT42130CA			G2	S2.2	
66	Sonoma alopecurus *Alopecurus aequalis var. sonomensis*	PMPOA07012	Endangered		G5T1Q	S1	1B.1
67	Sonoma spineflower *Chorizanthe valida*	PDPGN040V0	Endangered	Endangered	G1	S1	1B.1
68	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S3	
69	Tamalpais jewelflower *Streptanthus batrachopus*	PDBRA2G050			G1	S1	1B.3
70	Tamalpais lessingia *Lessingia micradenia var. micradenia*	PDAST5S063			G2T1T2	S1S2	1B.2
71	Tamalpais oak *Quercus parvula var. tamalpaisensis*	PDFAG051Q3			G4T2	S2	1B.3

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
72	Thurber's reed grass *Calamagrostis crassiglumis*	PMPOA17070			G3Q	S2?	2B.1
73	Tiburon buckwheat *Eriogonum luteolum var. caninum*	PDPGN083S1			G5T2	S2	1B.2
74	Tiburon paintbrush *Castilleja affinis var. neglecta*	PDSCR0D013	Endangered	Threatened	G4G5T1	S1	1B.2
75	Tidestrom's lupine *Lupinus tidestromii*	PDFAB2B3Y0	Endangered	Endangered	G1	S1	1B.1
76	Tomales isopod *Caecidotea tomalensis*	ICMAL01220			G2	S2	
77	Tomales roach *Lavinia symmetricus ssp. 2*	AFCJB19022			G4T2T3	S2S3	SC
78	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
79	Williams' bronze shoulderband *Helminthoglypta stiversiana williamsi*	IMGASC2034			G2G3T1	S1	
80	alkali milk-vetch *Astragalus tener var. tener*	PDFAB0F8R1			G2T2	S2	1B.2
81	ashy storm-petrel *Oceanodroma homochroa*	ABNDC04030			G2	S2	SC
82	beach layia *Layia carnosa*	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
83	bent-flowered fiddleneck *Amsinckia lunaris*	PDBOR01070			G2?	S2?	1B.2
84	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
85	blue coast gilia *Gilia capitata ssp. chamissonis*	PDPLM040B3			G5T2	S2	1B.1
86	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
87	bristle-stalked sedge *Carex leptalea*	PMCYP037E0			G5	S1	2B.2
88	bumblebee scarab beetle *Lichnanthe ursina*	IICOL67020			G2	S2	
89	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S3	SC
90	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
91	coast yellow leptosiphon *Leptosiphon croceus*	PDPLM09170			G1	S1	1B.1
92	coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2			G4T2T3	S2S3	1B.2
93	coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2			G2T2	S2	1B.2
94	coastal triquetrella *Triquetrella californica*	NBMUS7S010			G1	S1	1B.2

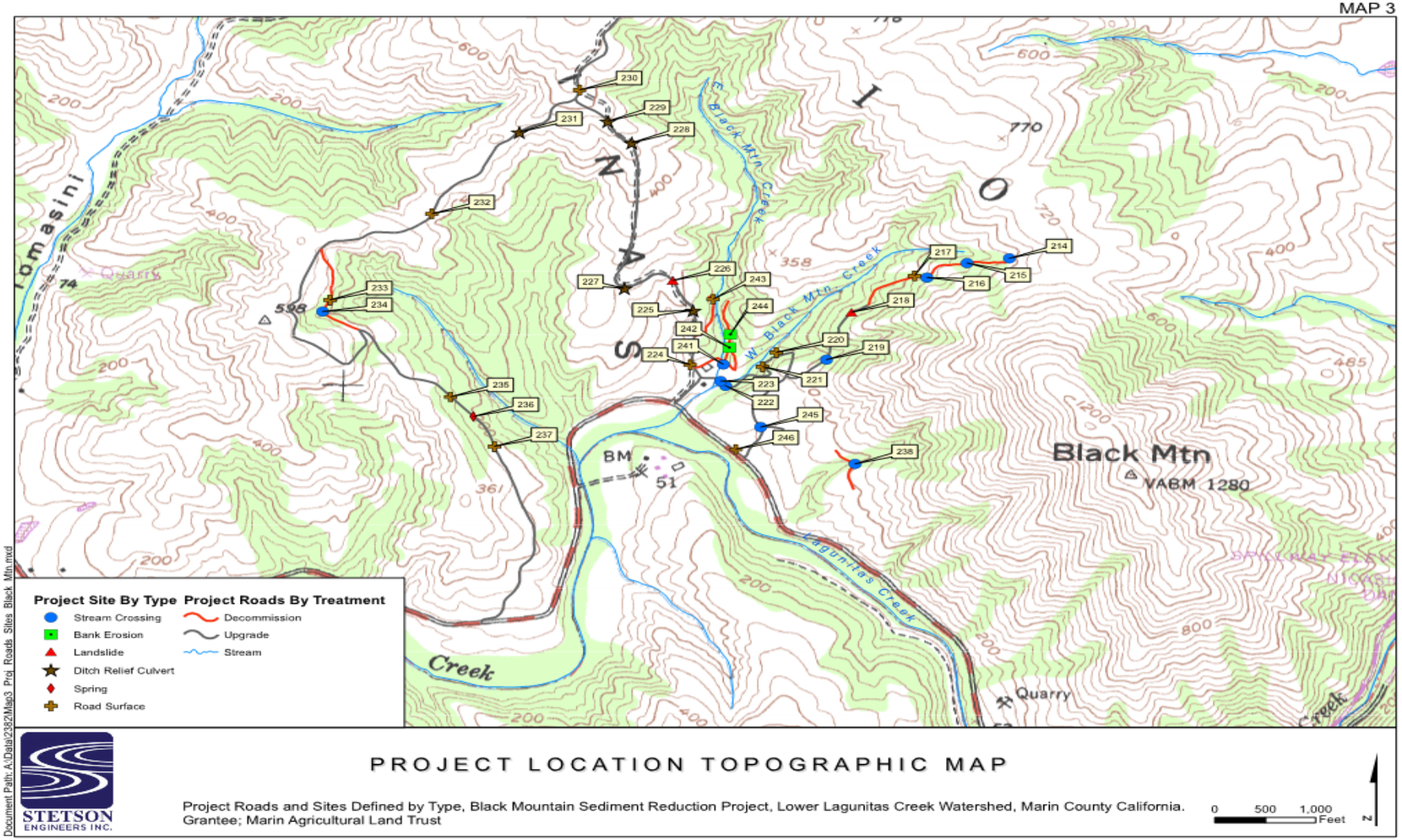
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
95	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
96	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
97	elongate copper moss *Mielichhoferia elongata*	NBMUS4Q022			G4	S2	2B.2
98	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
99	fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0			G2	S2	1B.2
100	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	
101	golden larkspur *Delphinium luteum*	PDRAN0B0Z0	Endangered	Rare	G1	S1	1B.1
102	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
103	great egret *Ardea alba*	ABNGA04040			G5	S4	
104	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
105	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
106	marsh microseris *Microseris paludosa*	PDAST6E0D0			G2	S2	1B.2
107	monarch butterfly *Danaus plexippus*	IILEPP2010			G5	S3	
108	northern curly-leaved monardella *Monardella sinuata ssp. nigrescens*	PDLAM18162			G3T2	S2	1B.2
109	northern harrier *Circus cyaneus*	ABNKC11010			G5	S3	SC
110	osprey *Pandion haliaetus*	ABNKC01010			G5	S3	
111	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
112	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
113	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
114	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T2	S2.2	1B.2
115	robust spineflower *Chorizanthe robusta var. robusta*	PDPGN040Q2	Endangered		G2T1	S1	1B.1
116	robust walker *Pomatiopsis binneyi*	IMGASJ9010			G1	S1	
117	rose leptosiphon *Leptosiphon rosaceus*	PDPLM09180			G1	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
118	round-leaved filaree *California macrophylla*	PDGER01070			G2	S2	1B.1
119	saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A			G5T2	S2	SC
120	sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101			G5T2	S1	
121	seaside bittercress *Cardamine angulata*	PDBRA0K010			G5	S1	2B.1
122	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
123	showy rancheria clover *Trifolium amoenum*	PDFAB40040	Endangered		G1	S1	1B.1
124	silver-haired bat *Lasionycteris noctivagans*	AMACC02010			G5	S3S4	
125	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2Q	S2	
126	supple daisy *Erigeron supplex*	PDAST3M3Z0			G2	S2	1B.2
127	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
128	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
129	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
130	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
131	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S2	SC
132	water star-grass *Heteranthera dubia*	PMPON03010			G5	S1	2B.2
133	western leatherwood *Dirca occidentalis*	PDTHY03010			G2G3	S2S3	1B.2
134	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
135	western red bat *Lasiurus blossevillii*	AMACC05060			G5	S3?	SC
136	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
137	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
138	whiteworm lichen *Thamnolia vermicularis*	NLTES43860			G3G5	S1	2B.1
139	woolly-headed gilia *Gilia capitata ssp. tomentosa*	PDPLM040B9			G5T2	S2	1B.1
140	woolly-headed spineflower *Chorizanthe cuspidata var. villosa*	PDPGN04082			G2T2	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
141	yellow warbler *Dendroica petechia brewsteri*	ABPBX03018			G5T3?	S2	SC

Project Location Topographic Map

MAP 3



STETSON ENGINEERS INC.

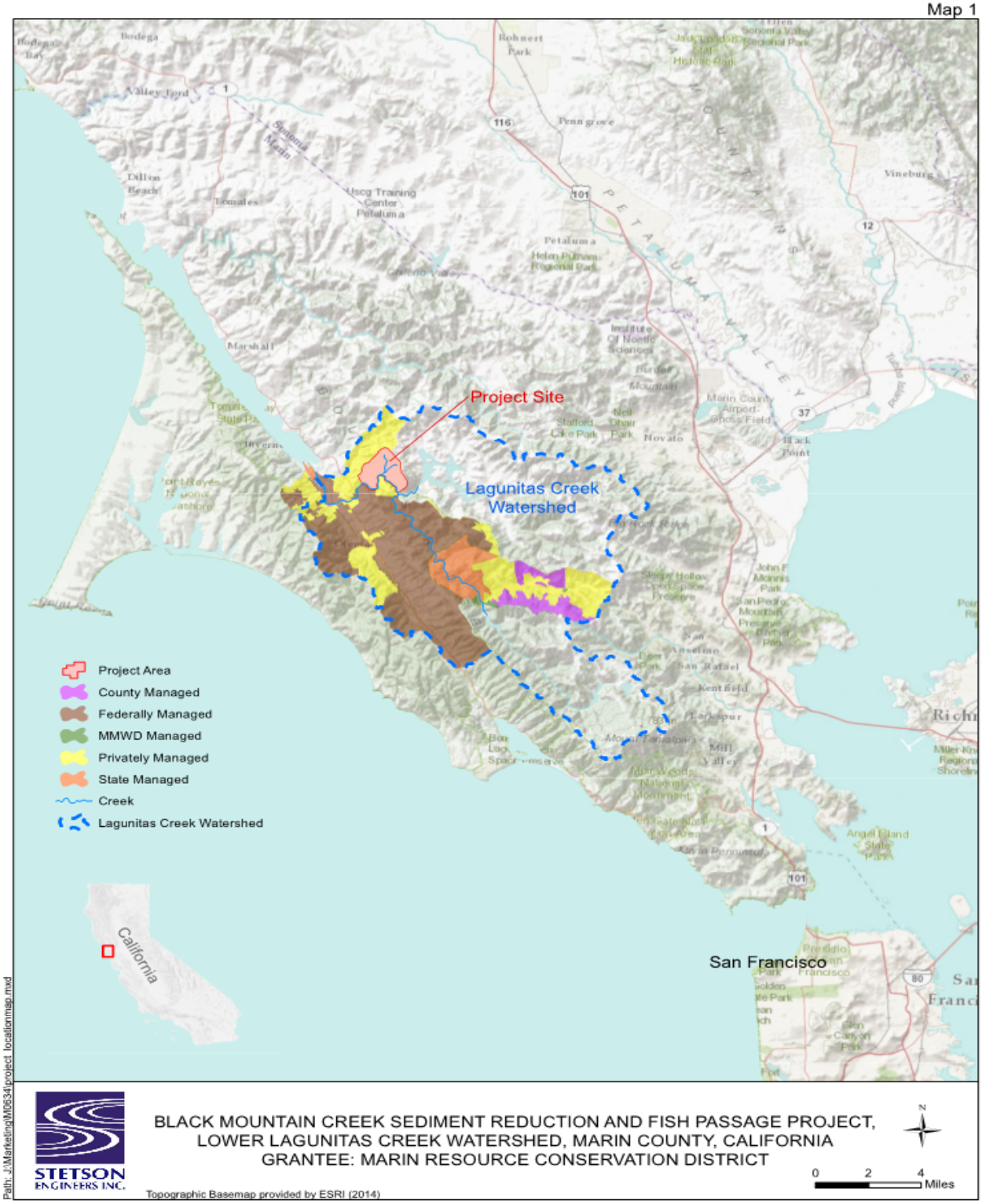
PROJECT LOCATION TOPOGRAPHIC MAP

Project Roads and Sites Defined by Type, Black Mountain Sediment Reduction Project, Lower Lagunitas Creek Watershed, Marin County California.
Grantee; Marin Agricultural Land Trust

0 500 1,000 Feet

Watershed (or County) Map

Map 1



San Geronimo Fish Passage and Habitat Enhancement for Drought Resilience

Introduction:

County of Marin Public Works will implement the project to remove a complete barrier to juvenile and adult coho salmon on San Geronimo Creek. San Geronimo Creek is the largest undammed tributary to Lagunitas Creek and provides up to 30% of the coho salmon production in the Lagunitas system. The project enhances juvenile rearing habitat and removes a total barrier to fish in the upper San Geronimo Creek, where cold water is available year-round, but juvenile rearing habitat is critically limited.

Permit Disclosure: The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

All habitat improvement will follow techniques in the California Stream Habitat Restoration Manual (list appropriate section of manual)

Objective(s):

The project will eliminate a complete migration barrier to adult and juvenile coho and restore a significant reach of channel to provide deep water pools and habitat connectivity for juvenile rearing during low flow conditions. The project is located on the mainstem of San Geronimo Creek, where juvenile salmonid counts demonstrate resiliency to drought conditions but juvenile survival is limited by lack of deep pools, habitat connectivity and protective cover.

Project Description:

Location: The project is located on the mainstem of San Geronimo Creek just above the confluence with Woodacre Creek, where it becomes the North Fork of San Geronimo Creek. The creek flows through the box culvert under Railroad Ave. in the town of Woodacre. The stream enhancement stretches 300 linear feet downstream from the outlet of the culvert to just beyond the confluence with Woodacre Creek. The project is best accessed through private property off of San Geronimo Valley Dr. in the town of Woodacre, West Marin County. The barrier is located at 38.013172° N lat. 122.645113° W long.

Project Set Up:

The County of Marin Public Works will implement the removal of the complete 100% migration barrier and restore a critical reach of the San Geronimo Creek mainstem, in order to provide deep pools, complex habitat and connectivity.

The project consists of the following elements:

- Removal of the concrete apron at the culvert outlet
- Retrofit of the existing box culvert with interior concrete angled baffles
- Installation of a downstream cut-off wall with low flow notch to backwater the culvert and to prevent subsurface flow
- Restoration of the downstream channel with habitat enhancement features including installation of pools and riffles using rock weirs, rootwads, and logs.
- Repair of eroded streambanks using bioengineering techniques
- Revegetation of the channel throughout the project area
- Erosion control
- Site Clean-up
- Monitoring and reporting

The design for the site retrofits the existing 120 foot long by 9.5 foot wide by 8 foot high concrete box culvert and enhances the downstream channel with a stream simulation chute-pool channel constructed of rock weirs and woody debris habitat enhancement elements below the retrofitted culvert. The modified stream bed is 300 ft. long overall, with three sections of chute, each constructed at a 3% slope, spaced with flat sections of resting pools in between. The larger bed material (D84 and greater) used to form the channel is sized to be stable up to the 100 year peak flow. The design developed for this site is based on the "stream simulation" design concept, as outlined in the CDFG (2002) and NOAA Fisheries (2001) design guidelines and the US Forest Service Stream Simulation Design Manual (USFS, 2008) for the downstream channel. The retrofit design within the culvert is designed using the procedure outlined in the DFG Restoration Manual – Chapter IX – Fish Passage.

Downstream Channel Design

The design has an active channel design width of 13.4 feet, which matches the upstream active channel width measured by Ross Taylor and Associates (2003). To concentrate low flows, ensure adequate water depth for adult fish and provide slower edge water for smaller fish, the channel bottom is designed with a 5:1 side slope towards the center. This provides approximately 1.34 feet of depth in the center of the channel when the active channel is fully wetted, which occurs during the 2-year return period flow. Bank-line rocks will be used to stabilize the channel margins where needed.

Rock weirs will be installed to form pools spaced 30 feet apart on center, with grade changes between rock structures to not exceed one foot in height. In between the rock weirs, log and rootwad structures will be installed as grade control elements, to create diversity of flow, and to provide adequate passage for juvenile coho. The placement of the rock structures is based on the scour potential of pools they create such that they tail out prior to the log structures

placed between the weirs. The overall gradient for each chute is 3%, which provides for juvenile passage throughout the project. Each of the two constructed pools will be approximately 30 feet long and each of the three constructed chutes will be approximately 75 feet long. The downstream left bank will be restored with a fill of native plantable material and be revegetated with riparian species at a 2:1 slope to meet the existing grade of the existing banks. The right bank will be restored with a fill of native plantable material and be revegetated with riparian species at a 10:1 slope to create a flood plain bench.

Interior of the existing culvert

The existing culvert has a slick concrete bottom set at a slope of 0.7%. The project will retrofit the interior of the culvert with the addition of three concrete angled baffles and a downstream low-flow cut-off wall to help backwater the culvert and provide minimum depth of .5 feet throughout. Concrete angled baffles are spaced 25 feet apart with an elevation drop of .2 feet. The cut-off wall has a low flow notch to concentrate flow. The angled baffles are designed to provide lower velocity along the edge of flow.

Materials:

Tree logs, concrete, rock (1/4 – 1 ton), native plants, coconut blankets, and split rail fencing.

Tasks:

Task 1: Develop grant contract with CDFW and take Resolution to Board of Supervisors for approval

Task 2: Finalize permits and complete environmental review

Task 3: Develop bid package for construction including 100% Plan set, Specs and Engineer's Estimate

Task 4: Advertise to Builder's Exchange, receive bids, award project and sign contract with contractor

Task 5: Bring bid package to the Marin County Board of Supervisors for approval

Task 6: Construction

- Contract with biologist to conduct red-legged frog surveys and relocate fish during construction
- Build coffer dam, dewater stream and relocate all aquatic organisms
- Conduct site prep for construction including clearing of access route as needed
- Cut away concrete apron from box culvert

- Install low water control and baffles within the culvert
- Install a cut-off wall at culvert to prevent subsurface flow through the culvert
- Install streambed restoration element of project including weirs, rootwads, logs and bankline boulders and substrate
- Repair streambank using biotechnical techniques
- Install revegetation and erosion control materials
- Site clean-up

Task 7: Conduct post-project implementation monitoring.

Task 8: Develop as-built drawings of final project post-implementation including longitudinal surveys

Task 9: Prepare final report including monitoring photos and continue to supply on-going monitoring data to regulatory agencies as required by permits and grant agreements.

Deliverables: As-built drawings and photographs will be submitted to the Department of Fish and Wildlife following project completion. Monitoring will be completed and delivered to agencies as required by grant and/or permits.

Timelines:

- April – May 2015 Develop grant contract and get Board approval with Resolution
- May – June 2015 Prepare bid package and advertise project with Builder's Exchange
- July – Aug 2015 Select contractor, develop contracts and prepare for construction
- September 2015 Biological surveys, dewatering and fishery relocation
- Sept – Oct 2015 Complete implementation of project
- Oct – Dec 2015 Conduct post-project monitoring
  - List time frame (the season's work window). June 15 – October 31

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the

California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:
    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
    - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
    - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.
    - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. The culvert design and installation will meet flow carrying capacity required for a 100-year flood event as identified by specifications determined by National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Wildlife (CDFW), for adult and juvenile salmonid fish passage. The project will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and criteria for fish passage as described in Volume II, Part IX, of the *California Salmonid Stream Habitat Restoration Manual*. The engineered plans for the bridge (culvert) installation shall be visually reviewed and authorized by NOAA Fisheries or California Department of Fish and Wildlife engineers prior to commencement of work.

4. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*, Volume I, and Volume II Part XI and Part XII. The Grantee/landowner will maintain the new crossing, inspect the crossing in a timely manner and remove debris as necessary during the storm season.

5. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

6. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

7. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

8. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
D018 San Geronimo fish passage and habitat enhancement for drought resilience

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S4	SC
2	Baker's larkspur *Delphinium bakeri*	PDRAN0B050	Endangered	Endangered	G1	S1	1B.1
3	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
4	Bolander's water-hemlock *Cicuta maculata var. bolanderi*	PDAPI0M051			G5T3T4	S2	2B.1
5	California beaked-rush *Rhynchospora californica*	PMCYP0N060			G1	S1	1B.1
6	California black rail *Laterallus jamaicensis coturniculus*	ABNME03041		Threatened	G4T1	S1	
7	California clapper rail *Rallus longirostris obsoletus*	ABNME05016	Endangered	Endangered	G5T1	S1	
8	California freshwater shrimp *Syncaris pacifica*	ICMAL27010	Endangered	Endangered	G1	S1	
9	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
10	California tiger salamander *Ambystoma californiense*	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SC
11	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
12	Coastal Terrace Prairie	CTT41100CA			G2	S2.1	
13	Contra Costa goldfields *Lasthenia conjugens*	PDAST5L040	Endangered		G1	S1	1B.1
14	Diablo helianthella *Helianthella castanea*	PDAST4M020			G2	S2	1B.2
15	Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1			G5T1	S1	1B.2
16	Franciscan thistle *Cirsium andrewsii*	PDAST2E050			G3	S3	1B.2
17	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
18	Koch's cord moss *Entosthodon kochii*	NBMUS2P050			G1	S1	1B.3
19	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
20	Marin County navarretia *Navarretia rosulata*	PDPLM0C0Z0			G2?	S2?	1B.2
21	Marin blind harvestman *Calicina diminua*	ILARAU8040			G1	S1	
22	Marin checker lily *Fritillaria lanceolata var. tristulis*	PMLIL0V0P1			G5T2	S2	1B.1
23	Marin checkerbloom *Sidalcea hickmanii ssp. viridis*	PDMAL110A4			G3T1T2	S1S2	1B.3
24	Marin elfin butterfly *Callophrys mossii marinensis*	IILEPE2207			G4T1	S1	

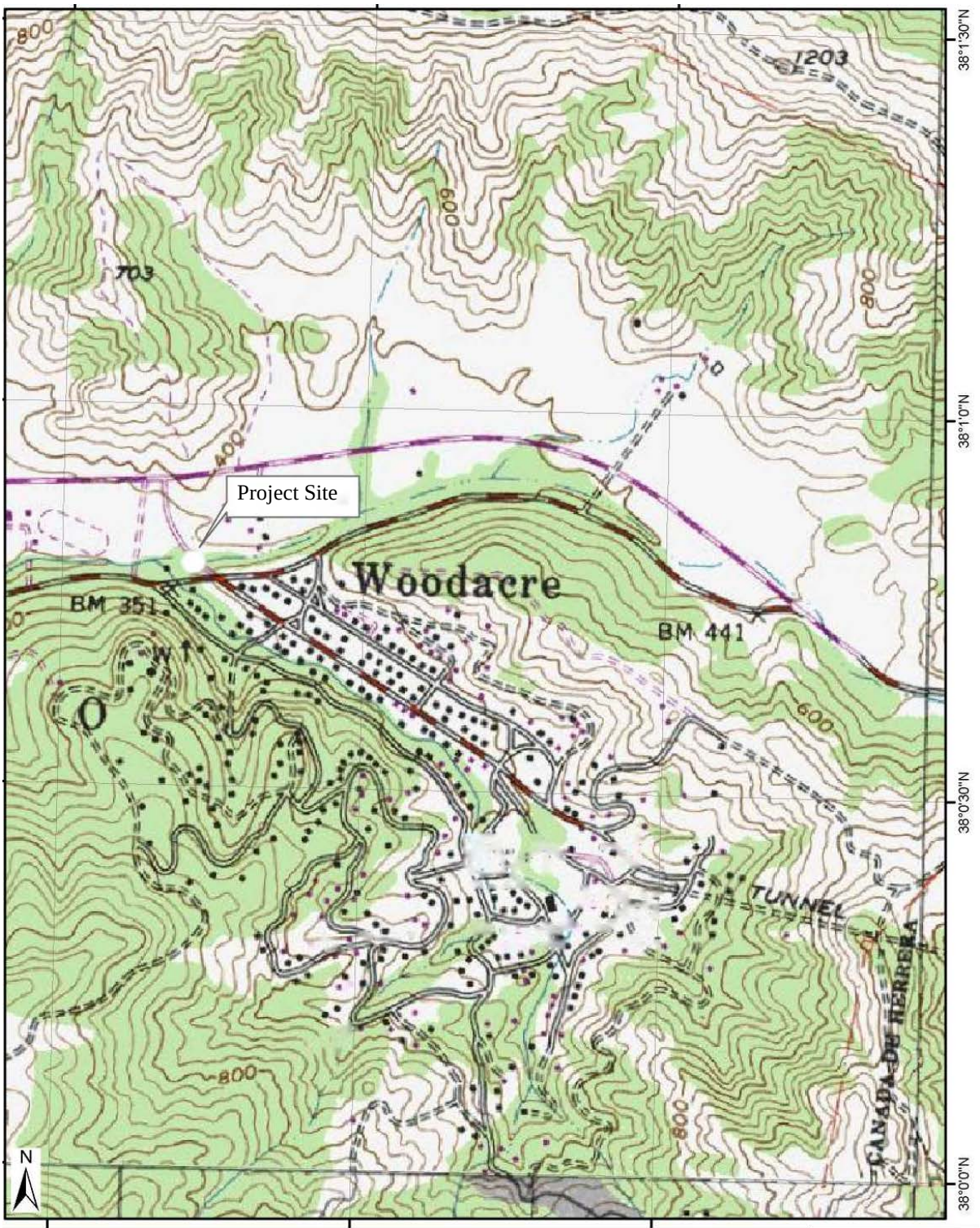
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Marin hesperian *Vespericola marinensis*	IMGASA4140			G2	S2	
26	Marin knotweed *Polygonum marinense*	PDPGN0L1C0			G2Q	S2	3.1
27	Marin manzanita *Arctostaphylos virgata*	PDERI041K0			G2	S2	1B.2
28	Marin western flax *Hesperolinon congestum*	PDLIN01060	Threatened	Threatened	G2	S2	1B.1
29	Mason's ceanothus *Ceanothus masonii*	PDRHA04200		Rare	G1	S1	1B.2
30	Mason's lilaeopsis *Lilaeopsis masonii*	PDAPI19030		Rare	G2	S2	1B.1
31	Mount Tamalpais bristly jewelflower *Streptanthus glandulosus ssp. pulchellus*	PDBRA2G0J2			G4T2	S2	1B.2
32	Mt. Tamalpais manzanita *Arctostaphylos montana ssp. montana*	PDERI040J5			G3T3	S3	1B.3
33	Mt. Tamalpais thistle *Cirsium hydrophilum var. vaseyi*	PDAST2E1G2			G2T2	S2	1B.2
34	Mt. Vision ceanothus *Ceanothus gloriosus var. porrectus*	PDRHA040F7			G3G4T2	S2	1B.3
35	Napa false indigo *Amorpha californica var. napensis*	PDFAB08012			G4T2	S2	1B.2
36	North Coast phacelia *Phacelia insularis var. continentis*	PDHYD0C2B1			G2T1	S1	1B.2
37	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
38	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
39	Northern Maritime Chaparral	CTT37C10CA			G1	S1.2	
40	Northern Vernal Pool	CTT44100CA			G2	S2.1	
41	Opler's longhorn moth *Adela oplerella*	IILEE0G040			G2	S2	
42	Petaluma popcornflower *Plagiobothrys mollis var. vestitus*	PDBOR0V0Q2			G4?TX	SX	1A
43	Pitkin Marsh lily *Lilium pardalinum ssp. pitkinense*	PMLIL1A0H3	Endangered	Endangered	G5T1	S1	1B.1
44	Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012			G5T2	S2.2	1B.2
45	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
46	Point Reyes mountain beaver *Aplodontia rufa phaea*	AMAFA01012			G5T2	S2	SC
47	Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3			G4?T2	S2	1B.2
48	Ricksecker's water scavenger beetle *Hydrochara rickseckeri*	IICOL5V010			G2?	S2?	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
49	Sacramento splittail *Pogonichthys macrolepidotus*	AFCJB34020			G2	S2	SC
50	San Bruno elfin butterfly *Callophrys mossii bayensis*	IILEPE2202	Endangered		G4T1	S1	
51	San Francisco Bay Area leaf-cutter bee *Trachusa gummifera*	IIHYM80010			G1	S1	
52	San Francisco Bay spineflower *Chorizanthe cuspidata var. cuspidata*	PDPGN04081			G2T1	S1	1B.2
53	San Francisco forktail damselfly *Ischnura gemina*	IIODO72010			G2	S2	
54	San Pablo song sparrow *Melospiza melodia samuelis*	ABPBXA301W			G5T2?	S2?	SC
55	Santa Cruz microseris *Stebbinsoseris decipiens*	PDAST6E050			G2	S2.2	1B.2
56	Santa Cruz tarplant *Holocarpha macradenia*	PDAST4X020	Threatened	Endangered	G1	S1	1B.1
57	Serpentine Bunchgrass	CTT42130CA			G2	S2.2	
58	Sonoma alopecurus *Alopecurus aequalis var. sonomensis*	PMPOA07012	Endangered		G5T1Q	S1	1B.1
59	Sonoma spineflower *Chorizanthe valida*	PDPGN040V0	Endangered	Endangered	G1	S1	1B.1
60	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S3	
61	Tamalpais jewelflower *Streptanthus batrachopus*	PDBRA2G050			G1	S1	1B.3
62	Tamalpais lessingia *Lessingia micradenia var. micradenia*	PDAST5S063			G2T1T2	S1S2	1B.2
63	Tamalpais oak *Quercus parvula var. tamalpaisensis*	PDFAG051Q3			G4T2	S2	1B.3
64	Tiburon buckwheat *Eriogonum luteolum var. caninum*	PDPGN083S1			G5T2	S2	1B.2
65	Tiburon paintbrush *Castilleja affinis var. neglecta*	PDSCR0D013	Endangered	Threatened	G4G5T1	S1	1B.2
66	Tomales isopod *Caecidotea tomalensis*	ICMAL01220			G2	S2	
67	Tomales roach *Lavinia symmetricus ssp. 2*	AFCJB19022			G4T2T3	S2S3	SC
68	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
69	Ubick's gnaphosid spider *Talanites ubicki*	ILARA98030			G1	S1	
70	alkali milk-vetch *Astragalus tener var. tener*	PDFAB0F8R1			G2T2	S2	1B.2
71	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
72	bent-flowered fiddleneck *Amsinckia lunaris*	PDBOR01070			G2?	S2?	1B.2
73	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
74	blue coast gilia *Gilia capitata ssp. chamissonis*	PDPLM040B3			G5T2	S2	1B.1
75	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
76	bumblebee scarab beetle *Lichnanthe ursina*	IICOL67020			G2	S2	
77	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S3	SC
78	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
79	coast yellow leptosiphon *Leptosiphon croceus*	PDPLM09170			G1	S1	1B.1
80	coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2			G2T2	S2	1B.2
81	coastal triquetrella *Triquetrella californica*	NBMUS7S010			G1	S1	1B.2
82	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
83	elongate copper moss *Mielichhoferia elongata*	NBMUS4Q022			G4	S2	2B.2
84	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
85	fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0			G2	S2	1B.2
86	golden larkspur *Delphinium luteum*	PDRAN0B0Z0	Endangered	Rare	G1	S1	1B.1
87	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
88	great egret *Ardea alba*	ABNGA04040			G5	S4	
89	hairless popcornflower *Plagiobothrys glaber*	PDBOR0V0B0			GH	SH	1A
90	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
91	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
92	marsh microseris *Microseris paludosa*	PDAST6E0D0			G2	S2	1B.2
93	mimic tryonia (=California brackishwater snail) *Tryonia imitator*	IMGASJ7040			G2G3	S2S3	
94	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S1	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
95	monarch butterfly *Danaus plexippus*	IILEPP2010			G5	S3	
96	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
97	osprey *Pandion haliaetus*	ABNKC01010			G5	S3	
98	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
99	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
100	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
101	robust walker *Pomatiopsis binneyi*	IMGASJ9010			G1	S1	
102	round-leaved filaree *California macrophylla*	PDGER01070			G2	S2	1B.1
103	salt-marsh harvest mouse *Reithrodontomys raviventris*	AMAFF02040	Endangered	Endangered	G1G2	S1S2	
104	saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A			G5T2	S2	SC
105	sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101			G5T2	S1	
106	seaside bittercress *Cardamine angulata*	PDBRA0K010			G5	S1	2B.1
107	showy rancheria clover *Trifolium amoenum*	PDFAB40040	Endangered		G1	S1	1B.1
108	silver-haired bat *Lasionycteris noctivagans*	AMACC02010			G5	S3S4	
109	small groundcone *Kopsiopsis hookeri*	PDORO01010			G5	S1S2	2B.3
110	soft salty bird's-beak *Chloropyron molle ssp. molle*	PDSCR0J0D2	Endangered	Rare	G2T1	S1	1B.2
111	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2Q	S2	
112	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
113	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
114	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
115	water star-grass *Heteranthera dubia*	PMPON03010			G5	S1	2B.2
116	western leatherwood *Dirca occidentalis*	PDTHY03010			G2G3	S2S3	1B.2
117	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
118	western red bat *Lasiurus blossevillii*	AMACC05060			G5	S3?	SC
119	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
120	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
121	white-rayed pentachaeta *Pentachaeta bellidiflora*	PDAST6X030	Endangered	Endangered	G1	S1	1B.1
122	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	
123	woolly-headed gilia *Gilia capitata ssp. tomentosa*	PDPLM040B9			G5T2	S2	1B.1
124	yellow warbler *Dendroica petechia brewsteri*	ABPBX03018			G5T3?	S2	SC



122°39' 0"W	122°38' 30"W		122-38' 0"W
NF San Geronimo Creek	1 inch = 1,000 feet		**County of Marin Flood ontrol and**
Fish Passage	0 1,000	2,000	**May 2009**

Marble Gulch Instream Coho Habitat Enhancement Project

Introduction:

Grantee's North Coast Coho Project will implement the Marble Gulch Instream Coho Habitat Enhancement Project. The lack of large woody debris (LWD) in the stream channel has affected the quality and quantity of salmonid habitat within Marble Gulch by reducing the amount of large channel forming features and the loss of complex cover for salmonids. A California Department of Fish and Wildlife (CDFW) stream habitat inventory survey was conducted on Marble Gulch in 2013 and limiting factors to salmonids were identified. The stream habitat inventory report shows that the pools of Marble Gulch have a mean shelter rating of 25. A pool shelter rating of approximately 100 is desirable.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. All habitat restoration improvements will follow techniques in the California Salmonid Stream Habitat Restoration Manual, Part VII. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

The specific objective of this project is to create a total of 65 instream features within a total of 1.72 miles of Marble Gulch, consisting of 139 logs and 17 root wads. The addition of these structures will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels, increasing the quality and quantity of rearing habitat within the project reach, and by providing velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids.

Project Description:

Location:

The Grantee will conduct work along a section of Marble Gulch beginning at the confluence with North Fork Noyo River and continuing upstream for 1.72 miles. The locations of the project boundaries are approximately 39.4297º north latitude, 123.5375º west longitude at the downstream end; and 39.4523º north latitude, 123.5488º west longitude at the upstream end as depicted in the Project Location Map.

Project Set Up:

Grantee Project Manager for the North Coast Coho Project will coordinate the project and will provide all contracting oversight and administration including but not limited to obtaining permits, contracting, scheduling, invoicing, reporting and agency and landowner communications. The subcontracted Project Manager,

Project Technician, Timber Equipment Operator, Timber Chainsaw Operator will prepare designs, install log structures, and manage wood data and reporting. The subcontracted California Conservation Corps (CCC) Technical Staff perform pre-project design, monitoring, and photo documentation. Subcontracted CCC Conservationist I will supervise CCC Laborers in the implementation of the project and during the spike operation. Subcontracted CCC Laborers will provide the hand labor for the instream LWD structures.

Materials:

A total of 65 LWD features will be constructed and anchored with 1" threaded rebar, nuts, washers, 5/8" galvanized cable, cable clamps, and waterproof epoxy glue, or by wedging into riparian trees without using anchoring materials.

Tasks:

Task 1: Install Instream Habitat Features:

Subcontractors will install instream habitat features at 65 locations including 156 pieces of large wood/root wads along 1.72 miles of Marble Gulch. Approximately 40 pieces of the large wood will be generated by felling of live riparian conifer trees and 116 pieces of LWD will be salvaged from nearby areas. A hand labor crew and a timber operator using a rubber-tired skidder will bring salvaged logs to the project site, gather LWD from riparian banks, and position LWD following feature designs.

Task 2: Erosion Control

Mulching will take place as sites are completed on all exposed soils which may deliver sediment to a stream in order to avoid unforeseen erosion.

Deliverables:

A total of 65 features will be constructed within the 1.72 mile project reach.

Timelines:

Installation of LWD features (within approved project reach) –

- June 15, 2016 through October 31, 2016

Erosion control will be installed as project features are completed.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

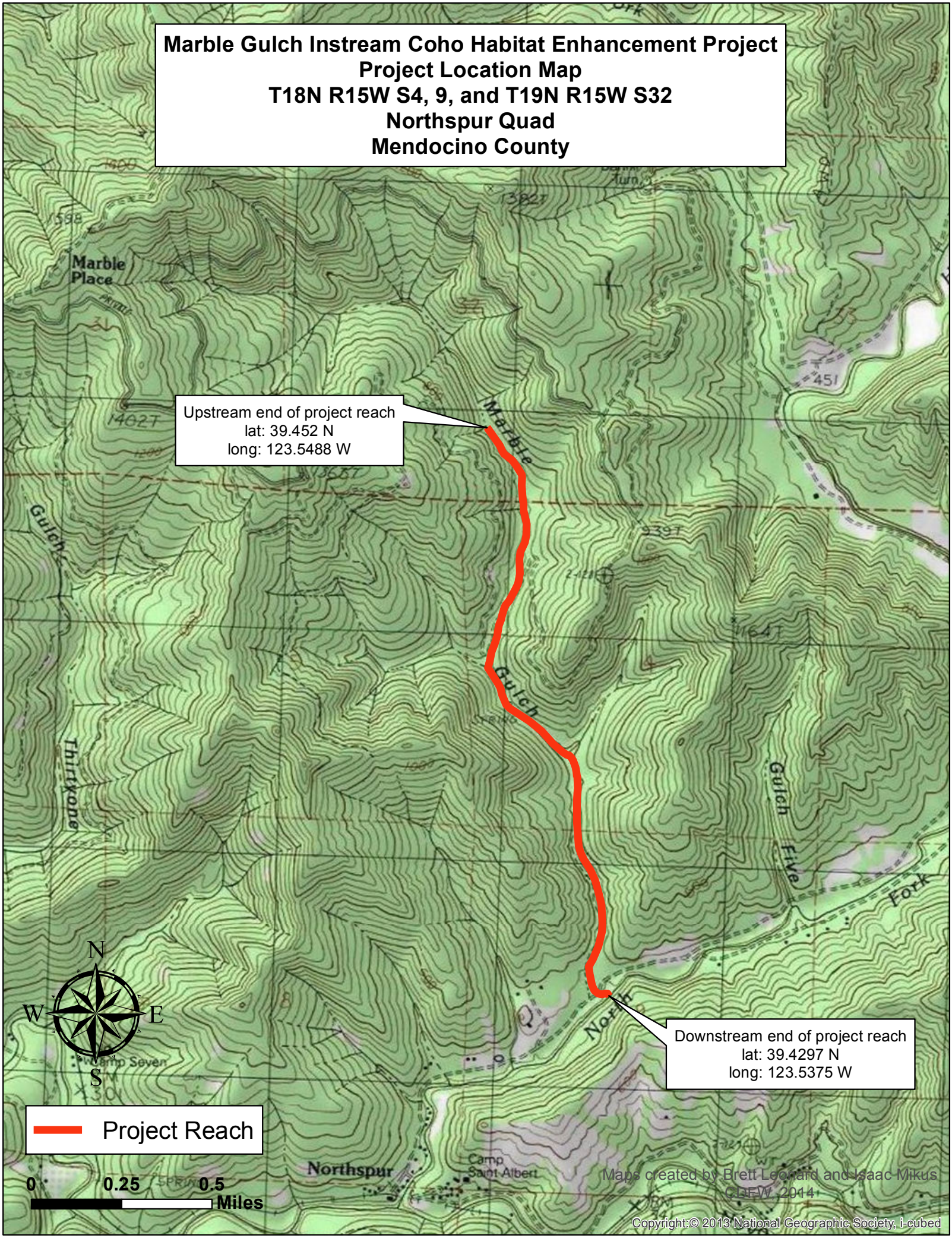
3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Northspur Quad and Surrounding Quads for:
HI 034 Marble Gulch Instream Coho Habitat Enhancement Project
T19N R15W Section 32
T18N 15W Sections 4, 9
Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S3	SC
2	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
3	Behren's silverspot butterfly *Speyeria zerene behrensii*	IILEPJ6088	Endangered		G5T1	S1	
4	Bolander's beach pine *Pinus contorta ssp. bolanderi*	PGPIN04081			G5T2	S2	1B.2
5	California sedge *Carex californica*	PMCYP032D0			G5	S2?	2B.3
6	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
7	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
8	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
9	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
10	Mendocino Pygmy Cypress Forest	CTT83161CA			G2	S2.1	
11	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
12	Milo Baker's lupine *Lupinus milo-bakeri*	PDFAB2B4E0		Threatened	G1Q	S1	1B.1
13	Monterey clover *Trifolium trichocalyx*	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
14	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
15	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
16	Pacific lamprey *Entosphenus tridentatus*	AFBAA02100			G4	S4	
17	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
18	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
19	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
20	Sphagnum Bog	CTT51110CA			G3	S1.2	
21	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
22	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
23	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
25	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
26	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
27	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
28	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
29	glandular western flax *Hesperolinon adenophyllum*	PDLIN01010			G3	S3	1B.2
30	grass alisma *Alisma gramineum*	PMALI01010			G5	S1S2	2B.2
31	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
32	lagoon sedge *Carex lenticularis var. limnophila*	PMCYP037A7			G5T5	S1	2B.2
33	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
34	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
35	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
36	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
37	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
38	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
39	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
40	pygmy cypress *Hesperocyparis pygmaea*	PGCUP04032			G2	S2	1B.2
41	pygmy manzanita *Arctostaphylos nummularia ssp. mendocinoensis*	PDERI04280			G3?T1	S1	1B.2
42	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
43	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
44	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S3	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
45	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
46	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
47	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
48	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
49	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
50	watershield *Brasenia schreberi*	PDCAB01010			G5	S2	2B.3
51	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
52	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
53	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
54	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2


Marble Gulch Instream Coho Habitat Enhancement Project
Project Location Map
T18N R15W S4, 9, and T19N R15W S32
Northspur Quad
Mendocino County
Upstream end of project reach
lat: 39.452 N
long: 123.5488 W
Downstream end of project reach
lat: 39.4297 N
long: 123.5375 W
Marble Gulch
Marble Place
Thirtyone Gulch
Five Fork Gulch
North
Camp Seven
Northspur
Camp Saint Albert
N
S
E
W
Project Reach
0
0.25
0.5
Miles
Maps created by Brett Leonard and Isaac Mikus
CDFW 2014
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Upper Rancheria Creek Instream Habitat Enhancement Project

Introduction:

Mendocino County Resources Conservation District (Grantee) will implement the Upper Rancheria Creek Instream Habitat Enhancement Project. The lack of large woody debris (LWD) in the stream channel has affected the quality and quantity of salmonid habitat within Rancheria Creek by reducing the amount of large channel forming features and the loss of complex cover for salmonids. The section of Rancheria Creek where the project is located maintains perennial flows and has good riparian connectivity and shade canopy that provides high value habitat for steelhead summer rearing and spawning. The instream habitat improvements outlined in this project will increase the resiliency and capacity of the stream system to better withstand the anticipated increases in both duration and severity of drought and flood events for the ultimate benefit of helping to meet all of the life cycle stages of endangered and threatened anadromous fish species.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. All habitat restoration improvements will follow techniques in the California Salmonid Stream Habitat Restoration Manual, Part VII. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

The specific objective of this project is to create a total of 10 instream features within a total of 0.48 miles of Rancheria Creek, consisting of 25 pieces of LWD. The addition of these structures will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels, increasing the quality and quantity of rearing habitat within the project reach, and by providing velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids.

Project Description:

Location:

The Grantee will conduct work along a section of Rancheria Creek approximately 2.25 miles upstream of the confluence with Elkhorn Creek and continuing upstream for 0.48 miles. The locations of the project center point is approximately 38.8361º north latitude, 123.2375º west longitude as depicted in the Project Location Map.

Project Set Up:

Grantee's Executive Director is responsible for grant oversight, reviewing or creating and executing subcontractor agreements, reviewing and approving invoices, responding to Grantor inquiries, assisting Project Manager as required, and responding to landowner inquiries. Grantee Project Manager implements the project and is responsible for meeting grant deliverables from landowner access agreements to overseeing contractors and responding to all project related inquiries. Grantee Contract Administrator reviews bills and prepares invoices, responds to Grantor inquiries regarding invoices and payments, maintains the grant budget spreadsheets, maintains the grant folder which includes all project documentation, i.e., the grant agreement, invoices and bills, subcontracts, insurance documentation, landowner access agreements. The subcontracted Project Manager, Project Technician, Timber Equipment Operator, Timber Chainsaw Operator will prepare feature designs, install log features, and manage project monitoring data and project reporting.

Materials:

A total of 10 LWD features including will be constructed by direct felling of 3 riparian trees and by importing 22 logs/roots from nearby areas. If necessary features will be anchored with 1" threaded rebar, nuts, and washers. Weed free straw mulch will be used for erosion control.

Tasks:

Task 1: Install Instream Habitat Features

Subcontractor will install instream habitat features at 10 locations including 25 pieces of large wood/root wads along 0.48 miles of Rancheria Creek. Approximately 3 pieces of the large wood will be generated by felling of live riparian conifer trees and 22 pieces of LWD will be salvaged from nearby areas. A timber operator using a rubber-tired skidder will bring salvaged logs to the project site, gather LWD from riparian banks, and position LWD following feature designs. LWD that is left unanchored will be 1.5 times the bankfull width of the project stream. If necessary features will be anchored with 1" threaded rebar, nuts, and washers.

Task 2: Erosion Control

Mulching will take place as sites are completed on all exposed soils which may deliver sediment to a stream in order to avoid unforeseen erosion.

Deliverables:

A total of 10 features will be constructed within the 0.48 mile project reach.

Timelines:

June 15, 2015 through October 31, 2015, install LWD features within approved project reach. Erosion control will be installed as project features are completed.

April 1, 2016 through May 31, 2016, conduct post-project monitoring including a longitudinal profile and two to three cross sections following one winter high flow.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Big Foot Mountain Quad and Surrounding Quads for:
HI 054 Upper Rancheria Creek Instream Habitat Enhancement Project
M T11N R12W Section 6
M T12N R12W Section 31
Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Cobb Mountain lupine *Lupinus sericatus*	PDFAB2B3J0			G2	S2	1B.2
2	Colusa layia *Layia septentrionalis*	PDAST5N0F0			G2	S2	1B.2
3	Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1			G5T1	S1	1B.2
4	Gualala roach *Lavinia symmetricus parvipinnis*	AFCJB19025			G4T1T2	S1S2	SC
5	Guggolz's harmonia *Harmonia guggolziorum*	PDAST650M0			G1	S1	1B.1
6	Koch's cord moss *Entosthodon kochii*	NBMUS2P050			G1	S1	1B.3
7	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
8	Morrison's jewelflower *Streptanthus morrisonii ssp. morrisonii*	PDBRA2G0S3			G2T2	S2	1B.2
9	Raiche's manzanita *Arctostaphylos stanfordiana ssp. raichei*	PDERI041G2			G3T2?	S2?	1B.1
10	Rincon Ridge ceanothus *Ceanothus confusus*	PDRHA04220			G1	S1	1B.1
11	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
12	The Cedars buckwheat *Eriogonum cedrorum*	PDPGN087A0			G1	S1	1B.3
13	The Cedars fairy-lantern *Calochortus raichei*	PMLIL0D1L0			G2	S2	1B.2
14	The Cedars manzanita *Arctostaphylos bakeri ssp. sublaevis*	PDERI04222		Rare	G2T2	S2	1B.2
15	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
16	Yuma myotis *Myotis yumanensis*	AMACC01020			G5	S4?	
17	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
18	beaked tracyina *Tracyina rostrata*	PDAST9D010			G1	S1	1B.2
19	bristly sedge *Carex comosa*	PMCYP032Y0			G5	S2	2B.1
20	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
21	grasshopper sparrow *Ammodramus savannarum*	ABPBXA0020			G5	S2	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
22	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
23	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
24	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G5	S3	2B.3
25	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
26	serpentine cryptantha *Cryptantha dissita*	PDBOR0A0H2			G2	S2	1B.2
27	small groundcone *Kopsiopsis hookeri*	PDORO01010			G5	S1S2	2B.3
28	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
29	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
30	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
31	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
32	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
33	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2


Upper Rancheria Creek Instream Habitat Enhancement Project
Project Location Map
T12N R12W S31
Big Foot Mountain Quad
Mendocino County
Rancheria
Downstream end of project reach
Upstream end of project reach
T12N
R13W
Project Reach
0
0.2
0.4
Miles
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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Hayworth Creek Watershed Restoration and Implementation Project – Phase 1

Introduction:

Trout Unlimited will address coho salmon recovery through road decommissioning and in-stream habitat enhancement. The project will prevent an estimated 5,648 cubic yards of future sediment delivery to the watershed by permanently decommissioning 2.9 miles of forest roads, including 1.77 miles of hydrologically connected road segments and 35 individual sediment delivery features. In addition, the project will improve Class I habitat in Hayworth Creek by installing five multiple-log habitat structures.

1. Erosion problems specifically related to forestland roads have become a threat to water quality and salmonid habitat in the Hayworth Creek watershed (CDFG, 2006). Prioritized treatment recommendations to improve salmonid habitat in the project area include treatment of sediment sources and installation of large wood habitat structures in the stream channel (CDFG, 2006; MRC Watershed Analysis). This project is necessary to implement prioritized treatments for salmonid habitat restoration.

2. The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

3. All habitat improvement will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* (Parts VII, and X).

Objectives:

1. Decommission roads, guided by the assessment.

2. Reduce sediment delivery to the Hayworth Creek stream network by decommissioning 2.9 miles of forest roads, including 1.77 miles hydrologically connected road segments and 35 individual sediment delivery features.

3. Prevent approximately 5,648 cubic yards of sediment delivery to Hayworth Creek.

4. Protect and improve instream habitat for all salmonid species, including coho salmon, within the Hayworth Creek watershed by implementing road decommissioning sediment reduction prescriptions.

5. Improve spawning and rearing salmonid habitat in Hayworth Creek by installing five multiple-log habitat structures in the stream.

Project Description:

Location:

The project is located in the Hayworth Creek watershed in Mendocino County. Hayworth Creek is a fourth order tributary to North Fork Noyo River, tributary to Noyo River, which enters the Pacific Ocean in the city of Fort Bragg. The upstream extent of the project area is located at 39.29155N, 123.28969W, and the downstream extent of the project area is located at 39.27843N, 123.30601W as shown on the Project Location Map (Attachment 1), which is attached and made part of this agreement by this reference.

Project Set Up:

Task A – Contract Oversight:

Trout Unlimited will provide all contracting oversight and administration including but not limited to obtaining permits, securing agreements (Grantor, subcontractors, and landowner), scheduling, implementation oversight, invoicing, reporting and agency and landowner communications.

Task B – Road Decommissioning Implementation:

- Heavy equipment and labor subcontractor - The heavy equipment and labor teams will provide all necessary heavy equipment, experienced operators, and skilled laborers required to complete the project as designed. This includes but may not be limited to the excavation of stream crossing fills, unstable road fills and road drainage treatments using a team of hydraulic excavators, bulldozers, and dump trucks. In addition, laborers will be used to spread straw and mulch, man and monitor pumps during any necessary dewatering operations, and maintain and monitor equipment. Laborers will also conduct seeding, tree planting and straw delivery. All heavy equipment and labor required to complete the project will be subcontracted by or to Mendocino Redwood Company (MRC).

- Geologic subcontractor (technical oversight) - On-the-ground heavy equipment implementation oversight will be conducted by the Project Manager (PM) from Pacific Watershed Associates (PWA) under the supervision of a PWA Principal and the responsible charge of a licensed California Professional Geologist (PG). Field review costs and expenses, including pre- and post-construction inspections by the Principal and (PG), are based on the number of heavy equipment hours and work weeks. They review the technical aspects of the implementation project and provide guidance for project managers and technical staff as required in complex landforms. The Principal and PG will provide quality assurance and control throughout the project, develop adaptive management procedures if necessary, review the final report and assist in budget tracking.

- The PWA Project Manager and technical staff will also develop road logs for use by equipment operators, survey selected stream crossings, take pre- and post-construction photographs and write the final report for submission to CDFW. All required information will be compiled at the end of the project in a final summary report that includes post-construction metric tables, as-built construction road logs, photo monitoring pairs of pre- and post-treatments, and as-built construction map showing the condition of the decommissioned road. Expenses include quality assurance and quality control including final report technical editing and review by the Principal and Senior Geologist (PG). Additionally, PWA GIS staff will prepare detailed maps for field use and final reporting while clerical staff will develop invoices for submittal to TU.

Task C - Instream Large Wood Placement:
The heavy equipment and labor subcontractor will provide all necessary heavy equipment, experienced operators, and skilled laborers required to install instream habitat structures. The PWA Project Manager will provide oversight of the heavy equipment and labor subcontractor. The PWA Project Manager will work with the CDFW project manager to develop final design of the structures. PWA staff will be responsible for pre- and post-installation photo documentation of the structures to be included in the final completion report (Final Report).

Materials:
Materials for this project include wood exhumed during road decommissioning work, mulch and seed, 25 cubic yards of rock armor, approximately 25 logs, approximately 600 redwood trees (*Sequoia sempervirens*), and log anchoring hardware (rebar, nuts, plates, etc.).

Tasks:
Task A – Contract Oversight
Trout Unlimited will provide all contracting oversight and administration including but not limited to obtaining permits, securing agreements (Grantor, subcontractors, and landowner), scheduling, implementation oversight, invoicing, reporting and agency and landowner communications.

Task B – Road Decommissioning Implementation
Road decommissioning work will include the following:

- Permanent decommissioning of 2.9 miles of forest roads, including 1.77 miles of hydrologically connected road segments and 35 individual sediment delivery features to prevent an estimated 5,648 cubic yards of future sediment delivery in the Hayworth Creek watershed.

- Implement project permitting, pre-construction layout, and pre-project monitoring

- Implement heavy equipment work, provide technical oversight and field reviews, including pre- and post-construction inspections

- Implement post-treatment data collection, photographic monitoring, data analysis, and reporting.

- Exhume woody debris during the road decommissioning process to be reused to create multiple-log fish habitat structures and/or to provide erosion control.

- Treatment of 21 stream crossings will involve approximately 8,565 cubic yards of excavation and will prevent an estimated 4,410 cubic yards of future related sediment delivery to local streams.

- Treatment of 3 fillslope landslide features will involve approximately 1,175 cubic yards of excavation and will prevent an estimated 326 cubic yards of future related sediment delivery to local streams. Treatments will include direct excavation, sediment removal, and proper spoils disposal.

- Treatment of 8 road surface erosion features will involve approximately 666 cubic yards of total excavation at 3 features and road outsloping at the remaining 5 features. This work will prevent an estimated 90 cubic yards of future related sediment delivery to local streams.

- Treatment of 3 bank erosion features will involve approximately 747 cubic yards of perched road or landing fill excavation and will prevent an estimated 389 cubic yards of future related sediment delivery to local streams.

- Treatment of approximately 1.77 miles of hydrologically connected road segments will include and not be limited to mechanical ripping of road surfaces, road outsloping, installation and appropriate spacing of cross-road drains, removal of perched fill and placement of surface erosion control materials. This work will prevent an estimated 433 cubic yards of future related sediment delivery to local streams (estimated for a 10 year period) by significantly reducing chronic surface erosion.

- Excavation of approximately 11,153 cubic yards of sediment at 30 different work features and road outsloping at 5 features.

- All spoil materials will be placed at stable disposal areas to prevent associated sediment delivery to local streams.

- All areas of exposed soils resulting from the project that have the potential for erosion and sediment delivery to local streams will be treated to prevent or significantly reduce such sediment delivery.

- Riparian areas temporarily disturbed by decommissioning operations will be replanted with approximately 600 redwood trees.

Task C - Instream Large Wood Placement
Installation of instream habitat structures will include the following:

- It is anticipated that large wood exhumed during road decommissioning will provide some or all of the logs necessary to construct instream habitat structures. The project budget includes 25 logs to be provided as cost share in case the salvaging of wood from road work does not provide enough material.

- The PWA Project Manager will work with the CDFW grant manager to develop final design of each structure. Installation of habitat structures will occur after final designs have been approved by the CDFW grant manager.

- Multiple-log habitat structures, each comprised of 3 to 8 logs (preferably with root wad attached), will be installed at five locations along Class I Hayworth Creek. It is anticipated that approximately 20 to 30 logs will be used in total to construct 5 habitat structures.

- Habitat structure designs may include use of anchoring materials to secure multiple logs together and to ensure structures remain in place.

- A total of 5 multiple-log habitat structures will be installed within an approximately 0.1-mile long reach of Class I Hayworth Creek.

Deliverables:
Project implementation will include decommissioning 2.9 miles of forest road (1.77 miles hydrologically connected), preventing approximately 5,648 cubic yards of fine sediment from entering the stream system by treating 35 potential future sediment delivery features, improving channel complexity (pool development/enhancement and protective cover) by installing 5 large wood structures along approximately 0.1 mile of stream channel, and planting approximately 600 redwood trees.

Prior to project completion, the Grantee will submit all progress reports, invoices and other documents that are required according to the grant.

Upon completion of the project, the Grantee will submit a written completion report which contains: 1) general grant information, 2) location of work, 3) project access, 4) participating landowners name and address, 5) a description and analysis of the restoration and planning techniques used, 6) a description of the results of the project, 7) dates of work and the number of equipment and person hours expended, 8) labeled before and after photos of selected restoration activities and techniques, 9) grant dollars spent and contributed and/or in-kind services used to complete the project and 10) GIS generated maps and shapefiles of the project area.

Timelines:

The project will be completed according to the following timeline information:

- Task A: Grantee project oversight, coordination and reporting will begin upon final execution of the grant and will continue through the life of the project – June, 2015 through March 31, 2018.

- Task B: Implementation of road decommissioning work will occur from June 1 through October 31 during 2015, 2016 and 2017.

- Task C: Installation of instream habitat structures will occur from June 1 through October 31 during 2015, 2016 and 2017.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.

- The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.

- All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

- The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.

- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

4. All road decommissioning will be done in accordance with techniques described in the Handbook for Forest and Ranch Roads, (PWA, 1994c.) and the *California Salmonid Stream Habitat Restoration Manual*, Volume II, Part X. All road upgrade and decommissioning sites and techniques shall be approved by the Grantor Project Manager before any equipment work takes place.

5. All crossings treated in fish bearing reaches of streams will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and the criteria for adult and juvenile salmonid fish passage as described in Volume II, Part IX of the *California Salmonid Stream Habitat Restoration Manual*.

6. Seeding and mulching of all exposed soils shall be done for all slopes which may deliver sediment to a stream. Woody debris will be concentrated on finished slopes adjacent to stream crossings. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. Mulching and seeding will take place as sites are completed to avoid unforeseen erosion. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

7. Sites which are expected to erode and deliver sediment to the stream are the only locations where work will be authorized for reimbursement under the terms of this agreement. Reimbursement will not be authorized for work done to improve aesthetics only.

8. The landowner or responsible party must sign an access agreement stating they agree to maintain the erosion control project for a period of not less than 10 years. Maintenance will consist of repair to the road or stream crossing to a level that will effectively reduce sediment from entering the stream. In the event of an act of nature which results in partial or complete failure of the project, the landowner or applicant will not be held responsible for costs incurred after the act of nature. Acts of nature include, but are not limited to floods, earthquakes, volcanic eruptions, and wind storms.

9. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Northspur and Burbeck Quads and Surrounding Quads for:
HU 067 Hayworth Creek Watershed Restoration and Implementation Project, Phase I
T18N R15W Sections 22, 23, 24, 25, 26, 27
Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S3	SC
2	Baker's meadowfoam *Limnanthes bakeri*	PDLIM02020		Rare	G1	S1	1B.1
3	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
4	Behren's silverspot butterfly *Speyeria zerene behrensii*	IILEPJ6088	Endangered		G5T1	S1	
5	Bolander's beach pine *Pinus contorta ssp. bolanderi*	PGPIN04081			G5T2	S2	1B.2
6	California sedge *Carex californica*	PMCYP032D0			G5	S2?	2B.3
7	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
8	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
9	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
10	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
11	Mendocino Pygmy Cypress Forest	CTT83161CA			G2	S2.1	
12	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
13	Milo Baker's lupine *Lupinus milo-bakeri*	PDFAB2B4E0		Threatened	G1Q	S1	1B.1
14	Monterey clover *Trifolium trichocalyx*	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
15	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
16	Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080			G5	S2S3	2B.2
17	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
18	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
19	Pacific lamprey *Entosphenus tridentatus*	AFBAA02100			G4	S4	
20	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
21	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
22	Roderick's fritillary *Fritillaria roderickii*	PMLIL0V0M0		Endangered	G1Q	S1	1B.1
23	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Sphagnum Bog	CTT51110CA			G3	S1.2	
25	Valley Oak Woodland	CTT71130CA			G3	S2.1	
26	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
27	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
28	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
29	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
30	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
31	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
32	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
33	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
34	glandular western flax *Hesperolinon adenophyllum*	PDLIN01010			G3	S3	1B.2
35	grass alisma *Alisma gramineum*	PMALI01010			G5	S1S2	2B.2
36	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
37	lagoon sedge *Carex lenticularis var. limnophila*	PMCYP037A7			G5T5	S1	2B.2
38	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
39	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
40	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
41	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
42	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
43	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
44	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
45	pygmy cypress *Hesperocyparis pygmaea*	PGCUP04032			G2	S2	1B.2

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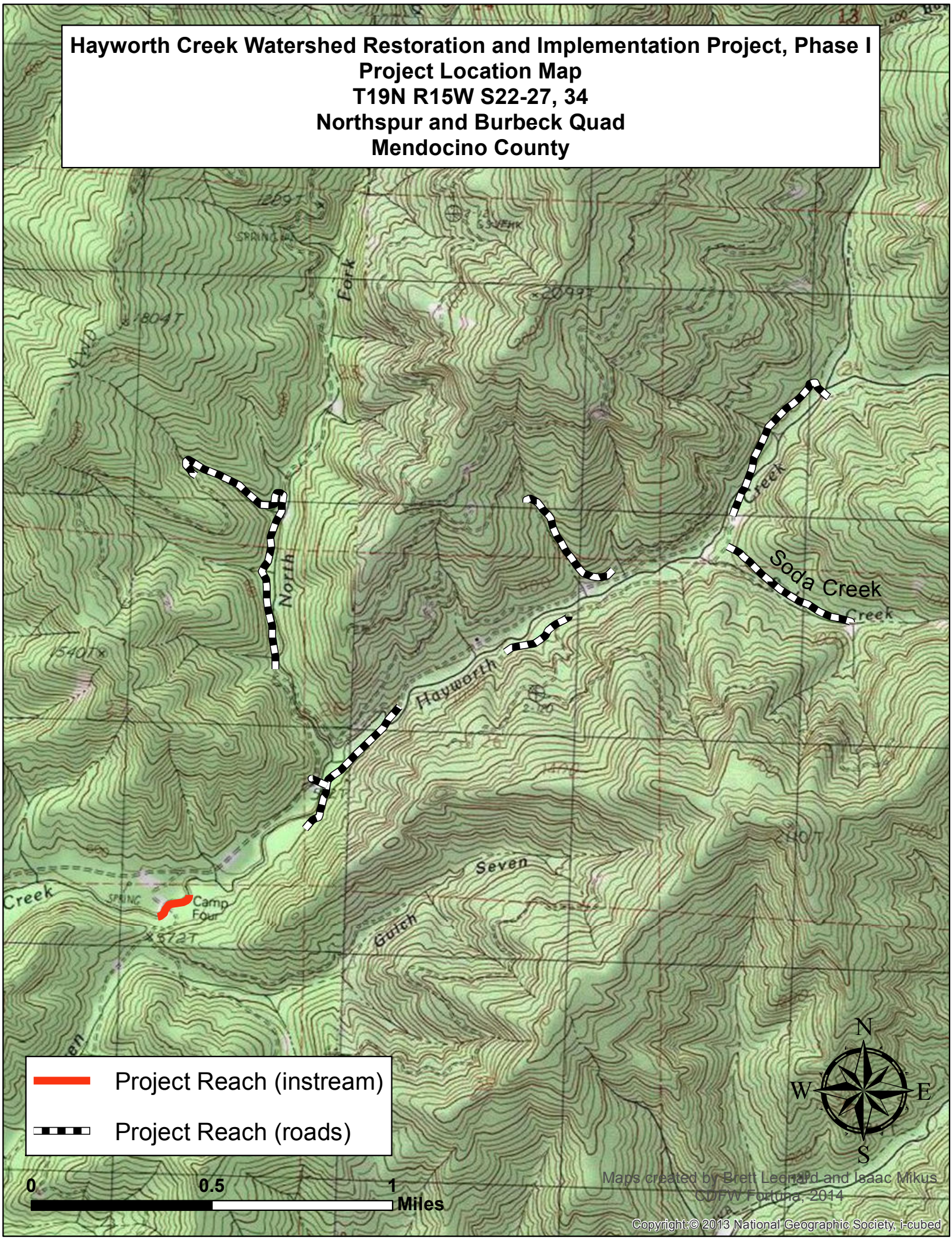
T18N R15W Sections 22, 23, 24, 25, 26, 27
Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46	pygmy manzanita *Arctostaphylos nummularia ssp. mendocinoensis*	PDERI04280			G3?T1	S1	1B.2
47	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
48	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
49	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S3	
50	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
51	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
52	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
53	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
54	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
55	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
56	watershield *Brasenia schreberi*	PDCAB01010			G5	S2	2B.3
57	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
58	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
59	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
60	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
61	yellow warbler *Setophaga petechia*	ABPBX03010			G5	S3S4	SC
62	yellow-breasted chat *Icteria virens*	ABPBX24010			G5	S3	SC

Hayworth Creek Watershed Restoration and Implementation Project, Phase I
Project Location Map
T19N R15W S22-27, 34
Northspur and Burbeck Quad
Mendocino County



Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014

Manly Gulch Coho Access and Habitat Restoration Project

Introduction:

Trout Unlimited's North Coast Coho Project will implement the Manly Gulch Coho Access and Habitat Restoration Project. Salmonid access to an estimated 4,000 feet of potential salmonid spawning and rearing habitat in the upstream reaches of Manly Gulch is blocked by the knickpoint at its confluence with Rocky Gulch, sediment aggradation, shallow flows and frequent subsurface flow conditions, and lack of pools within lower reach of the Manly Gulch. Annually, juvenile coho and steelhead are observed stranded in drying pools in the aggraded reaches and in the road ditch that conveys Manly Gulch into Rocky Gulch. These conditions allow the project area to be classified as a RED (100%) barrier for both adult and juvenile salmonid ingress and egress to and from Manly Gulch.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. All habitat restoration improvements will follow techniques in the California Salmonid Stream Habitat Restoration Manual, Part VII, IX, X, XI, and XII. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

The specific objective will consist of restoration and realignment of 600 feet of Manly Gulch, a tributary to the Little North Fork of the Big River (LNF Big), to connect Manly Gulch directly to the LNF Big and will contain a 70-foot long backwater alcove and 530 feet of large-wood controlled channel with gravel riffles, pools and large wood cover structure. The project will also include installation of a new bridge crossing over Manly Gulch where it crosses State Park Road. Realignment of Manly Gulch will eliminate annually observed juvenile coho and steelhead stranding within Manly Gulch due its undefined nature causing sediment aggradation and sheet flow through parking areas and the floodplain during even small flow events. The project will provide off-channel high-flow refugia for juvenile salmonids during elevated flows in the LNF Big; and provide access for both juvenile and adult salmonids to over 4,000 feet of spawning and rearing habitat in the upper reaches of Manly Gulch. The direct connection between Manly Gulch to the LNF Big will also improve both flow conveyance and sediment transport continuity within Manly Gulch from upstream of the project area to the LNF Big, thus improving fisheries access and habitat, geomorphic function, and reducing risk of fish stranding.

Project Description:

Location:

The Grantee will conduct work along a section of Manly Gulch beginning at a

newly constructed confluence with LNF Big River and extending and continuing upstream for 600 feet. The location center point of the project is approximately 39.3350º north latitude and 123.7005º west longitude as depicted in the Project Location Map.

Project Set Up:

Project Manager and Project Coordinator will provide all contracting oversight and administration including but not limited to obtaining permits, securing contracts (grantors, subcontractors, landowner), select materials purchasing, scheduling, implementation oversight, invoicing, reporting and agency and landowner communications.

Subcontractor Michael Love & Associates, Inc. (MLA) will coordinate the preparation of the Draft Final 90% and Final 100% Design Plans, serve as the Construction Manager for the project, and will also perform construction stakeout, provide post-construction as-built documentation and conduct stream simulation based fish passage monitoring.

Subcontractor Quincy Engineering will complete the preparation of the 90% and Final 100% design plans for the bridge, Camp Road improvements, water line relocations, and coordinate with PG&E regarding the electric line relocation. During implementation, Quincy Engineering will performed construction observation and inspection for the construction of the bridge and the roadway.

Subcontractor Taber Consultants, Inc., geotechnical engineer, will review the completed spread footing foundation excavations at each abutment to confirm anticipated materials and conditions.

Subcontractor PG&E will design and perform the electric line relocation necessary for the project.

Subcontractor heavy equipment operators will be responsible for mobilization, construction access, erosion and sediment control, water management and dewatering, furnishing materials, construction work and material testing.

Materials:

Approximately 67 tons of rock, 15 log features including 35 pieces of large woody debris (LWD) will be constructed and anchored with 1” threaded rebar, nuts, washers, 5/8” galvanized cable, cable clamps, and waterproof epoxy glue. Approximately 110 cubic yards of salvaged gravel, 110 tons of road gravel, 101 tons of Class 2 aggregate base, 135 tons of structural backfill for bridge, 96’ of 4” plastic pipe PR-315 supply line, 28 cubic yards of concrete, 57’ of 8” weld steel pipe, 46 tons of RSP and Light Method B, Class Fabric, one bridge and railing, and an interpretive sign.

Tasks:

Task 1: Project Management and Meetings

MLA will perform project management, including preparation of invoices and progress reports to be submitted to Trout Unlimited during the course of the project, project scheduling, coordination with the project team members and project partners, and performing QA/QC.

MLA will attend up to one on-site meeting and two conference call meetings prior to project implementation. Meetings related to contractor selection and implementation are included in Tasks 4 and 5. It is anticipated that the pre-implementation meetings will be as follows:

- 65% Design Review Meeting: MLA will attend a field-based 65% Review meeting with CDFW, NMFS, California Department of Parks and Recreation, the Park vendor (Mendocino Woodlands), Trout Unlimited, other relevant agency representatives, and other stakeholders. MLA will present the 65% design and answer questions. The goal of the meeting is to ensure that the design meets project objectives and stakeholder concerns are addressed before commencement of the 90% design. Written comments will be accepted following the meeting. The design review meeting will take place at the project site. Trout Unlimited will arrange the meeting to ensure the appropriate stakeholders are invited and will prepare meeting notes.

- Additional Conference Call Meetings: Up to two additional meetings via conference call are included to be used as needed for items such as 90% review questions or agency comments. These meetings are assumed to be up to 2 hours each in length. Trout Unlimited will arrange the meeting to ensure the appropriate stakeholders are invited and will provide meeting notes.

- Cultural Resource Protection: Trout Unlimited will coordinate with CA State Parks archeologist to determine location and identification of cultural resources to protect. These protection measures will be incorporated into the 90% and 100% designs.

Task 2: Draft (90%) Submittal:

MLA and Quincy Engineering will prepare draft (90%) design plans, notes, and engineering cost estimate. Minor changes to the design will be incorporated into the 90% submittal based on comments received on the 65% submittal. The technical specifications will be placed as notes on sheets within the plan set or as a separate document. The intent of the 90% submittal is to provide a complete set of construction documents that require only minor changes for the final submittal. The 90% and Final plans will include:

- Title sheet
- Legend, symbols, and abbreviation sheet 13
- General Notes
- Erosion and Sediment Control Notes
- Sequence of Construction
- Water Management Plan
- Existing and proposed condition plan view showing limits of proposed grading and in-stream structure locations
- Stationed profile showing existing ground, annotated proposed centerline, replacement crossing location, elevations and locations of channel structures
- Typical proposed cross sections with dimensions
- Construction details and material specifications
- Replacement crossing detailed sections showing the roadway profile, foundation details, and materials and compaction requirements for construction
- Technical Specifications as notes on the sheets

The opinion of probable construction cost (OPCC) will be updated. It is assumed that a SWPPP and monitoring will not be required for the project.

Task 3: Final Plan (100%) Submittal:
MLA and Quincy Engineering will prepare Final 100% Design Plans. The 100% submittal will include plans sealed and signed by a California Registered Professional Engineer. The 100% submittal will address minor comments received from the 90% Draft Plan review. An engineer's estimate of probable construction costs will be provided as part of the 100% submittal.

Task 4: Contractor Selection Process
Trout Unlimited will select qualified contractors based upon their procurement of services policy. MLA will assist Trout Unlimited with preparing contract

documents and selection of a contractor. This task includes attending up to two meetings prior to selecting to coordinate project timing and preparation of contract documents. MLA will attend one on-site pre-selection meeting to describe the project to prospective contractors, and prepare a response to questions, necessary addendums, review of budgets, and checking of references.

Task 5: Construction Oversight and Support
Trout Unlimited will contract with a qualified heavy equipment contractor and will and perform periodic site visits to determine project progress.

A MLA Engineer will serve as the Project Manager for the day-to-day operations during implementation. The Project Manager will administer the project in the field to track labor and equipment usage, ensure timeliness, completion, conformance with the design plans and specifications, ensuring that impacts to environmental resources are minimized. The Project Manager will also maintain a set of red-line markups of the design plans to document any changes in the plans due to field conditions.

MLA staff will provide oversight of the stream restoration portion of the project construction including oversight of excavation and compaction to shape the stream channel, installation of the rock and large wood structures, and grade checks to verify constructed elevations. MLA staff will also provide construction stakeout. The stakeout will include establishment of elevation control, placement of stakes to denote the location and stationing of the proposed centerline of the stream channel and crossing. Once staking is complete, it will be the obligation of the contractor to maintain the stake locations and to determine locations of non-staked items.

Quincy Engineering will perform construction observation and inspection services related to the project at the direction of MLA. Quincy will provide qualified staff to perform the following tasks:

- Structural shop drawing review
- Concrete mix design review is assumed
- Observations of footing and abutment rebar placement and concrete pour
- Verify delivered bridge components
- Observe concrete deck pan, rebar, and deck concrete placement
- Verify railing dimensions and connections
- Make final inspection for consistency with project PG&E

The project geotechnical engineer from Taber Consultants will perform a field-review of the completed spread footing foundation excavations at each abutment to confirm anticipated materials and conditions. A summary report will be submitted summarizing observations, supplemental recommendations and other

relevant details. The summary report will also provide a professional opinion regarding the encountered foundation materials with respect to the recommendations contained within the Foundation Report completed by this office.

MLA will schedule and attend one construction kickoff meeting. MLA will lead weekly construction progress meetings, and Quincy Engineering and Taber Consultants will attend as necessary.

PG&E will design and perform the electric line relocation necessary for the project, but will charge the project for the work. A line-item for PG&E costs and line-items for materials are included in the budget in Section 5 for this task.

It is expected that construction may take approximately 8 weeks.

Task 6. Post-Construction Implementation Monitoring:
As-Built Survey
MLA will prepare an as-built survey of critical constructed project elevations. The survey will include constructed channel longitudinal profile and up to 4 cross sections. The survey will be performed on the same datum as the design plans. The as-built survey will also include a red-line markup of the construction documents with any changes that occurred during construction.

A brief As-Built Memorandum will be prepared that provides a discussion of any differences between the construction documents and the as-built survey and potential concerns arising from the difference.

Post-Construction Fish Passage Monitoring
The project was designed using stable reference reaches and stream simulation methodologies (Part XII, CDFG, 2010). Post-construction monitoring will be conducted at two different flows during the fall/winter following construction to evaluate if the project flow depths and velocities are similar to the adjacent existing channel, per stream simulation guidelines.

To obtain flow depths, a channel thalweg and water surface profile will be surveyed through the project reach, including through the new bridge, as well as at one reference reach location. Flow velocities will be obtained with a wading-rod velocity meter approved by the USGS.

Collected data will be used to compare water depths and velocities to those measured in the reference reach. The evaluation will be documented in a brief Monitoring Memorandum.

Task 7. Interpretive Panel Design and Installation:

Trout Unlimited with work with project partners to design an interpretive panel to be installed at Mendocino Woodlands. Visitors to the park can learn about the significance of coho salmon in Big River and the local restoration efforts in Big River, particularly the Manly Gulch Coho Access and Habitat Restoration Project.

Task 8. Final Report Production and Submittal:
Upon completion of the project, Trout Unlimited will photograph the constructed project and develop a written final completion report for submission to CDFW. The final report will contain: 1) general grant information, 2) location of work, 3) project access, 4) participating landowners names and addresses, 5) a description and analysis of the restoration and planning techniques used, 6) a description of the results of the project, 7) dates of work and the number of person hours expended, 8) labeled before and after photos of selected restoration activities and techniques, and 9) grant dollars spent and contributed and/or in-kind services used to complete the project.

CA State Parks in Mendocino County are considered potential critical habitat for Marbled murrelet though recent surveys indicate no presence in the project area. At time of proposal submittal, it is assumed Marbled Murrelets are not present at the project site (pers. comm., Renee Pasquinelli, March 2014). Trout Unlimited with coordinate with CA State Parks on additional research to determine status, if needed.

If further research and surveying indicates need for protection measures, Trout Unlimited will assist in the coordination of project partners and pertinent agency representatives to address presence and protection, which would likely limit construction to September 15th through October 31st.

There is a known North Spotted Owl (NSO) nesting center in the Mendocino Woodlands State Park area. Nonhabitat altering activities (including road reconstructions) may be allowed after July 9. However, no trees of 8" dbh or larger may be felled within 1000' of active NSO sites.

Deliverables:
Task 1 Deliverables: Any invoices, progress reports, outreach materials, required as part of the CDFW agreement.

Task 2 Deliverables: 90% Plans and Engineer's estimate (11"x17" size) in PDF Format

Task 3 Deliverables: 100% Final Plan Set. Eight (8) full size (22"x34") hard copy plan sets stamped and signed by a California Licensed Engineer and six (6) half size (11"x17") hard copies (unsigned). Digital PDF format copies of the 100% full size (scanned signed version) and half size plan sets. Digital PDF format of the

final engineer's estimate of probable construction cost

Task 6 Deliverables: As-Built Survey and Memorandum in digital PDF format and hard copy (3). Monitoring Memorandum in digital PDF format and hard copy (3)

Task 7 Deliverables: Copy of materials generated for interpretive panel.

Task 8 Deliverables: Final Report

Timelines:

Task 1. Project Management and Meetings: MLA project management will occur throughout the life of the project. Reviews of 65% designs will occur in the months following the NTP.

Task 2. Draft (90%) Submittal: 90% plans produced by October 31, 2015.

Task 3. Final Plan (100%) Submittal: 100% plans produced by February 28, 2015.

Task 4. Contractor Selection Process: April 30, 2016

Task 5. Construction Oversight and Support: Construction will occur between July 1 through October 31, 2016 and is expected to take 8 weeks.

Task 6. Post-Construction Implementation Monitoring: Monitoring will begin upon completion of construction.

- As-Built Memorandum by December 31, 2016
- Monitoring Memorandum by July 30, 2017

Task 7. Interpretive Panel Design and Installation: November 1, 2017

Task 8. Final Report Completion and Submittal: Final report will be submitted to CDFW by March 31, 2018.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow

diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

- Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
- The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
- All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
- The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.
- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. The bridge design and installation will meet flow carrying capacity required for a 100-year flood event as identified by specifications determined by National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Wildlife (CDFW), for adult and juvenile salmonid fish passage. The project will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and criteria for fish passage as described in Volume II, Part IX, of the *California Salmonid Stream Habitat Restoration Manual*. The engineered plans for the bridge (culvert) installation shall be visually reviewed and authorized by NOAA Fisheries or California Department of Fish and Wildlife engineers prior to commencement of work.

4. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*, Volume I, and Volume II Part XI and Part XII. The Grantee/landowner will maintain the new crossing, inspect the crossing in a timely manner and remove debris as necessary during the storm season.

5. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

6. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

7. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Mathison Peak Quad and Surrounding Quads for:
FP 068 Manly Gulch Coho Access and Habitat Restoration Project
M T17N R17W Section 13
Mendocino County

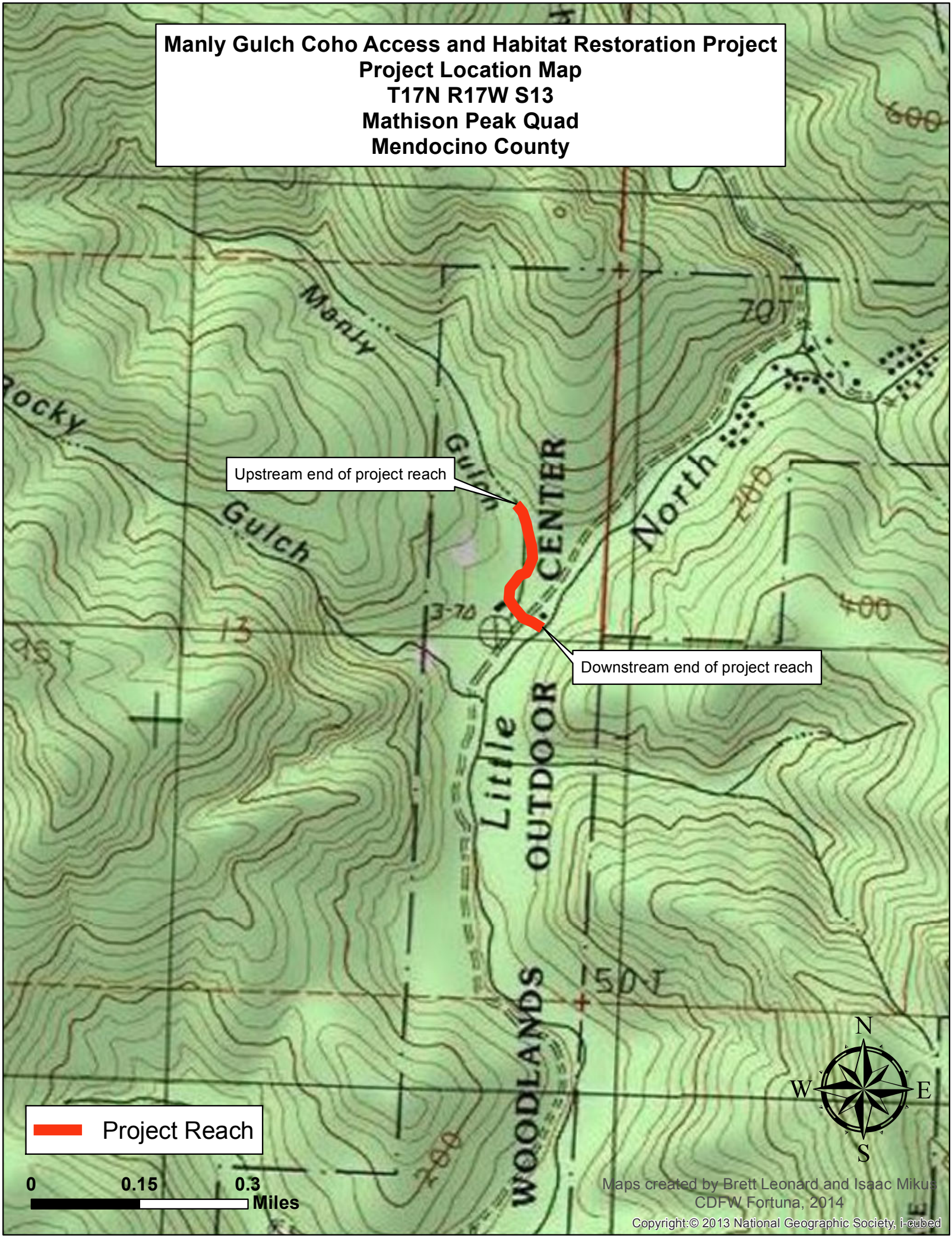
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Baker's goldfields *Lasthenia californica ssp. bakeri*	PDAST5L0C4			G3TH	SH	1B.2
2	Behren's silverspot butterfly *Speyeria zerene behrensii*	IILEPJ6088	Endangered		G5T1	S1	
3	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
4	Bolander's beach pine *Pinus contorta ssp. bolanderi*	PGPIN04081			G5T2	S2	1B.2
5	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
6	California sedge *Carex californica*	PMCYP032D0			G5	S2?	2B.3
7	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
8	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
9	Grand Fir Forest	CTT82120CA			G1	S1.1	
10	Howell's spineflower *Chorizanthe howellii*	PDPGN040C0	Endangered	Threatened	G1	S1	1B.2
11	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
12	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
13	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
14	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
15	Mendocino Pygmy Cypress Forest	CTT83161CA			G2	S2.1	
16	Mendocino dodder *Cuscuta pacifica var. papillata*	PDCUS011A2			G5T1	S1	1B.2
17	Mendocino leptonetid spider *Calileptoneta wapiti*	ILARAU6040			G1	S1	
18	Menzies' wallflower *Erysimum menziesii*	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
19	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
20	Monterey clover *Trifolium trichocalyx*	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
21	Navarro roach *Lavinia symmetricus navarroensis*	AFCJB19023			G4T1T2	S1S2	SC
22	North Coast phacelia *Phacelia insularis var. continentis*	PDHYD0C2B1			G2T1	S1	1B.2
23	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
25	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
26	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
27	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
28	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
29	Point Reyes blennosperma *Blennosperma nanum var. robustum*	PDAST1A022		Rare	G4T2	S2	1B.2
30	Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012			G5T2	S2	1B.2
31	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
32	Pomo bronze shoulderband *Helminthoglypta arrosa pomoensis*	IMGASC2033			G2G3T1	S1	
33	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
34	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
35	Sphagnum Bog	CTT51110CA			G3	S1.2	
36	Ten Mile shoulderband *Noyo intersessa*	IMGASC5070			G2	S2	
37	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
38	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
39	alpine marsh violet *Viola palustris*	PDVIO041G0			G5	S1S2	2B.2
40	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
41	ashy storm-petrel *Oceanodroma homochroa*	ABNDC04030			G2	S2	SC
42	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
43	bunchberry *Cornus canadensis*	PDCOR01040			G5	S2	2B.2
44	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
45	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46	coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2			G4T2T3	S2S3	1B.2
47	coastal triquetrella *Triquetrella californica*	NBMUS7S010			G1	S1	1B.2
48	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
49	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
50	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
51	dwarf alkali grass *Puccinellia pumila*	PMPOA531L0			G4?	SH	2B.2
52	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
53	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	
54	great burnet *Sanguisorba officinalis*	PDROS1L060			G5?	S2	2B.2
55	hair-leaved rush *Juncus supiniformis*	PMJUN012R0			G5	S1	2B.2
56	lagoon sedge *Carex lenticularis var. limnophila*	PMCYP037A7			G5T5	S1	2B.2
57	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
58	livid sedge *Carex livida*	PMCYP037L0			G5	SH	2A
59	lotis blue butterfly *Plebejus idas lotis*	IILEPG5013	Endangered		G5TH	SH	
60	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
61	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
62	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
63	northern microseris *Microseris borealis*	PDAST6E030			G5	S1	2B.1
64	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
65	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
66	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
67	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
68	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
69	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
70	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T1	S1	1B.2
71	pygmy cypress *Hesperocyparis pygmaea*	PGCUP04032			G2	S2	1B.2
72	pygmy manzanita *Arctostaphylos nummularia ssp. mendocinoensis*	PDERI04280			G3?T1	S1	1B.2
73	round-headed Chinese-houses *Collinsia corymbosa*	PDSCR0H060			G1	S1	1B.2
74	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
75	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
76	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
77	small groundcone *Kopsiopsis hookeri*	PDORO01010			G5	S1S2	2B.3
78	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
79	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
80	supple daisy *Erigeron supplex*	PDAST3M3Z0			G2	S2	1B.2
81	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
82	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
83	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
84	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S2	SC
85	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
86	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
87	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
88	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
89	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	


Manly Gulch Coho Access and Habitat Restoration Project
Project Location Map
T17N R17W S13
Mathison Peak Quad
Mendocino County
Upstream end of project reach
Downstream end of project reach
Manly
Gulch
Rocky
Gulch
CENTER
North
Little
OUTDOOR
WOODLANDS
13
600
700
400
500
Project Reach
0
0.15
0.3
Miles
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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Upper Jack of Hearts Creek Coho Habitat Restoration Project

Introduction:

Trout Unlimited's North Coast Coho Project will implement the Upper Jack of Hearts Creek Coho Habitat Restoration Project. The purpose of the project is to improve instream habitat by treating sediment sources, by removing a fish passage barrier, and by installing large woody debris (LWD) in the Jack of Hearts Creek watershed. The project is necessary because there is a potential for catastrophic failure of a large instream barrier that limits migration for all life stages of salmonids and other aquatic species. Salmonid recovery plans recommend decreasing sediment input to the river by reducing road densities and treating sediment sources, and increasing stream habitat complexity by installing large woody material.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor. All habitat restoration improvements will follow techniques in the *California Salmonid Stream Habitat Restoration Manual*, Parts VII, IX, X, XI, and XII (Flosi et al 1998 and 2002).

Objective(s):

The specific objective of this project is to treat 0.35 miles of road at 4 stream crossings. The project will treat 4 current and potential sediment delivery features on approximately 15 acres of upslope area. Implementation of the project will prevent 1,295 cubic yards of road-related sediment from entering the Jack of Hearts Creek watershed and improve passage to all life stages of salmonids. Passage improvements will allow access to 1,160 feet of Class I channel.

This project will create 19 instream features within 0.1 miles of Jack of Hearts Creek, consisting of 35 pieces of LWD. The addition of these structures will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels, increasing the quality and quantity of rearing habitat within the project reach, and by providing velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids.

Project Description:

Location:

The Grantee will conduct work along a section of Jack of Hearts Creek at approximately 3 miles upstream from the confluence with South Fork Eel River. The location of the project is approximately 39.7150º north latitude, 123.6872º west longitude at the center point as depicted in the Project Location Map.

Project Set Up:

Grantee Project Manager for the North Coast Coho Project will coordinate the project and will provide all contracting oversight and administration including but not limited to obtaining permits, contracting, scheduling, invoicing, reporting and agency and landowner communications.

The subcontracted Engineering team (Principal Engineer, Engineering Geomorphologist, Project Engineer, and Staff Engineer) will support TU and PWA with contractor selection, project implementation and will perform a post-construction as-built topographic survey and post-construction fish passage monitoring for the removal of the Walton Woods pond embankment and channel restoration.

The subcontracted Pacific Watershed Associates team (Principal Earth Scientist, GIS Staff, and Clerical Staff) will provide TU with assistance in bid document development and heavy equipment contractor selection, technical oversight of contractor activities during construction, pre and post-construction photographic monitoring, evaluation and selection of earthen embankment construction materials, purchase of rock and culvert materials, and conduct summary reporting pursuant to FRGP contract deliverables.

Materials:

A total of 19 instream features including 35 pieces of LWD will be installed in Jack of Hearts Creek. One 96" diameter x 36 foot long culvert, 35 tons of rock armor and 40 tons of road rock will be used in the upgrade and decommission of roads. Approximately 80 native trees, 280 native shrubs will be planted, and 3,000 square yards of seed and mulch will be used as erosion control ground cover.

Tasks:

Task 1: Project Management

The Trout Unlimited Project Manager and/or Project Coordinator will provide all contracting oversight and administration including but not limited to obtaining permits, securing contracts (grantors, subcontractors, landowners), scheduling, implementation oversight, invoicing, reporting

and agency and landowner communications. This task will occur throughout the life of the project.

MLA will coordinate staff and prepare invoices and progress reports to be submitted to TU during the course of the project.

PWA Project Manager will prepare invoices for PWA services and expenses. All reporting and billing will be pursuant to contract and regulatory guidelines.

Task 2: Contractor Selection

TU will select qualified contractors based upon their work experience and qualifications. MLA and PWA will assist TU with the selecting a qualified contractor. This task includes attending one telephone conference call meeting where contractor specifications and requirements will be addressed.

MLA and PWA will attend one on-site consultation meeting organized by TU to describe the stream-channel component of the project to prospective contractors, and prepare a response to stream-related questions.

PWA will also describe the road upgrading component (sites #30-32) to prospective contractors. PWA Project manager and Principal will work with MLA to assist TU in the evaluation of contractor's experience and equipment, and selection of the contractor. TU will contract with a qualified heavy equipment contractor and coordinate construction of the project.

Task 3: Construction Oversight and Support

MLA will provide construction stakeout for the project. The stakeout will include establishment of elevation control and placement of stakes to denote the location and stationing of the proposed centerline of the stream channel. Once staking is complete, it will be the obligation of the contractor to maintain the stake locations and to determine locations of non-staked items. PWA Project Manager and Technical Staff will layout Sites #30-32 for implementation and define the stockpile location for the contractor at Site #33 utilizing flagging and/or paint.

MLA will perform part-time oversight during the implementation phase to oversee grading operations and large wood structure placement in the restored channel.

PWA Project Manager, Principal, and Technical Staff will coordinate to provide daily construction operations management and oversight to ensure timeliness, completion, and conformance with restoration and land

management goals of TU, the landowner, the project, and to resolve contractual issues. PWA Project Manager and Principal will evaluate and select suitable salvaged backfill material for streambank and floodplain construction, and ensure the materials are compacted to design standards. PWA Project Manager will order and schedule for delivery project culvert and rock materials. PWA Project Manager and Technical Staff will oversee materials stockpiling and evaluate and maintain the effectiveness of erosion control efforts throughout construction. During the course of construction, MLA will check the constructed grades of the restored channel and be available to clarify the intent of the design plans, when necessary.

The project team will schedule and attend one construction kickoff meeting and up to five weekly construction progress meetings. During those meetings, MLA and PWA will be available to make recommendations for addressing unforeseen conditions that arise and for make field changes, if necessary. It is expected that earthen embankment decommissioning and channel restoration at Site #33 may take approximately 5 weeks. Implementation of Sites #30 – 32 will take approximately 3 days. Approximately 600 gallons of gasoline and 2,300 gallons of diesel will be used during construction implementation.

As-Built Survey
MLA will prepare as-built drawings using the construction drawings with red-line mark-ups of the construction documents of any changes that occurred during construction. Final elevations of the channel, if they differ from the design drawings, will be noted on the as-built drawings.

Task 4: Summary Reporting

MLA will prepare a brief As-Built Memorandum that provides a discussion of any differences between the construction documents and the as-built project and potential concerns arising from the difference.

PWA Project Manager and Technical Staff will prepare a final summary report detailing project accomplishments, containing pre- and post-construction photographic documentation, and all summary reporting metrics required by the FRGP contract. The MLA As-Built Memorandum and as-built drawings will be included in the final summary report. PWA Principal will be responsible for final editing of the summary report.

Deliverables:

Treat 0.35 miles of road thereby saving 1,295 Jack of Hearts Creek watershed. The project will treat 15 acres of upslope area including 3 stream crossings upgrades and one crossing decommission. The removal of one instream barrier

will allow access for all life stages of salmonids to approximately 1,160 feet of Class I channel.

This project will create 19 instream features within 0.1 miles of Jack of Hearts Creek, consisting of 35 pieces of LWD.

Timelines:

Task 1: TU, MLA, and PWA's project management and coordination will begin once award contract is finalized and continue through the life of the project – grant award date in May through March 31, 2016.

Task 2: Contractor selection will take place between May and June 2015.

Task 3: Project construction will take place between June 15, 2015 and October 31, 2015.

Task 4: Summary reporting tasks will take place between October 2015 and March 31, 2016.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and oversee the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:
    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
    - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service,

Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

- The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.

- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the California Salmonid Stream Habitat Restoration Manual.

3. The culvert design and installation will meet flow carrying capacity required for a 100-year flood event as identified by specifications determined by National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Wildlife (CDFW), for adult and juvenile salmonid fish passage. The project will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and criteria for fish passage as described in Volume II, Part IX, of the California Salmonid Stream Habitat Restoration Manual. The engineered plans for the bridge (culvert) installation shall be visually reviewed and authorized by NOAA Fisheries or California Department of Fish and Wildlife engineers prior to commencement of work.

4. All habitat improvements will follow techniques described in the California Salmonid Stream Habitat Restoration Manual, Volume I, and Volume II Part XI and Part XII. The Grantee/landowner will maintain the new crossing, inspect the crossing in a timely manner and remove debris as necessary during the storm season.

5. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the California Salmonid Stream Habitat Restoration Manual.

6. All road decommissioning will be done in accordance with techniques described in the Handbook for Forest and Ranch Roads, (PWA, 1994c.) and the California Salmonid Stream Habitat Restoration Manual, Volume II, Part X. All road upgrade and decommissioning sites and techniques shall be approved by the Grantor Project Manager before any equipment work takes place.

7. All crossings treated in fish bearing reaches of streams will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at

Stream Crossings and the criteria for adult and juvenile salmonid fish passage as described in Volume II, Part IX of the California Salmonid Stream Habitat Restoration Manual.

8. Seeding and mulching of all exposed soils shall be done for all slopes which may deliver sediment to a stream. Woody debris will be concentrated on finished slopes adjacent to stream crossings. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. Mulching and seeding will take place as sites are completed to avoid unforeseen erosion. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

9. Sites which are expected to erode and deliver sediment to the stream are the only locations where work will be authorized for reimbursement under the terms of this agreement. Reimbursement will not be authorized for work done to improve aesthetics only.

10. The landowner or responsible party must sign an access agreement stating they agree to maintain the erosion control project for a period of not less than 10 years. Maintenance will consist of repair to the road or stream crossing to a level that will effectively reduce sediment from entering the stream. In the event of an act of nature which results in partial or complete failure of the project, the landowner or applicant will not be held responsible for costs incurred after the act of nature. Acts of nature include, but are not limited to floods, earthquakes, volcanic eruptions, and wind storms.

11. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Lincoln Ridge Quad and Surrounding Quads for:
HU 072 Upper Jack of Hearts Creek Coho Habitat Restoration Project
T22N, R13W Section 31
Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S3	SC
2	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
3	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
4	California floater *Anodonta californiensis*	IMBIV04020			G3Q	S2?	
5	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
6	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
7	Fen	CTT51200CA			G2	S1.2	
8	Grand Fir Forest	CTT82120CA			G1	S1.1	
9	Howell's spineflower *Chorizanthe howellii*	PDPGN040C0	Endangered	Threatened	G1	S1	1B.2
10	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
11	Kellogg's buckwheat *Eriogonum kelloggii*	PDPGN083A0	Candidate	Endangered	G2	S2	1B.2
12	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
13	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
14	Menzies' wallflower *Erysimum menziesii*	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
15	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
16	North Central Coast Fall-Run Steelhead Stream	CARA2631CA			GNR	SNR	
17	North Coast phacelia *Phacelia insularis var. continentis*	PDHYD0C2B1			G2T1	S1	1B.2
18	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
19	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
20	Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080			G5	S2S3	2B.2
21	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
22	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
23	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
24	Pacific lamprey *Entosphenus tridentatus*	AFBAA02100			G4	S4	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
26	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
27	Raiche's manzanita *Arctostaphylos stanfordiana ssp. raichei*	PDERI041G2			G3T2?	S2?	1B.1
28	Red Mountain catchfly *Silene campanulata ssp. campanulata*	PDCAR0U0A2		Endangered	G5T3Q	S3	4.2
29	Sonoma canescent manzanita *Arctostaphylos canescens ssp. sonomensis*	PDERI04066			G3G4T2	S2	1B.2
30	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
31	Ten Mile shoulderband *Noyo intersessa*	IMGASC5070			G2	S2	
32	Thurber's reed grass *Calamagrostis crassiglumis*	PMPOA17070			G3Q	S2?	2B.1
33	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
34	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
35	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
36	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G1	S1	1B.1
37	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
38	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
39	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
40	coastal triquetrella *Triquetrella californica*	NBMUS7S010			G1	S1	1B.2
41	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
42	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
43	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
44	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
45	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	
47	grass alisma *Alisma gramineum*	PMALI01010			G5	S1S2	2B.2
48	green yellow sedge *Carex viridula ssp. viridula*	PMCYP03EM5			G5T5	S2	2B.3
49	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
50	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2
51	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
52	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
53	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
54	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
55	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
56	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G5	S3	2B.3
57	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
58	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
59	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T1	S1	1B.2
60	robust false lupine *Thermopsis robusta*	PDFAB3Z0D0			G2	S2	1B.2
61	round-headed Chinese-houses *Collinsia corymbosa*	PDSCR0H060			G1	S1	1B.2
62	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
63	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
64	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
65	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
66	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
67	watershield *Brasenia schreberi*	PDCAB01010			G5	S2	2B.3
68	western pearlshell *Margaritifera falcata*	IMBIV27020			G4G5	S1S2	
69	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
70	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
71	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
72	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2


Upper Jack of Hearts Creek Coho Habitat Restoration Project
Project Location Map
T22N R16W S31
Lincoln Ridge Quad
Mendocino County
Middle of Project Reach
lat: 39.71502 N
long: 123.687223 W
Project Area
0
0.2
0.4
Miles
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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Standley Creek Sediment Reduction Project, Phase 6

Introduction:

Grantee, through its North Coast Coho Project program, will implement the Standley Creek Sediment Reduction Project, Phase 6. The purpose of the project is to decommission roads and treat sediment sources in the Standley Creek watershed. The project is necessary because salmonid habitat conditions in Standley Creek are degraded due to historical activities that caused excessive delivery of sediment to the creek. Salmonid recovery plans recommend decreasing sediment input by treating prioritized sediment sources, including roads.

Objective(s):

The project will Implement 29 site specific road treatments for road decommissioning along 1.98 miles of inner gorge forest road, which will prevent sediment from entering Standley Creek.

Project Description:

Location:

Standley Creek is a tributary of the South Fork Eel River in Mendocino County. The mouth of Standley Creek is near the town of Piercy. Project coordinates are: 39.931 and -123.818 (center point of road reach).

Project Set Up:

Trout Unlimited will provide all contracting oversight and administration including but not limited to obtaining permits, securing agreements (Grantor, subcontractors, landowner), scheduling, implementation oversight, invoicing, reporting and agency and landowner communications.

- Heavy equipment and labor subcontractor - The heavy equipment and labor teams will provide all necessary heavy equipment, experienced operators, and skilled laborers required to complete the project as designed. This includes but may not be limited to the excavation of stream crossing fills, unstable road fills, and road drainage treatments using a team of hydraulic excavators, bulldozers, dump trucks, pilot cars, and truck/trailers. In addition, laborers will be used to spread straw and mulch, man and monitor pumps during any necessary dewatering operations, and maintain and monitor equipment. Laborers will also conduct seeding, tree planting, straw delivery and mulching.

- Geologic subcontractor (technical oversight) - The Geologic Subcontractor will provide technical oversight and supervision of Heavy Equipment and Labor Subcontractor. Tasks include (1) Project permitting, pre-construction layout, and pre-project monitoring; (2) Heavy equipment implementation supervision, technical oversight and field reviews,

including pre- and post-construction inspections; and (3) Post-treatment data collection, photographic monitoring, data analysis and reporting. In addition, the Geologic Subcontractor will maintain regular communications between the Grantee, Grantor, Landowner Area Forester, and Heavy Equipment and Labor subcontractor.

- The Project Leader and Technical Staff perform project permitting, pre-construction layout, and pre-project monitoring. This includes laying out (flagging) specific treatments and extent of excavations, carrying out pre-treatment surveys of stream crossings, and pre-treatment monitoring. Layout includes a wet weather inspection to help identify seeps and springs along the road proposed for treatment. Other layout steps include compiling the field information into a detailed set of construction maps, road logs, detailed treatments information, and state and federal permits that will be provided to the Heavy Equipment and Labor Subcontractor selected to implement the project.

- The Geographic Information System (GIS) staff provides project support through development of GIS maps and products for the field, database interfaces, Global Position System data organization and analysis.

- The Professional Geologist and Project Leader supervise the heavy equipment implementation and provide technical oversight.

- The Project Leader has the overall charge of daily on-going activities including technical oversight and supervision of heavy equipment and labor operations. Duties include materials coordination, project planning meetings, and communications with the landowner, subcontractors, and agency staff.

- The Technical Staff is responsible for field preparation, coordination, field vehicle maintenance, and field map creation and transfer for the GIS staff. Photo downloading and file management, as well as, data entry for annual report metrics, as-built construction road logs, stream crossing surveys, and heavy equipment time logs for hours spent treating each feature on the proposed roads are part of the technical staff duties.

- The Principal Geologist ensures compliance with the Geologist and Geophysicist Act (California Business and Professions Code 7800).

- The Principal and Professional Geologists ensure that the project is implemented as designed, and follows or exceeds the standards for road decommissioning.

- The Project Leader and Technical Staff will perform post-treatment data collection, photographic monitoring, data analysis, and reporting. Duties include quality assurance and quality control including final report technical editing and review by the Principal and Professional Geologist. For the final report, the GIS staff will generate and provide final report maps.

Materials:

Materials for this project include mulch and seed, 210 cubic yards of rock armor, riparian plants, pumps, and hoses.

Tasks:

Decommission 4.02 miles of abandoned, decaying, inner gorge, and streamside roads in the Standley Creek watershed in order to protect and improve instream habitat for all salmonid species.

Task A: Trout Unlimited personnel will provide all contracting oversight and administration including but not limited to obtaining permits, securing contracts (grantors, subcontractors, landowner), scheduling, implementation oversight, invoicing, reporting and agency and landowner communications. This task will occur throughout the life of the project. All reporting and billing will be pursuant to contract and regulatory guidelines. In addition, Trout Unlimited will work with partners to develop outreach materials that tell the story of the multi-phase restoration that has occurred in the Standley Creek watershed.

Task B: Implementation. Decommission 4.02 miles of abandoned, decaying, streamside, mid- slope, inner gorge roads in the Standley Creek watershed.

- Implement project permitting, pre-construction layout, and pre-project monitoring

- Implement heavy equipment work, provide technical oversight and field reviews, including pre- and post-construction inspections

- Implement post-treatment data collection, photographic monitoring, data analysis, and reporting.

- Provide project access by opening the 5611 road and installing a temporary bridge over the South Fork Eel River. Opening the road includes brushing the road, clearing any material that restricts access, installing a culvert at a washed out class II stream crossing. Installing the temporary bridge includes installing the bridge with a cat and excavator and pushing native material up from the adjacent bar for the west bank abutment approach. Native material will be excavated from a 10 foot wide x 20 foot long x 8 foot deep sump along the eastern bank and used to construct the eastern approach.

- Treat 25 stream crossings to save approximately 14,127 cubic yards of road-related sediment from delivery to local streams.

- Treat 19 potential or existing fillslope landslide features saving approximately 4550 cubic yards of future sediment delivery. Treat by direct excavation, sediment removal, and proper spoils disposal.

- Treat 4 road discharge points at ditch relief culverts, 3 springs, and 2 road discharge points saving approximately 433 cubic yards of sediment from delivery to stream channels.

- Treat approximately 3.1 miles of road surfaces, cutbanks, and/or ditches currently draining to stream channels either directly, via gullies, or through other treatment features saving approximately 3,029 cubic yards of sediment.

- Excavate approximately 38,148 cubic yards of sediment at 45 different work features. Haul spoil materials to stable disposal areas.

- Construct 16 cross road drains to ensure gullies, springs, road runoff, and other concentrated flow will no longer collect over long lengths of road causing saturated roads, and fillslopes, gully erosion, and sediment delivery to streams. Construct cross road drains at approximately 75 to 150 feet spacing intervals directing road surface runoff off the road and onto stable hillslope.

- Trees will be planted in disturbed areas – *Salix* and *Sequoia sempervirons.*

Deliverables:

Submit a written completion report which contains: (1) general grant information, (2) location of work, (3) project access, (4) participating landowner's name and address, (5) a description and analysis of the restoration and planning person hours expended, (6) a quantified description of the results of the project including as-built road logs, (7) dates of work and the number of person hours expended, (8) labeled before and after photos of selected restoration activities and techniques, (9) grant dollars spent and contributed and/or in kind services used to complete the project, and (10) GIS generated maps and shapefiles of project area.

Timelines:

- Administer and manage the project (Task A) throughout the entirety of the agreement term June 2015 to March 31, 2018.
- June 1, 2015 Pre-construction project permitting, pre-construction layout, and pre-project monitoring tasks are planned to occur.
- June 2015 - October 2017 Heavy equipment implementation
- Fall 2015, 2016, 2017 Post-construction data collection. Post-treatment data collection, road logs and maps showing as built road conditions, and photographic monitoring will be conducted to fulfill reporting requirements.
- Fall 2017 – February 28, 2018 Reporting. Data collection synthesis, data analysis, and report writing. The implementation report will be completed and submitted no later than February 28, 2018.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:
   - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
   - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
   - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
   - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.
   - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. All road decommissioning will be done in accordance with techniques described in the Handbook for Forest and Ranch Roads, (PWA, 1994c.) and the *California Salmonid Stream Habitat Restoration Manual*, Volume II, Part X. All road upgrade and decommissioning sites and techniques shall be approved by the Grantor Project Manager before any equipment work takes place.

4. All crossings treated in fish bearing reaches of streams will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and the criteria for adult and juvenile salmonid fish passage as described in Volume II, Part IX of the *California Salmonid Stream Habitat Restoration Manual*.

5. Seeding and mulching of all exposed soils shall be done for all slopes which may deliver sediment to a stream. Woody debris will be concentrated on finished slopes adjacent to stream crossings. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. Mulching and seeding will take place as sites are completed to avoid unforeseen erosion. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

6. Sites which are expected to erode and deliver sediment to the stream are the only locations where work will be authorized for reimbursement under the terms of this agreement. Reimbursement will not be authorized for work done to improve aesthetics only.

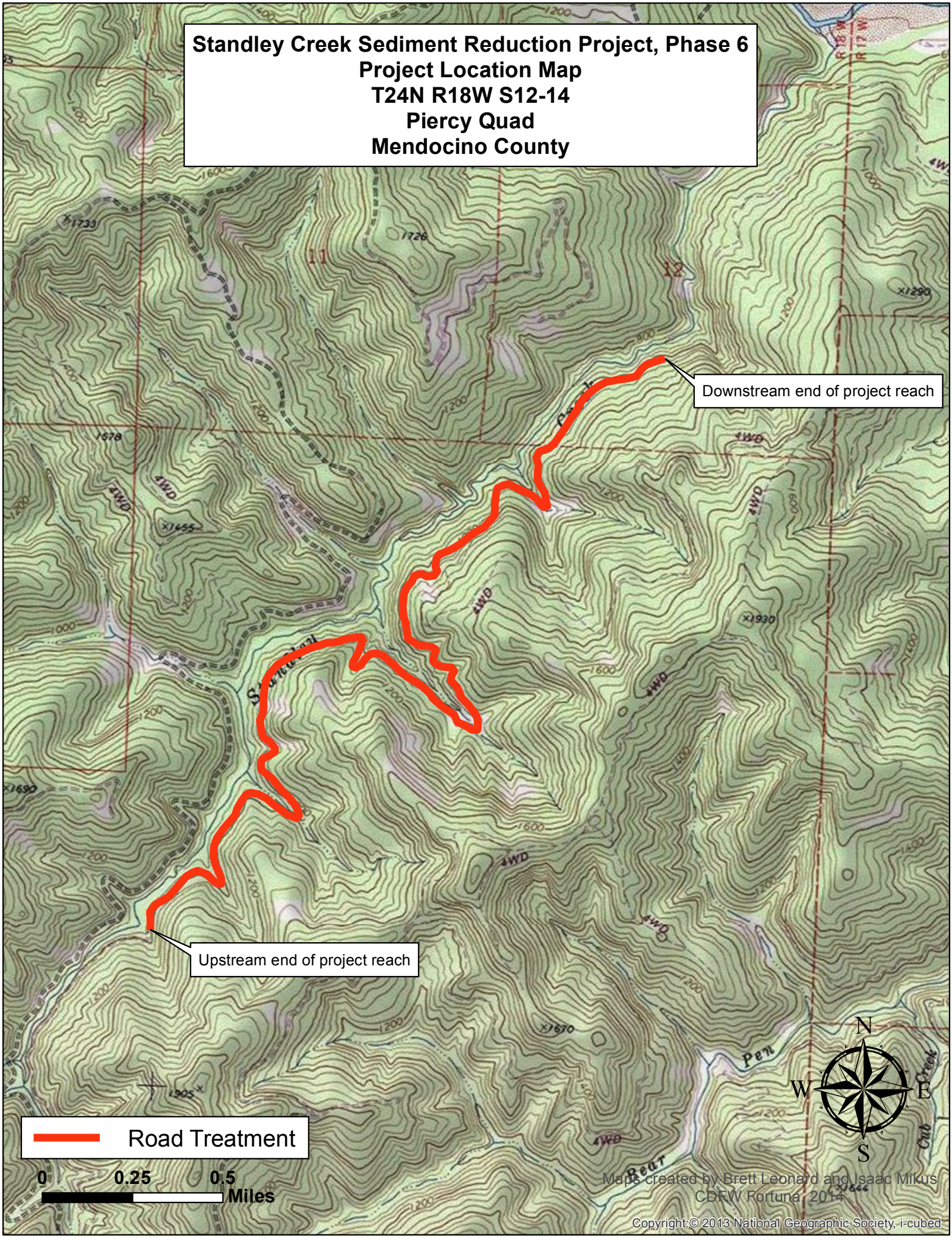
7. The landowner or responsible party must sign an access agreement stating they agree to maintain the erosion control project for a period of not less than 10 years. Maintenance will consist of repair to the road or stream crossing to a level that will effectively reduce sediment from entering the stream. In the event of an act of nature which results in partial or complete failure of the project, the landowner or applicant will not be held responsible for costs incurred after the act of nature. Acts of nature include, but are not limited to floods, earthquakes, volcanic eruptions, and wind storms.

8. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Piercy Quad and Surrounding Quads for:
HU 074 Standley Creek Sediment Reduction Project, Phase 6
T24N, R18W Sections 12, 13, 14, 23
Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	California floater *Anodonta californiensis*	IMBIV04020			G3Q	S2?	
2	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
3	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
4	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
5	Kellogg's buckwheat *Eriogonum kelloggii*	PDPGN083A0	Candidate	Endangered	G2	S2	1B.2
6	Mcdonald's rockcress *Arabis mcdonaldiana*	PDBRA06150	Endangered	Endangered	G2	S2	1B.1
7	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
8	Mendocino gentian *Gentiana setigera*	PDGEN060S0			G2	S1	1B.2
9	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
10	Northern Interior Cypress Forest	CTT83220CA			G2	S2.2	
11	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
12	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
13	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
14	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
15	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
16	Raiche's manzanita *Arctostaphylos stanfordiana ssp. raichei*	PDERI041G2			G3T2?	S2?	1B.1
17	Red Mountain catchfly *Silene campanulata ssp. campanulata*	PDCAR0U0A2		Endangered	G5T3Q	S3	4.2
18	Red Mountain stonecrop *Sedum laxum ssp. eastwoodiae*	PDCRA0A0L1	Candidate		G5T2	S2	1B.2
19	Sonoma canescent manzanita *Arctostaphylos canescens ssp. sonomensis*	PDERI04066			G3G4T2	S2	1B.2
20	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
21	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
22	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
23	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
24	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
25	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	SC
26	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
27	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2
28	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
29	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
30	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
31	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
32	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
33	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G5	S3	2B.3
34	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
35	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
36	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
37	western pearlshell *Margaritifera falcata*	IMBIV27020			G4G5	S1S2	
38	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
39	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2


Standley Creek Sediment Reduction Project, Phase 6
Project Location Map
T24N R18W S12-14
Piercy Quad
Mendocino County
Downstream end of project reach
Upstream end of project reach
Road Treatment
0
0.25
0.5
Miles
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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South Branch North Fork Navarro River Coho Stream Habitat Enhancement

Introduction:

Grantee will implement the South Branch North Fork Navarro River Coho Stream Habitat Enhancement. The lack of large woody debris (LWD) in the stream channel has affected the quality and quantity of salmonid habitat within South Branch North Fork Navarro River by reducing the amount of large channel forming features and the loss of complex cover for salmonids. A California Department of Fish and Wildlife (CDFW) stream habitat inventory survey was conducted on South Branch North Fork Navarro River in 2013 and limiting factors to salmonids were identified. The stream habitat inventory report shows that the pools of South Branch North Fork Navarro River have a mean shelter rating of 26. A pool shelter rating of approximately 100 is desirable.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. All habitat restoration improvements will follow techniques in the California Salmonid Stream Habitat Restoration Manual, Part VII. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

The specific objective of this project is to create a total of 43 instream features within a 5,140 foot section of South Branch North Fork Navarro River, consisting of 110 logs and 9 root wads. The addition of these structures will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels, increasing the quality and quantity of rearing habitat within the project reach, and by providing velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids.

Project Description:

Location:

The Grantee will conduct work along a section of South Branch North Fork Navarro River beginning 8.5 miles upstream of confluence with North Fork Navarro River and continuing upstream for 5,140 feet. The locations of the project boundaries are approximately 39.15501º north latitude, 123.46929º west longitude at the downstream end; and 39.15562º north latitude, 123.45750º west longitude at the upstream end as depicted in the Project Location Map.

Project Set Up:
Grantee Technical Staff perform pre-project design, monitoring, and photo documentation. Grantee Conservationist I will supervise the CCC Laborers in the implementation of the project and during the spike operation. Grantee Laborers will provide the hand labor for the instream LWD structures.

Materials:
A total of 43 LWD features, consisting of 110 logs and 9 root wads, will be constructed and anchored with 1" threaded rebar, nuts, washers, 5/8" galvanized cable, cable clamps, and waterproof epoxy glue, or by wedging into riparian trees without using anchoring materials.

Tasks:
Task 1: Install Instream Habitat Features
Install instream habitat features at 43 locations including 119 pieces of large wood/root wads along 5,140 feet of South Branch North Fork Navarro River. Work will consist of the following:

- Grantee will construct instream log structures according to the site specific plans to be provided, using locally available logs or logs from other locations.
- Nuts, washers, plates, cable, glue and rebar will be ordered as applicable.
- Location of all project LWD will be documented
- Various anchoring techniques, which will be approved by the Grantor Project Manager prior to the initiation of work, may be used to hold multiple logs together to form complex structures. Anchoring techniques will include wedging logs into existing rocks and logs along the riparian banks; anchoring to live mature trees growing on riparian banks; or anchoring to existing boulders. Anchoring materials will consist of 1" threaded rebar, cable, nuts and washers, and waterproof epoxy.

Task 2: Erosion Control
Mulching will take place as sites are completed on all exposed soils which may deliver sediment to a stream in order to avoid unforeseen erosion.

Deliverables:
A total of 43 features will be constructed within the 5,140 foot project reach. Approximately 45 pieces of LWD will be anchored using anchoring materials to create complex features. Approximately 74 pieces of LWD will be anchored by wedging into riparian trees and without anchoring materials.

Timelines:
Installation of LWD features (within approved project reach) -

- June 15, 2015 through October 31, 2015
- June 15, 2016 through October 31, 2016
- June 15, 2017 through October 31, 2017
- June 15, 2018 through October 31, 2018

Erosion control will be installed as project features are completed.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

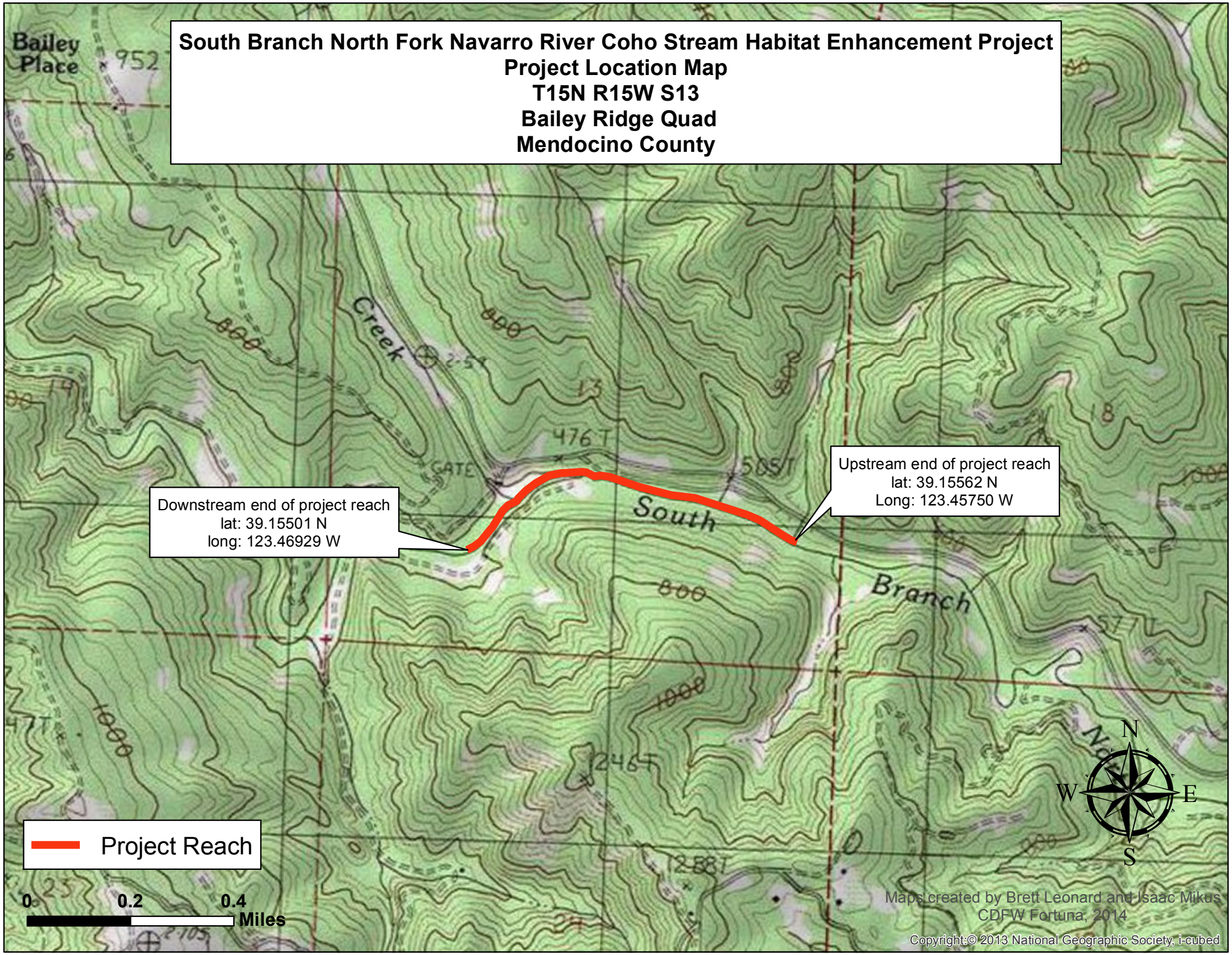
2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Bailey Ridge Quad and Surrounding Quads for:
HI 083 South Branch North Fork Navarro River Coho Stream Habitat Enhancement
M T15N R15W section 13
Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
2	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
3	Behren's silverspot butterfly *Speyeria zerene behrensii*	IILEPJ6088	Endangered		G5T1	S1	
4	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
5	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
6	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
7	Navarro roach *Lavinia symmetricus navarroensis*	AFCJB19023			G4T1T2	S1S2	SC
8	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
9	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
10	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
11	Pomo bronze shoulderband *Helminthoglypta arrosa pomoensis*	IMGASC2033			G2G3T1	S1	
12	Roderick's fritillary *Fritillaria roderickii*	PMLIL0V0M0		Endangered	G1Q	S1	1B.1
13	Santa Cruz clover *Trifolium buckwestiorum*	PDFAB402W0			G2	S2	1B.1
14	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
15	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
16	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
17	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
18	glandular western flax *Hesperolinon adenophyllum*	PDLIN01010			G3	S3	1B.2
19	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
20	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S1	1B.2
21	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
22	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
23	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
24	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
25	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
26	watershield *Brasenia schreberi*	PDCAB01010			G5	S2	2B.3
27	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
28	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2


South Branch North Fork Navarro River Coho Stream Habitat Enhancement Project
Project Location Map
T15N R15W S13
Bailey Ridge Quad
Mendocino County
Bailey Place
952
Creek
800
476T
GATE
505T
South
Branch
800
1000
246T
288T
Downstream end of project reach
lat: 39.15501 N
long: 123.46929 W
Upstream end of project reach
lat: 39.15562 N
Long: 123.45750 W
Project Reach
0
0.2
0.4
Miles
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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South Daugherty Creek Sediment Reduction and Instream Habitat Enhancement

Introduction:

Trout Unlimited's North Coast Coho Project will implement the South Daugherty Creek Sediment Reduction and Instream Habitat Enhancement. The purpose of the project is to decommission roads and treat sediment sources in the South Daugherty Creek watershed, and to install large woody materials in South Daugherty Creek and Johnson Creek. The project is necessary because salmonid habitat conditions in the South Daugherty Creek watershed are degraded due to historical activities that caused excessive delivery of sediment to the river, and created excessive removal of large woody material from South Daugherty Creek and Johnson Creek. Salmonid recovery plans recommend decreasing sediment input to the river by reducing road densities and treating sediment sources, and increasing stream habitat complexity by installing large woody material.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor. All habitat restoration improvements will follow techniques in the *California Salmonid Stream Habitat Restoration Manual*, Parts VII, IX, X, XI, and XII (Flosi et al 1998 and 2002).

Objective(s):

The specific objective of this project is to decommission 6.7 miles and upgrade 3.0 miles of road. The project will treat 75 current and potential sediment delivery features on approximately 59 acres of upslope area, including 52 stream crossings, 14 landslide features, 8 landings, and one "other" site type. Implementation of the project will prevent 6,019 cubic yards of road-related sediment from entering the South Daugherty Creek watershed and improve passage to all life stages of salmonids at one stream crossing.

This project will create 10 instream features within 1.25 miles of Johnson Creek and South Daugherty Creek, consisting of 43 pieces of LWD. The addition of these structures will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels, increasing the quality and quantity of rearing habitat within the project reach, and by providing velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids.

Project Description:

Location:

The Grantee will conduct work along a section of South Daugherty Creek beginning approximately 2.3 miles upstream from the confluence with South Fork Big River, at Gates Creek confluence, and continuing upstream for 5.0 miles. The locations of the project boundaries on South Daugherty Creek are approximately 39.2040º north latitude, 123.4349º west longitude at the downstream end; and 39.1674º north latitude, 123.3823º west longitude at the upstream end. Additionally, road work will take place along three tributaries to South Daugherty Creek including an unnamed tributary located at 39.1984º north latitude, 123.4277º west longitude, Horsethief Creek located at 39.1884º north latitude, 123.4179º west longitude, and Snuffins Creek located at 39.1767º north latitude, 123.3964º west longitude. Grantee will conduct work along a section of Johnson Creek beginning at 39.2072º north latitude, 123.4118º west longitude at the downstream end; and 39.1935º north latitude, 123.3875º west longitude at the upstream end as depicted in the Project Location Map.

Project Set Up:

Grantee Project Manager for the North Coast Coho Project will coordinate the project and will provide all contracting oversight and administration including but not limited to obtaining permits, contracting, scheduling, invoicing, reporting and agency and landowner communications. The subcontracted Hydrologist (cost share) will conduct pre and post project monitoring in order to collect data for progress reports and final reports, as well as and manage the equipment operators in implementation of approved road work and LWD installation. Subcontracted heavy equipment operators and laborers will implement upslope work and install log features.

Materials:

A total of 10 instream features including 43 pieces of LWD will be installed in South Daugherty Creek and Johnson Creek. Approximately 180 cubic yards of rip rap, 180 cubic yards of road rock, 1 squash pipe culvert 14’ wide x 9’ high x 75’ long will be used in the upgrade and decommission of roads. Sequoia sempervirens will be planted at a rate of 2:1 where trees are removed to conduct upslope work.

Tasks:

Task 1: Road Upgrading:

Approximately 6 sites along approximately 3.0 miles of road with the potential to deliver sediment to streams will be upgraded. The following road upgrading treatments will be implemented where appropriate:

- Installation of culverts sized for the 100-year flood flow, including sufficient capacity for expected wood and sediment
- Installation of critical dips to eliminate diversion potential
- Installation of rock armored fill crossings or fords
- Excavation and/or armoring of inboard ditches
- Excavation of culvert inlets
- Installation of downspouts and/or rock dissipation at culvert outlets
- Construction of rock armored fords
- Installation of rolling dips
- Reshaping of road surfaces
- Removal of berms
- Installation of ditch relief culverts
- Rocking of road surfaces

Task 2: South Daugherty Creek Fish Passage Site

Improve fish passage providing access to habitat for salmonids in South Daugherty Creek by completing the following:

- Design engineered plans for the 14' wide x 9' high x 75' long squash-pipe culvert to be submitted to the Grant Manager prior to project commencement. The plans will include details of construction,

scaled drawings of the bridge as well as specifics on traffic detour, water diversion, and fish relocation if necessary.

- Implement plans for fish removal, water diversion, and traffic detour.
- Remove existing culvert and all associated fill.
- Excavate channel to original width, depth and slope to expose natural channel morphology and armor. Side slopes will be treated to match original contours above and below the road.
- Install a 14' wide x 9' high x 75' long squash-pipe culvert.
- Treat disturbed and/or erodible stream banks at the project site with boulders and rock riprap. Any additional disturbed soils will be seeded, mulched and planted with native plants. Once the culvert is in place the roadway will be graded, shaped for appropriate drainage, and surfaced.

Task 2: Fish Passage Site Monitoring

Monitoring will consist of pre- and post-project longitudinal and thalweg surveys.

Task 3: Road Decommissioning

Decommission 68 sites along approximately 6.7 miles of road with the potential to deliver sediment to streams will be decommissioned. The following road decommissioning treatments will be implemented where appropriate:

- Excavation of in-place stream crossings at locations where roads or landings were built across stream channels. A stream crossing excavation includes removing the culvert and the underlying and the adjacent fill material. Complete excavation of stream crossing fills, includes 100 year flood channel bottom widths and 2:1 or otherwise stable side slopes. When possible the excavated spoil will be stored at nearby stable locations where it will not erode. If there is a limited amount of stable storage locations at the excavation site the crossing fill material will be hauled off-site for storage.

- Road surface treatments: 1) ripping of the surface of the road or landing using mechanical rippers to reduce surface runoff and

improve revegetation; 2) in-place outsloping or the excavation of unstable side cast material that could fail and deliver sediment to a stream along the outside edge of a road prism or landing and the replacement of the spoil on the roadbed against the corresponding adjacent cutbank, or in close proximity of the site; 3) exported out-sloping which involves not placing the material against the cutbank so the material is end hauled to a spoil disposal site; 4) installation of cross drains or deep water bars at 50, 75, 100 or 200 foot intervals or as necessary at springs and seeps to disperse road surface runoff. The cross road drains provide road surface drainage and prevent the collection of concentrated runoff on the former roadbed.

Task 4: Install Instream Habitat Features

Subcontractors will install instream habitat features at 10 locations including 43 pieces of large wood/root wads along 1.25 miles total of South Daugherty Creek and Johnson Creek. All 43 pieces LWD will be generated from road decommissioning by felling and excavating of stream side conifers. A timber operator using an excavator will gather LWD from riparian banks and install LWD following approved feature designs. Trees will be 1.5 times the bankfull width and anchored by wedging between riparian trees.

Task 5: Erosion Control and Tree Planting

Mulching will take place as sites are completed on all exposed soils which may deliver sediment to a stream in order to avoid unforeseen erosion. *Sequoia sempervirens* will be planted at a rate of 2 trees for every one tree removed during upslope treatments.

Deliverables:

Decommission 6.7 miles of road and upgrading 3.0 miles of road thereby saving 6,019 cubic yards of road-related sediment from delivery to South Daugherty Creek watershed. The project will treat 59 acres of upslope area, 52 stream crossings, 14 landslide features, 8 landings, and one “other” site type.

The project will upgrade one undersized and degraded culvert which is a complete barrier, in order to improve fish passage for all life stages of salmonids.

A total of 10 instream features including 43 pieces of LWD will be installed along 1.25 miles total of South Daugherty Creek and Johnson Creek.

Timelines:

June 15, 2015 through October 15, 2015, implement road upgrade treatments. Erosion control will be installed as project features are completed.

June 15, 2016 through October 15, 2016, implement road decommissioning treatments. LWD features will be installed in tandem with road decommissioning. Erosion control will be installed as project features are completed.

December 1, 2016 through March 31, 2017, conduct tree planting when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and oversee the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.

    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.

    - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

    - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.

    - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented

as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. The culvert design and installation will meet flow carrying capacity required for a 100-year flood event as identified by specifications determined by National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Wildlife (CDFW), for adult and juvenile salmonid fish passage. The project will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and criteria for fish passage as described in Volume II, Part IX, of the California Salmonid Stream Habitat Restoration Manual. The engineered plans for the bridge (culvert) installation shall be visually reviewed and authorized by NOAA Fisheries or California Department of Fish and Wildlife engineers prior to commencement of work.

4. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*, Volume I, and Volume II Part XI and Part XII. The Grantee/landowner will maintain the new crossing, inspect the crossing in a timely manner and remove debris as necessary during the storm season.

5. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

6. All road decommissioning will be done in accordance with techniques described in the Handbook for Forest and Ranch Roads, (PWA, 1994c.) and the *California Salmonid Stream Habitat Restoration Manual*, Volume II, Part X. All road upgrade and decommissioning sites and techniques shall be approved by the Grantor Project Manager before any equipment work takes place.

7. All crossings treated in fish bearing reaches of streams will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and the criteria for adult and juvenile salmonid fish passage as described in Volume II, Part IX of the *California Salmonid Stream Habitat Restoration Manual*.

8. Seeding and mulching of all exposed soils shall be done for all slopes which may deliver sediment to a stream. Woody debris will be concentrated on finished slopes adjacent to stream crossings. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. Mulching and seeding will take place as sites are completed to avoid

unforeseen erosion. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

9. Sites which are expected to erode and deliver sediment to the stream are the only locations where work will be authorized for reimbursement under the terms of this agreement. Reimbursement will not be authorized for work done to improve aesthetics only.

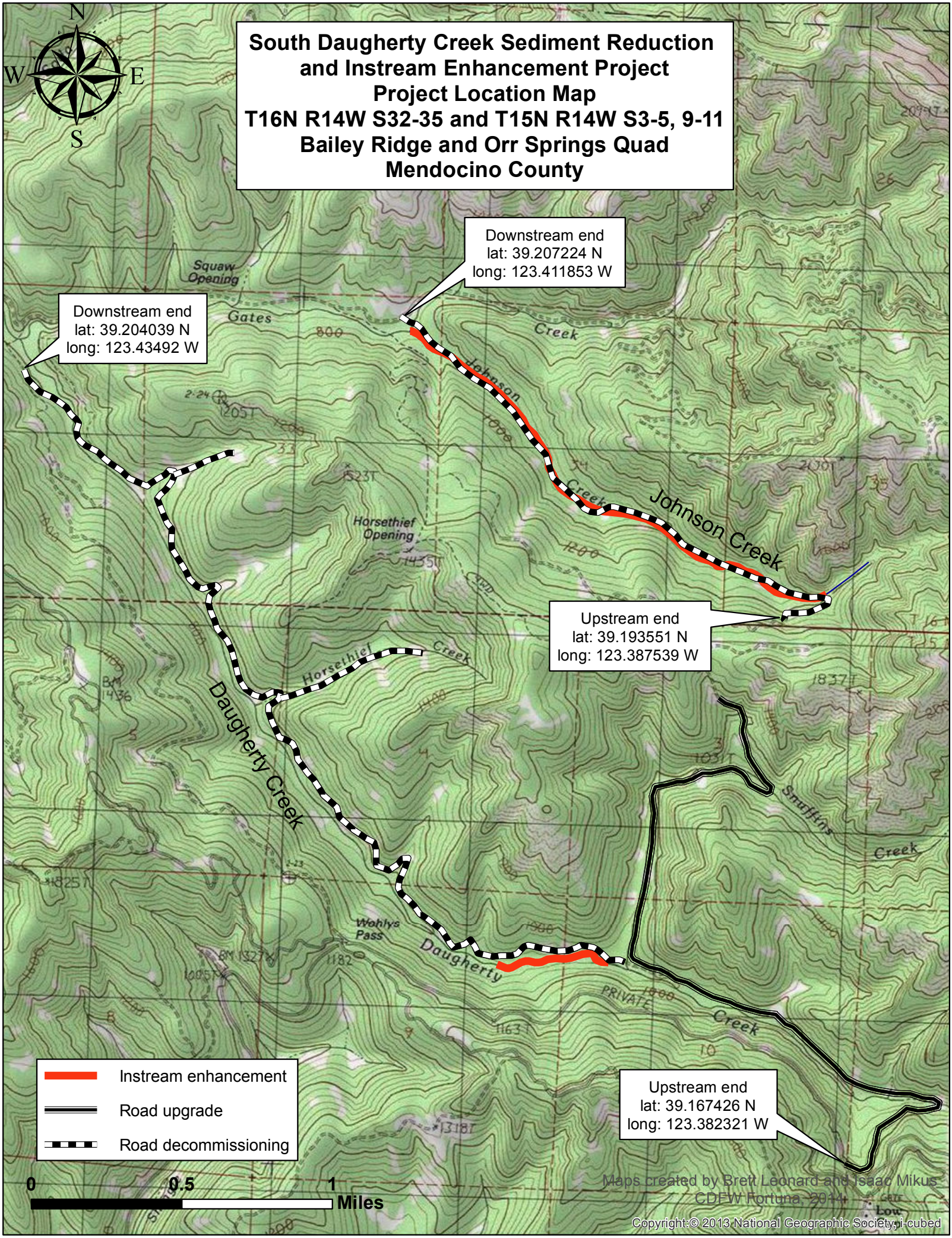
10. The landowner or responsible party must sign an access agreement stating they agree to maintain the erosion control project for a period of not less than 10 years. Maintenance will consist of repair to the road or stream crossing to a level that will effectively reduce sediment from entering the stream. In the event of an act of nature which results in partial or complete failure of the project, the landowner or applicant will not be held responsible for costs incurred after the act of nature. Acts of nature include, but are not limited to floods, earthquakes, volcanic eruptions, and wind storms.

11. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Bailey Ridge Quad and Surrounding Quads for:
HU 078 S. Daugherty Creek Sediment Reduction and Instream Habitat Enhancement
M T16N R14W Sections 32, 33, 34, 35
M T15N R14W Sections 4, 5, 9, 10
Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
2	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
3	Behren's silverspot butterfly *Speyeria zerene behrensii*	IILEPJ6088	Endangered		G5T1	S1	
4	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
5	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
6	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
7	Navarro roach *Lavinia symmetricus navarroensis*	AFCJB19023			G4T1T2	S1S2	SC
8	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
9	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
10	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
11	Pomo bronze shoulderband *Helminthoglypta arrosa pomoensis*	IMGASC2033			G2G3T1	S1	
12	Roderick's fritillary *Fritillaria roderickii*	PMLIL0V0M0		Endangered	G1Q	S1	1B.1
13	Santa Cruz clover *Trifolium buckwestiorum*	PDFAB402W0			G2	S2	1B.1
14	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
15	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
16	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
17	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
18	glandular western flax *Hesperolinon adenophyllum*	PDLIN01010			G3	S3	1B.2
19	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
20	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S1	1B.2
21	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
22	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
23	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
24	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
25	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
26	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
27	watershield *Brasenia schreberi*	PDCAB01010			G5	S2	2B.3
28	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
29	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2


South Daugherty Creek Sediment Reduction and Instream Enhancement Project
Project Location Map
T16N R14W S32-35 and T15N R14W S3-5, 9-11
Bailey Ridge and Orr Springs Quad
Mendocino County
N
S
E
W
Downstream end
lat: 39.207224 N
long: 123.411853 W
Downstream end
lat: 39.204039 N
long: 123.43492 W
Upstream end
lat: 39.193551 N
long: 123.387539 W
Upstream end
lat: 39.167426 N
long: 123.382321 W
Squaw Opening
Gates
Johnson Creek
Horsethief Opening
Horsethief Creek
Daugherty Creek
Wohlys Pass
Daugherty
Smuffins Creek
PRIVATE
Creek
Instream enhancement
Road upgrade
Road decommissioning
0
0.5
1
Miles
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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Little River Coho Stream Habitat Enhancement Project

Introduction:

Grantee will implement the Little River Coho Stream Habitat Enhancement Project. The lack of large woody debris (LWD) in the stream channel has affected the quality and quantity of salmonid habitat within Little River by reducing the amount of large channel forming features and the loss of complex cover for salmonids. A California Department of Fish and Wildlife (CDFW) stream habitat inventory survey was conducted on Little River in 2008 and limiting factors to salmonid production were identified. The stream habitat inventory report shows that pools of Little River have a mean shelter rating of 67. A pool shelter rating of approximately 100 is desirable.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. All habitat restoration improvements will follow techniques in the California Salmonid Stream Habitat Restoration Manual, Part VII. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

The specific objective of this project is to create a total of 20 instream features within a 3,780 foot section of Little River, consisting of 34 logs and 1 root wad and to manipulate four log debris accumulations (LDA). The addition of these structures and the manipulation of the LDAs will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels, increasing the quality and quantity of rearing habitat within the project reach, and by providing velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids. Manipulating the LDAs will also allow for unimpeded migration by adult and juvenile salmonids.

Project Description:

Location:

The Grantee will conduct work along a section of Little River beginning 2.88 miles feet upstream of confluence with the Pacific Ocean and continuing upstream for 3,780 feet. The locations of the project boundaries are approximately 39.2767º north latitude, 123.7544º west longitude at the downstream end; and 39.2768º north latitude, 123.7431º west longitude at the upstream end as depicted in the Project Location Map.

Project Set Up:
Grantee Technical Staff perform pre-project design, monitoring, and photo documentation. Grantee Conservationist I will supervise the Grantee Laborers in the implementation of the project and during the spike operation. Grantee Laborers will provide the hand labor for the instream LWD structures and LDA manipulation.

Materials:
A total of 20 LWD features, consisting of 34 logs and 1 root wads, will be constructed and anchored with 1" threaded rebar, nuts, washers, 5/8" galvanized cable, cable clamps, and waterproof epoxy glue, or by wedging into riparian trees without using anchoring materials.

Tasks:
Task 1: Install Instream Habitat Features
Install instream habitat features at 20 locations including 35 pieces of large wood/root wads along 3,780 feet of Little River. Work will consist of the following:

- Grantee will construct instream log structures according to the site specific plans to be provided, using locally available logs or logs from other locations.
- Nuts, washers, plates, cable, glue and rebar will be ordered as applicable.
- Location of all project LWD will be documented
- Various anchoring techniques, which will be approved by the Grantor Project Manager prior to the initiation of work, may be used to hold multiple logs together to form complex structures. Anchoring techniques will include wedging logs into existing rocks and logs along the riparian banks; anchoring to live mature trees growing on riparian banks; or anchoring to existing boulders. Anchoring materials will consist of 1" threaded rebar, cable, nuts and washers, and waterproof epoxy.

Task 2: Log Debris Accumulation Manipulation
Four LDAs will be manipulated using a chainsaw and hand tools in order to improve fish passage and reduce fine sediment retention.

Task 3: Erosion Control
Mulching will take place as sites are completed on all exposed soils which may deliver sediment to a stream in order to avoid unforeseen erosion.

Deliverables:

A total of 20 features will be constructed within the 3,780 foot project reach. Approximately 9 pieces of LWD will be anchored using anchoring materials to create complex features. Approximately 26 pieces of LWD will be anchored by wedging into riparian trees and without anchoring materials. Four LDAs modified for fish passage and reduction of fine sediment retention.

Timelines:

Installation of LWD features (within approved project reach) -

- June 15, 2015 through October 31, 2015
- June 15, 2016 through October 31, 2016
- June 15, 2017 through October 31, 2017
- June 15, 2018 through October 31, 2018

Erosion control will be installed as project features are completed.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

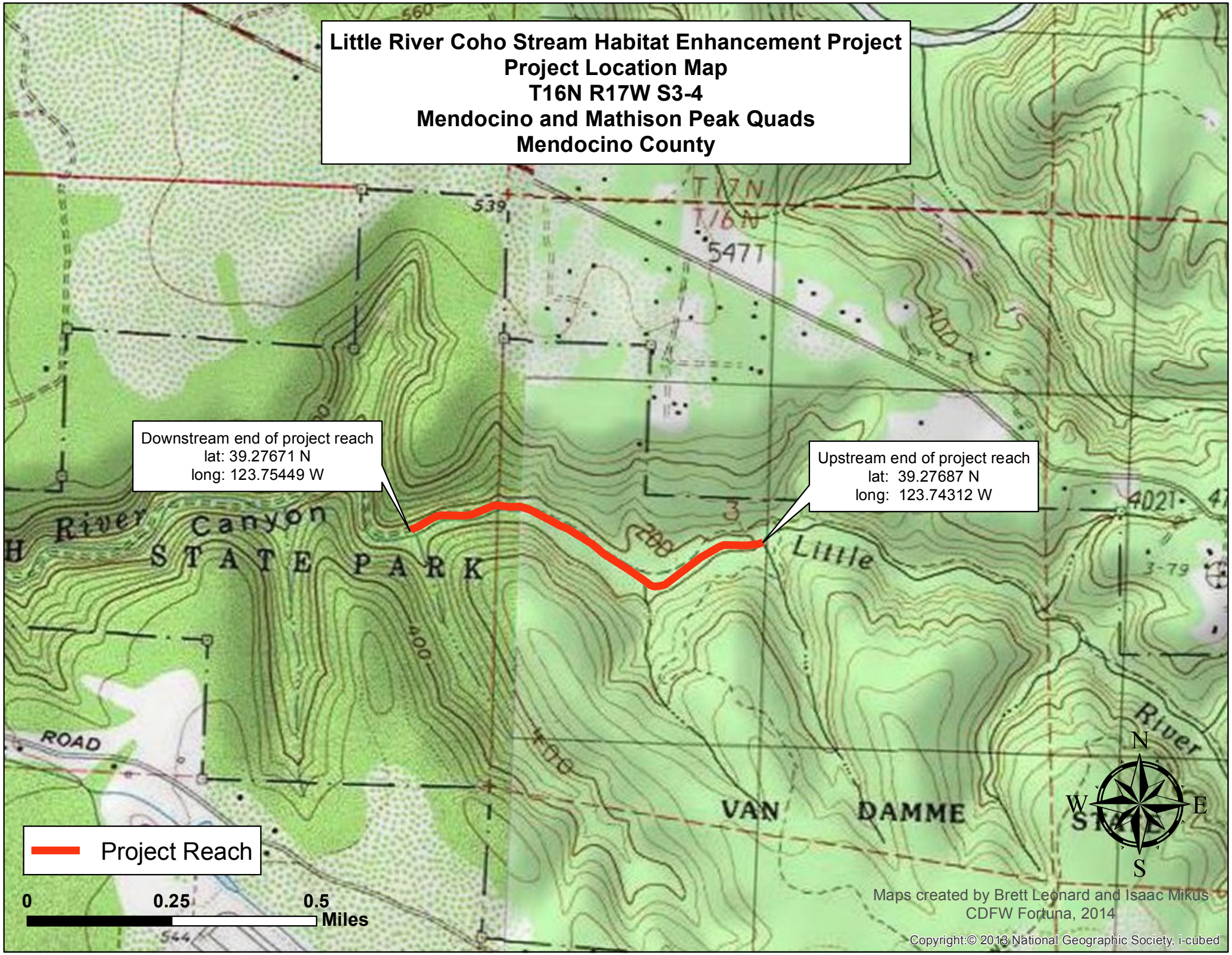
California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Mendocino and Mathison Peak Quads and Surrounding Quads for:
HI 081 Little River Coho Stream Habitat Enhancement Project
T16N R17W Sections 3, 4
Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Baker's goldfields *Lasthenia californica ssp. bakeri*	PDAST5L0C4			G3TH	SH	1B.2
2	Behren's silverspot butterfly *Speyeria zerene behrensii*	IILEPJ6088	Endangered		G5T1	S1	
3	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
4	Bolander's beach pine *Pinus contorta ssp. bolanderi*	PGPIN04081			G5T2	S2	1B.2
5	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
6	California sedge *Carex californica*	PMCYP032D0			G5	S2?	2B.3
7	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
8	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
9	Grand Fir Forest	CTT82120CA			G1	S1.1	
10	Howell's spineflower *Chorizanthe howellii*	PDPGN040C0	Endangered	Threatened	G1	S1	1B.2
11	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
12	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
13	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
14	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
15	Mendocino Pygmy Cypress Forest	CTT83161CA			G2	S2.1	
16	Mendocino dodder *Cuscuta pacifica var. papillata*	PDCUS011A2			G5T1	S1	1B.2
17	Mendocino leptonetid spider *Calileptoneta wapiti*	ILARAU6040			G1	S1	
18	Menzies' wallflower *Erysimum menziesii*	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
19	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
20	Monterey clover *Trifolium trichocalyx*	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
21	Navarro roach *Lavinia symmetricus navarroensis*	AFCJB19023			G4T1T2	S1S2	SC
22	North Coast phacelia *Phacelia insularis var. continentis*	PDHYD0C2B1			G2T1	S1	1B.2
23	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
25	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
26	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
27	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
28	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
29	Point Reyes blennosperma *Blennosperma nanum var. robustum*	PDAST1A022		Rare	G4T2	S2	1B.2
30	Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012			G5T2	S2	1B.2
31	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
32	Pomo bronze shoulderband *Helminthoglypta arrosa pomoensis*	IMGASC2033			G2G3T1	S1	
33	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
34	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
35	Sphagnum Bog	CTT51110CA			G3	S1.2	
36	Ten Mile shoulderband *Noyo intersessa*	IMGASC5070			G2	S2	
37	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
38	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
39	alpine marsh violet *Viola palustris*	PDVIO041G0			G5	S1S2	2B.2
40	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
41	ashy storm-petrel *Oceanodroma homochroa*	ABNDC04030			G2	S2	SC
42	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
43	bunchberry *Cornus canadensis*	PDCOR01040			G5	S2	2B.2
44	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
45	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46	coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2			G4T2T3	S2S3	1B.2
47	coastal triquetrella *Triquetrella californica*	NBMUS7S010			G1	S1	1B.2
48	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
49	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
50	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
51	dwarf alkali grass *Puccinellia pumila*	PMPOA531L0			G4?	SH	2B.2
52	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
53	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	
54	great burnet *Sanguisorba officinalis*	PDROS1L060			G5?	S2	2B.2
55	hair-leaved rush *Juncus supiniformis*	PMJUN012R0			G5	S1	2B.2
56	lagoon sedge *Carex lenticularis var. limnophila*	PMCYP037A7			G5T5	S1	2B.2
57	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
58	livid sedge *Carex livida*	PMCYP037L0			G5	SH	2A
59	lotis blue butterfly *Plebejus idas lotis*	IILEPG5013	Endangered		G5TH	SH	
60	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
61	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
62	northern microseris *Microseris borealis*	PDAST6E030			G5	S1	2B.1
63	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
64	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
65	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
66	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
67	purple martin *Progne subis*	ABPAU01010			G5	S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
68	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T1	S1	1B.2
69	pygmy cypress *Hesperocyparis pygmaea*	PGCUP04032			G2	S2	1B.2
70	pygmy manzanita *Arctostaphylos nummularia ssp. mendocinoensis*	PDERI04280			G3?T1	S1	1B.2
71	round-headed Chinese-houses *Collinsia corymbosa*	PDSCR0H060			G1	S1	1B.2
72	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
73	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
74	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
75	small groundcone *Kopsiopsis hookeri*	PDORO01010			G5	S1S2	2B.3
76	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
77	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
78	supple daisy *Erigeron supplex*	PDAST3M3Z0			G2	S2	1B.2
79	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
80	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
81	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
82	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S2	SC
83	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
84	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
85	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
86	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
87	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	


Little River Coho Stream Habitat Enhancement Project
Project Location Map
T16N R17W S3-4
Mendocino and Mathison Peak Quads
Mendocino County
Downstream end of project reach
lat: 39.27671 N
long: 123.75449 W
Upstream end of project reach
lat: 39.27687 N
long: 123.74312 W
Project Reach
0
0.25
0.5
Miles
N
S
E
W
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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North Fork Noyo River Coho Stream Habitat Enhancement Project

Introduction:

Grantee will implement the North Fork Noyo River Coho Stream Habitat Enhancement Project. The lack of large woody debris (LWD) in the stream channel has affected the quality and quantity of salmonid habitat within the North Fork Noyo River by reducing the amount of large channel forming features and the loss of complex cover for salmonids. A California Department of Fish and Wildlife (CDFW) stream habitat inventory survey was conducted on North Fork Noyo River in 2003 and limiting factors to salmonids were identified. The stream habitat inventory report shows that the pools of North Fork Noyo River have a mean shelter rating of 44. A pool shelter rating of approximately 100 is desirable.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. All habitat restoration improvements will follow techniques in the California Salmonid Stream Habitat Restoration Manual, Part VII. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

The specific objective of this project is to create a total of 47 instream features within a 6,665 foot section of North Fork Noyo River, consisting of 79 logs and 19 root wads. The addition of these structures will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels, increasing the quality and quantity of rearing habitat within the project reach, and by providing velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids.

Project Description:

Location:

Grantee will perform work along a section of North Fork Noyo River, beginning 4 miles upstream of the confluence with the Noyo River and continuing upstream for 6,665 feet. The locations of the project boundaries are approximately 39.4654º north latitude, 123.5384º west longitude at the downstream end; and 39.4757º north latitude, 123.5526º west longitude at the upstream end as depicted in the Project Location Map.

Project Set Up:

Grantee Technical Staff perform pre-project design, monitoring, and photo documentation. Grantee Conservationist I will supervise the CCC Laborers in the implementation of the project and during the spike operation. Grantee Laborers will provide the hand labor for the instream LWD structures.

Materials:
A total of 47 LWD features, consisting of 79 logs and 19 root wads, will be constructed and anchored with 1" threaded rebar, nuts, washers, 5/8" galvanized cable, cable clamps, and waterproof epoxy glue, or by wedging into riparian trees without using anchoring materials.

Tasks:
Task 1: Install Instream Habitat Features
Install instream habitat features at 47 locations including 98 pieces of large wood/root wads along 6,665 feet of North Fork Noyo River. Work will consist of the following:

- Grantee will construct instream log structures according to the site specific plans to be provided, using locally available logs or logs from other locations.
- Nuts, washers, plates, cable, glue and rebar will be ordered as applicable.
- Location of all project LWD will be documented
- Various anchoring techniques, which will be approved by the Grantor Project Manager prior to the initiation of work, may be used to hold multiple logs together to form complex structures. Anchoring techniques will include wedging logs into existing rocks and logs along the riparian banks; anchoring to live mature trees growing on riparian banks; or anchoring to existing boulders. Anchoring materials will consist of 1" threaded rebar, cable, nuts and washers, and waterproof epoxy.

Task 2: Erosion Control
Mulching will take place as sites are completed on all exposed soils which may deliver sediment to a stream in order to avoid unforeseen erosion.

Deliverables:
A total of 47 features will be constructed within the 6,665 foot project reach. Approximately 46 pieces of LWD will be anchored using anchoring materials to create complex features. Approximately 52 pieces of LWD will be anchored by wedging into riparian trees and without anchoring materials.

Timelines:
Installation of LWD features (within approved project reach) –
- June 15, 2015 through October 31, 2015
- June 15, 2016 through October 31, 2016

- June 15, 2017 through October 31, 2017
- June 15, 2018 through October 31, 2018

Erosion control will be installed as project features are completed.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

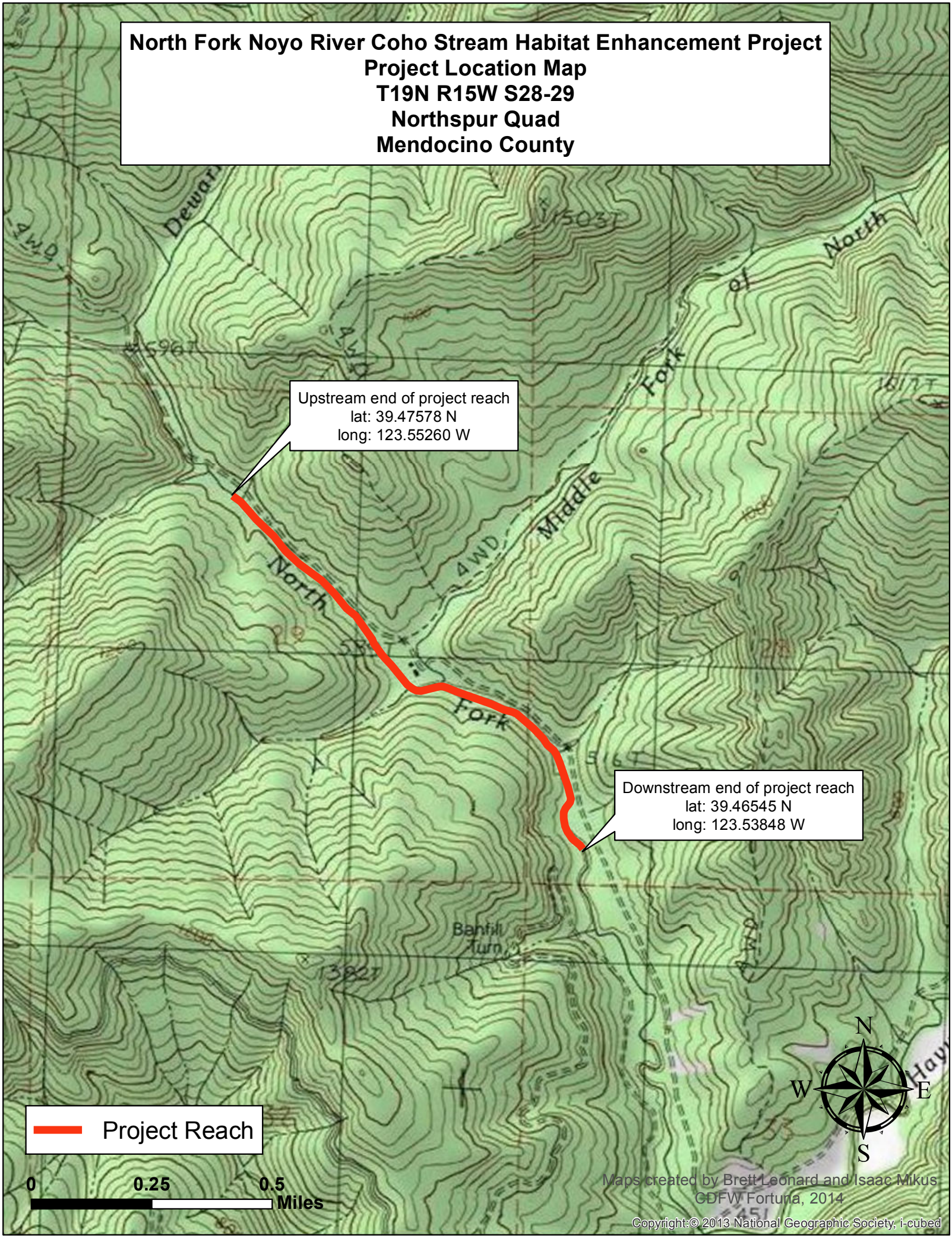
3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Northspur Quad and Surrounding Quads for:
HI 097 North Fork Noyo River Coho Stream Habitat Enhancement Project
M T19N R15W sections 28, 29
Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S3	SC
2	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
3	Behren's silverspot butterfly *Speyeria zerene behrensii*	IILEPJ6088	Endangered		G5T1	S1	
4	Bolander's beach pine *Pinus contorta ssp. bolanderi*	PGPIN04081			G5T2	S2	1B.2
5	California sedge *Carex californica*	PMCYP032D0			G5	S2?	2B.3
6	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
7	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
8	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
9	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
10	Mendocino Pygmy Cypress Forest	CTT83161CA			G2	S2.1	
11	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
12	Milo Baker's lupine *Lupinus milo-bakeri*	PDFAB2B4E0		Threatened	G1Q	S1	1B.1
13	Monterey clover *Trifolium trichocalyx*	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
14	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
15	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
16	Pacific lamprey *Entosphenus tridentatus*	AFBAA02100			G4	S4	
17	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
18	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
19	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
20	Sphagnum Bog	CTT51110CA			G3	S1.2	
21	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
22	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
23	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
25	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
26	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
27	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
28	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
29	glandular western flax *Hesperolinon adenophyllum*	PDLIN01010			G3	S3	1B.2
30	grass alisma *Alisma gramineum*	PMALI01010			G5	S1S2	2B.2
31	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
32	lagoon sedge *Carex lenticularis var. limnophila*	PMCYP037A7			G5T5	S1	2B.2
33	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
34	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
35	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
36	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
37	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
38	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
39	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
40	pygmy cypress *Hesperocyparis pygmaea*	PGCUP04032			G2	S2	1B.2
41	pygmy manzanita *Arctostaphylos nummularia ssp. mendocinoensis*	PDERI04280			G3?T1	S1	1B.2
42	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
43	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
44	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S3	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
45	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
46	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
47	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
48	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
49	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
50	watershield *Brasenia schreberi*	PDCAB01010			G5	S2	2B.3
51	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
52	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
53	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
54	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2


North Fork Noyo River Coho Stream Habitat Enhancement Project
Project Location Map
T19N R15W S28-29
Northspur Quad
Mendocino County
Upstream end of project reach
lat: 39.47578 N
long: 123.55260 W
Downstream end of project reach
lat: 39.46545 N
long: 123.53848 W
Project Reach
0
0.25
0.5
Miles
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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Flynn Creek Coho Habitat Enhancement Project

Introduction:

Grantee will implement the Flynn Creek Coho Habitat Enhancement Project. The lack of large woody debris (LWD) in the stream channel has affected the quality and quantity of salmonid habitat within Flynn Creek by reducing the amount of large channel forming features and the loss of complex cover for salmonids. A California Department of Fish and Wildlife (CDFW) stream habitat inventory survey was conducted on Flynn Creek in 1996 and limiting factors to salmonids were identified. The stream habitat inventory report shows that the pools of Flynn Creek have a mean shelter rating of 39. A pool shelter rating of approximately 100 is desirable.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. All habitat restoration improvements will follow techniques in the California Salmonid Stream Habitat Restoration Manual, Part VII. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

The specific objective of this project is to create a total of 18 instream features within a total of 0.8 miles of Flynn Creek, consisting of 35 pieces of LWD. The addition of these structures will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels, increasing the quality and quantity of rearing habitat within the project reach, and by providing velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids.

Project Description:

Location:

The Grantee will conduct work along a section of Flynn Creek beginning 200 feet upstream from the confluence with North Fork Navarro River and continuing upstream for 0.8 miles. The locations of the project boundaries are approximately 39.1611º north latitude, 123.5824º west longitude at the downstream end; and 39.1652º north latitude, 123.5843º west longitude at the upstream end as depicted in the Project Location Map.

Project Set Up:

Grantee Executive Director is responsible for: grant oversight, reviewing or creating and executing subcontractor agreements, reviewing and approving invoices, responding to Grantor inquiries, assisting Project Manager as required, and responding to landowner inquiries. Grantee Project Manager implements the project and is responsible for meeting grant deliverables from landowner access agreements to overseeing contractors and responding to all project

related inquiries. Grantee Contract Administrator reviews bills and prepares invoices, responds to Grantor inquiries regarding invoices and payments, maintains the grant budget spreadsheets, maintains the grant folder which includes all project documentation, i.e., the grant agreement, invoices and bills, subcontracts, insurance documentation, landowner access agreements. The subcontracted Project Manager, Project Technician, Timber Equipment Operator, Timber Chainsaw Operator will prepare feature designs, install log features, and manage project monitoring data and project reporting.

Materials:

A total of 18 LWD features including will be constructed by direct felling of 6 riparian trees and by importing 29 logs/roots from nearby areas. If necessary features will be anchored with 1" threaded rebar, nuts, and washers. Weed free straw mulch will be used for erosion control.

Tasks:

Task 1: Install Instream Habitat Features

Subcontractor will install instream habitat features at 18 locations including 35 pieces of large wood/root wads along 0.8 miles of Flynn Creek. Approximately 6 pieces of the large wood will be generated by felling of live riparian conifer trees and 29 pieces of LWD will be salvaged from nearby areas. A timber operator using a rubber-tired skidder will bring salvaged logs to the project site, gather LWD from riparian banks, and position LWD following feature designs. LWD that is left unanchored will be 1.5 times the bankfull width of the project stream. If necessary features will be anchored with 1" threaded rebar, nuts, and washers.

Task 2: Erosion Control

Mulching will take place as sites are completed on all exposed soils which may deliver sediment to a stream in order to avoid unforeseen erosion.

Deliverables:

A total of 18 features will be constructed within the 0.8 mile project reach.

Timelines:

Installation of LWD features (within approved project reach) –

- June 15, 2015 through October 31, 2015
- June 15, 2016 through October 31, 2016

Erosion control will be installed as project features are completed.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the

California Department of Fish and Wildlife.

2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

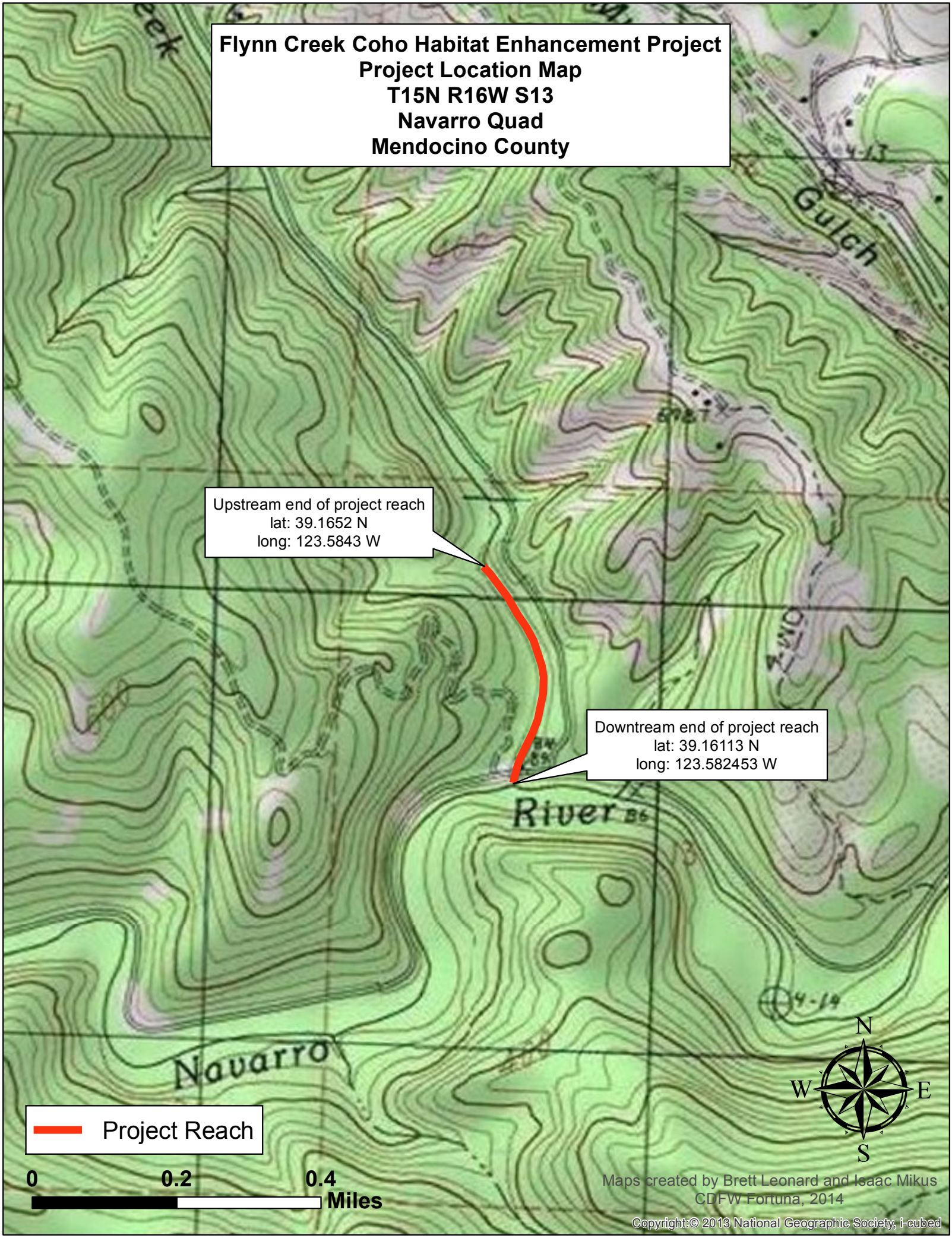
3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Navarro Quad and Surrounding Quads for:
HI 106 Flynn Creek Coho Habitat Enhancement Project
M 15N 16W Section 13
Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
2	Behren's silverspot butterfly *Speyeria zerene behrensii*	IILEPJ6088	Endangered		G5T1	S1	
3	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
4	Bolander's beach pine *Pinus contorta ssp. bolanderi*	PGPIN04081			G5T2	S2	1B.2
5	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
6	California sedge *Carex californica*	PMCYP032D0			G5	S2?	2B.3
7	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
8	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
9	Grand Fir Forest	CTT82120CA			G1	S1.1	
10	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
11	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
12	Mendocino Pygmy Cypress Forest	CTT83161CA			G2	S2.1	
13	Mendocino leptonetid spider *Calileptoneta wapiti*	ILARAU6040			G1	S1	
14	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
15	Monterey clover *Trifolium trichocalyx*	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
16	Navarro roach *Lavinia symmetricus navarroensis*	AFCJB19023			G4T1T2	S1S2	SC
17	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
18	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
19	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
20	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
21	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
22	Point Arena mountain beaver *Aplodontia rufa nigra*	AMAFA01011	Endangered		G5T1	S1	SC
23	Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012			G5T2	S2	1B.2
24	Pomo bronze shoulderband *Helminthoglypta arrosa pomoensis*	IMGASC2033			G2G3T1	S1	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Roderick's fritillary *Fritillaria roderickii*	PMLIL0V0M0		Endangered	G1Q	S1	1B.1
26	Santa Cruz clover *Trifolium buckwestiorum*	PDFAB402W0			G2	S2	1B.1
27	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
28	Sphagnum Bog	CTT51110CA			G3	S1.2	
29	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
30	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
31	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
32	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
33	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
34	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
35	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
36	glandular western flax *Hesperolinon adenophyllum*	PDLIN01010			G3	S3	1B.2
37	great burnet *Sanguisorba officinalis*	PDROS1L060			G5?	S2	2B.2
38	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
39	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
40	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S1	1B.2
41	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
42	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
43	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
44	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
45	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
47	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T1	S1	1B.2
48	pygmy cypress *Hesperocyparis pygmaea*	PGCUP04032			G2	S2	1B.2
49	pygmy manzanita *Arctostaphylos nummularia ssp. mendocinoensis*	PDERI04280			G3?T1	S1	1B.2
50	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
51	small groundcone *Kopsiopsis hookeri*	PDORO01010			G5	S1S2	2B.3
52	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
53	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
54	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
55	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
56	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
57	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
58	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	


Flynn Creek Coho Habitat Enhancement Project
Project Location Map
T15N R16W S13
Navarro Quad
Mendocino County
Upstream end of project reach
lat: 39.1652 N
long: 123.5843 W
Downtream end of project reach
lat: 39.16113 N
long: 123.582453 W
Gulch
River
Navarro
N
W
E
S
Project Reach
0
0.2
0.4
Miles
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
Copyright:© 2013 National Geographic Society, i-cubed

Redwood Creek Coho Stream Habitat Enhancement Project

Introduction:

Grantee will implement the Redwood Creek Coho Stream Habitat Enhancement Project. The lack of large woody debris (LWD) in the stream channel has affected the quality and quantity of salmonid habitat within Redwood Creek by reducing the amount of large channel forming features and the loss of complex cover for salmonids. A California Department of Fish and Wildlife (CDFW) stream habitat inventory survey was conducted on Redwood Creek in 2000 and limiting factors to salmonids were identified. The stream habitat inventory report shows that the pools of Redwood Creek have a mean shelter rating of 38. A pool shelter rating of approximately 100 is desirable.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. All habitat restoration improvements will follow techniques in the California Salmonid Stream Habitat Restoration Manual, Part VII. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

The specific objective of this project is to create a total of 45 instream features within a 7,290 foot section of Redwood Creek, consisting of 106 logs and 10 root wads. The addition of these structures will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels, increasing the quality and quantity of rearing habitat within the project reach, and by providing velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids.

Project Description:

Location:

The Grantee will conduct work along a section of Redwood Creek beginning 9,500 feet upstream of the confluence with Noyo River and continuing upstream for 7,290 feet. The locations of the project boundaries are approximately 39.4529º north latitude, 123.4784º west longitude at the upstream end; and 39.4459º north latitude, 123.4963º west longitude at the downstream end, as depicted in the Project Location Map.

Project Set Up:
Grantee Technical Assistant will perform pre-project design, monitoring, and photo documentation. Grantee Conservationist I will supervise the CCC Laborers in the implementation of the project and during the spike operation. Grantee Laborers will provide the hand labor for the instream LWD features.

Materials:
A total of 45 LWD features, consisting of 106 logs and 10 root wads, will be constructed and anchored with 1" threaded rebar, nuts, washers, 5/8" galvanized cable, cable clamps, and waterproof epoxy glue, or by wedging into riparian trees without using anchoring materials.

Tasks:
Task : Install Instream Habitat Features
Install 45 LWD features including 116 pieces of wood will be installed along 7,290 feet of Redwood Creek. Work will consist of the following:

- Grantee will construct instream log structures according to the site specific plans to be provided, using locally available logs or logs from other locations.
- Nuts, washers, plates, cable, glue and rebar will be ordered as applicable.
- Location of all project LWD will be documented
- Various anchoring techniques, which will be approved by the Grantor Project Manager prior to the initiation of work, may be used to hold multiple logs together to form complex structures. Anchoring techniques will include wedging logs into existing rocks and logs along the riparian banks; anchoring to live mature trees growing on riparian banks; or anchoring to existing boulders. Anchoring materials will consist of 1" threaded rebar, cable, nuts and washers, and waterproof epoxy.

Task 2: Erosion Control
Mulching will take place as sites are completed on all exposed soils which may deliver sediment to a stream in order to avoid unforeseen erosion.

Deliverables:
A total of 45 features consisting of 106 logs and 10 root wads will be constructed within the 7,290 foot project reach. Approximately 38 pieces of LWD will be

anchored using anchoring materials to create complex features. Approximately 78 pieces of LWD will be anchored by wedging into riparian trees and without using anchoring materials.

Timelines:

Installation of LWD features within approved project reach –

- June 15, 2015 through October 31, 2015
- June 15, 2016 through October 31, 2016
- June 15, 2017 through October 31, 2017
- June 15, 2018 through October 31, 2018

Erosion control will be installed as project features are completed.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

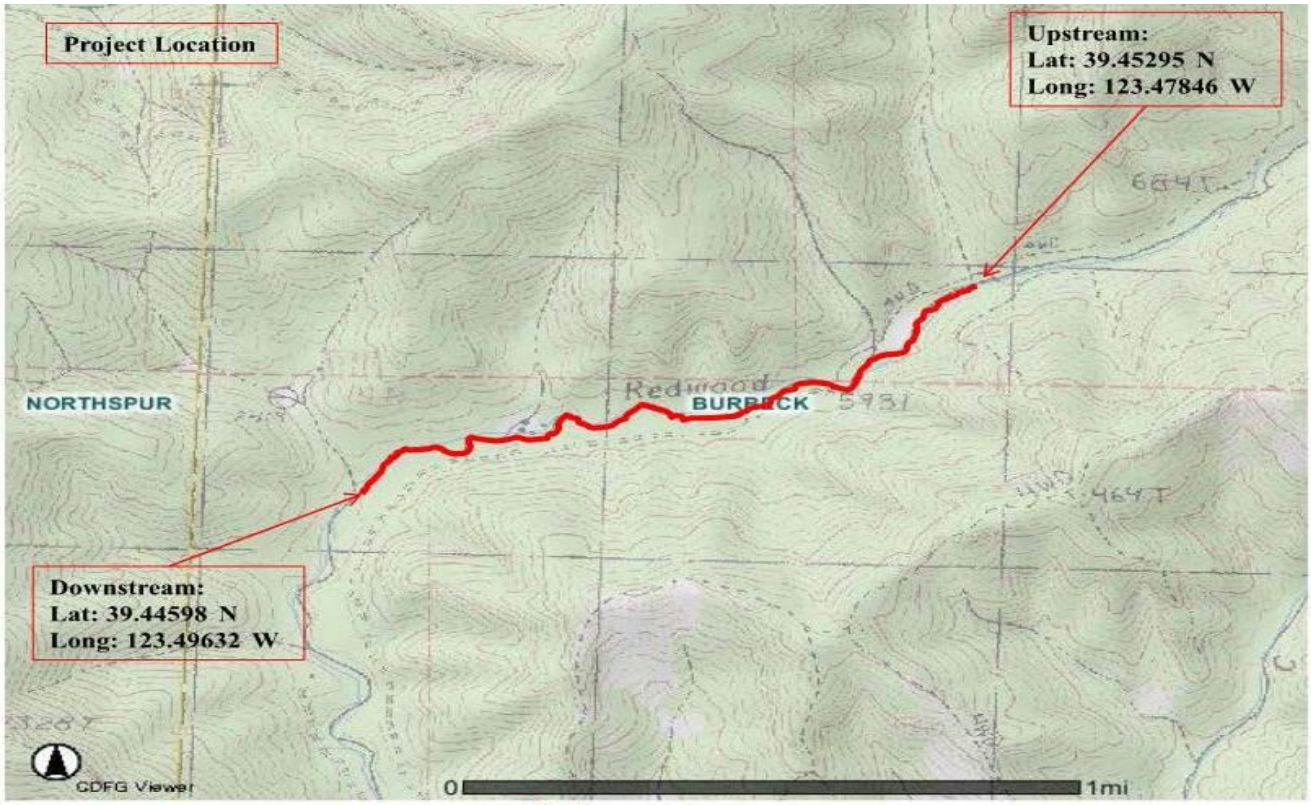
3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Burbeck Quad and Surrounding Quads for:
HI 107 Redwood Creek Coho Stream Habitat Enhancement Project
M T18N 15W sections 1, 2
M T19N 15W section 36
Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S3	SC
2	Baker's meadowfoam *Limnanthes bakeri*	PDLIM02020		Rare	G1	S1	1B.1
3	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
4	Behren's silverspot butterfly *Speyeria zerene behrensii*	IILEPJ6088	Endangered		G5T1	S1	
5	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
6	Milo Baker's lupine *Lupinus milo-bakeri*	PDFAB2B4E0		Threatened	G1Q	S1	1B.1
7	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
8	Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080			G5	S2S3	2B.2
9	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
10	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
11	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
12	Roderick's fritillary *Fritillaria roderickii*	PMLIL0V0M0		Endangered	G1Q	S1	1B.1
13	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
14	Valley Oak Woodland	CTT71130CA			G3	S2.1	
15	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
16	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
17	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
18	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
19	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
20	glandular western flax *Hesperolinon adenophyllum*	PDLIN01010			G3	S3	1B.2
21	grass alisma *Alisma gramineum*	PMALI01010			G5	S1S2	2B.2
22	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
23	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
24	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
25	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
26	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
27	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S3	
28	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
29	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
30	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
31	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
32	watershield *Brasenia schreberi*	PDCAB01010			G5	S2	2B.3
33	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
34	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
35	yellow warbler *Setophaga petechia*	ABPBX03010			G5	S3S4	SC
36	yellow-breasted chat *Icteria virens*	ABPBX24010			G5	S3	SC

Redwood Creek Coho Stream Habitat Enhancement Project
Project Location Map
T18N, R15W, S 01, 02, and T19N, R15W, S36
Burbeck Quad
Mendocino County



Upper Noyo River Large Wood Enhancement Project – Phase III

Introduction:

Grantee will implement the Upper Noyo River Large Wood Enhancement Project - Phase III. The lack of large woody debris (LWD) in the stream channel has affected the quality and quantity of salmonid habitat within the Noyo River by reducing the amount of large channel forming features and the loss of complex cover for salmonids. A California Department of Fish and Wildlife (CDFW) stream habitat inventory survey was conducted on the upper reach of the main stem Noyo River in 2004 and limiting factors to salmonids were identified. The stream habitat inventory report shows that the pools of the mainstem Noyo River have a mean shelter rating of 32. A pool shelter rating of approximately 100 is desirable.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. All habitat restoration improvements will follow techniques in the California Salmonid Stream Habitat Restoration Manual, Part VII. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

The specific objective of this project is to create a total of 41 instream features within a 5,965 foot section of Noyo River, consisting of 102 logs and 11 root wads. The addition of these structures will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels, increasing the quality and quantity of rearing habitat within the project reach, and by providing velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids.

Project Description:

Location:

Grantee will perform work along a section of Noyo River, beginning 31.5 miles upstream of the confluence with the Pacific Ocean and continuing upstream for 5,965 feet. The locations of the project boundaries are approximately 39.43008º north latitude, 123.45551º west longitude at the downstream end; and 39.42808º north latitude, 123.44056º west longitude at the upstream end as depicted in the Project Location Map.

Project Set Up:

Grantee Technical Staff perform pre-project design, monitoring, and photo documentation. Grantee Conservationist I will supervise the CCC Laborers in the implementation of the project and during the spike operation. Grantee

Laborers will provide the hand labor for the instream LWD structures.

Materials: A total of 41 LWD features, consisting of 102 logs and 11 root wads, will be constructed and anchored with 1" threaded rebar, nuts, washers, 5/8" galvanized cable, cable clamps, and waterproof epoxy glue, or by wedging into riparian trees without using anchoring materials.

Tasks:

Task 1: Install Instream Habitat Features

Install instream habitat features at 41 locations including 113 pieces of large wood/root wads along 5,965 feet of Noyo River. Work will consist of the following:

- Grantee will construct instream log structures according to the site specific plans to be provided, using locally available logs or logs from other locations.
- Nuts, washers, plates, cable, glue and rebar will be ordered as applicable.
- Location of all project LWD will be documented
- Various anchoring techniques, which will be approved by the Grantor Project Manager prior to the initiation of work, may be used to hold multiple logs together to form complex structures. Anchoring techniques will include wedging logs into existing rocks and logs along the riparian banks; anchoring to live mature trees growing on riparian banks; or anchoring to existing boulders. Anchoring materials will consist of 1" threaded rebar, cable, nuts and washers, and waterproof epoxy.

Task 2: Erosion Control

Mulching will take place as sites are completed on all exposed soils which may deliver sediment to a stream in order to avoid unforeseen erosion.

Deliverables:

A total of 41 features will be constructed within the 5,965 foot project reach. Approximately 49 pieces of LWD will be anchored using anchoring materials to create complex features. Approximately 64 pieces of LWD will be anchored by wedging into riparian trees and without anchoring materials.

Timelines:

Installation of LWD features within approved project reach –

- June 15, 2015 through October 31, 2015

- June 15, 2016 through October 31, 2016
- June 15, 2017 through October 31, 2017
- June 15, 2018 through October 31, 2018

Erosion control will be installed as project features are completed.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

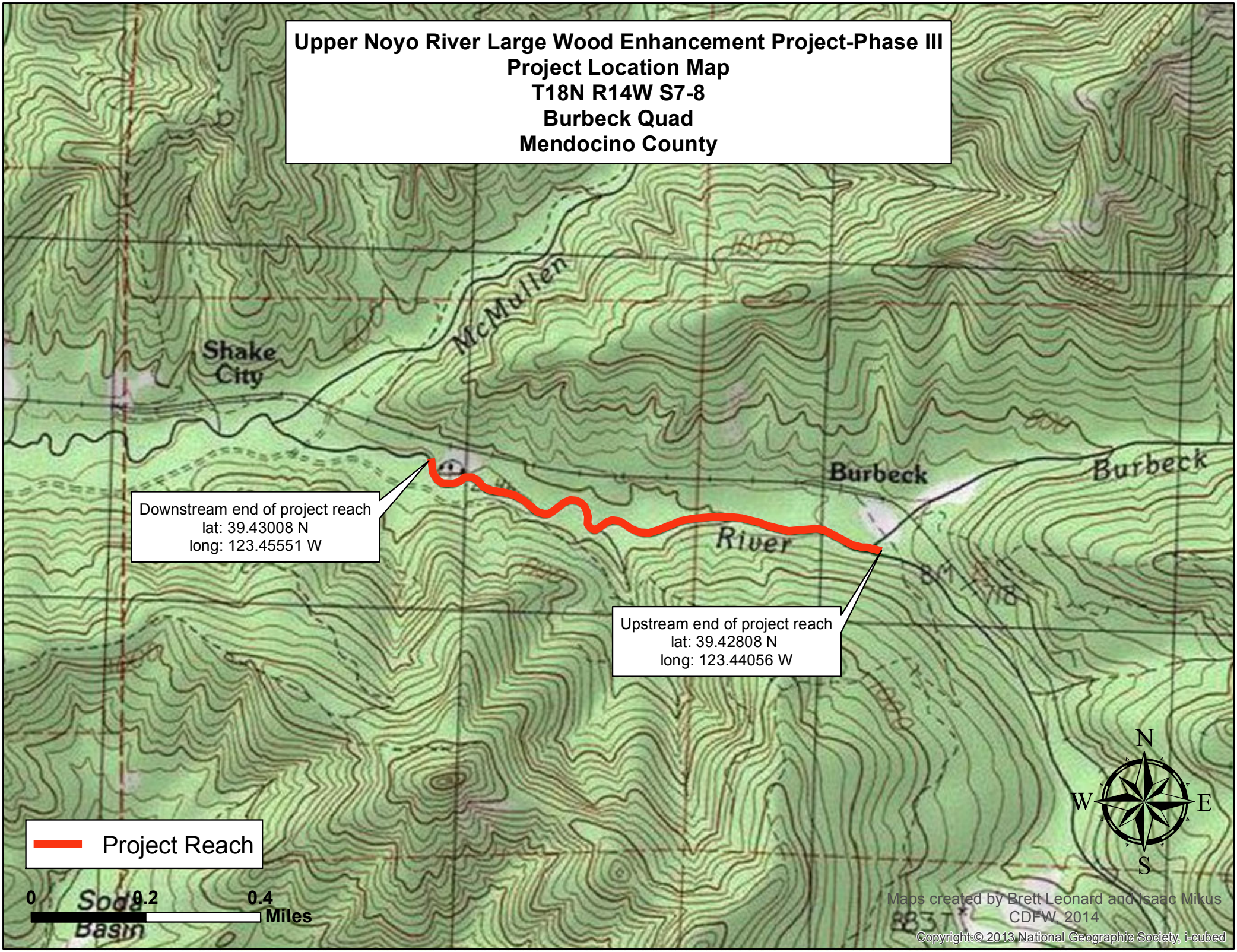
2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Burbeck Quad and Surrounding Quads for:
HI 112 Upper Noyo River Large Wood Enhancement Project–Phase III
T18N R14W
Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S3	SC
2	Baker's meadowfoam *Limnanthes bakeri*	PDLIM02020		Rare	G1	S1	1B.1
3	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
4	Behren's silverspot butterfly *Speyeria zerene behrensii*	IILEPJ6088	Endangered		G5T1	S1	
5	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
6	Milo Baker's lupine *Lupinus milo-bakeri*	PDFAB2B4E0		Threatened	G1Q	S1	1B.1
7	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
8	Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080			G5	S2S3	2B.2
9	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
10	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
11	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
12	Roderick's fritillary *Fritillaria roderickii*	PMLIL0V0M0		Endangered	G1Q	S1	1B.1
13	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
14	Valley Oak Woodland	CTT71130CA			G3	S2.1	
15	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
16	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
17	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
18	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
19	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
20	glandular western flax *Hesperolinon adenophyllum*	PDLIN01010			G3	S3	1B.2
21	grass alisma *Alisma gramineum*	PMALI01010			G5	S1S2	2B.2
22	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
23	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
24	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
25	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
26	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
27	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S3	
28	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
29	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
30	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
31	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
32	watershield *Brasenia schreberi*	PDCAB01010			G5	S2	2B.3
33	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
34	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
35	yellow warbler *Setophaga petechia*	ABPBX03010			G5	S3S4	SC
36	yellow-breasted chat *Icteria virens*	ABPBX24010			G5	S3	SC


Upper Noyo River Large Wood Enhancement Project-Phase III
Project Location Map
T18N R14W S7-8
Burbeck Quad
Mendocino County
McMullen
Shake City
Burbeck
Burbeck
River
Downstream end of project reach
lat: 39.43008 N
long: 123.45551 W
Upstream end of project reach
lat: 39.42808 N
long: 123.44056 W
Project Reach
0
0.2
0.4
Miles
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW, 2014
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Cahto Creek Coho Salmon Habitat Enhancement

Introduction:

Mendocino County Resource Conservation District will implement the Cahto Creek Coho Habitat Enhancement project. The lack of large woody debris (LWD) in the stream channel has affected the quality and quantity of salmonid habitat within Cahto Creek by reducing the amount of large channel forming features and the loss of complex cover for salmonids. A California Department of Fish and Wildlife (CDFW) stream habitat inventory survey was conducted on Cahto Creek in 2009 and limiting factors to salmonids were identified. The stream habitat inventory report shows that the pools of Cahto Creek have a mean shelter rating of 31. A pool shelter rating of approximately 100 is desirable.

The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured. All habitat improvements will follow techniques in the California Stream Habitat Restoration Manual, Part VII. Work in flowing streams is restricted to June 15 through October 31. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

The specific objective of this project is to create a total of 5 instream fish habitat structures, each consisting of 3 logs anchored together, along a one-mile reach of Cahto Creek. The addition of these structures will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels, increasing the quality and quantity of rearing habitat within the project reach, and by providing velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids.

Project Description:

Location:

The Grantee will conduct work along a section of Cahto Creek beginning approximately 0.8 miles upstream from its confluence with Tenmile Creek and continuing upstream for 1 mile. The downstream terminus of the project reach is located at 39.67249010º north latitude, 123.49530980º west longitude; and the upstream extent of the reach is at 39.66714478º north latitude, 123.50726020º west longitude as depicted in the Project Location Map.

Project Set Up:

Grantee Executive Director is responsible for grant oversight, reviewing or creating and executing subcontractor agreements, reviewing and approving invoices, responding to Grantor inquiries, assisting Project Manager as required, and responding to landowner inquiries. Grantee Project Manager implements the project and is responsible for meeting grant deliverables from landowner access agreements to overseeing contractors and responding to all project related

inquiries. Grantee Fiscal Officer reviews bills and prepares invoices, responds to Grantor inquiries regarding invoices and payments, maintains the grant budget spreadsheets, maintains the grant folder which includes all project documentation, i.e., the grant agreement, invoices and bills, subcontracts, insurance documentation, and landowner access agreements. The subcontracted Crewmembers, Equipment Operator, and Environmental Department Director will install habitat structures, follow the Aquatic Invasive Species Decontamination Protocol, plant native trees and place native mulch for erosion control, and assist with preparation of structure designs, project monitoring and project reporting.

Materials:

Materials that will be used to implement the project include 15 imported redwood or Douglas fir logs (1.5-foot diameter x 20-feet long), habitat structure anchoring materials (cable, rebar, clamps, etc.), native plants, and petroleum absorbent cloths.

Tasks:

Task 1. Install Instream Habitat Structures:

The project will install 5 LWD habitat structures within the 1 mile reach of Cahto Creek on Cahto Rancheria property. All structures will be anchored per Tribal request to prevent loss of the logs during storm events. Key log pieces will be pinned into the banks and cabled together to create a single structure. Three key logs are proposed to be installed at each site, totaling 15 logs for this project. An excavator will transport logs to each site and then place them in desired orientations, utilizing nearby riparian trees as stabilizing mechanisms. The labor crew will secure logs together with cable, and will secure logs to the stream bank with 10-foot lengths of rebar. Small branches and limbs will be placed manually in the log structures to provide additional cover. All proposed work will be constructed according to the standards described in Part VII of the California Salmonid Stream Habitat Restoration Manual.

Task 2. Erosion Control:

Access routes will be planted with native species and mulched with native forest duff after equipment exit. Planting will occur in fall after rainfall has increased soil moisture to an appropriate level.

Deliverables:

- Installation of five large wood habitat structures (15 logs) at specific locations in Cahto Creek.
- Install native plants and spread mulch on all exposed soil related to project.
- Final project report consistent with grant requirements.

Timelines:

Installation of LWD habitat structures within the approved project reach –

- September 15, 2015 to October 15, 2015 or
- July 1, 2016 to October 15, 2016

Erosion control will be installed as project features are completed.

Completed Final Report will be submitted by December 15, 2016.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Timing of work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

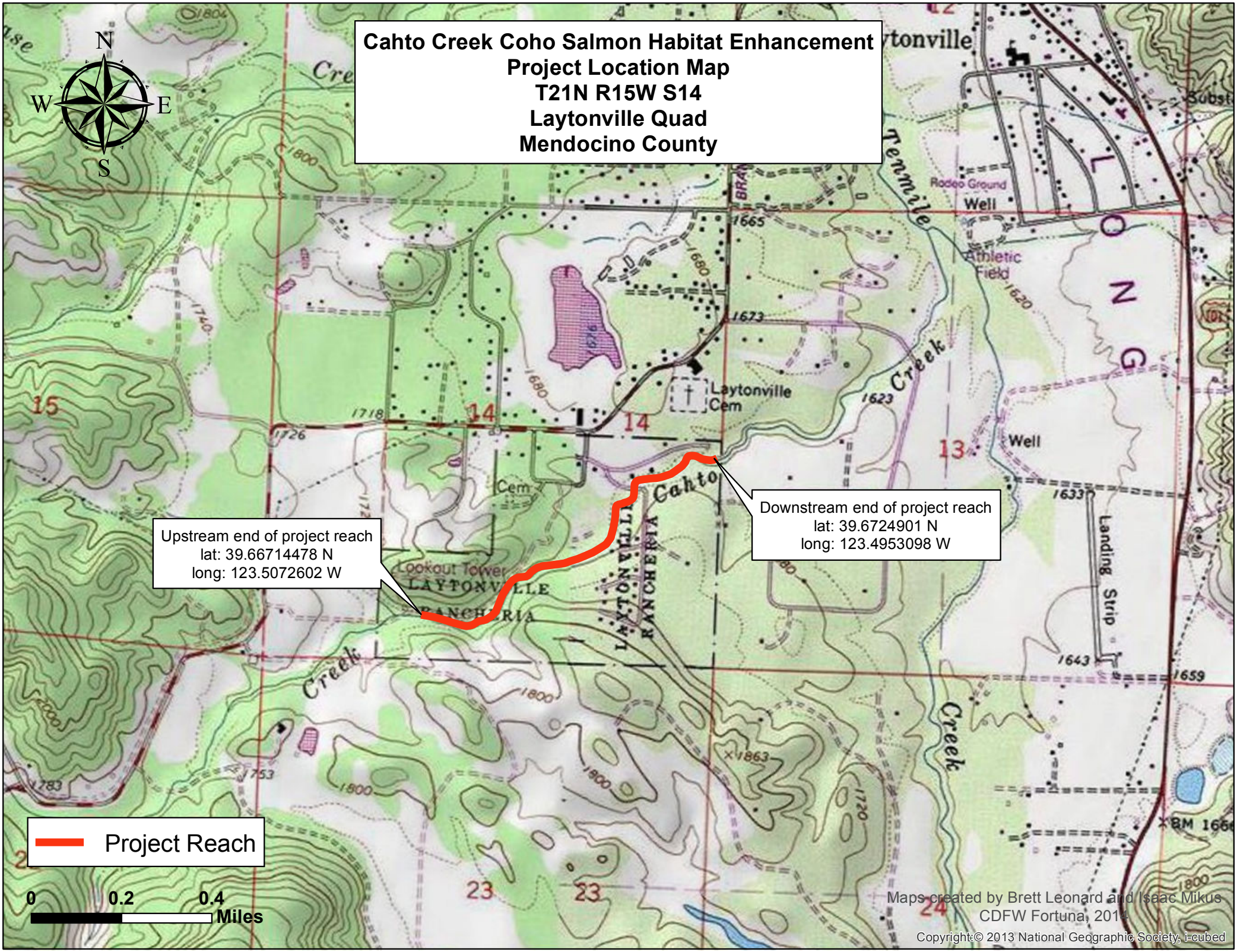
2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
SFWS Marbled Murrelet Critical Habitat within Laytonville quad for Cahto Creek Coho Salmon Habitat Enhancement
M 21N 15W Section 14 Mendecino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S3	SC
2	Baker's meadowfoam *Limnanthes bakeri*	PDLIM02020		Rare	G1	S1	1B.1
3	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
4	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
5	Milo Baker's lupine *Lupinus milo-bakeri*	PDFAB2B4E0		Threatened	G1Q	S1	1B.1
6	North Central Coast Fall-Run Steelhead Stream	CARA2631CA			GNR	SNR	
7	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
8	Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080			G5	S2S3	2B.2
9	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
10	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
11	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
12	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
13	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
14	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
15	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
16	coast range bindweed *Calystegia collina ssp. tridactylosa*	PDCON04036			G4T1	S1	1B.2
17	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
18	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
19	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
20	grass alisma *Alisma gramineum*	PMALI01010			G5	S1S2	2B.2
21	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
22	long-eared myotis *Myotis evotis*	AMACC01070			G5	S4?	
23	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
25	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G5	S3	2B.3
26	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
27	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
28	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
29	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
30	watershield *Brasenia schreberi*	PDCAB01010			G5	S2	2B.3
31	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
32	western red bat *Lasiurus blossevillii*	AMACC05060			G5	S3?	SC
33	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2


Cahto Creek Coho Salmon Habitat Enhancement
Project Location Map
T21N R15W S14
Laytonville Quad
Mendocino County
N
W
E
S
Upstream end of project reach
lat: 39.66714478 N
long: 123.5072602 W
Downstream end of project reach
lat: 39.6724901 N
long: 123.4953098 W
Project Reach
0
0.2
0.4
Miles
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
Copyright © 2013 National Geographic Society, i-cubed
Laytonville Cem
Rodeo Ground
Athletic Field
Well
Landing Strip
Lookout Tower
Cahto Creek
Tenmile Creek
LAYTONVILLE RANCHERIA

South Fork Albion River Coho Stream Habitat Enhancement Project - Phase II

Introduction:

Grantee will implement the South Fork Albion River Coho Habitat Enhancement Project - Phase II. The lack of large woody debris (LWD) in the stream channel has affected the quality and quantity of salmonid habitat within South Fork Albion River by reducing the amount of large channel forming features and the loss of complex cover for salmonids. A California Department of Fish and Wildlife (CDFW) stream habitat inventory survey was conducted on South Fork Albion River in 1998 and limiting factors to salmonids were identified. The stream habitat inventory report shows that the pools of South Fork Albion River have a mean shelter rating of 29. A pool shelter rating of approximately 100 is desirable.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. All habitat restoration improvements will follow techniques in the California Salmonid Stream Habitat Restoration Manual, Part VII. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

The specific objective of this project is to create a total of 35 instream features within a 7,355 foot section of South Fork Albion River, consisting of 70 logs and 10 root wads. The addition of these structures will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels, increasing the quality and quantity of rearing habitat within the project reach, and by providing velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids.

Project Description:

Location:

The Grantee will conduct work along a section of South Fork Albion River beginning 7,950 feet upstream of confluence with Albion River and continuing upstream for 7,355 feet. The locations of the project boundaries are approximately 39.2418º north latitude, 123.6603º west longitude at the downstream end; and 39.2298º north latitude, 123.6447º west longitude at the upstream end as depicted in the Project Location Map.

Project Set Up:

Grantee Technical Staff perform pre-project design, monitoring, and photo documentation. Grantee Conservationist I will supervise the CCC Laborers in the implementation of the project and during the spike operation. Grantee Laborers will provide the hand labor for the instream LWD structures.

Materials:
A total of 35 LWD features, consisting of 70 logs and 10 root wads, will be constructed and anchored with 1" threaded rebar, nuts, washers, 5/8" galvanized cable, cable clamps, and waterproof epoxy glue, or by wedging into riparian trees without using anchoring materials.

Tasks:
Task 1: Install Instream Habitat Features:

Install instream habitat features at 35 locations including 80 pieces of large wood/root wads along 7,355 feet of South Fork Albion River. Work will consist of the following:

- Grantee will construct instream log structures according to the site specific plans to be provided, using locally available logs or logs from other locations.
- Nuts, washers, plates, cable, glue and rebar will be ordered as applicable.
- Location of all project LWD will be documented
- Various anchoring techniques, which will be approved by the Grantor Project Manager prior to the initiation of work, may be used to hold multiple logs together to form complex structures. Anchoring techniques will include wedging logs into existing rocks and logs along the riparian banks; anchoring to live mature trees growing on riparian banks; or anchoring to existing boulders. Anchoring materials will consist of 1" threaded rebar, cable, nuts and washers, and waterproof epoxy.

Task 2: Erosion Control

Mulching will take place as sites are completed on all exposed soils which may deliver sediment to a stream in order to avoid unforeseen erosion.

Deliverables:
A total of 35 features will be constructed within the 7,355 foot project reach. Approximately 54 pieces of LWD will be anchored using anchoring materials to create complex features. Approximately 26 pieces of LWD will be anchored by wedging into riparian trees and without anchoring materials.

Timelines:
Installation of LWD features (within approved project reach) –

- June 15, 2015 through October 31, 2015
- June 15, 2016 through October 31, 2016
- June 15, 2017 through October 31, 2017
- June 15, 2018 through October 31, 2018

Erosion control will be installed as project features are completed.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the California Salmonid Stream Habitat Restoration Manual.

3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Elk Quad and Surrounding Quads for:
HI 115 South Fork Albion River Coho Stream Habitat Enhancement Project-Phase II
T16N R16W Sections 16, 21
Mendocino County

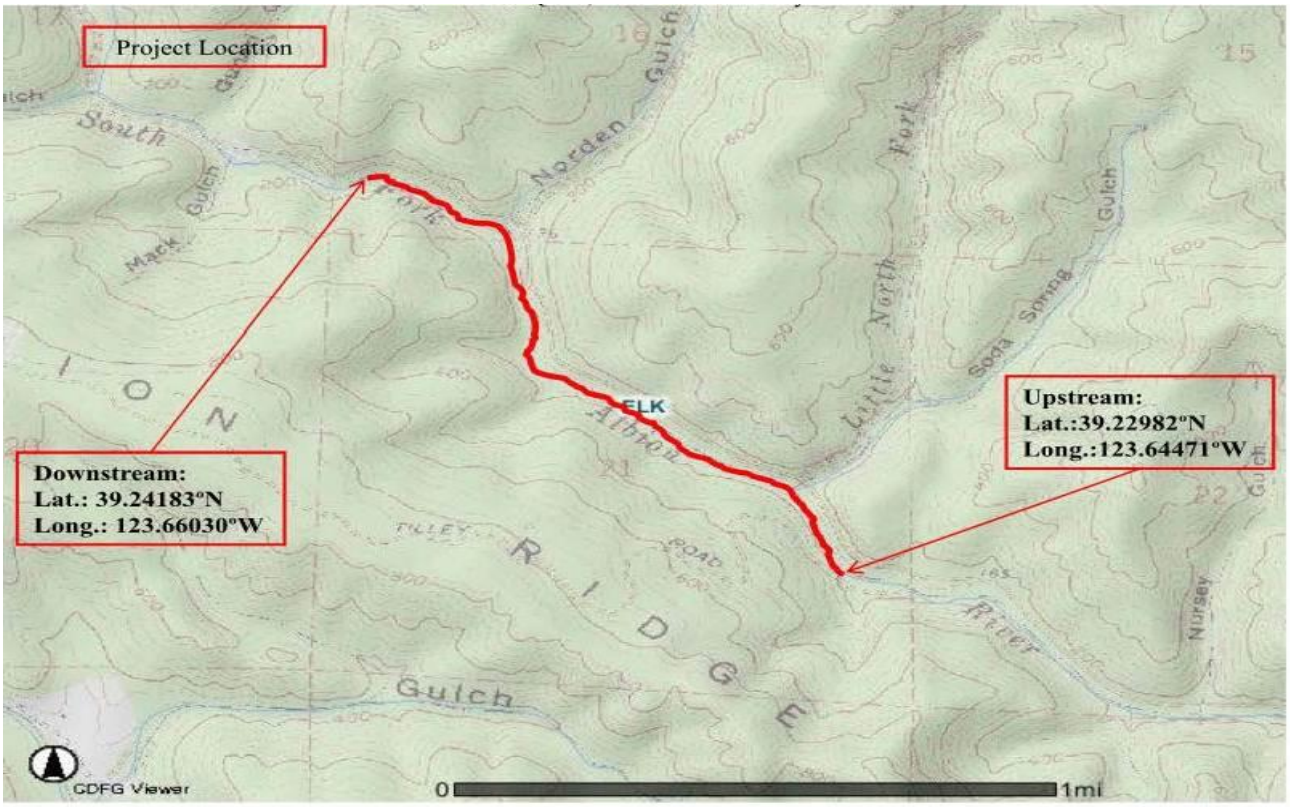
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Baker's goldfields *Lasthenia californica ssp. bakeri*	PDAST5L0C4			G3TH	SH	1B.2
2	Behren's silverspot butterfly *Speyeria zerene behrensii*	IILEPJ6088	Endangered		G5T1	S1	
3	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
4	Bolander's beach pine *Pinus contorta ssp. bolanderi*	PGPIN04081			G5T2	S2	1B.2
5	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
6	California sedge *Carex californica*	PMCYP032D0			G5	S2?	2B.3
7	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
8	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
9	Grand Fir Forest	CTT82120CA			G1	S1.1	
10	Howell's spineflower *Chorizanthe howellii*	PDPGN040C0	Endangered	Threatened	G1	S1	1B.2
11	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
12	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
13	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
14	Mendocino Pygmy Cypress Forest	CTT83161CA			G2	S2.1	
15	Mendocino dodder *Cuscuta pacifica var. papillata*	PDCUS011A2			G5T1	S1	1B.2
16	Mendocino leptonetid spider *Calileptoneta wapiti*	ILARAU6040			G1	S1	
17	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
18	Monterey clover *Trifolium trichocalyx*	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
19	Navarro roach *Lavinia symmetricus navarroensis*	AFCJB19023			G4T1T2	S1S2	SC
20	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
21	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
22	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
23	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
24	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
26	Point Arena mountain beaver *Aplodontia rufa nigra*	AMAFA01011	Endangered		G5T1	S1	SC
27	Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012			G5T2	S2	1B.2
28	Pomo bronze shoulderband *Helminthoglypta arrosa pomoensis*	IMGASC2033			G2G3T1	S1	
29	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
30	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
31	Sphagnum Bog	CTT51110CA			G3	S1.2	
32	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
33	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
34	ashy storm-petrel *Oceanodroma homochroa*	ABNDC04030			G2	S2	SC
35	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
36	bunchberry *Cornus canadensis*	PDCOR01040			G5	S2	2B.2
37	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
38	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
39	coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2			G4T2T3	S2S3	1B.2
40	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
41	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
42	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
43	great burnet *Sanguisorba officinalis*	PDROS1L060			G5?	S2	2B.2
44	hair-leaved rush *Juncus supiniformis*	PMJUN012R0			G5	S1	2B.2
45	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
46	livid sedge *Carex livida*	PMCYP037L0			G5	SH	2A

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
47	lotis blue butterfly *Plebejus idas lotis*	IILEPG5013	Endangered		G5TH	SH	
48	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
49	northern microseris *Microseris borealis*	PDAST6E030			G5	S1	2B.1
50	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
51	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
52	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
53	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
54	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
55	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
56	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T1	S1	1B.2
57	pygmy cypress *Hesperocyparis pygmaea*	PGCUP04032			G2	S2	1B.2
58	pygmy manzanita *Arctostaphylos nummularia ssp. mendocinoensis*	PDERI04280			G3?T1	S1	1B.2
59	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
60	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
61	small groundcone *Kopsiopsis hookeri*	PDORO01010			G5	S1S2	2B.3
62	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
63	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
64	supple daisy *Erigeron supplex*	PDAST3M3Z0			G2	S2	1B.2
65	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
66	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
67	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S2	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
68	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
69	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
70	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	

South Fork Albion River Coho Stream Habitat Enhancement Project – Phase II
Project Location Map
T16N, R16W, S 16, 21 Elk Quad
Mendocino County



Hollow Tree Creek Complex Habitat Enhancement Project

Introduction:

Grantee will implement the Hollow Tree Creek Complex Habitat Enhancement Project. The lack of large woody debris (LWD) in the stream channel has affected the quality and quantity of salmonid habitat within Hollow Tree by reducing the amount of large channel forming features and the loss of complex cover for salmonids. California Department of Fish and Wildlife (CDFW) stream habitat inventories were conducted on Redwood Creek, South Fork Redwood Creek, Waldron Creek, and Bond Creek and limiting factors to salmonids were identified. The stream habitat inventory reports for the streams recommend increasing complex woody cover in the pools and flat water habitat units and adding high quality complexity in pools using LWD. The planting of 2500 conifers will ensure a continuous source of shade and contribute to the instream LWD of the future.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. All habitat restoration improvements will follow techniques in the California Salmonid Stream Habitat Restoration Manual, Part VII and XI. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

The specific objective of this project is to create a total of 52 instream features within a total of 3.54 miles of Redwood Creek, South Fork Redwood Creek, Waldron Creek, and Bond Creek, consisting of 300 logs and root wads. Additionally 2,500 native conifer seedlings will be planted along the riparian. The addition of these structures will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels, increasing the quality and quantity of rearing habitat within the project reach, and by providing velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids. Planting seedlings will promote riparian vegetation, provide additional shade for the stream, and establish wood for future recruitment.

Project Description:

Location:

The Grantee will conduct work on 4 tributaries to Hollow Tree Creek: Redwood Creek, South Fork Redwood Creek, Bond Creek, and Waldron Creek.

The Redwood Creek project reach contains multiple sites within a 1.32 mile area, starting 100 feet upstream from the Redwood Creek Bridge on Westside Road approximately 0.4 miles from the confluence with the mainstem of Hollow Tree

Creek. The locations of the project boundaries are approximately 39.7784º north latitude, 123.7532º west longitude at the downstream end; and 39.7700º north latitude, 123.7666º west longitude at the upstream end.

The South Fork Redwood Creek project reach contains multiple sites within a 1.07 mile area, starting 100 feet upstream from the South Fork Redwood Creek Bridge, and approximately 600 feet from the confluence of Redwood Creek. The locations of the project boundaries are approximately 39.7737º north latitude, 123.7579º west longitude at the downstream end; and 39.7622º north latitude, 123.7590º west longitude at the upstream end.

The Bond Creek contains multiple sites within a 0.66 mile area, starting 100 feet upstream of the confluence with the mainstem of Hollow Tree Creek. The locations of the project boundaries are approximately 39.7666º north latitude, 123.7384º west longitude at the downstream end; and 39.7724º north latitude, 123.7335º west longitude at the upstream end.

Waldron Creek contains multiple sites within a 0.49 mile area; starting 25 feet upstream of the Waldron Creek Bridge on Westside Road, approximately 200 feet upstream of the confluence with the mainstem of Hollow Tree Creek. The locations of the project boundaries are approximately 39.7561º north latitude, 123.7252º west longitude at the downstream end; and 39.7570º north latitude, 123.7324º west longitude at the upstream end.

All project locations are depicted in the Project Location Map.

Project Set Up:

The Grantee Project manager will communicate and coordinate with landowner representatives to obtain entry permits, coordinate implementation schedules, obtain wood, and review project implementation details. Upon receipt of notice to proceed, project manager will obtain 1600 permit, hire subcontractors and provide management and direction to subcontractors throughout the duration of the project. All reporting and billing will be pursuant to contract and regulatory guidelines. Project manager will work with a subcontracted Bookkeeper to provide fiscal management to project. Project manager will flag sites for wood delivery and installation, clear brush for equipment as needed, and designate staging areas for equipment and wood along project reaches.

Subcontracted California Conservation Corps (CCC) Conservationist I will supervise CCC Laborers in the implementation of the project and during the spike operation. Subcontracted CCC Laborers will provide the hand labor for the instream LWD structures.

Subcontracted Excavator will be delivered by lowboy to staging area. Wood will be delivered by log trucks, end dumps and self-loader and staged along project reach or staging areas. Self-loader will be used to gather and deliver donated logs from upper watershed areas.

Materials:

A total of 100 pieces of LWD will be installed and anchored with 1" threaded rebar, nuts, washers, 5/8" galvanized cable, cable clamps, and waterproof epoxy glue, or by wedging into riparian trees without using anchoring materials. Approximately 2,500 redwood seedlings will be planted.

Tasks:

Task 1: Install Instream Habitat Features

Subcontractors will install instream habitat features at 52 locations including 100 pieces of large wood/root wads along 3.54 miles of four tributaries to Hollow Tree Creek. Structures will be complex consisting of logs fastened together along with stumps with root wads attached. There will be an average of 5.7 pieces of LWD along with 2 yards of small woody debris in each structure. Where feasible, whole trees will be dropped into the stream channel and left unanchored if they meet the 1.5 time bankfull width requirement. Structures will be built in 4 of the tributaries to Hollow Tree Creek: Redwood Creek, South Fork Redwood Creek, Waldron Creek, and Bond Creek.

Task 2: Erosion Control

Erosion control methods will be employed as required at each structure and along the equipment corridors to eliminate the possibility of sediment transport to the stream. To address concerns over invasive species, this project will follow from the California Department of Fish and Wildlife Aquatic Invasive Species Decontamination Protocols.

Deliverables:

A total of 52 features will be constructed within a total of 3.54 miles of four tributaries to Hollow Tree Creek.

Timelines:

Installation of LWD features within approved project reach –

- June 15, 2015 through October 31, 2015
- June 15, 2016 through October 31, 2016
- June 15, 2017 through October 31, 2017
-

Erosion control will be installed as project features are completed.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

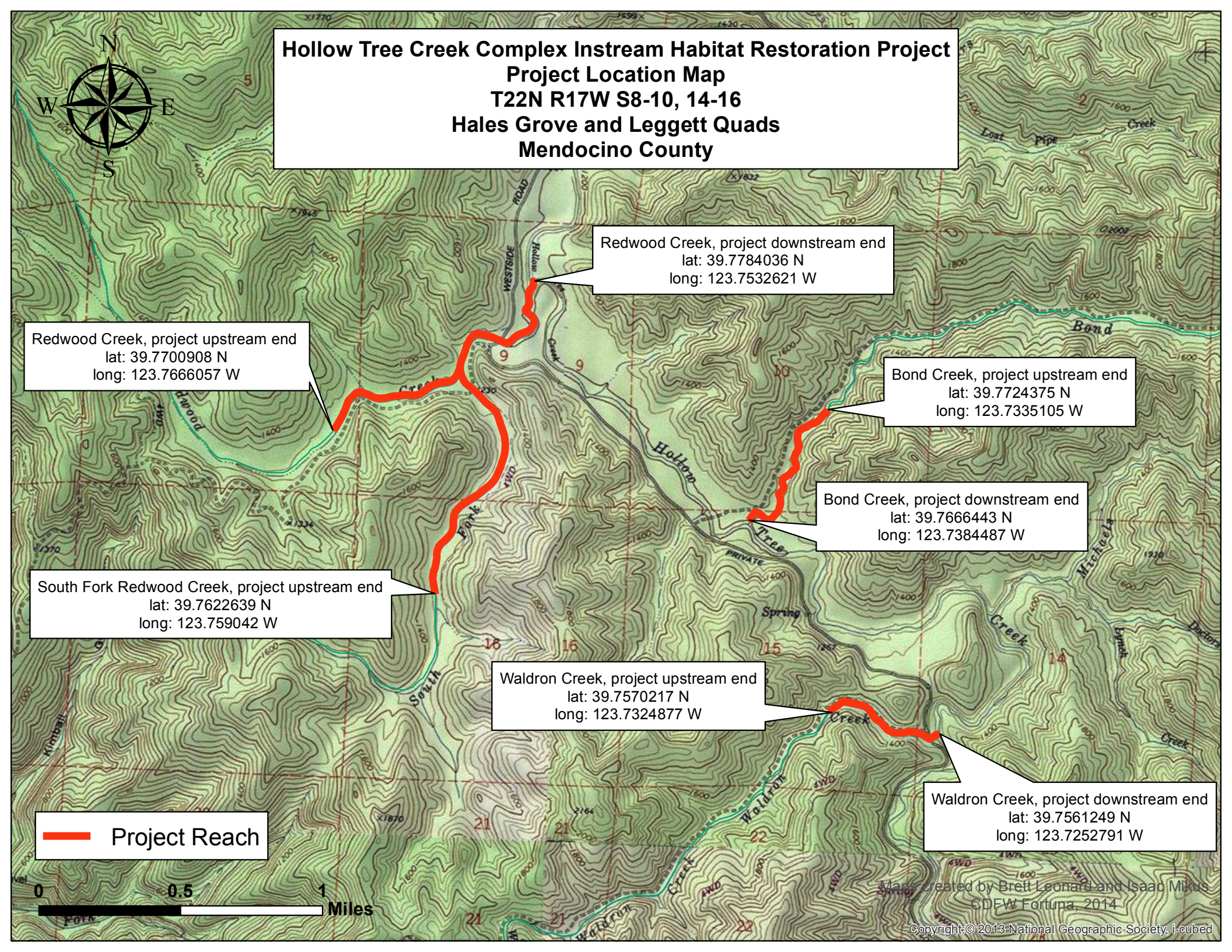
3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Leggett and Hales Grove Quads and Surrounding Quads for:
HI 127 Hollow Tree Creek Complex Habitat Enhancement Project
T22N R17W Sections 8, 9, 10, 16, 15, 14
Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
2	Butte County morning-glory *Calystegia atriplicifolia ssp. buttensis*	PDCON04012			G5T3	S3	4.2
3	California floater *Anodonta californiensis*	IMBIV04020			G3Q	S2?	
4	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
5	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
6	Kellogg's buckwheat *Eriogonum kelloggii*	PDPGN083A0	Candidate	Endangered	G2	S2	1B.2
7	Mcdonald's rockcress *Arabis mcdonaldiana*	PDBRA06150	Endangered	Endangered	G2	S2	1B.1
8	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
9	Mendocino gentian *Gentiana setigera*	PDGEN060S0			G2	S1	1B.2
10	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
11	North Central Coast Fall-Run Steelhead Stream	CARA2631CA			GNR	SNR	
12	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
13	Northern Interior Cypress Forest	CTT83220CA			G2	S2.2	
14	Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080			G5	S2S3	2B.2
15	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
16	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
17	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
18	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
19	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
20	Raiche's manzanita *Arctostaphylos stanfordiana ssp. raichei*	PDERI041G2			G3T2?	S2?	1B.1
21	Red Mountain catchfly *Silene campanulata ssp. campanulata*	PDCAR0U0A2		Endangered	G5T3Q	S3	4.2
22	Red Mountain stonecrop *Sedum laxum ssp. eastwoodiae*	PDCRA0A0L1	Candidate		G5T2	S2	1B.2
23	Sonoma canescent manzanita *Arctostaphylos canescens ssp. sonomensis*	PDERI04066			G3G4T2	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
25	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
26	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
27	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
28	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
29	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
30	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
31	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	SC
32	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
33	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
34	grass alisma *Alisma gramineum*	PMALI01010			G5	S1S2	2B.2
35	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2
36	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
37	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
38	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
39	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G5	S3	2B.3
40	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
41	robust false lupine *Thermopsis robusta*	PDFAB3Z0D0			G2	S2	1B.2
42	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
43	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
44	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
45	watershield *Brasenia schreberi*	PDCAB01010			G5	S2	2B.3
46	western pearlshell *Margaritifera falcata*	IMBIV27020			G4G5	S1S2	
47	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
48	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2


Hollow Tree Creek Complex Instream Habitat Restoration Project
Project Location Map
T22N R17W S8-10, 14-16
Hales Grove and Leggett Quads
Mendocino County
N
W
E
S
Redwood Creek, project downstream end
lat: 39.7784036 N
long: 123.7532621 W
Redwood Creek, project upstream end
lat: 39.7700908 N
long: 123.7666057 W
Bond Creek, project upstream end
lat: 39.7724375 N
long: 123.7335105 W
Bond Creek, project downstream end
lat: 39.7666443 N
long: 123.7384487 W
South Fork Redwood Creek, project upstream end
lat: 39.7622639 N
long: 123.759042 W
Waldron Creek, project upstream end
lat: 39.7570217 N
long: 123.7324877 W
Waldron Creek, project downstream end
lat: 39.7561249 N
long: 123.7252791 W
Project Reach
0
0.5
1
Miles
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
Copyright © 2013 National Geographic Society, i-cubed

Graphite Creek Sediment Reduction and Habitat Enhancement Project

Introduction:

Grantee's North Coast Coho Project will implement the Graphite Creek Sediment Reduction and Habitat Enhancement Project. The purpose of the project is to decommission roads and treat sediment sources in Graphite Creek watershed, and to install large woody materials in the Graphite Creek. The project is necessary because salmonid habitat conditions in the Garcia River watershed and Graphite Creek watershed are degraded due to historical activities that caused excessive delivery of sediment to the streams, and created the excessive removal of large woody material from the streams. Salmonid recovery plans recommend decreasing sediment input to the river by reducing road densities and treating sediment sources and increasing stream habitat complexity by installing large woody material.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor. All habitat restoration improvements will follow techniques in the *California Salmonid Stream Habitat Restoration Manual*, Parts VII, X, and XI (Flosi et al 1998 and 2002).

Objective(s):

The specific objective of this project is to decommission 0.6 miles and upgrade 6.6 miles of road. The project will treat 33 current and potential sediment delivery features on approximately 717 acres of upslope area, including 25 stream crossings, 1 landslide feature, 3 gullies, 2 springs, and 1 road surface discharge point. Implementation of the project will prevent 7,522 cubic yards of road-related sediment from entering the Graphite Creek watershed. The project will reduce the risk of catastrophic stream crossing failures, stream diversions and road-related fill failures.

This project will create 8 instream features within 1,200 feet Graphite Creek, consisting of 18 pieces of LWD. The addition of these structures will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels, increasing the quality and quantity of rearing habitat within the project reach, and by providing velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids.

Project Description:

Location:

The Grantee will conduct work along Graphite Creek and tributaries. The road work will begin approximately 1,500 feet up from the confluence with Garcia River. The center location of the project is 38.8945º north latitude, 123.5114º west longitude. Additionally, instream work will take place along Graphite Creek beginning at the confluence with Garcia River and continuing upstream 1,200 feet. Instream work will be implemented beginning at 38.8934º north latitude, 123.5089º west longitude at the downstream end; and 38.8951º north latitude, 123.5132º west longitude at the upstream end as depicted in the Project Location Map.

Project Set Up:

Grantee Accounting Staff will process invoices from subcontractors and develop and submit invoices to the grantor. Grantee Project Manager and Forestry Technician will perform periodic reviews of project progress. Subcontractor Principal Geologist will provide technical oversight of construction and QA/QC of project products. Subcontractor Project Manager will administer the project in the field to ensure timeliness, completion, and conformance with restoration and land management goals of the landowner. Subcontractor Clerical Staff will process invoices from subcontractors and develop and submit invoices to the grantor. Subcontractor Technical Staff will conduct surveys, construction oversight, pre, during, and post-construction monitoring, and data entry. Subcontractor GIS Staff will provide field layout maps, digitize layout and as-built project data, and develop report maps. Subcontractor heavy equipment operators and laborers will implement upsloap work and install log features.

Materials:

A total of 8 instream features including 18 pieces of LWD will be installed in Graphite Creek. Approximately 510 cubic yards of rock armor, 296 cubic yards of road rock, 40 culverts @ 18” x 40’ long, 190 culverts @ 24” x 190’ long, 140 culverts @ 36” x 140’ long, 160 culverts @ 42” x 160’ long, 140 culverts @ 48” x 140’ long, and 70 culverts @ 54” x 70’ long, 4 bridge abutment blocks, and 2 trash racks will be used in the upgrade and decommission of roads. Approximately 267 Sequoia sempervirens will be planted at a rate of 2:1 where trees are removed to conduct upsloap work.

Tasks:

Task 1: Road Upgrading

Approximately 28 features along approximately 6.6 miles of road with the potential to deliver sediment to streams will be upgraded. The following road upgrading treatments will be implemented where appropriate:

- Installation of culverts sized for the 100-year flood flow, including sufficient capacity for expected wood and sediment
- Installation of critical dips to eliminate diversion potential
- Installation of rock armored fill crossings or fords
- Excavation and/or armoring of inboard ditches
- Excavation of culvert inlets
- Installation of downspouts and/or rock dissipation at culvert outlets
- Construction of rock armored fords
- Installation of rolling dips
- Reshaping of road surfaces
- Removal of berms
- Installation of ditch relief culverts
- Rocking of road surfaces

Task 2: Road Decommissioning

Decommission 5 features along approximately 0.6 miles of road with the potential to deliver sediment to streams will be decommissioned. The following road decommissioning treatments will be implemented where appropriate:

- Excavation of in-place stream crossings at locations where roads or landings were built across stream channels. A stream crossing excavation includes removing the culvert and the underlying and the adjacent fill material. Complete excavation of stream crossing fills, includes 100 year flood channel bottom widths and 2:1 or otherwise stable side slopes. When possible the excavated spoil will be stored at nearby stable locations where it will not erode. If there is a limited amount of stable storage locations at the excavation site the crossing fill material will be hauled off-site for storage.

- Road surface treatments: 1) ripping of the surface of the road or landing using mechanical rippers to reduce surface runoff and improve revegetation; 2) in-place outsloping or the excavation of unstable side cast material that could fail and deliver sediment to a stream along the outside edge of a road prism or landing and the replacement of the spoil on the roadbed against the corresponding adjacent cutbank, or in close proximity of the site; 3) exported out-sloping which involves not placing

the material against the cutbank so the material is end hauled to a spoil disposal site; 4) installation of cross drains or deep water bars at 50, 75, 100 or 200 foot intervals or as necessary at springs and seeps to disperse road surface runoff. The cross road drains provide road surface drainage and prevent the collection of concentrated runoff on the former roadbed.

Task 3: Install Instream Habitat Features
Subcontractors will install instream habitat features at approximately 8 locations including 18 pieces of large wood/root wads along 1,200 feet of Graphite Creek. LWD will be generated from road decommissioning, by direct felling and excavating of stream side conifers. A timber operator using an excavator will gather LWD from riparian banks and install LWD following approved feature designs. Trees will be 1.5 times the bankfull width and anchored by wedging between riparian trees.

Task 4: Erosion Control and Tree Planting
Mulching will take place as sites are completed on all exposed soils which may deliver sediment to a stream in order to avoid unforeseen erosion. *Sequoia sempervirens* will be planted at a rate of 2 trees for every one tree removed during upslope treatments.

Deliverables:
Decommission 6.6 miles of road and upgrading 0.6 miles of road thereby saving 7,522 cubic yards of road-related sediment from delivery to Graphite Creek and Garcia River watersheds. The project will treat 717 acres of upslope area, including 25 stream crossings, 1 landslide feature, 3 gullies, 2 springs, and 1 road surface discharge point.

A total of 8 instream features including 18 pieces of LWD will be installed along 1,200 feet total of Graphite Creek.

Timelines:
June 15, 2015 through October 15, 2015, implement road treatments. Erosion control will be installed as project features are completed. Install LWD features as LWD

June 15, 2016 through October 15, 2016, implement road treatments. LWD features will be installed in tandem with road decommissioning. Erosion control will be installed as project features are completed.

December 1, 2015 through March 31, 2016, and December 1, 2016 through December 31, 2016, conduct tree planting when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and oversee the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:
    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
    - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
    - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.
    - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

4. All road decommissioning will be done in accordance with techniques described in the Handbook for Forest and Ranch Roads, (PWA, 1994c.) and the *California Salmonid Stream Habitat Restoration Manual*, Volume II, Part

X. All road upgrade and decommissioning sites and techniques shall be approved by the Grantor Project Manager before any equipment work takes place.

5. All crossings treated in fish bearing reaches of streams will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and the criteria for adult and juvenile salmonid fish passage as described in Volume II, Part IX of the *California Salmonid Stream Habitat Restoration Manual*.

6. Seeding and mulching of all exposed soils shall be done for all slopes which may deliver sediment to a stream. Woody debris will be concentrated on finished slopes adjacent to stream crossings. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. Mulching and seeding will take place as sites are completed to avoid unforeseen erosion.

7. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

8. Sites which are expected to erode and deliver sediment to the stream are the only locations where work will be authorized for reimbursement under the terms of this agreement. Reimbursement will not be authorized for work done to improve aesthetics only.

9. The landowner or responsible party must sign an access agreement stating they agree to maintain the erosion control project for a period of not less than 10 years. Maintenance will consist of repair to the road or stream crossing to a level that will effectively reduce sediment from entering the stream. In the event of an act of nature which results in partial or complete failure of the project, the landowner or applicant will not be held responsible for costs incurred after the act of nature. Acts of nature include, but are not limited to floods, earthquakes, volcanic eruptions, and wind storms.

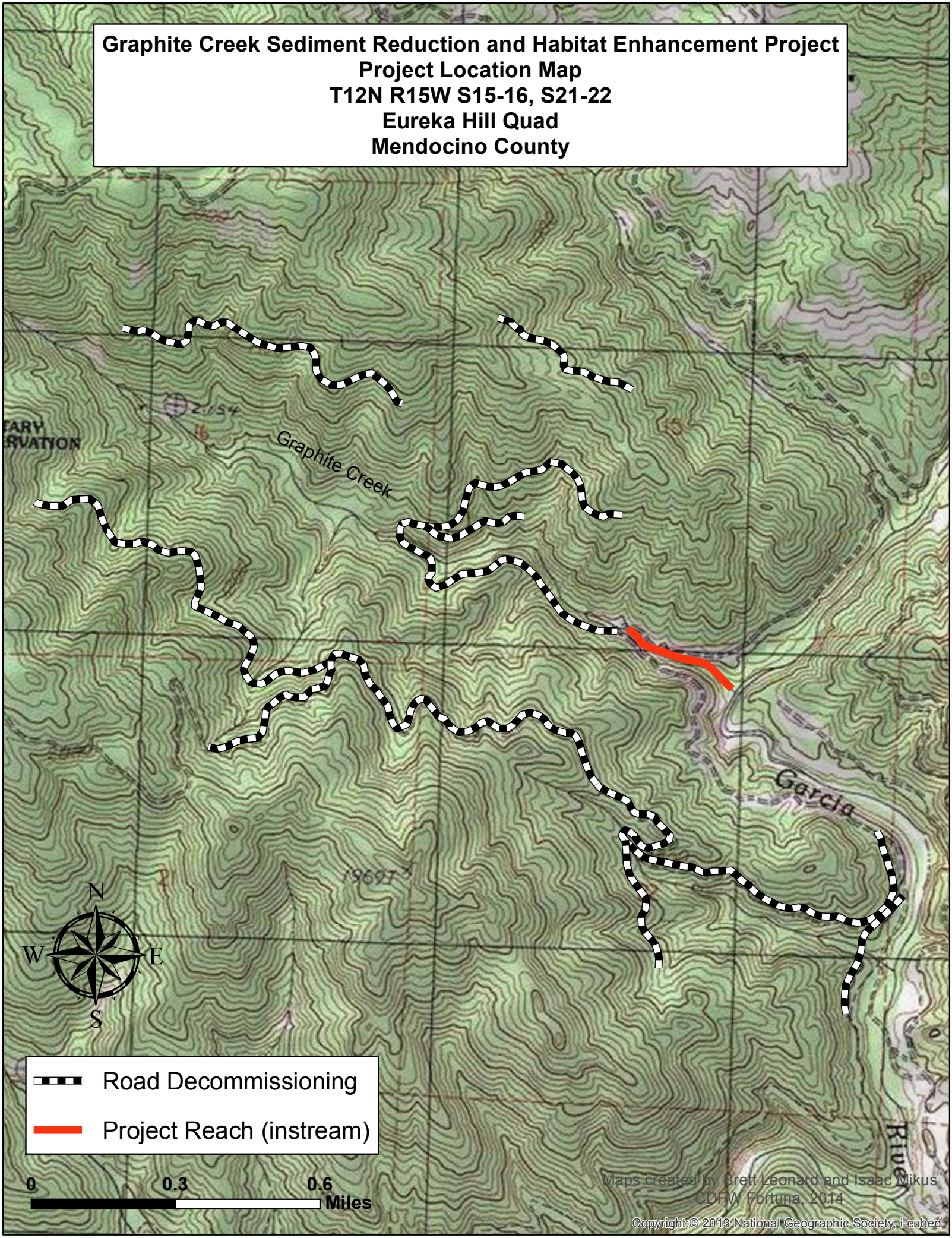
10. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Eureka Hill Quad and Surrounding Quads for:
HU 206 Graphite Creek Sediment Reduction and Habitat Enhancement Project
T12N R15W Sections 15, 16, 21, 22
Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American manna grass *Glyceria grandis*	PMPOA2Y080			G5	S2	2B.3
2	Baker's goldfields *Lasthenia californica ssp. bakeri*	PDAST5L0C4			G3TH	SH	1B.2
3	Behren's silverspot butterfly *Speyeria zerene behrensii*	IILEPJ6088	Endangered		G5T1	S1	
4	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
5	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
6	California sedge *Carex californica*	PMCYP032D0			G5	S2?	2B.3
7	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
8	Coastal Terrace Prairie	CTT41100CA			G2	S2.1	
9	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
10	Contra Costa goldfields *Lasthenia conjugens*	PDAST5L040	Endangered		G1	S1	1B.1
11	Grand Fir Forest	CTT82120CA			G1	S1.1	
12	Gualala roach *Lavinia symmetricus parvipinnis*	AFCJB19025			G4T1T2	S1S2	SC
13	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
14	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
15	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
16	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
17	Mendocino dodder *Cuscuta pacifica var. papillata*	PDCUS011A2			G5T1	S1	1B.2
18	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
19	Northern Coastal Bluff Scrub	CTT31100CA			G2	S2.2	
20	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
21	Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080			G5	S2S3	2B.2
22	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
23	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
24	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Point Arena mountain beaver *Aplodontia rufa nigra*	AMAFA01011	Endangered		G5T1	S1	SC
26	Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012			G5T2	S2	1B.2
27	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
28	Pomo bronze shoulderband *Helminthoglypta arrosa pomoensis*	IMGASC2033			G2G3T1	S1	
29	Roderick's fritillary *Fritillaria roderickii*	PMLIL0V0M0		Endangered	G1Q	S1	1B.1
30	Santa Cruz clover *Trifolium buckwestiorum*	PDFAB402W0			G2	S2	1B.1
31	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
32	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
33	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
34	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
35	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
36	coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2			G4T2T3	S2S3	1B.2
37	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
38	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
39	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
40	marsh microseris *Microseris paludosa*	PDAST6E0D0			G2	S2	1B.2
41	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2S3	2B.2
42	monarch butterfly *Danaus plexippus*	IILEPP2010			G5	S3	
43	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
44	pink salmon *Oncorhynchus gorbuscha*	AFCHA02010			G5	S1	SC
45	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T1	S1	1B.2
47	pygmy cypress *Hesperocyparis pygmaea*	PGCUP04032			G2	S2	1B.2
48	rhinoceros auklet *Cerorhinca monocerata*	ABNNN11010			G5	S3	
49	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
50	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
51	supple daisy *Erigeron supplex*	PDAST3M3Z0			G2	S2	1B.2
52	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
53	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
54	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
55	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S2	SC
56	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2


Graphite Creek Sediment Reduction and Habitat Enhancement Project
Project Location Map
T12N R15W S15-16, S21-22
Eureka Hill Quad
Mendocino County
Graphite Creek
Garcia
N
W
E
S
Road Decommissioning
Project Reach (instream)
0
0.3
0.6
Miles
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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John Smith Creek Coho Habitat Enhancement Project

Introduction:

Grantee will implement the John Smith Creek Coho Habitat Enhancement Project. The lack of large woody debris (LWD) in the stream channel has affected the quality and quantity of salmonid habitat within John Smith Creek by reducing the amount of large channel forming features and the loss of complex cover for salmonids. A California Department of Fish and Wildlife (CDFW) stream habitat inventory survey was conducted on John Smith Creek in 2013 and limiting factors to salmonids were identified. The stream habitat inventory report shows that the pools of John Smith Creek have a mean shelter rating of 25. A pool shelter rating of approximately 100 is desirable.

The Grantee will not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. Work in flowing streams is restricted to June 15 through October 31. All habitat restoration improvements will follow techniques in the California Salmonid Stream Habitat Restoration Manual, Part VII. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

The specific objective of this project is to create a total of 11 instream features within a total of 1.25 miles of John Smith Creek, consisting of 47 pieces of LWD. The addition of these structures will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels, increasing the quality and quantity of rearing habitat within the project reach, and by providing velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids.

Project Description:

Location:

The Grantee will conduct work along a section of John Smith Creek beginning 0.2 miles upstream from the confluence with Little North Fork Navarro River and continuing upstream for 1.8 miles. The locations of the project boundaries are approximately 39.2155º north latitude, 123.5383º west longitude at the downstream end; and 39.2304º north latitude, 123.5419º west longitude at the upstream end as depicted in the Project Location Map.

Project Set Up:

Grantee Executive Director is responsible for: grant oversight, reviewing or creating and executing subcontractor agreements, reviewing and approving

invoices, responding to Grantor inquiries, assisting Project Manager as required, and responding to landowner inquiries. Grantee Project Manager implements the project and is responsible for meeting grant deliverables from landowner access agreements to overseeing contractors and responding to all project related inquiries. Grantee Contract Administrator reviews bills and prepares invoices, responds to Grantor inquiries regarding invoices and payments, maintains the grant budget spreadsheets, maintains the grant folder which includes all project documentation, i.e., the grant agreement, invoices and bills, subcontracts, insurance documentation, landowner access agreements. The subcontracted Hydrologist, Geologist, Timber Equipment Operator, and Laborer will prepare feature designs, install log features, and manage project monitoring data and project reporting.

Materials:

A total of 11 LWD features will be constructed using 47 logs and root wads. If necessary features will be anchored with 1" threaded rebar, nuts, and washers. Erosion control matting will be installed where exposed soils may deliver sediment to a stream.

Tasks:

Task 1: Install Instream Habitat Features

Subcontractor will install instream habitat features at 11 locations including 47 pieces of large wood/root wads along 1.8 miles of John Smith Creek. LWD will be salvaged from the nearby forest using and a stockpile area. A timber operator using an excavator and dump truck will bring salvaged logs to the project site from a stockpile area, gather LWD from riparian banks, and position LWD following feature designs. LWD that is left unanchored will be 1.5 times the bankfull width of the project stream. If necessary features will be anchored with 1" threaded rebar, nuts, and washers.

Task 2: Erosion Control

Mulching will take place as sites are completed on all exposed soils which may deliver sediment to a stream in order to avoid unforeseen erosion.

Deliverables:

A total of 11 features will be constructed within the 1.8 mile project reach.

Timelines:

Installation of LWD features within approved project reach –

- June 15, 2015 through October 31, 2015
- June 15, 2016 through October 31, 2016

Erosion control will be installed as project features are completed.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

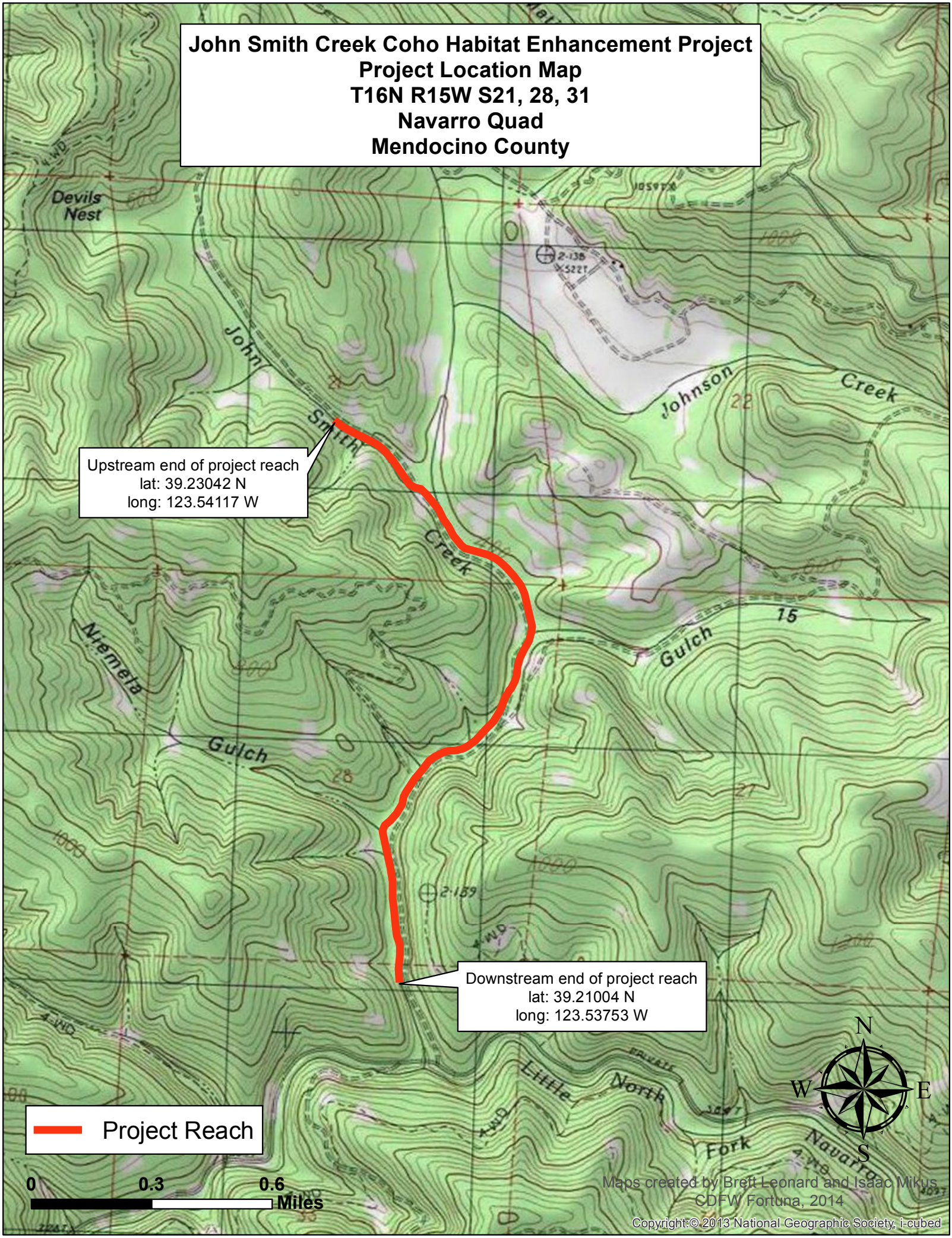
3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Navarro Quad and Surrounding Quads for:
HI F006 John Smith Creek Coho Habitat Enhancement Project
M 16N 15W Sections 21, 28
Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
2	Behren's silverspot butterfly *Speyeria zerene behrensii*	IILEPJ6088	Endangered		G5T1	S1	
3	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
4	Bolander's beach pine *Pinus contorta ssp. bolanderi*	PGPIN04081			G5T2	S2	1B.2
5	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
6	California sedge *Carex californica*	PMCYP032D0			G5	S2?	2B.3
7	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
8	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
9	Grand Fir Forest	CTT82120CA			G1	S1.1	
10	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
11	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
12	Mendocino Pygmy Cypress Forest	CTT83161CA			G2	S2.1	
13	Mendocino leptonetid spider *Calileptoneta wapiti*	ILARAU6040			G1	S1	
14	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
15	Monterey clover *Trifolium trichocalyx*	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
16	Navarro roach *Lavinia symmetricus navarroensis*	AFCJB19023			G4T1T2	S1S2	SC
17	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
18	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
19	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
20	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
21	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
22	Point Arena mountain beaver *Aplodontia rufa nigra*	AMAFA01011	Endangered		G5T1	S1	SC
23	Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012			G5T2	S2	1B.2
24	Pomo bronze shoulderband *Helminthoglypta arrosa pomoensis*	IMGASC2033			G2G3T1	S1	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Roderick's fritillary *Fritillaria roderickii*	PMLIL0V0M0		Endangered	G1Q	S1	1B.1
26	Santa Cruz clover *Trifolium buckwestiorum*	PDFAB402W0			G2	S2	1B.1
27	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
28	Sphagnum Bog	CTT51110CA			G3	S1.2	
29	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
30	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
31	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
32	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
33	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
34	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
35	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
36	glandular western flax *Hesperolinon adenophyllum*	PDLIN01010			G3	S3	1B.2
37	great burnet *Sanguisorba officinalis*	PDROS1L060			G5?	S2	2B.2
38	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
39	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
40	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S1	1B.2
41	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
42	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
43	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
44	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
45	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
47	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T1	S1	1B.2
48	pygmy cypress *Hesperocyparis pygmaea*	PGCUP04032			G2	S2	1B.2
49	pygmy manzanita *Arctostaphylos nummularia ssp. mendocinoensis*	PDERI04280			G3?T1	S1	1B.2
50	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
51	small groundcone *Kopsiopsis hookeri*	PDORO01010			G5	S1S2	2B.3
52	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
53	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
54	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
55	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
56	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
57	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
58	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	


John Smith Creek Coho Habitat Enhancement Project
Project Location Map
T16N R15W S21, 28, 31
Navarro Quad
Mendocino County
Devils Nest
John Smith Creek
Johnson Creek
Niemela Gulch
Gulch
Little North Fork Navarro
Upstream end of project reach
lat: 39.23042 N
long: 123.54117 W
Downstream end of project reach
lat: 39.21004 N
long: 123.53753 W
Project Reach
0
0.3
0.6
Miles
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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James Creek Road Decommissioning and Fish Passage Implementation Project

Introduction:

Mendocino Land Trust (Grantee) will decommission 5.2 miles of riparian inner gorge and upslope roads and eliminate a fish passage barrier to allow fish access to 2.8 miles of prime salmonid habitat in the James Creek basin.

1. Sediment delivery to stream channels from roads and road networks has been extensively documented as a significant impediment to the health of salmonid habitat. Erosion problems specifically related to forestland roads are a threat to water quality and salmonid habitat in the James Creek watershed. The James Creek watershed contains high road densities and an expansive network of maintained and abandoned roads, and many are currently causing chronic and episodic erosion and sedimentation to streams. This project will prevent the delivery of approximately 12,188 cubic yards of sediment to the James Creek, and ultimately Big River stream system through decommissioning of 48 road features and 5.2 miles of road. Legacy road crossings that prevent fish access to upstream habitat have also been extensively documented as a significant impediment to salmonid population recovery efforts throughout much of their range. This project will restore upstream salmonid access to approximately 2.8 miles of prime habitat by removing a road crossing culvert barrier and restoring the channel at the decommissioned crossing site.

2. The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

3. All habitat improvement will follow techniques in the California Stream Habitat Restoration Manual (Parts IX, X and XII).

Objective(s):

1. Decommission roads, guided by assessment.

2. Improve and protect water quality and salmonid habitat in James Creek and North Fork James Creek.

3. Implement cost-effective erosion control and erosion prevention work.

4. Reduce threats of both chronic fine sediment from road surfaces and episodic inputs of sediment from road failures during large magnitude storms.

5. Prevent fill failures, stream crossing washouts, stream diversions and chronic road surface erosion.

6. Reduce further degradation of water quality and salmonid habitat in the James Creek and North Fork James Creek watersheds.

7. Restore upstream access to 2.8 miles of prime salmonid habitat.

8. Salvage large woody debris (LWD) from excavations and stage the LWD at convenient locations below and downslope of the road prism for later placement in the stream channel by hand crews (as part of a different proposed project).

Project Description:

Location:

James Creek is a tributary of North Fork Big River, a tributary of Big River in Mendocino County, containing 6.4 miles of Class I habitat. The Creek flows adjacent to Highway 20 approximately 20 miles east of Fort Bragg, CA. The watershed comprises the headwaters region of the North Fork Big River. The confluence of James Creek and North Fork Big River is located 8.6 miles upstream from the Big River confluence. Feature #2 in the southernmost portion of the project area where fish passage will be restored is located at 39.376318N, 123.498988W as shown in the Project Location Map (Attachment 1) which is attached hereto and made a part of this agreement by this reference.

Project Set Up:

Grantee will provide all contracting oversight and administration including but not limited to obtaining permits, securing agreements (Grantor, subcontractors, landowner), scheduling, implementation oversight, invoicing, reporting and agency and landowner communications.

- Heavy Equipment and Labor Subcontractor: The heavy equipment and labor subcontractor will provide all necessary heavy equipment, operators and skilled laborers required to complete the project as designed. This includes but may not be limited to all of the proposed treatments, using a team of hydraulic excavators, bulldozers and dump trucks. In addition, laborers will be used to spread straw and mulch and plant trees, man and monitor pumps during any necessary dewatering operations, and maintain and monitor equipment.

- Geologic Subcontractor (technical oversight): The geologic subcontractor will provide technical oversight and supervision of heavy equipment and labor operations; field layout prior to heavy equipment and labor arrival; before and after photographic monitoring; maintaining regular communications between the project proponent, CDFW and all

subcontractors; and reporting of accomplishments completed during the implementation project.

- Principal Geologist: Provides technical expertise, final work plan review and guidance for senior scientists and project managers as required with complex landform issues. Also in charge of final report technical editing and review.

- Professional Geologist/Project Manager: Responsible for daily on-going activities including technical oversight and supervision of heavy equipment and labor operations; work plan development; geologic characterization of landforms; maintaining regular communications between the project proponent, CDFW and all subcontractors; and reporting of accomplishments completed during the implementation. Ensures compliance with Geologist and Geophysicist Act (California Business and Professions Code 7800).

- Technical staff: Provides project support by working with the project manager and professional staff to collect field data and enter data into electronic database/stream volumetric software. This includes field surveys of pre-project profiles, field layout of work sites, pre-project photo point set up and road log development. Will determine locations where salvaged LWD will be staged. Reports directly to Project Manager.

- GIS Staff: Provides project support through development of GIS maps and products, database interfaces, and GPS data organization and analysis. Produces field maps in support of implementation work plan and required final report maps.

- Clerical Staff: Develops invoice tracking spreadsheet analysis, maintains project cost records and develops timely invoices pursuit contact obligations.

Materials:

Materials for this project include approximately 40 feet of 18-inch diameter plastic culvert, 100 cubic yards of rip rap, 10 cubic yards of road rock, 284 straw bales, 284 pounds of erosion control seed, 1,100 trees for replanting, and LWD salvaged during decommissioning operations.

Tasks:

Task 1: Contract Oversight

Contract oversight will be conducted by Mendocino Land Trust. All reporting and billing will be pursuant to contract and regulatory guidelines.

Task 2: Project Management (Heavy Equipment Oversight)

On-the-ground heavy equipment implementation oversight will be conducted by a licensed California Professional Geologist from Pacific Watershed Associates under the supervision of a PWA principal. The PG will provide quality assurance and control throughout the project and develop adaptive management procedures, if necessary. PWA PG and technical staff will also develop road logs for use by equipment operators, survey selected stream crossings, take pre- and post-construction photographs and write the draft and final report for submission to CDFW. Additionally, PWA GIS staff will prepare detailed maps for field use and final reporting.

Task 3: Project Implementation

Decommission 5.2 miles of riparian inner gorge and upslope roads and eliminate a fish passage barrier to allow fish access to 2.8 miles of prime salmonid habitat in the James Creek basin. Work will include the following:

- Implement project permitting, pre-construction layout, and pre-project monitoring.
- Implement heavy equipment work and provide technical oversight and field reviews, including pre- and post-construction inspections.
- Implement post-treatment data collection, photographic monitoring, data analysis, and reporting.
- Treat 25 stream crossings to save approximately 7,870 cubic yards of road-related sediment from delivery to local streams.
- Treat 17 potential or existing fillslope landslide features to prevent approximately 2,060 cubic yards of future sediment delivery. Treat by direct excavation, sediment removal, and proper spoils disposal.
- Treat 1 spring to prevent approximately 3 cubic yards of future sediment delivery.

- Treat 4 ditch relief culverts (DRC) to prevent approximately 6 cubic yards of future sediment delivery.

- Treat 1 area of bank erosion to prevent approximately 53 cubic yards of future sediment delivery.

- Treat road drainage patterns on approximately 2.2 miles of hydrologically connected road segments to prevent approximately 2,190 cubic yards of future sediment delivery originating from road surfaces, ditches, and cutbanks.

- LWD that is generated/salvaged during decommissioning operations will be staged at convenient locations below and downslope from the road prism near the main stem of James Creek for future placement in the stream channel by hand crews.

- Riparian areas temporarily disturbed by decommissioning operations will be replanted with native tree species.

- All exposed soils that have the potential to discharge sediment to aquatic resources will be treated to minimize related erosion and sediment delivery potential.

- All heavy equipment work will be completed during low-flow periods when impacts to water quality can be minimized or avoided.

- Work at Feature #2, the culverted stream crossing fish barrier on North Fork James Creek, will include the following:
  - Removal of the fish barrier culvert, concrete pad and associated fill.

  - Temporary stream dewatering and fish relocation by a qualified fisheries biologist.

  - Reconstruct the new channel using natural channel design principles at a grade that will prevent any future significant headcutting and will facilitate upstream fish passage by adult and juvenile steelhead and other salmonids to 2.8 miles of upstream habitat.

  - Install 2 combination multiple log/boulder scour structures to both minimize post excavation channel adjustments and either maintain or create new pool habitat. One structure will be installed at the upstream end of the existing plunge pool directly below the

culvert outlet to help maintain the pool depth post decommission. A second structure will be installed near the top of the excavation to help minimize post excavation channel adjustment and develop a new pool.

- LWD will be installed along the reconstructed channel to help maintain the existing pool directly below the outlet, minimize upstream headcut migration and help develop additional pool habitat near the top of the excavation.

Deliverables:

Upon completion of the project, Grantee shall submit a written and electronic completion report (Final Report) which contains: (1) general grant information, (2) location of work, (3) project access, (4) participating landowner's name and address, (5) a description and analysis of the restoration and planning personnel hours expended, (6) a quantified description of the results of the project, including as-built road logs, (7) dates of work and the number of personnel hours expended, (8) labeled before and after photos of selected restoration activities and techniques, (9) grant dollars spent and contributed and/or in kind services used to complete the project, and (10) GIS generated maps and shapefiles of the project area.

Timelines:

- Task 1: Grantee project oversight and coordination will begin once award contract is finalized and will continue through the life of the project – June, 2015 through March 1, 2017.

- Task 2: PWA project management will begin after award contract is finalized and will continue through the life of the project – June, 2015 through March 1, 2017.

- Task 3: Project implementation will begin summer 2015 and be completed by fall 2016. The work window for on-the-ground implementation is June 15 through October 31 during 2015 and 2016. A final completion report will be submitted by March 1, 2017, or sooner.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Timing of work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five

working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

- Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
- The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
- All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
- The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.
- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. Final habitat structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

4. All road decommissioning will be done in accordance with techniques described in the Handbook for Forest and Ranch Roads, (PWA, 1994c.) and the *California Salmonid Stream Habitat Restoration Manual*, Volume II, Part X. All road upgrade and decommissioning sites and techniques shall be approved by the Grantor Project Manager before any equipment work takes place.

5. All crossings treated in fish bearing reaches of streams will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and the criteria for adult and juvenile salmonid fish passage as described in Volume II, Part IX of the *California Salmonid Stream*

Habitat Restoration Manual.

6. Seeding and mulching of all exposed soils shall be done for all slopes which may deliver sediment to a stream. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. Mulching and seeding will take place as sites are completed to avoid unforeseen erosion. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings. Woody debris will be concentrated on finished slopes adjacent to stream crossings.

7. Sites which are expected to erode and deliver sediment to the stream are the only locations where work will be authorized for reimbursement under the terms of this agreement. Reimbursement will not be authorized for work done to improve aesthetics only.

8. The landowner or responsible party must sign an access agreement stating they agree to maintain the erosion control project for a period of not less than 10 years. Maintenance will consist of repair to the road or stream crossing to a level that will effectively reduce sediment from entering the stream. In the event of an act of nature which results in partial or complete failure of the project, the landowner or applicant will not be held responsible for costs incurred after the act of nature. Acts of nature include, but are not limited to floods, earthquakes, volcanic eruptions, and wind storms.

9. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

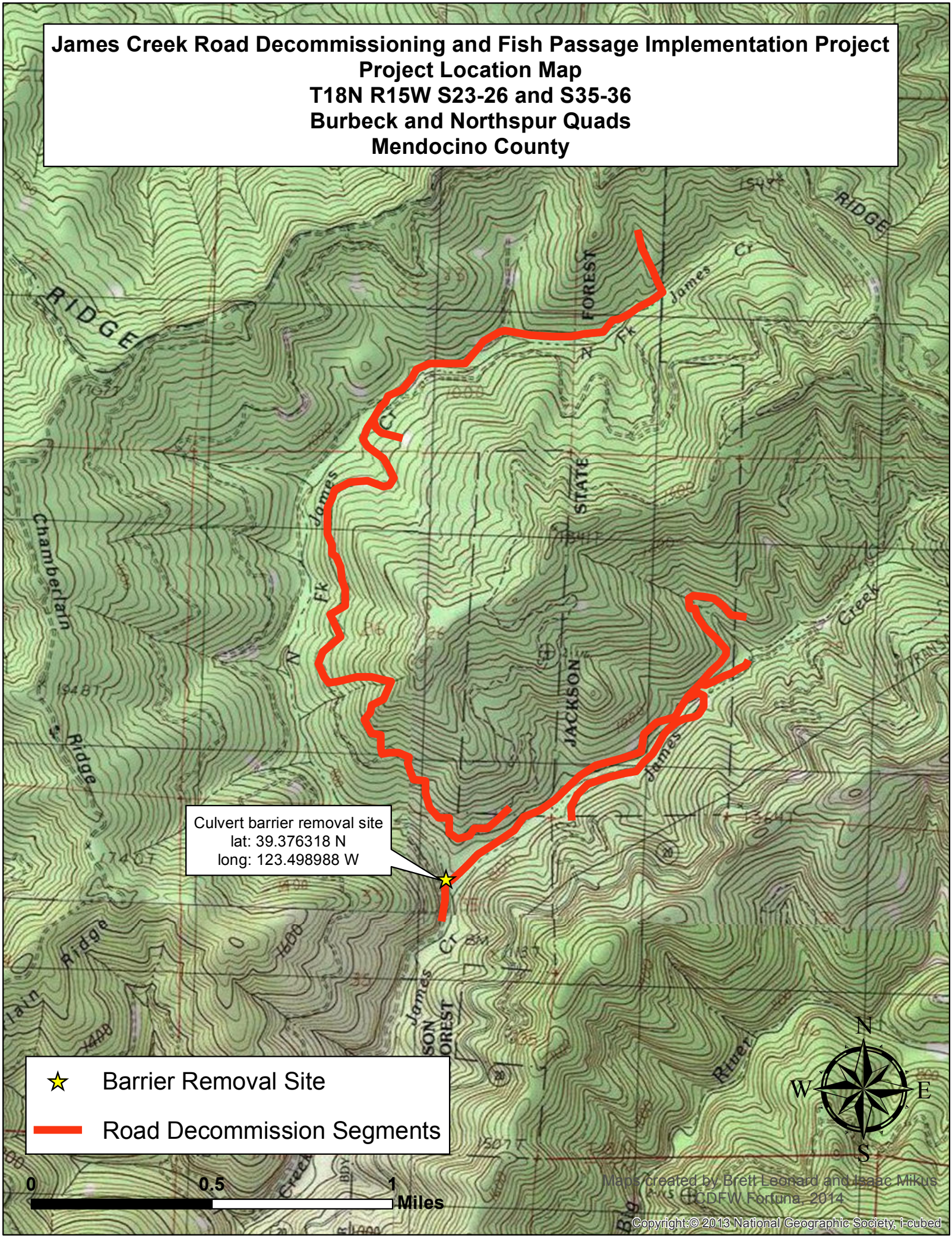
California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Northspur and Burbeck Quads and Surrounding Quads for:
HU F010 James Creek Road Decommissioning and Fish Passage Implementation Project
M18N 15W Sections: 23, 24, 25, 26
Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S3	SC
2	Baker's meadowfoam *Limnanthes bakeri*	PDLIM02020		Rare	G1	S1	1B.1
3	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
4	Behren's silverspot butterfly *Speyeria zerene behrensii*	IILEPJ6088	Endangered		G5T1	S1	
5	Bolander's beach pine *Pinus contorta ssp. bolanderi*	PGPIN04081			G5T2	S2	1B.2
6	California sedge *Carex californica*	PMCYP032D0			G5	S2?	2B.3
7	California spotted owl *Strix occidentalis occidentalis*	ABNSB12013			G3T3	S3	SC
8	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
9	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
10	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
11	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
12	Mendocino Pygmy Cypress Forest	CTT83161CA			G2	S2.1	
13	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
14	Milo Baker's lupine *Lupinus milo-bakeri*	PDFAB2B4E0		Threatened	G1Q	S1	1B.1
15	Monterey clover *Trifolium trichocalyx*	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
16	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
17	Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080			G5	S2S3	2B.2
18	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
19	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
20	Pacific lamprey *Entosphenus tridentatus*	AFBAA02100			G4	S4	
21	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
22	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
23	Roderick's fritillary *Fritillaria roderickii*	PMLIL0V0M0		Endangered	G1Q	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
25	Sphagnum Bog	CTT51110CA			G3	S1.2	
26	Valley Oak Woodland	CTT71130CA			G3	S2.1	
27	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
28	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
29	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
30	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
31	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
32	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
33	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
34	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
35	glandular western flax *Hesperolinon adenophyllum*	PDLIN01010			G3	S3	1B.2
36	grass alisma *Alisma gramineum*	PMALI01010			G5	S1S2	2B.2
37	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
38	lagoon sedge *Carex lenticularis var. limnophila*	PMCYP037A7			G5T5	S1	2B.2
39	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
40	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
41	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
42	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
43	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
44	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
45	purple martin *Progne subis*	ABPAU01010			G5	S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46	pygmy cypress *Hesperocyparis pygmaea*	PGCUP04032			G2	S2	1B.2
47	pygmy manzanita *Arctostaphylos nummularia ssp. mendocinoensis*	PDERI04280			G3?T1	S1	1B.2
48	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
49	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
50	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S3	
51	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
52	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
53	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
54	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
55	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
56	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
57	watershield *Brasenia schreberi*	PDCAB01010			G5	S2	2B.3
58	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
59	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
60	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
61	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
62	yellow warbler *Setophaga petechia*	ABPBX03010			G5	S3S4	SC
63	yellow-breasted chat *Icteria virens*	ABPBX24010			G5	S3	SC

James Creek Road Decommissioning and Fish Passage Implementation Project
Project Location Map
T18N R15W S23-26 and S35-36
Burbeck and Northspur Quads
Mendocino County



Campbell Creek Instream Coho Salmon Habitat Enhancement Project

Introduction:

Trout Unlimited (TU) is the Grantee and will install at least 100 pieces of large wood at approximately 50 sites along 2.34 miles of high priority coho salmon core recovery habitat in Campbell Creek to improve salmonid habitat conditions by increasing stream complexity, pool frequency, winter shelter and rearing habitat for coho salmon.

1. Historic timber harvest practices in the Campbell Creek watershed led to excessive amounts of wood in the channel, which often prevented fish access to upstream habitat and diminished the stream's ability to transport sediment. In response to this problem, stream clearing efforts were implemented. Clearing wood from the stream resulted in a lack of habitat complexity that still exists today. This project is necessary to restore spawning and rearing habitat by increasing stream habitat complexity, pool frequency, gravel sorting, winter shelter and rearing habitat for coho salmon via replacement of large wood material (LWM) back into Campbell Creek.

2. The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

3. All habitat improvements will follow techniques in the California Stream Habitat Restoration Manual (Part VII).

Objective(s):

Placement of LWM in Campbell Creek will improve/restore salmonid habitat by achieving the following project objectives:

- Sorting and collecting spawning gravel and sediment, thus improving water quality.
- Increasing the amount of riparian and channel roughness elements.
- Improving pool and gravel quality by scouring pools and sorting sediment.
- Decreasing water velocities and providing shelter from the current.
- Dividing territorial habitat units to reduce density related competition.
- Increasing the depth and frequency of pool habitat.
- Increasing complex cover and shelter from predators.

Project Description:

Location:

The project is located on Campbell Creek within the Ten Mile River watershed. Ten Mile River enters the Pacific Ocean approximately 8 miles north of Fort Bragg in Mendocino County, California. The downstream end of the project reach is located 0.5 miles upstream of the Campbell Creek confluence with South Fork Ten Mile River which is located 3 miles upstream of the confluence with Ten Mile River. The upstream end of the project reach is located at the confluence of the North Fork Campbell Creek with Campbell Creek. Coordinates of the downstream end of the project reach are 39.515N, 123.708W; and the upstream end is located at 39.507N, 123.671W as shown on the Project Location Map (Attachment 1), which is made part of this agreement by this reference.

Project Set Up:

- Task A: Contract oversight. The Grantee Project Manager and Project Coordinator will provide all contracting oversight and administration including but not limited to obtaining permits, securing contracts (grantors, subcontractors, and landowner), scheduling, implementation oversight, invoicing, reporting and agency and landowner communications. This task will occur throughout the life of the project.

- Task B: Pre-project habitat survey. Campbell Global (CG) fisheries biologists will perform a modified Level II habitat survey prior to implementation in order to establish baseline data.

- Task C: Project implementation. Technical contractors for Task C include Blencowe Watershed Management (BWM) and Pacific Inland, Inc. (PII). CG and TU will periodically provide oversight.

    - Task C.1: Chainsaw crews (CG subcontractors) will clear trails at access points to allow for quicker and easier access to the project reach.

    - Task C.2: BWM will prepare site specific designs based on local channel characteristics and large wood availability, and obtain design approval from the landowner and grant manager.

    - Task C.3: BWM and PII will install large wood throughout the 2.34 mile project reach. Trees will be felled directly into the stream channel. A tractor will be used to place wood in the lower 5,000 feet of the project reach. Immediately following implementation each piece of large wood will be measured, tagged, and photographed at each site.

- Task D: BWM, CG, and TU personnel will be responsible for instream wood and habitat data collection, management and reporting.

- CG personnel (Forester, Wildlife Biologist, and Fisheries Biologist) will provide approval and periodic oversight of on-the-ground implementation. TU will also be available for periodic oversight.

- CG will continue to facilitate monitoring related to this project outside of the timeframe identified in this proposal. CG plans to perform a modified Level II post-project survey following a 2-year stream flow event to compare to the pre-implementation surveys. Survey results will be provided to the CDFW grant manager.

Materials:

Materials that will be used for the project include approximately 100 logs, tags to mark individual logs, nails and flagging.

Tasks:

Task A: Contract Oversight

Contract oversight will include and not be limited to project coordination, obtaining permits, securing contracts (grantors, subcontractors, and landowner), scheduling, implementation oversight, invoicing, reporting and agency and landowner communications.

Task B: Pre- and Post-Project Habitat Surveys

Campbell Group (CG) fisheries biologists will perform a modified Level II habitat survey prior to implementation in order to establish baseline data. CG will continue to facilitate monitoring related to this project outside of the timeframe identified in this proposal. Pre-project survey results will be provided in the project completion report (i.e., Final Report). CG plans to perform a modified Level II post-project survey during the first summer following a 2-year stream flow event to compare to the pre-implementation surveys. Post-project survey results will be provided to the CDFW grant manager.

Task C: Project Implementation

Project implementation will include the following:

- Chainsaw crews will clear trails at access points to allow more efficient access to the project reach. (Task C.1)

- Site specific designs will be prepared based on local channel characteristics, large wood availability, and approval by the landowner and grant manager. (Task C.2)

- At least 100 pieces of large wood will be installed at approximately 50 sites along the 2.34-mile long project reach of Campbell Creek. Trees will be felled directly into the stream channel. A rubber-tire tractor will be used to place wood in the lower 5,000 feet of the project reach when direct felling of conifers into the stream is not feasible. Immediately following implementation each piece of large wood will be measured, tagged, and photographed at each site. (Task C.3)

- LWM will consist of logs from conifer tree species.

- Logs will be generated by felling approximately 50 trees, bucking some logs into multiple pieces (secondary logs), and salvage of existing suitable logs found in the project area.

- Logs placed in the project reach will not be anchored with hardware. The minimum length of unanchored logs will be approximately 1.5 times bankfull width at the point of placement.

Task D: Data Collection, Management and Reporting

- Data collection conducted by BWM will include measuring and tagging each piece of large wood at each site and photographing each site immediately following implementation. The area of each structure within bankfull width and total number of logs installed will be recorded at each site. Data will be compiled and provided to the Grantee for reporting purposes.

- CG will collect data during pre- and post-implementation habitat surveys (Task B). CG will provide data from each survey to the Grantee for reporting purposes.

- The Grantee will report all data collected for the project consistent with grant reporting requirements.

Deliverables:

Deliverable 1: Any progress reports, invoices, or other documents that are necessary according to the grant.

Deliverable 2: Upon completion of the project the Grantee will submit a written completion report (Final Report) in both hard copy and electronic formats which contains: (1) general grant information, (2) location of work, (3) project access, (4) participating landowners name and address, (5) a description and analysis of the restoration and planning techniques used, (6) a description of the results of the project including all quantifiable expected results, (7) dates of work, (8) labeled before and after photos of selected restoration activities and techniques,

(9) grant dollars spent and contributed and/or in kind services used to complete the project and (10) a project map.

Timelines:

Task A: Grantee's project management and coordination will begin once the grant is executed and continue through the life of the project – June 2015 through March 1, 2017. Permits and contracts will be obtained in 2015 and early 2016.

Task B: Pre-project habitat surveys will occur prior to implementation. This is expected to take 2 days.

Task C: Project implementation will occur during the summer of 2016. Implementation is expected to take a total of 19 days (Task C.1 – 4 days; Task C.2 – 3 days; Task C.3 – 12 days). All wood installation work will be completed during low-flow periods when impacts to water quality can be minimized or avoided. The work window for installation of instream LWM structures is limited to June 15 through October 31.

Task D: Data will be compiled and a final completion report will be submitted by March 1, 2017, or sooner. The post-implementation habitat survey will be conducted during the first summer following a 2-year stream flow event, which will be after the grant term ends. The Grantee will provide results of the survey to the grant manager upon completion of the survey.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

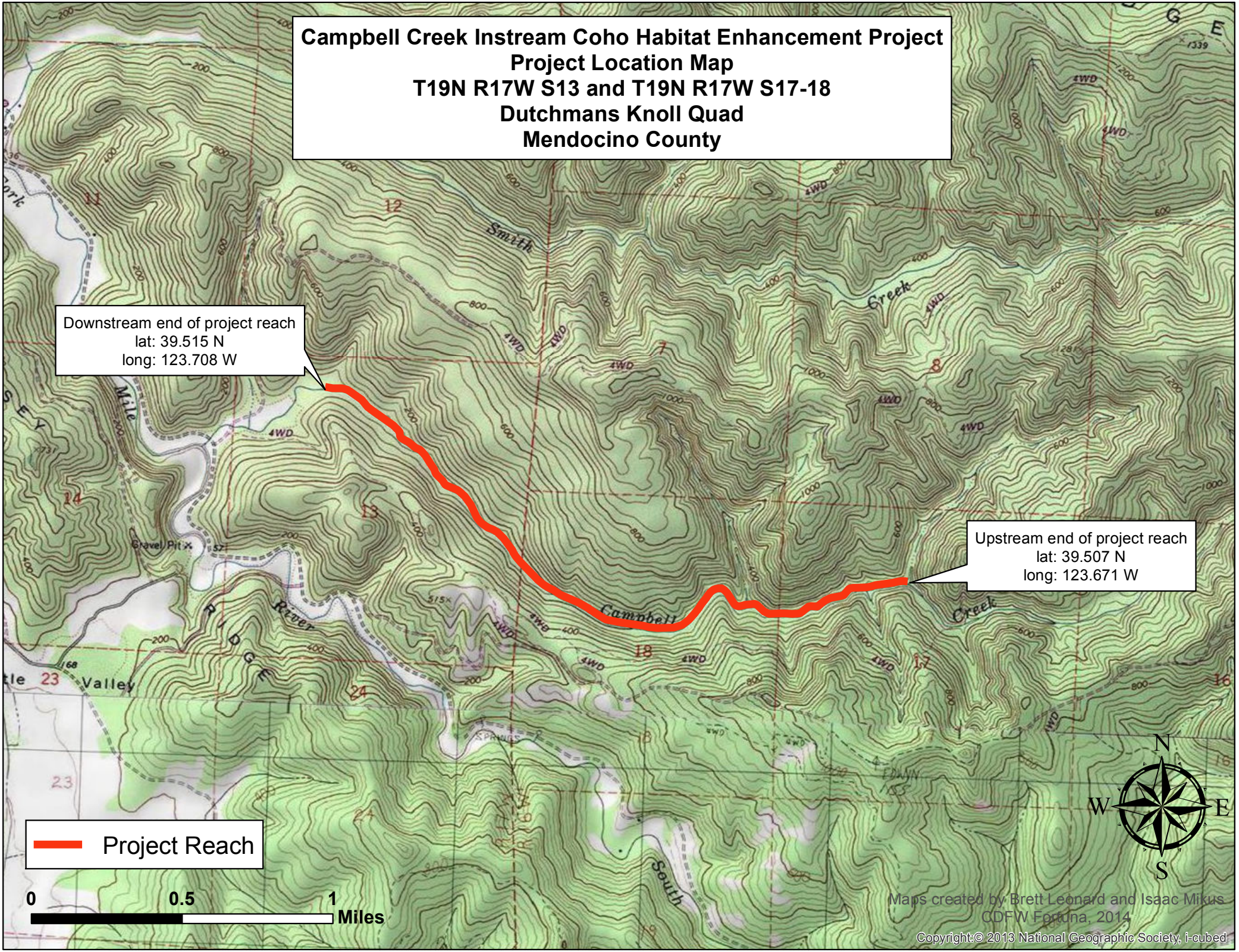
California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Dutchmans Knoll Quad and Surrounding Quads for:
HI F022 Campbell Creek Instream Coho Salmon Habitat Enhancement Project
M 19N 17W Section 13
M 19N 16W Sections: 17, 18
Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S3	SC
2	Applegate stonecrop *Sedum oblanceolatum*	PDCRA0A0T0			G3	S1	1B.1
3	Baker's goldfields *Lasthenia californica ssp. bakeri*	PDAST5L0C4			G3TH	SH	1B.2
4	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
5	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
6	Bolander's beach pine *Pinus contorta ssp. bolanderi*	PGPIN04081			G5T2	S2	1B.2
7	California floater *Anodonta californiensis*	IMBIV04020			G3Q	S2?	
8	California sedge *Carex californica*	PMCYP032D0			G5	S2?	2B.3
9	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
10	Fen	CTT51200CA			G2	S1.2	
11	Grand Fir Forest	CTT82120CA			G1	S1.1	
12	Howell's spineflower *Chorizanthe howellii*	PDPGN040C0	Endangered	Threatened	G1	S1	1B.2
13	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
14	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
15	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
16	Mendocino Pygmy Cypress Forest	CTT83161CA			G2	S2.1	
17	Mendocino dodder *Cuscuta pacifica var. papillata*	PDCUS011A2			G5T1	S1	1B.2
18	Menzies' wallflower *Erysimum menziesii*	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
19	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
20	North Central Coast Fall-Run Steelhead Stream	CARA2631CA			GNR	SNR	
21	North Coast phacelia *Phacelia insularis var. continentis*	PDHYD0C2B1			G2T1	S1	1B.2
22	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
23	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
24	Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080			G5	S2S3	2B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
26	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
27	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
28	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
29	Point Reyes blennosperma *Blennosperma nanum var. robustum*	PDAST1A022		Rare	G4T2	S2	1B.2
30	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
31	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
32	Sphagnum Bog	CTT51110CA			G3	S1.2	
33	Ten Mile shoulderband *Noyo intersessa*	IMGASC5070			G2	S2	
34	Thurber's reed grass *Calamagrostis crassiglumis*	PMPOA17070			G3Q	S2?	2B.1
35	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
36	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
37	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
38	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G1	S1	1B.1
39	alpine marsh violet *Viola palustris*	PDVIO041G0			G5	S1S2	2B.2
40	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
41	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
42	bunchberry *Cornus canadensis*	PDCOR01040			G5	S2	2B.2
43	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
44	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
45	coastal triquetrella *Triquetrella californica*	NBMUS7S010			G1	S1	1B.2
46	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
47	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
48	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
49	dwarf alkali grass *Puccinellia pumila*	PMPOA531L0			G4?	SH	2B.2
50	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
51	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
52	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	
53	grass alisma *Alisma gramineum*	PMALI01010			G5	S1S2	2B.2
54	great burnet *Sanguisorba officinalis*	PDROS1L060			G5?	S2	2B.2
55	green yellow sedge *Carex viridula ssp. viridula*	PMCYP03EM5			G5T5	S2	2B.3
56	hair-leaved rush *Juncus supiniformis*	PMJUN012R0			G5	S1	2B.2
57	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
58	lagoon sedge *Carex lenticularis var. limnophila*	PMCYP037A7			G5T5	S1	2B.2
59	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2
60	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
61	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
62	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
63	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
64	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G5	S3	2B.3
65	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
66	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
67	purple martin *Progne subis*	ABPAU01010			G5	S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
68	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T1	S1	1B.2
69	pygmy cypress *Hesperocyparis pygmaea*	PGCUP04032			G2	S2	1B.2
70	robust false lupine *Thermopsis robusta*	PDFAB3Z0D0			G2	S2	1B.2
71	round-headed Chinese-houses *Collinsia corymbosa*	PDSCR0H060			G1	S1	1B.2
72	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
73	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
74	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
75	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
76	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
77	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
78	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
79	watershield *Brasenia schreberi*	PDCAB01010			G5	S2	2B.3
80	western pearlshell *Margaritifera falcata*	IMBIV27020			G4G5	S1S2	
81	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
82	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
83	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
84	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
85	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2


Campbell Creek Instream Coho Habitat Enhancement Project
Project Location Map
T19N R17W S13 and T19N R17W S17-18
Dutchmans Knoll Quad
Mendocino County
Downstream end of project reach
lat: 39.515 N
long: 123.708 W
Upstream end of project reach
lat: 39.507 N
long: 123.671 W
Smith
Creek
Campbell
Creek
Mile
Gravel Pit
Ridge
Valley
South
Project Reach
0
0.5
1
Miles
N
W
E
S
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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The Big Sur River Fish Passage Restoration Project – Riverside Campground Project

Introduction needs to include:

The Big Sur River in coastal Monterey County is part of the Big Sur Coast Biogeographical Population Group (BPG) as noted in the South-Central California Steelhead Recovery Plan prepared by the National Marine Fishery Service in Dec. 2013 (Recovery Plan) and is identified as a "Core 1" system. The Recovery Plan shows that Culverts and Road Crossings (passage barriers) are characterized in "red" – very high threat. The same plan states "Critical recovery actions for Core 1 populations within the Big Sur Coast BPG", the following is noted for the Big Sur River: "Remove or modify instream fish passage barriers to allow steelhead natural rates of migration to upstream spawning and rearing habitat, and passage of smolts and kelts downstream to the estuary and ocean."

The Big Sur River Fish Passage Restoration Project – Riverside Campground Project will facilitate the removal of a low flow concrete ford crossing and install a clear span bridge. This will provide the landowner with safe and reliable access across the river, while also allowing for unimpeded fish passage for all life history stages of the threatened native steelhead population. The project specifically addresses the concrete ford noted in the Steelhead Restoration and Management Plan for California document under Task SCC-02-313-02 (concrete ford upstream of Andrew Molera State Park) along the main-stem of the Big Sur River in Monterey County. The existing structure resulted in unacceptable depth and velocity conditions over the full range of fish passage flows. The concrete slab downstream of the crossing violates depth criteria at low flows. As flows increase enough to meet depth requirements, velocity barriers form within the culverts. The barrier assessment of current conditions demonstrates challenging conditions for both adult winter migrations as well as challenging or absent juvenile migration both up and downstream. The hydraulic conditions at the existing ford create a combination of depths, velocities, and hydraulic drops that exceed thresholds for fish biomechanics. At higher flows the conditions are more amenable to fish passage, so this structure is identified as a partial barrier. Because adult migration and juvenile out-migration is present at some high flows, this barrier is characterized as a "partial" or temporal barrier (grey).

Permit Disclosure: The Grantee shall not proceed with on-the-ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secure.

Objective(s):

The specific objective of this project is to improve fish passage for all life history stages by removing a low flow concrete ford crossing and installing a clear span bridge. Fish passage conditions were assessed and analyzed as part of the design stage of this project under existing conditions and compared to NMFS and DFW

guidelines for minimum water depths and maximum velocities for fish passage.

This project's design provides a restored channel beneath the proposed free span bridge structures which is designed based on the "Stream Simulation" design method, as outlined in the "Guidelines for Salmonid Passage at Stream Crossings", and the "Stream Simulation" design approach outlined in the "California Salmonid Stream Habitat Restoration Manual". The Stream Simulation design method is intended to mimic natural stream characteristics for not only fish passage considerations, but also for sediment transport and flood and debris conveyance. During various flows, existing conditions partially impede passage for all life history stages of steelhead in the Big Sur River. Removing the concrete ford and replacing it with a clear span bridge will provide complete, unimpeded passage at all flows for both adult and juvenile steelhead and other anadromous species.

Project Description:

Location:

The Big Sur River is approximately 26 miles south of Carmel by the Sea along Highway 1 in Monterey County, California. The project site is a low flow concrete crossing at approximately River Mile 4.5 in the Big Sur River, at the "Riverside Campground and Cabins."

The location of the low flow crossing is at 36.26597000 west longitude and -121.80391400 north latitude.

Project Set Up:

The Grantee, with assistance from the Trout Unlimited Conservation Grants Assistant, will coordinate the project through securing bids, hiring of a contractor, coordinating project related meetings and communication, compiling project status reports, grant management, and oversight of the project implementation. The Grantee will be involved in the day to day construction management in coordination with the onsite construction manager, implementation of the restoration plan, and maintenance and monitoring of the restoration site following construction.

Resource Conservation District of Monterey County (RCD) will assist in the procurement of all necessary permits (not provided by the Fisheries Restoration Grant Program) prior to construction. Additionally, RCD staff will monitor and report on permit condition compliance.

Alnus Ecological will be contracted to conduct and oversee biological services such as site de-watering and diversion, sensitive species surveys, fish relocation, and re-watering of stream.

Waterways Consulting Inc. will be contracted to provide construction support

services including assistance with contractor bid process, on site construction observation and oversight, and As-Built drawings.

Project construction will be implemented by a licensed contractor with experience working on stream restoration projects. The project engineer will be onsite during construction activities to ensure the project is implemented according to the designs.

Materials:

The materials used for this project will include the following items:
Bridge, Abutments and Approaches material includes

- Engineered Fill
- Rock Slope Protection Fill
- Rock Slope Protection Fabric
- Concrete Asphalt
- Culvert
- Bridge Abutments including Wingwall Concrete
- Modular Steel Bridge
- Lumber for Bridge Railings

Tasks:

Task 1: Project Management and Final Work Plan

Under this task the Grantee will provide project management, which includes prepare and submit invoices and progress reports; prepare Annual Reports; develop and manage subcontracts; meet reporting and performance requirements; convene project team meetings; develop project information; coordinate with funders and partners; coordinate with neighboring landowners during the project; and disseminate project materials and results. The Grantee shall and submit a final landowner access agreement prior to the commencement of work. In addition, the Grantee will prepare and submit the draft final report, final report, and any data generated as a result of this project.

Task 2: Project Pre-construction Activities and Surveys (Season 1)

- Permit Acquisition: The Grantee will secure all necessary permits, not provided by FRGP, DFW 1600 Lake and Streambed Alteration Agreement (LSA) and any other permit or authorization required for capturing and handling steelhead and California red-legged frogs. A hard copy of all permits and resolution obtained for the project will be submitted to the Grant Manager prior to the commencement of construction.

- Submission of Plans and Work Schedule: Submit a hard and electronic copy of Final Engineered plans and specifications for the

project within two (2) weeks after execution of the grant, to Grant Manager and Grantor Engineer. The plans will include details of construction, scaled drawings of the site plan and construction, water diversion and fish and frog relocation (if necessary), and riparian re-vegetation.

- California Red-legged Frog and Steelhead Trout Surveys: Conduct pre-construction surveys for following US Fish and Wildlife guidance protocol (2005) Surveys will be conducted by a qualified biologist (one holding appropriate permit) at least two weeks but before the onset of construction activities. If needed, California Red-legged Frog and Steelhead Trout will be moved from the construction area and relocated to appropriate habitat. In addition, monitoring of the channel will be conducted by a qualified fisheries biologist, permitted to handle the species, during the installation of coffer dams (or other dewatering structures) and during construction.

- Staging and Mobilization: Conduct site preparatory surveys to inform on-site operations, for the safe movement of personnel, equipment, supplies, and incidentals to the work site; for the establishment of all offices and other facilities necessary for work on the project; and for all other work and operations which must be performed to complete the tasks.

- Photo points will be established and used throughout the project to document work site conditions.

Task 3: Construction (Season 1)

- All construction will be done according to the accepted project specifications and accepted Final Engineered Plans.

- The Grantee will hold a pre-construction meeting with the Grant Manager, Grantor Engineer, and sub-contractor representatives to establish roles and responsibilities and set expectations for record-keeping, scheduling, monitoring, and safety.

- The Grantee will notify the Grant Manager a minimum of two weeks prior to the start of construction to enable the Grant Manager to begin monitoring of the project.

- Once each week during construction, the Grantee shall electronically submit to the Grant Manger and the Grantor Engineer a Fish Passage Construction Inspection Checklist and required photos.

- Conduct clearing and grubbing of vegetation and removal of debris from the construction site. All material removed shall be disposed of in accordance with all local regulations. Vegetation located beyond the limits for clearing and grubbing that are not removed, shall be protected from damage.

- The demolition of structures will be done in accordance with all local regulations. Sub-contractor will completely remove the downstream apron and foundations while leaving the concrete ford in place to be used by campground users. (Approximately 2,200 cubic feet of concrete.)

- Bridge abutments will be built, including formwork and reinforced steel as shown on the engineering drawings, and as otherwise directed by the engineer.

- Upon completion of the first season construction period, the fall/winter erosion control measures will to be installed.

Task 4: Construction Site Winter Monitoring

Visual inspection of site and stability of project will be conducted after storm events.

Task 5: Project Pre-construction Activities and Surveys (Season 2)

- California Red-legged Frog (CRLF) and Steelhead trout (SHT) Surveys: Conduct pre-construction surveys for CRLF and STH following US Fish and Wildlife guidance protocol (2005) Surveys will be conducted by a qualified biologist at least two weeks before the onset of construction activities. Prior to dewatering, CRLF and SHT will be moved from the construction area and relocated to appropriate habitat by a qualified biologist permitted to handle the species. In addition, monitoring of the channel will be conducted by a qualified biologist during the installation of coffer dams (or other dewatering structures) and during construction.

- Staging and Mobilization: Conduct site preparatory surveys to inform on site operations, for the safe movement of personnel, equipment, supplies, and incidentals to the work site; for the establishment of all offices and other facilities necessary for work on the project; and for all other work and operations which must be performed to complete the tasks.

Task 6: Construction (Season 2)

- All construction will be done according to the accepted project

specifications and Final Engineered Plan.

- The Grantee will hold a pre-construction meeting with the Grant Manager, Grantor Engineer, and sub-contractor representatives to establish roles and responsibilities and set expectations for record-keeping, scheduling, monitoring, and safety.

- The Grantee will notify the Grant Manager a minimum of two weeks prior to the start of construction to enable the Grant Manager to begin monitoring of the project.

- Once each week during construction, the Grantee shall electronically submit to the Grant Manger and the Grantor Engineer a Fish Passage Construction Inspection Checklist and required photos.

- Submit a dewatering plan, at least one month before the commencement to dewatering, to the Grant Manager for review and acceptance. All materials used for dewatering shall be removed at the completion of the project.

- The pre-constructed bridge deck will be placed onto the foundation footings.

- Complete the bridge assembly including break-away railing system to allow access to the campground.

- Demolition of concrete ford crossing will be done in accordance with all local regulations. Sub-contractor will completely remove the concrete ford including any foundation and dispose the material off site in accordance with all local regulations. (Approximately 2,250 cubic feet of concrete)

- Restore approximately 520 feet of channel by grading to a stable profile that conforms to adjacent undisturbed areas.

- Install vegetated rock slope protection to stabilize the banks and provide protection for the newly installed structure.

Task 7: Post Construction Riparian Restoration and Monitoring:

- Upon completion of construction during the following fall and winter, restoration of disturbed riparian habitat (e.g. stream banks in the vicinity of the bridge) will include installation of erosion control fabric, and revegetation with native seeding and plants (~100 - 1 gallon) and live stakes (i.e. willow and sycamore) and be maintained to a

minimum of eighty-five percent (85%) coverage of the seeded area three years after the revegetation is complete.

- Photo points, established during Pre-construction Activities for Season 1 should be used throughout the project to document work site conditions. Visual inspection of site and stability of project will be conducted after storm events.

Deliverables:

Task 1: Project Management

Invoices, progress reports, annual progress reports, copies of subcontractor contracts, and final landowner access agreement, prior to the commencement of work. In addition, the Grantee will prepare and submit the draft final report, final report, and any data generated as a result of this project.

Task 2: Project Pre-construction Activities and Surveys (Season 1)

Copies of all permits secured by the grantee, Final 100% complete construction plans, and Steelhead and Red-legged Frog survey results

Task 3: Construction (Season 1)

Notification of the construction start date, construction inspection checklist and photos, and new bridge abutments.

Task 4: Construction Site Winter Monitoring

Placement of erosion control measures

Task 5: Project Pre-construction Activities and Surveys (Season 2)

Steelhead and Red-legged Frog survey results

Task 6: Construction (Season 2)

Notification of the construction start date, construction inspection checklist and photos, and new bridge installed.

Task 7: Post Construction Clean-up and Monitoring

Submittal of the re-vegetation plans, re-vegetation of the construction site and staging area

Timelines:

Task 1: Project Management and Final Work Plan

- Secure construction sub-contracts due July, 1 2015
- Obtain Land owner access agreement(s) July 1, 2015

- Draft final report due February 1, 2018
- Final report due March 1, 2018
- Invoice and Progress reports due July 1, 2015 – February 1, 2018

Task 2: Project Pre-construction Activities and Surveys (Season 1)

- Copies of all permits secured by the grantee due April 1, 2016
- Copy of final 100% complete construction plan due July 1, 2015
- Copies of steelhead and red-legged frog survey results due June 1, 2016

Task 3: Construction (Season 1)

- Intent to start work letter due June 1, 2016
- Construction Inspection Checklist due weekly starting June 1, 2016
- Construction of bridge foundation and associated walls due September 1, 2016

Task 4: Construction Site Winter Monitoring

- Erosion control material installed due November 1, 2016

Task 5: Project Pre-construction Activities and Surveys (Season 2)

- Copies of steelhead and red-legged frog survey results due June 1, 2017

Task 6: Construction (Season 2)

- The season work window for work in the stream is June 15–October 31, 2015
- Intent to start work letter due June 1, 2017
- Dewatering and fish/frog removal and relocation conducted July 1, 2017
- Construction Inspection Checklist due weekly starting June 1, 2017
- New bridge installed due September 1, 2017
- Destruction and removal of the concrete ford crossing due October 15, 2017

Task 7: Post Construction Clean-up and Monitoring

- Submit revegetation plan due October 1, 2017
- Revegetation completed November 1, 2017

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the

California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.

    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.

    - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

    - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.

    - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. The bridge design and installation will meet flow carrying capacity required for a 100-year flood event as identified by specifications determined by National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Wildlife (CDFW), for adult and juvenile salmonid fish passage. The project will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and criteria for fish passage as described in Volume II, Part IX, of the *California Salmonid Stream Habitat Restoration Manual*. The engineered plans for the bridge (culvert) installation shall be visually reviewed and authorized by NOAA Fisheries or California Department of Fish and Wildlife engineers prior to commencement of work.

4. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*, Volume I, and Volume II Part

XI and Part XII. The Grantee/landowner will maintain the new crossing, inspect the crossing in a timely manner and remove debris as necessary during the storm season.

5. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

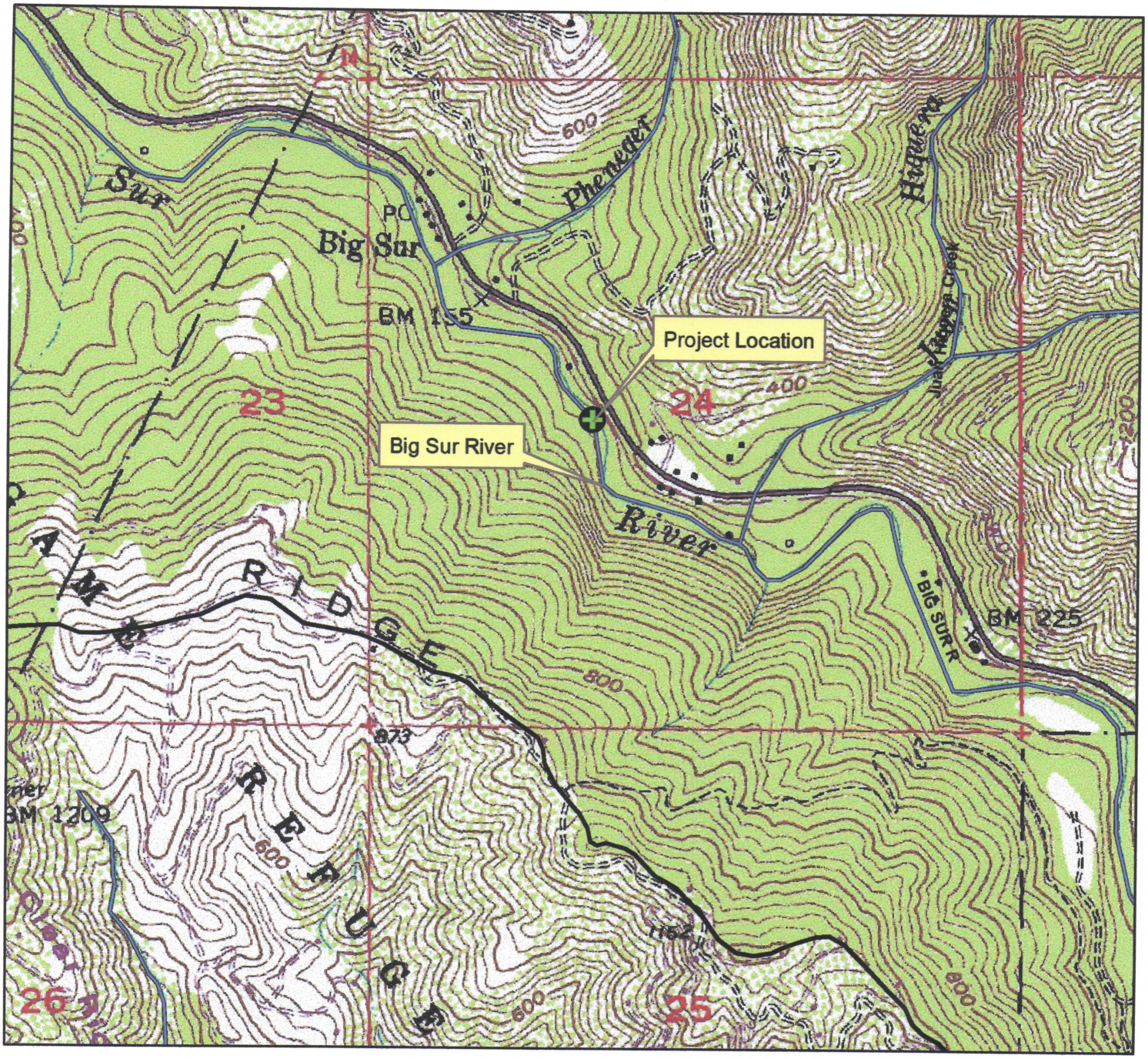
California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
724466 Big Sur River Fish Passage Restoration Project - Riverside Campground

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S4	SC
2	Arroyo Seco bush-mallow *Malacothamnus palmeri var. lucianus*	PDMAL0Q0B2			G3T1Q	S1	1B.2
3	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
4	California screw moss *Tortula californica*	NBMUS7L090			G2?	S2	1B.2
5	California tiger salamander *Ambystoma californiense*	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SC
6	Carmel Valley bush-mallow *Malacothamnus palmeri var. involucratus*	PDMAL0Q0B1			G3T3Q	S3	1B.2
7	Carmel Valley malacothrix *Malacothrix saxatilis var. arachnoidea*	PDAST660C2			G5T2	S2	1B.2
8	Central Maritime Chaparral	CTT37C20CA			G2	S2.2	
9	Coast Range newt *Taricha torosa*	AAAAF02032			G4	S4	SC
10	Cone Peak bedstraw *Galium californicum ssp. luciense*	PDRUB0N0E3			G5T2	S2	1B.3
11	Dolloff Cave spider *Meta dolloff*	ILARA17010			G1	S1	
12	Dudley's lousewort *Pedicularis dudleyi*	PDSCR1K0D0		Rare	G2	S2	1B.2
13	Eastwood's goldenbush *Ericameria fasciculata*	PDAST3L080			G2	S2	1B.1
14	Hooker's manzanita *Arctostaphylos hookeri ssp. hookeri*	PDERI040J1			G3T2?	S2?	1B.2
15	Hutchinson's larkspur *Delphinium hutchinsoniae*	PDRAN0B0V0			G2	S2	1B.2
16	Jolon clarkia *Clarkia jolonensis*	PDONA050L0			G2	S2	1B.2
17	Little Sur manzanita *Arctostaphylos edmundsii*	PDERI04260			G2?	S2?	1B.2
18	Monterey Pine Forest	CTT83130CA			G1	S1.1	
19	Monterey pine *Pinus radiata*	PGPIN040V0			G1	S1	1B.1
20	Muir's tarplant *Carlquistia muirii*	PDASTDU010			G2	S2	1B.3
21	North Central Coast Fall-Run Steelhead Stream	CARA2631CA			GNR	SNR	
22	Pinnacles buckwheat *Eriogonum nortonii*	PDPGN08470			G2	S2	1B.3
23	Pinnacles optioservus riffle beetle *Optioservus canus*	IICOL5E020			G1	S1	
24	Santa Lucia bedstraw *Galium clementis*	PDRUB0N0H0			G3	S3	1B.3

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Smith's blue butterfly *Euphilotes enoptes smithi*	IILEPG2026	Endangered		G5T1T2	S1S2	
26	Toren's grimmia *Grimmia torenii*	NBMUS32330			G2	S2	1B.3
27	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
28	Yadon's rein orchid *Piperia yadonii*	PMORC1X070	Endangered		G2	S2	1B.1
29	adobe sanicle *Sanicula maritima*	PDAPI1Z0D0		Rare	G2	S2.2	1B.1
30	ashy storm-petrel *Oceanodroma homochroa*	ABNDC04030			G2	S2	SC
31	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
32	bristlecone fir *Abies bracteata*	PGPIN01030			G2	S2	1B.3
33	coast horned lizard *Phrynosoma blainvillii*	ARACF12100			G3G4	S3S4	SC
34	compact cobwebby thistle *Cirsium occidentale var. compactum*	PDAST2E1Z1			G3G4T1	S1	1B.2
35	double-crested cormorant *Phalacrocorax auritus*	ABNFD01020			G5	S3	
36	fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0			G2	S2	1B.2
37	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	
38	hooked popcornflower *Plagiobothrys uncinatus*	PDBOR0V170			G2	S2	1B.2
39	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3G4	S3S4.2	4.2
40	monarch butterfly *Danaus plexippus*	IILEPP2010			G5	S3	
41	pine rose *Rosa pinetorum*	PDROS1J0W0			G2Q	S2.2	1B.2
42	prairie falcon *Falco mexicanus*	ABNKD06090			G5	S4	
43	seaside bird's-beak *Cordylanthus rigidus ssp. littoralis*	PDSCR0J0P2		Endangered	G5T2	S2	1B.1
44	steelhead - south/central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209H	Threatened		G5T2Q	S2	SC
45	talus fritillary *Fritillaria falcata*	PMLIL0V070			G2	S2	1B.2
46	tear drop moss *Dacryophyllum falcifolium*	NBMUS8Z010			G1	S1	1B.3
47	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
48	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S2	SC
49	umbrella larkspur *Delphinium umbraculorum*	PDRAN0B1W0			G3	S3	1B.3
50	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
51	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC

Big Sur River Fish Passage Restoration Project – Riverside Campground
Grantee: Trout Unlimited
USGS Quad: Big Sur



Legend

- Big Sur Watershed
- Project Location

0 500 1,000 2,000 3,000 4,000 Feet

DRG Topographic

N W E S

The Big Sur River Fish Passage Restoration Project – Riverside Campground Project

Introduction:

The Big Sur River in coastal Monterey County is part of the Big Sur Coast Biogeographical Population Group (BPG) as noted in the South-Central California Steelhead Recovery Plan prepared by the National Marine Fishery Service in Dec. 2013 (Recovery Plan) and is identified as a "Core 1" system. The Recovery Plan shows that Culverts and Road Crossings (passage barriers) are characterized in "red" – very high threat. The same plan states "Critical recovery actions for Core 1 populations within the Big Sur Coast BPG", the following is noted for the Big Sur River: "Remove or modify instream fish passage barriers to allow steelhead natural rates of migration to upstream spawning and rearing habitat, and passage of smolts and kelts downstream to the estuary and ocean."

The Big Sur River Fish Passage Restoration Project – Riverside Campground Project will facilitate the removal of a low flow concrete ford crossing and install a clear span bridge. This will provide the landowner with safe and reliable access across the river, while also allowing for unimpeded fish passage for all life history stages of the threatened native steelhead population. The project specifically addresses the concrete ford noted in the Steelhead Restoration and Management Plan for California document under Task SCC-02-313-02 (concrete ford upstream of Andrew Molera State Park) along the main-stem of the Big Sur River in Monterey County. The existing structure resulted in unacceptable depth and velocity conditions over the full range of fish passage flows. The concrete slab downstream of the crossing violates depth criteria at low flows. As flows increase enough to meet depth requirements, velocity barriers form within the culverts. The barrier assessment of current conditions demonstrates challenging conditions for both adult winter migrations as well as challenging or absent juvenile migration both up and downstream. The hydraulic conditions at the existing ford create a combination of depths, velocities, and hydraulic drops that exceed thresholds for fish biomechanics. At higher flows the conditions are more amenable to fish passage, so this structure is identified as a partial barrier. Because adult migration and juvenile out-migration is present at some high flows, this barrier is characterized as a "partial" or temporal barrier (grey).

Permit Disclosure: The Grantee shall not proceed with on-the-ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secure.

Objective(s):

The specific objective of this project is to improve fish passage for all life history stages by removing a low flow concrete ford crossing and installing a clear span bridge. Fish passage conditions were assessed and analyzed as part of the design stage of this project under existing conditions and compared to NMFS and DFW

guidelines for minimum water depths and maximum velocities for fish passage.

This project's design provides a restored channel beneath the proposed free span bridge structures which is designed based on the "Stream Simulation" design method, as outlined in the "Guidelines for Salmonid Passage at Stream Crossings", and the "Stream Simulation" design approach outlined in the "California Salmonid Stream Habitat Restoration Manual". The Stream Simulation design method is intended to mimic natural stream characteristics for not only fish passage considerations, but also for sediment transport and flood and debris conveyance. During various flows, existing conditions partially impede passage for all life history stages of steelhead in the Big Sur River. Removing the concrete ford and replacing it with a clear span bridge will provide complete, unimpeded passage at all flows for both adult and juvenile steelhead and other anadromous species.

Project Description:

Location:

The Big Sur River is approximately 26 miles south of Carmel by the Sea along Highway 1 in Monterey County, California. The project site is a low flow concrete crossing at approximately River Mile 4.5 in the Big Sur River, at the "Riverside Campground and Cabins."

The location of the low flow crossing is at 36.26597000 west longitude and -121.80391400 north latitude.

Project Set Up:

The Grantee, with assistance from the Trout Unlimited Conservation Grants Assistant, will coordinate the project through securing bids, hiring of a contractor, coordinating project related meetings and communication, compiling project status reports, grant management, and oversight of the project implementation. The Grantee will be involved in the day to day construction management in coordination with the onsite construction manager, implementation of the restoration plan, and maintenance and monitoring of the restoration site following construction.

Resource Conservation District of Monterey County (RCD) will assist in the procurement of all necessary permits (not provided by the Fisheries Restoration Grant Program) prior to construction. Additionally, RCD staff will monitor and report on permit condition compliance.

Alnus Ecological will be contracted to conduct and oversee biological services such as site de-watering and diversion, sensitive species surveys, fish relocation, and re-watering of stream.

Waterways Consulting Inc. will be contracted to provide construction support

services including assistance with contractor bid process, on site construction observation and oversight, and As-Built drawings.

Project construction will be implemented by a licensed contractor with experience working on stream restoration projects. The project engineer will be onsite during construction activities to ensure the project is implemented according to the designs.

Materials:

The materials used for this project will include the following items:
Bridge, Abutments and Approaches material includes

- Engineered Fill
- Rock Slope Protection Fill
- Rock Slope Protection Fabric
- Concrete Asphalt
- Culvert
- Bridge Abutments including Wingwall Concrete
- Modular Steel Bridge
- Lumber for Bridge Railings

Tasks:

Task 1: Project Management and Final Work Plan

Under this task the Grantee will provide project management, which includes prepare and submit invoices and progress reports; prepare Annual Reports; develop and manage subcontracts; meet reporting and performance requirements; convene project team meetings; develop project information; coordinate with funders and partners; coordinate with neighboring landowners during the project; and disseminate project materials and results. The Grantee shall and submit a final landowner access agreement prior to the commencement of work. In addition, the Grantee will prepare and submit the draft final report, final report, and any data generated as a result of this project.

Task 2: Project Pre-construction Activities and Surveys (Season 1)

- Permit Acquisition: The Grantee will secure all necessary permits, not provided by FRGP, DFW 1600 Lake and Streambed Alteration Agreement (LSA) and any other permit or authorization required for capturing and handling steelhead and California red-legged frogs. A hard copy of all permits and resolution obtained for the project will be submitted to the Grant Manager prior to the commencement of construction.

- Submission of Plans and Work Schedule: Submit a hard and electronic copy of Final Engineered plans and specifications for the

project within two (2) weeks after execution of the grant, to Grant Manager and Grantor Engineer. The plans will include details of construction, scaled drawings of the site plan and construction, water diversion and fish and frog relocation (if necessary), and riparian re-vegetation.

- California Red-legged Frog and Steelhead Trout Surveys: Conduct pre-construction surveys for following US Fish and Wildlife guidance protocol (2005) Surveys will be conducted by a qualified biologist (one holding appropriate permit) at least two weeks but before the onset of construction activities. If needed, California Red-legged Frog and Steelhead Trout will be moved from the construction area and relocated to appropriate habitat. In addition, monitoring of the channel will be conducted by a qualified fisheries biologist, permitted to handle the species, during the installation of coffer dams (or other dewatering structures) and during construction.

- Staging and Mobilization: Conduct site preparatory surveys to inform on-site operations, for the safe movement of personnel, equipment, supplies, and incidentals to the work site; for the establishment of all offices and other facilities necessary for work on the project; and for all other work and operations which must be performed to complete the tasks.

- Photo points will be established and used throughout the project to document work site conditions.

Task 3: Construction (Season 1)

- All construction will be done according to the accepted project specifications and accepted Final Engineered Plans.

- The Grantee will hold a pre-construction meeting with the Grant Manager, Grantor Engineer, and sub-contractor representatives to establish roles and responsibilities and set expectations for record-keeping, scheduling, monitoring, and safety.

- The Grantee will notify the Grant Manager a minimum of two weeks prior to the start of construction to enable the Grant Manager to begin monitoring of the project.

- Once each week during construction, the Grantee shall electronically submit to the Grant Manger and the Grantor Engineer a Fish Passage Construction Inspection Checklist and required photos.

- Conduct clearing and grubbing of vegetation and removal of debris from the construction site. All material removed shall be disposed of in accordance with all local regulations. Vegetation located beyond the limits for clearing and grubbing that are not removed, shall be protected from damage.

- The demolition of structures will be done in accordance with all local regulations. Sub-contractor will completely remove the downstream apron and foundations while leaving the concrete ford in place to be used by campground users. (Approximately 2,200 cubic feet of concrete.)

- Bridge abutments will be built, including formwork and reinforced steel as shown on the engineering drawings, and as otherwise directed by the engineer.

- Upon completion of the first season construction period, the fall/winter erosion control measures will to be installed.

Task 4: Construction Site Winter Monitoring

Visual inspection of site and stability of project will be conducted after storm events.

Task 5: Project Pre-construction Activities and Surveys (Season 2)

- California Red-legged Frog (CRLF) and Steelhead trout (SHT) Surveys: Conduct pre-construction surveys for CRLF and STH following US Fish and Wildlife guidance protocol (2005) Surveys will be conducted by a qualified biologist at least two weeks before the onset of construction activities. Prior to dewatering, CRLF and SHT will be moved from the construction area and relocated to appropriate habitat by a qualified biologist permitted to handle the species. In addition, monitoring of the channel will be conducted by a qualified biologist during the installation of coffer dams (or other dewatering structures) and during construction.

- Staging and Mobilization: Conduct site preparatory surveys to inform on site operations, for the safe movement of personnel, equipment, supplies, and incidentals to the work site; for the establishment of all offices and other facilities necessary for work on the project; and for all other work and operations which must be performed to complete the tasks.

Task 6: Construction (Season 2)

- All construction will be done according to the accepted project

specifications and Final Engineered Plan.

- The Grantee will hold a pre-construction meeting with the Grant Manager, Grantor Engineer, and sub-contractor representatives to establish roles and responsibilities and set expectations for record-keeping, scheduling, monitoring, and safety.

- The Grantee will notify the Grant Manager a minimum of two weeks prior to the start of construction to enable the Grant Manager to begin monitoring of the project.

- Once each week during construction, the Grantee shall electronically submit to the Grant Manger and the Grantor Engineer a Fish Passage Construction Inspection Checklist and required photos.

- Submit a dewatering plan, at least one month before the commencement to dewatering, to the Grant Manager for review and acceptance. All materials used for dewatering shall be removed at the completion of the project.

- The pre-constructed bridge deck will be placed onto the foundation footings.

- Complete the bridge assembly including break-away railing system to allow access to the campground.

- Demolition of concrete ford crossing will be done in accordance with all local regulations. Sub-contractor will completely remove the concrete ford including any foundation and dispose the material off site in accordance with all local regulations. (Approximately 2,250 cubic feet of concrete)

- Restore approximately 520 feet of channel by grading to a stable profile that conforms to adjacent undisturbed areas.

- Install vegetated rock slope protection to stabilize the banks and provide protection for the newly installed structure.

Task 7: Post Construction Riparian Restoration and Monitoring:

- Upon completion of construction during the following fall and winter, restoration of disturbed riparian habitat (e.g. stream banks in the vicinity of the bridge) will include installation of erosion control fabric, and revegetation with native seeding and plants (~100 - 1 gallon) and live stakes (i.e. willow and sycamore) and be maintained to a

minimum of eighty-five percent (85%) coverage of the seeded area three years after the revegetation is complete.

- Photo points, established during Pre-construction Activities for Season 1 should be used throughout the project to document work site conditions. Visual inspection of site and stability of project will be conducted after storm events.

Deliverables:

Task 1: Project Management

Invoices, progress reports, annual progress reports, copies of subcontractor contracts, and final landowner access agreement, prior to the commencement of work. In addition, the Grantee will prepare and submit the draft final report, final report, and any data generated as a result of this project.

Task 2: Project Pre-construction Activities and Surveys (Season 1)

Copies of all permits secured by the grantee, Final 100% complete construction plans, and Steelhead and Red-legged Frog survey results

Task 3: Construction (Season 1)

Notification of the construction start date, construction inspection checklist and photos, and new bridge abutments.

Task 4: Construction Site Winter Monitoring

Placement of erosion control measures

Task 5: Project Pre-construction Activities and Surveys (Season 2)

Steelhead and Red-legged Frog survey results

Task 6: Construction (Season 2)

Notification of the construction start date, construction inspection checklist and photos, and new bridge installed.

Task 7: Post Construction Clean-up and Monitoring

Submittal of the re-vegetation plans, re-vegetation of the construction site and staging area

Timelines:

Task 1: Project Management and Final Work Plan

- Secure construction sub-contracts due July, 1 2015
- Obtain Land owner access agreement(s) July 1, 2015

- Draft final report due February 1, 2018
- Final report due March 1, 2018
- Invoice and Progress reports due July 1, 2015 – February 1, 2018

Task 2: Project Pre-construction Activities and Surveys (Season 1)

- Copies of all permits secured by the grantee due April 1, 2016
- Copy of final 100% complete construction plan due July 1, 2015
- Copies of steelhead and red-legged frog survey results due June 1, 2016

Task 3: Construction (Season 1)

- Intent to start work letter due June 1, 2016
- Construction Inspection Checklist due weekly starting June 1, 2016
- Construction of bridge foundation and associated walls due September 1, 2016

Task 4: Construction Site Winter Monitoring

- Erosion control material installed due November 1, 2016

Task 5: Project Pre-construction Activities and Surveys (Season 2)

- Copies of steelhead and red-legged frog survey results due June 1, 2017

Task 6: Construction (Season 2)

- The season work window for work in the stream is June 15–October 31, 2015
- Intent to start work letter due June 1, 2017
- Dewatering and fish/frog removal and relocation conducted July 1, 2017
- Construction Inspection Checklist due weekly starting June 1, 2017
- New bridge installed due September 1, 2017
- Destruction and removal of the concrete ford crossing due October 15, 2017

Task 7: Post Construction Clean-up and Monitoring

- Submit revegetation plan due October 1, 2017
- Revegetation completed November 1, 2017

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the

California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.

    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.

    - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

    - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.

    - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. The bridge design and installation will meet flow carrying capacity required for a 100-year flood event as identified by specifications determined by National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Wildlife (CDFW), for adult and juvenile salmonid fish passage. The project will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and criteria for fish passage as described in Volume II, Part IX, of the *California Salmonid Stream Habitat Restoration Manual*. The engineered plans for the bridge (culvert) installation shall be visually reviewed and authorized by NOAA Fisheries or California Department of Fish and Wildlife engineers prior to commencement of work.

4. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*, Volume I, and Volume II Part

XI and Part XII. The Grantee/landowner will maintain the new crossing, inspect the crossing in a timely manner and remove debris as necessary during the storm season.

5. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

Napa River Dry-Season Streamflow Monitoring

Introduction

The Grantee for the Napa River Dry-Season Streamflow Monitoring is the Napa County Resource Conservation District (RCD). The purpose of the project is: 1) to support improvement and continued operation of four low-flow stream gaging stations on key Napa River steelhead tributaries; 2) compile/collect watershed-wide low-flow hydrographic data for the purpose of facilitating improvement of dry season/drought habitat to support rearing of juvenile steelhead in the Napa River system.

The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured. All habitat improvement will follow techniques outlined in the California Salmonid Stream Habitat Restoration Manual (Part VII Project Implementation).

Objectives

The proposed project will upgrade and support four existing stream gaging station on Napa River steelhead tributaries. The project includes preparation of a low-flow hydrography dataset for the Napa River Watershed.

Project Description

Location

- The Ritchey Creek stream gaging station is located 3.7 miles southeast of Calistoga, California within Bothe Napa Valley State Park at the park entrance road crossing of the creek. This location is approximately 4,000 ft. upstream (southwest) of the confluence of Ritchey Creek and the Napa River.

  Ritchey Creek stream gaging Station: 38.55174, -122.52082

- The York Creek stream gaging station is located in St. Helena, California, at the Main Street (Hwy 29) crossing of the creek. This location is approximately 5,000 feet upstream (southwest) of the confluence of York Creek with the Napa River.

  York Creek stream gaging station: 38.51015, -122.47855

- The Carneros Creek stream gaging station is located 4.0 miles southwest of Napa, California, at the Old Sonoma Road crossing of the creek. This location is approximately 4.0 miles upstream (northwest) of the confluence of Carneros Creek with the Napa River.

  Carneros Creek stream gaging station: 38.25658, -122.34034

- The Huichica Creek streamgaging station is located 6.5 miles southwest of Napa, California, at Napa RCD's vineyard adjacent to the DFW facility at 2150 Duhig Road. This location is approximately 2,800 feet upstream (northeast) of the confluence of Huichica Creek with the tidal wetlands of San Pablo Bay.

Huichica Creek stream gaging station: 38.22049, -122.35379

Project Set Up:

All of the following will be conducted by the RCD: project management, preparation of the Napa River low-flow hydrography dataset, operation and maintenance of the Ritchey Creek stream gaging station, upgrade operation and maintenance of the York Creek stream gaging station, upgrade/rebuild, operation and maintenance of the Carneros and Huichica Creek Stream gaging stations, outreach, and reporting.

Materials

Flow monitoring equipment, Repair supplies, Installation supplies, Office supplies and printing

Tasks

Task 1: Project Management

The grantee will manage all activities under the project including preparation and submittal of monthly invoices, project activity reports and final invoice and final report.

Task 2: Preparation of the Napa River Low-Flow Hydrography Dataset:

Grantee will compile existing information, perform dry-season spot inspections of streams at key locations, and prepare a fully-attributed GIS dataset containing the amount and location of anadromous perennial flow habitat of the Napa River mainstem and its tributary creeks.

Task 3: Operation and Maintenance of the Ritchey Creek stream gaging Station:

Grantee will operate and maintain ***Station 48 – Ritchey Creek at Bothe State Park***, installed and previously operated as part of FRGP Grant P1030421 awarded to the Applicant in 2011, for the term of the project including maintenance and calibration of the stage measurement and communications equipment, performance of field discharge measurements, maintenance of the stage-discharge rating, maintenance of the completeness and accuracy of the publically available real-time and historical stage and flow data on the website, and processing and documentation of finalized and quality-controlled annual datasets.

Task 4: Upgrade, Operation, and Maintenance of the York Creek stream gaging station

Grantee will completely rebuild the defunct ***Station 29 – York Creek at Hwy 29***, modernizing it and improving its accuracy for collection of low-flow data. The Napa County Flood Control and Water Conservation District will then bear the cost of operation and maintenance of the station for the remainder of the term of the project and into the future.

Task 5: Upgrade, Operation, and Maintenance of the Carneros and Huichica Creek stream gaging stations

Grantee will completely rebuild **Station CRV – Carneros Creek at Old Sonoma Rd** and **Station HRV – Huichica Creek at RCD Vineyard**, modernizing the stations with internet communications capabilities and improving accuracy for collection of lowflow data. The local Carneros and Huichica Creek Water Users will then bear the cost of operation and maintenance of the stations for the remainder of the project term and into the future.

Task 6: Outreach

Grantee will prepare and distribute educational materials to all potential water diverters in the Ritchey, York, Carneros, and Huichica Creek subwatersheds to ensure that the community is aware of the availability of the data and how to use it for permit compliance and to facilitate improvement of drought and dry season low-flow habitat for steelhead and other aquatic life.

Task 7: Reporting

Grantee will prepare one final report for the project documenting the equipment, methods, and results of all activities.

Deliverables

Monthly project activity reports (accompanying monthly invoices), digital map and fully-attributed GIS shape file of Napa River watershed low-flow hydrography data (compact disc), complete 2015-16, and partial 2016-17, stream stage and flow datasets (publically available on internet), stream gage Evaluation Report, stream gage Operation and Maintenance Agreement, Final Report

Timeline

June 1, 2015 – March 1, 2017

Task 1: Project Management (June 1, 2015 – March 1, 2017)

Invoices and project activity reports will be prepared and submitted on a monthly basis throughout the contract term. The final invoice will be submitted within 30 days following the end of the contract term.

Task 2: Preparation of the Napa River low-flow hydrography dataset (June 1, 2015 – October 1, 2015)

Maps and GIS data files will be submitted on compact disc to DFW upon completion, and prior to December 31, 2015

Task 3: Operation and Maintenance of the Ritchey Creek stream gaging station (June 1, 2015 – March 1, 2017)

Task 4: Installation and Startup of the York Creek stream gaging station (completed by October 1, 2015); Operation and maintenance of the York Creek stream gaging station (June 1, 2015 – March 1, 2017)

Task 5: Installation and Startup of the Carneros and Huichica Creek stream gaging stations (completed by October 1, 2015); Operation and maintenance of the Carneros and Huichica Creek stream gaging stations (June 1, 2015 – March 1, 2017)

Task 6: Outreach (March 2016 – March 1, 2017)

Task 7: Reporting

Raw provisional real-time and historical stage and flow data generated at the streamgaging stations will be available on the internet immediately upon collection. Adjustments to the calibration settings of the raw data will be made regularly to improve accuracy of the raw data. Annually, raw data will be replaced with quality-controlled and finalized data. Status reports and invoices will be submitted to CDFW quarterly. A final report documenting the methods and results of the project will be prepared and distributed in early 2017, prior to the end of the contract term. The final invoice will be submitted within 30 days following the end of the contract term.

Additonal Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Timing of work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
D034 Napa River dry season stream flow monitoring - Carneros site

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S4	SC
2	An isopod *Calasellus californicus*	ICMAL34010			G2	S2	
3	Blennosperma vernal pool andrenid bee *Andrena blennospermatis*	IIHYM35030			G2	S2	
4	Brewer's western flax *Hesperolinon breweri*	PDLIN01030			G2	S2	1B.2
5	California beaked-rush *Rhynchospora californica*	PMCYP0N060			G1	S1	1B.1
6	California black rail *Laterallus jamaicensis coturniculus*	ABNME03041		Threatened	G4T1	S1	
7	California clapper rail *Rallus longirostris obsoletus*	ABNME05016	Endangered	Endangered	G5T1	S1	
8	California freshwater shrimp *Syncaris pacifica*	ICMAL27010	Endangered	Endangered	G1	S1	
9	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
10	Calistoga ceanothus *Ceanothus divergens*	PDRHA04240			G2	S2	1B.2
11	Carquinez goldenbush *Isocoma arguta*	PDAST57050			G1	S1	1B.1
12	Caspian tern *Hydroprogne caspia*	ABNNM08020			G5	S4	
13	Clara Hunt's milk-vetch *Astragalus claranus*	PDFAB0F240	Endangered	Threatened	G1	S1	1B.1
14	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
15	Cobb Mountain lupine *Lupinus sericatus*	PDFAB2B3J0			G2	S2	1B.2
16	Contra Costa goldfields *Lasthenia conjugens*	PDAST5L040	Endangered		G1	S1	1B.1
17	Delta smelt *Hypomesus transpacificus*	AFCHB01040	Threatened	Endangered	G1	S1	
18	Delta tule pea *Lathyrus jepsonii var. jepsonii*	PDFAB250D2			G5T2	S2	1B.2
19	Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1			G5T1	S1	1B.2
20	Greene's narrow-leaved daisy *Erigeron greenei*	PDAST3M5G0			G2	S2	1B.2
21	Henderson's bent grass *Agrostis hendersonii*	PMPOA040K0			G2Q	S2	3.2
22	Jepson's leptosiphon *Leptosiphon jepsonii*	PDPLM09140			G2	S2	1B.2
23	Keck's checkerbloom *Sidalcea keckii*	PDMAL110D0	Endangered		G1	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Marin knotweed *Polygonum marinense*	PDPGN0L1C0			G2Q	S2	3.1
25	Mason's lilaeopsis *Lilaeopsis masonii*	PDAPI19030		Rare	G2	S2	1B.1
26	Mead's owls-clover *Castilleja ambigua var. meadii*	PDSCR0D404			G4T1	S1	1B.1
27	Napa bluecurls *Trichostema ruygtii*	PDLAM220H0			G2	S2	1B.2
28	Napa checkerbloom *Sidalcea hickmanii ssp. napensis*	PDMAL110A6			G3T1	S1	1B.1
29	Napa false indigo *Amorpha californica var. napensis*	PDFAB08012			G4T2	S2	1B.2
30	Northern California black walnut *Juglans hindsii*	PDJUG02040			G1	S1	1B.1
31	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
32	Northern Vernal Pool	CTT44100CA			G2	S2.1	
33	Opler's longhorn moth *Adela oplerella*	IILEE0G040			G2	S2	
34	Rincon Ridge ceanothus *Ceanothus confusus*	PDRHA04220			G1	S1	1B.1
35	Rincon Ridge manzanita *Arctostaphylos stanfordiana ssp. decumbens*	PDERI041G4			G3T1	S1	1B.1
36	Sacramento splittail *Pogonichthys macrolepidotus*	AFCJB34020			G2	S2	SC
37	San Joaquin spearscale *Atriplex joaquinana*	PDCHE041F3			G2	S2	1B.2
38	San Pablo song sparrow *Melospiza melodia samuelis*	ABPBXA301W			G5T2?	S2?	SC
39	Sebastopol meadowfoam *Limnanthes vinculans*	PDLIM02090	Endangered	Endangered	G1	S1	1B.1
40	Serpentine Bunchgrass	CTT42130CA			G2	S2.2	
41	Sharsmith's western flax *Hesperolinon sharsmithiae*	PDLIN010E0			G2Q	S2	1B.2
42	Sonoma beardtongue *Penstemon newberryi var. sonomensis*	PDSCR1L483			G4T1	S2	1B.3
43	Sonoma canescent manzanita *Arctostaphylos canescens ssp. sonomensis*	PDERI04066			G3G4T2	S2	1B.2
44	Sonoma ceanothus *Ceanothus sonomensis*	PDRHA04420			G2	S2	1B.2
45	Sonoma sunshine *Blennosperma bakeri*	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
46	Sonoma zerene fritillary *Speyeria zerene sonomensis*	IILEPJ6083			G5T1	S1	
47	Suisun Marsh aster *Symphyotrichum lentum*	PDASTE8470			G2	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
48	Suisun shrew *Sorex ornatus sinuosus*	AMABA01103			G5T1	S1	SC
49	Suisun song sparrow *Melospiza melodia maxillaris*	ABPBXA301K			G5T2	S2	SC
50	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S3	
51	Tiburon paintbrush *Castilleja affinis var. neglecta*	PDSCR0D013	Endangered	Threatened	G4G5T1	S1	1B.2
52	alkali milk-vetch *Astragalus tener var. tener*	PDFAB0F8R1			G2T2	S2	1B.2
53	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
54	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
55	big-scale balsamroot *Balsamorhiza macrolepis*	PDAST11061			G2	S2	1B.2
56	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
57	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S3	SC
58	callippe silverspot butterfly *Speyeria callippe callippe*	IILEPJ6091	Endangered		G5T1	S1	
59	double-crested cormorant *Phalacrocorax auritus*	ABNFD01020			G5	S3	
60	dwarf downingia *Downingia pusilla*	PDCAM060C0			GU	S2	2B.2
61	ferruginous hawk *Buteo regalis*	ABNKC19120			G4	S3S4	
62	few-flowered navarretia *Navarretia leucocephala ssp. pauciflora*	PDPLM0C0E4	Endangered	Threatened	G4T1	S1	1B.1
63	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
64	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
65	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
66	great egret *Ardea alba*	ABNGA04040			G5	S4	
67	green jewelflower *Streptanthus hesperidis*	PDBRA2G510			G2	S2	1B.2
68	holly-leaved ceanothus *Ceanothus purpureus*	PDRHA04160			G2	S2	1B.2
69	legenere *Legenere limosa*	PDCAM0C010			G2	S2	1B.1
70	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
71	monarch butterfly *Danaus plexippus*	IILEPP2010			G5	S3	
72	narrow-anthered brodiaea *Brodiaea leptandra*	PMLIL0C022			G3?	S3?	1B.2
73	northern harrier *Circus cyaneus*	ABNKC11010			G5	S3	SC
74	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G5	S2.3	2B.3
75	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
76	pappose tarplant *Centromadia parryi ssp. parryi*	PDAST4R0P2			G3T1	S1	1B.2
77	saline clover *Trifolium hydrophilum*	PDFAB400R5			G2	S2	1B.2
78	salt-marsh harvest mouse *Reithrodontomys raviventris*	AMAFF02040	Endangered	Endangered	G1G2	S1S2	
79	saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A			G5T2	S2	SC
80	serpentine cryptantha *Cryptantha dissita*	PDBOR0A0H2			G2	S2	1B.2
81	showy rancheria clover *Trifolium amoenum*	PDFAB40040	Endangered		G1	S1	1B.1
82	small-flowered calycadenia *Calycadenia micrantha*	PDAST1P0C0			G2	S2	1B.2
83	soft salty bird's-beak *Chloropyron molle ssp. molle*	PDSCR0J0D2	Endangered	Rare	G2T1	S1	1B.2
84	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2Q	S2	
85	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
86	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
87	valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	IICOL48011	Threatened		G3T2	S2	
88	vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened		G3	S2S3	
89	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
90	western red bat *Lasiurus blossevillii*	AMACC05060			G5	S3?	SC
91	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
92	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
93	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	

California Department of Fish and Game
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Selected Elements by Common Name - Portrait
D034 Napa River dry season stream flow monitoring - Huichica site

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Alameda whipsnake *Masticophis lateralis euryxanthus*	ARADB21031	Threatened	Threatened	G4T2	S2	
2	American badger *Taxidea taxus*	AMAJF04010			G5	S4	SC
3	American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
4	An isopod *Calasellus californicus*	ICMAL34010			G2	S2	
5	Blennosperma vernal pool andrenid bee *Andrena blennospermatis*	IIHYM35030			G2	S2	
6	Bolander's water-hemlock *Cicuta maculata var. bolanderi*	PDAPI0M051			G5T3T4	S2	2B.1
7	Brewer's western flax *Hesperolinon breweri*	PDLIN01030			G2	S2	1B.2
8	California beaked-rush *Rhynchospora californica*	PMCYP0N060			G1	S1	1B.1
9	California black rail *Laterallus jamaicensis coturniculus*	ABNME03041		Threatened	G4T1	S1	
10	California clapper rail *Rallus longirostris obsoletus*	ABNME05016	Endangered	Endangered	G5T1	S1	
11	California freshwater shrimp *Syncaris pacifica*	ICMAL27010	Endangered	Endangered	G1	S1	
12	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
13	Carquinez goldenbush *Isocoma arguta*	PDAST57050			G1	S1	1B.1
14	Caspian tern *Hydroprogne caspia*	ABNNM08020			G5	S4	
15	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
16	Cobb Mountain lupine *Lupinus sericatus*	PDFAB2B3J0			G2	S2	1B.2
17	Congdon's tarplant *Centromadia parryi ssp. congdonii*	PDAST4R0P1			G3T2	S2	1B.1
18	Contra Costa goldfields *Lasthenia conjugens*	PDAST5L040	Endangered		G1	S1	1B.1
19	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
20	Delta smelt *Hypomesus transpacificus*	AFCHB01040	Threatened	Endangered	G1	S1	
21	Delta tule pea *Lathyrus jepsonii var. jepsonii*	PDFAB250D2			G5T2	S2	1B.2
22	Diablo helianthella *Helianthella castanea*	PDAST4M020			G2	S2	1B.2
23	Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1			G5T1	S1	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Greene's narrow-leaved daisy *Erigeron greenei*	PDAST3M5G0			G2	S2	1B.2
25	Henderson's bent grass *Agrostis hendersonii*	PMPOA040K0			G2Q	S2	3.2
26	Jepson's leptosiphon *Leptosiphon jepsonii*	PDPLM09140			G2	S2	1B.2
27	Marin knotweed *Polygonum marinense*	PDPGN0L1C0			G2Q	S2	3.1
28	Mason's lilaeopsis *Lilaeopsis masonii*	PDAPI19030		Rare	G2	S2	1B.1
29	Mt. Diablo fairy-lantern *Calochortus pulchellus*	PMLIL0D160			G2	S2	1B.2
30	Mt. Tamalpais manzanita *Arctostaphylos montana ssp. montana*	PDERI040J5			G3T3	S3	1B.3
31	Napa bluecurls *Trichostema ruygtii*	PDLAM220H0			G2	S2	1B.2
32	Napa checkerbloom *Sidalcea hickmanii ssp. napensis*	PDMAL110A6			G3T1	S1	1B.1
33	Napa false indigo *Amorpha californica var. napensis*	PDFAB08012			G4T2	S2	1B.2
34	Northern California black walnut *Juglans hindsii*	PDJUG02040			G1	S1	1B.1
35	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
36	Northern Vernal Pool	CTT44100CA			G2	S2.1	
37	Opler's longhorn moth *Adela oplerella*	IILEE0G040			G2	S2	
38	Sacramento splittail *Pogonichthys macrolepidotus*	AFCJB34020			G2	S2	SC
39	San Joaquin spearscale *Atriplex joaquinana*	PDCHE041F3			G2	S2	1B.2
40	San Pablo song sparrow *Melospiza melodia samuelis*	ABPBXA301W			G5T2?	S2?	SC
41	Sebastopol meadowfoam *Limnanthes vinculans*	PDLIM02090	Endangered	Endangered	G1	S1	1B.1
42	Serpentine Bunchgrass	CTT42130CA			G2	S2.2	
43	Sonoma canescent manzanita *Arctostaphylos canescens ssp. sonomensis*	PDERI04066			G3G4T2	S2	1B.2
44	Sonoma ceanothus *Ceanothus sonomensis*	PDRHA04420			G2	S2	1B.2
45	Sonoma sunshine *Blennosperma bakeri*	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
46	Sonoma zerene fritillary *Speyeria zerene sonomensis*	IILEPJ6083			G5T1	S1	
47	Suisun Marsh aster *Symphyotrichum lentum*	PDASTE8470			G2	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
48	Suisun shrew *Sorex ornatus sinuosus*	AMABA01103			G5T1	S1	SC
49	Suisun song sparrow *Melospiza melodia maxillaris*	ABPBXA301K			G5T2	S2	SC
50	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S3	
51	Tiburon paintbrush *Castilleja affinis var. neglecta*	PDSCR0D013	Endangered	Threatened	G4G5T1	S1	1B.2
52	alkali milk-vetch *Astragalus tener var. tener*	PDFAB0F8R1			G2T2	S2	1B.2
53	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
54	big free-tailed bat *Nyctinomops macrotis*	AMACD04020			G5	S2	SC
55	big tarplant *Blepharizonia plumosa*	PDAST1C011			G2	S2	1B.1
56	big-scale balsamroot *Balsamorhiza macrolepis*	PDAST11061			G2	S2	1B.2
57	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
58	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S3	SC
59	callippe silverspot butterfly *Speyeria callippe callippe*	IILEPJ6091	Endangered		G5T1	S1	
60	chaparral ragwort *Senecio aphanactis*	PDAST8H060			G3?	S2	2B.2
61	dwarf downingia *Downingia pusilla*	PDCAM060C0			GU	S2	2B.2
62	ferruginous hawk *Buteo regalis*	ABNKC19120			G4	S3S4	
63	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
64	fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0			G2	S2	1B.2
65	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
66	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
67	holly-leaved ceanothus *Ceanothus purpureus*	PDRHA04160			G2	S2	1B.2
68	legenere *Legenere limosa*	PDCAM0C010			G2	S2	1B.1
69	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
70	monarch butterfly *Danaus plexippus*	IILEPP2010			G5	S3	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
71	narrow-anthered brodiaea *Brodiaea leptandra*	PMLIL0C022			G3?	S3?	1B.2
72	northern harrier *Circus cyaneus*	ABNKC11010			G5	S3	SC
73	osprey *Pandion haliaetus*	ABNKC01010			G5	S3	
74	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G5	S2.3	2B.3
75	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
76	pappose tarplant *Centromadia parryi ssp. parryi*	PDAST4R0P2			G3T1	S1	1B.2
77	saline clover *Trifolium hydrophilum*	PDFAB400R5			G2	S2	1B.2
78	salt-marsh harvest mouse *Reithrodontomys raviventris*	AMAFF02040	Endangered	Endangered	G1G2	S1S2	
79	saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A			G5T2	S2	SC
80	showy rancheria clover *Trifolium amoenum*	PDFAB40040	Endangered		G1	S1	1B.1
81	soft salty bird's-beak *Chloropyron molle ssp. molle*	PDSCR0J0D2	Endangered	Rare	G2T1	S1	1B.2
82	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2Q	S2	
83	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
84	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
85	valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	IICOL48011	Threatened		G3T2	S2	
86	vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened		G3	S2S3	
87	western leatherwood *Dirca occidentalis*	PDTHY03010			G2G3	S2S3	1B.2
88	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
89	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
90	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
91	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	
92	yellow-headed blackbird *Xanthocephalus xanthocephalus*	ABPBXB3010			G5	S3	SC

California Department of Fish and Game
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Selected Elements by Common Name - Portrait
D034 Napa River dry season flow monitoring - Richey site

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S4	SC
2	American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
3	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
4	Barr's amphipod *Stygobromus cherylae*	ICMAL05D60			G1	S1	
5	Blennosperma vernal pool andrenid bee *Andrena blennospermatis*	IIHYM35030			G2	S2	
6	Boggs Lake hedge-hyssop *Gratiola heterosepala*	PDSCR0R060		Endangered	G2	S2	1B.2
7	Burke's goldfields *Lasthenia burkei*	PDAST5L010	Endangered	Endangered	G1	S1	1B.1
8	California freshwater shrimp *Syncaris pacifica*	ICMAL27010	Endangered	Endangered	G1	S1	
9	California linderiella *Linderiella occidentalis*	ICBRA06010			G3	S2S3	
10	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
11	California tiger salamander *Ambystoma californiense*	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SC
12	Calistoga ceanothus *Ceanothus divergens*	PDRHA04240			G2	S2	1B.2
13	Calistoga popcornflower *Plagiobothrys strictus*	PDBOR0V120	Endangered	Threatened	G1	S1	1B.1
14	Clara Hunt's milk-vetch *Astragalus claranus*	PDFAB0F240	Endangered	Threatened	G1	S1	1B.1
15	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
16	Cobb Mountain lupine *Lupinus sericatus*	PDFAB2B3J0			G2	S2	1B.2
17	Colusa layia *Layia septentrionalis*	PDAST5N0F0			G2	S2	1B.2
18	Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1			G5T1	S1	1B.2
19	Freed's jewelflower *Streptanthus brachiatus ssp. hoffmanii*	PDBRA2G071			G2T2	S2	1B.2
20	Greene's narrow-leaved daisy *Erigeron greenei*	PDAST3M5G0			G2	S2	1B.2
21	Hall's harmonia *Harmonia hallii*	PDAST650A0			G2	S2?	1B.2
22	Jepson's leptosiphon *Leptosiphon jepsonii*	PDPLM09140			G2	S2	1B.2
23	Jepson's milk-vetch *Astragalus rattanii var. jepsonianus*	PDFAB0F7E1			G4T3	S3	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Kenwood Marsh checkerbloom *Sidalcea oregana ssp. valida*	PDMAL110K5	Endangered	Endangered	G5T1	S1	1B.1
25	Konocti manzanita *Arctostaphylos manzanita ssp. elegans*	PDERI04271			G5T3	S3	1B.3
26	Leech's skyline diving beetle *Hydroporus leechi*	IICOL55040			G1?	S1?	
27	Loch Lomond button-celery *Eryngium constancei*	PDAPI0Z0W0	Endangered	Endangered	G1	S1	1B.1
28	Marin County navarretia *Navarretia rosulata*	PDPLM0C0Z0			G2?	S2?	1B.2
29	Morrison's jewelflower *Streptanthus morrisonii*	PDBRA2G0S0			G2	S2	
30	Mt. Saint Helena morning-glory *Calystegia collina ssp. oxyphylla*	PDCON04032			G4T3	S3.2	4.2
31	Napa blue grass *Poa napensis*	PMPOA4Z1R0	Endangered	Endangered	G1	S1	1B.1
32	Napa bluecurls *Trichostema ruygtii*	PDLAM220H0			G2	S2	1B.2
33	Napa checkerbloom *Sidalcea hickmanii ssp. napensis*	PDMAL110A6			G3T1	S1	1B.1
34	Napa false indigo *Amorpha californica var. napensis*	PDFAB08012			G4T2	S2	1B.2
35	Navarro roach *Lavinia symmetricus navarroensis*	AFCJB19023			G4T1T2	S1S2	SC
36	Northern Vernal Pool	CTT44100CA			G2	S2.1	
37	Ricksecker's water scavenger beetle *Hydrochara ricksecker*i	IICOL5V010			G2?	S2?	
38	Rincon Ridge ceanothus *Ceanothus confusus*	PDRHA04220			G1	S1	1B.1
39	Rincon Ridge manzanita *Arctostaphylos stanfordiana ssp. decumbens*	PDERI041G4			G3T1	S1	1B.1
40	Russian River tule perch *Hysterocarpus traski pomo*	AFCQK02011			G5T2	S2	SC
41	Santa Lucia dwarf rush *Juncus luciensis*	PMJUN013J0			G2G3	S2S3	1B.2
42	Sebastopol meadowfoam *Limnanthes vinculans*	PDLIM02090	Endangered	Endangered	G1	S1	1B.1
43	Serpentine Bunchgrass	CTT42130CA			G2	S2.2	
44	Sharsmith's western flax *Hesperolinon sharsmithiae*	PDLIN010E0			G2Q	S2	1B.2
45	Snow Mountain buckwheat *Eriogonum nervulosum*	PDPGN08440			G2	S2	1B.2
46	Socrates Mine jewelflower *Streptanthus brachiatus ssp. brachiatus*	PDBRA2G072			G2T1	S1	1B.2
47	Sonoma alopecurus *Alopecurus aequalis var. sonomensis*	PMPOA07012	Endangered		G5T1Q	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
48	Sonoma beardtongue *Penstemon newberryi var. sonomensis*	PDSCR1L483			G4T1	S2	1B.3
49	Sonoma canescent manzanita *Arctostaphylos canescens ssp. sonomensis*	PDERI04066			G3G4T2	S2	1B.2
50	Sonoma ceanothus *Ceanothus sonomensis*	PDRHA04420			G2	S2	1B.2
51	Sonoma sunshine *Blennosperma bakeri*	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
52	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S3	
53	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
54	Valley Needlegrass Grassland	CTT42110CA			G3	S3.1	
55	Wildflower Field	CTT42300CA			G2	S2.2	
56	adobe-lily *Fritillaria pluriflora*	PMLIL0V0F0			G3	S3	1B.2
57	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
58	bent-flowered fiddleneck *Amsinckia lunaris*	PDBOR01070			G2?	S2?	1B.2
59	big-scale balsamroot *Balsamorhiza macrolepis*	PDAST11061			G2	S2	1B.2
60	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
61	coastal triquetrella *Triquetrella californica*	NBMUS7S010			G1	S1	1B.2
62	dwarf downingia *Downingia pusilla*	PDCAM060C0			GU	S2	2B.2
63	early jewelflower *Streptanthus vernalis*	PDBRA2G120			G1	S1	1B.2
64	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
65	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
66	fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0			G2	S2	1B.2
67	fringed myotis *Myotis thysanodes*	AMACC01090			G4	S4	
68	green jewelflower *Streptanthus hesperidis*	PDBRA2G510			G2	S2	1B.2
69	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
70	holly-leaved ceanothus *Ceanothus purpureus*	PDRHA04160			G2	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
71	many-flowered navarretia *Navarretia leucocephala ssp. plieantha*	PDPLM0C0E5	Endangered	Endangered	G4T1	S1	1B.2
72	marsh checkerbloom *Sidalcea oregana ssp. hydrophila*	PDMAL110K2			G5T3	S3	1B.2
73	marsh microseris *Microseris paludosa*	PDAST6E0D0			G2	S2	1B.2
74	narrow-anthered brodiaea *Brodiaea leptandra*	PMLIL0C022			G3?	S3?	1B.2
75	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G5	S2.3	2B.3
76	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
77	pappose tarplant *Centromadia parryi ssp. parryi*	PDAST4R0P2			G3T1	S1	1B.2
78	prairie falcon *Falco mexicanus*	ABNKD06090			G5	S4	
79	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
80	saline clover *Trifolium hydrophilum*	PDFAB400R5			G2	S2	1B.2
81	serpentine cryptantha *Cryptantha dissita*	PDBOR0A0H2			G2	S2	1B.2
82	serpentine cypress long-horned beetle *Vandykea tuberculata*	IICOLX7010			G1	S1	
83	serpentine cypress wood-boring beetle *Trachykele hartmani*	IICOLX6010			G1	S1	
84	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S3	
85	showy rancheria clover *Trifolium amoenum*	PDFAB40040	Endangered		G1	S1	1B.1
86	silver-haired bat *Lasionycteris noctivagans*	AMACC02010			G5	S3S4	
87	slender silver moss *Anomobryum julaceum*	NBMUS80010			G4G5	S2	4.2
88	slender-leaved pondweed *Stuckenia filiformis ssp. alpina*	PMPOT03091			G5T5	S3	2B.2
89	small pincushion navarretia *Navarretia myersii ssp. deminuta*	PDPLM0C0X2			G1T1	S1	1B.1
90	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2Q	S2	
91	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
92	two-carpellate western flax *Hesperolinon bicarpellatum*	PDLIN01020			G3	S3	1B.2
93	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
94	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
95	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	
96	woolly meadowfoam *Limnanthes floccosa ssp. floccosa*	PDLIM02043			G4T4	S3.2	4.2

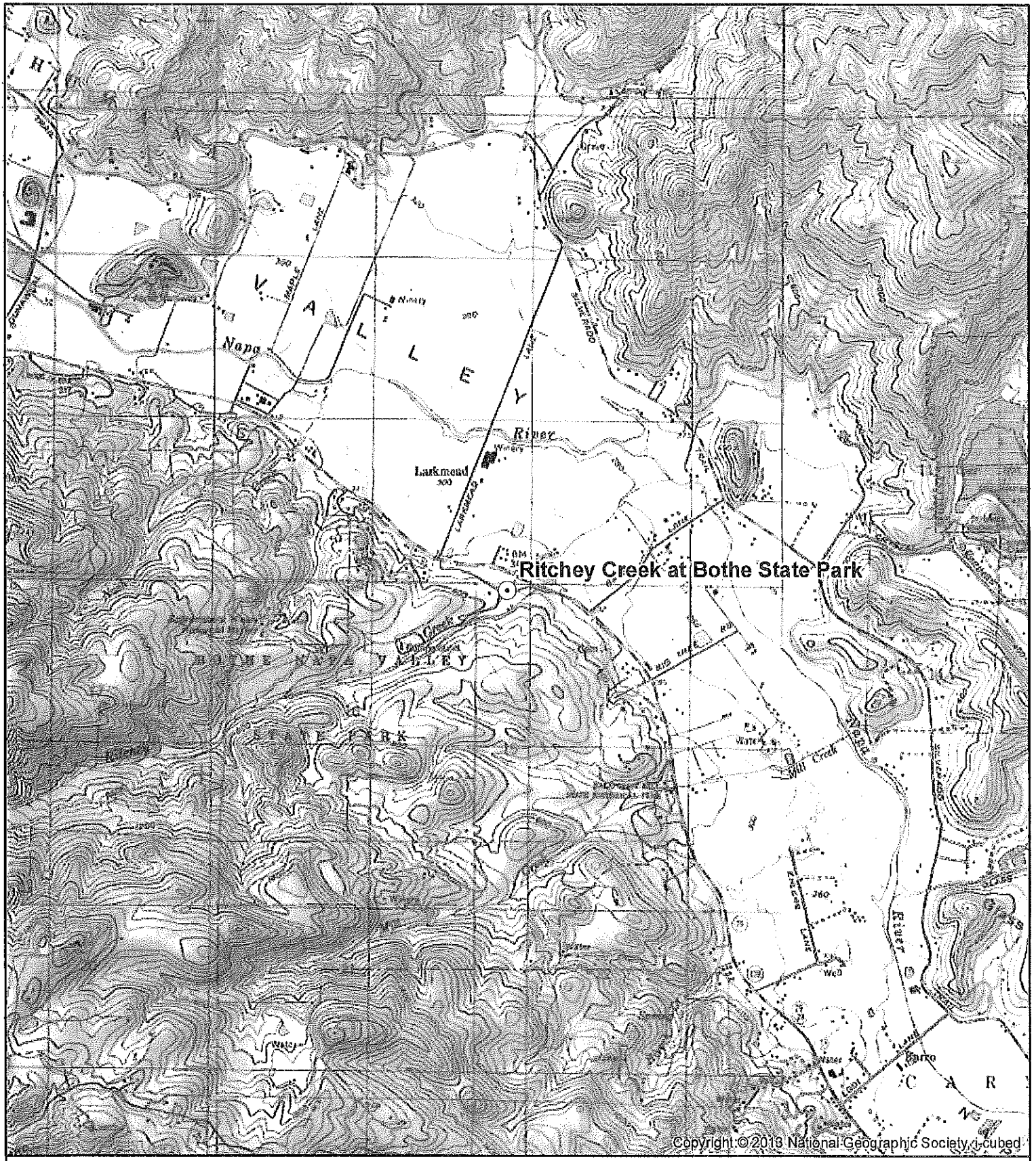
California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
D034 Napa River dry season stream flow monitoring - York site

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
2	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
3	Burke's goldfields *Lasthenia burkei*	PDAST5L010	Endangered	Endangered	G1	S1	1B.1
4	California freshwater shrimp *Syncaris pacifica*	ICMAL27010	Endangered	Endangered	G1	S1	
5	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
6	Calistoga ceanothus *Ceanothus divergens*	PDRHA04240			G2	S2	1B.2
7	Calistoga popcornflower *Plagiobothrys strictus*	PDBOR0V120	Endangered	Threatened	G1	S1	1B.1
8	Clara Hunt's milk-vetch *Astragalus claranus*	PDFAB0F240	Endangered	Threatened	G1	S1	1B.1
9	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
10	Cobb Mountain lupine *Lupinus sericatus*	PDFAB2B3J0			G2	S2	1B.2
11	Colusa layia *Layia septentrionalis*	PDAST5N0F0			G2	S2	1B.2
12	Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1			G5T1	S1	1B.2
13	Greene's narrow-leaved daisy *Erigeron greenei*	PDAST3M5G0			G2	S2	1B.2
14	Hall's harmonia *Harmonia hallii*	PDAST650A0			G2	S2?	1B.2
15	Jepson's leptosiphon *Leptosiphon jepsonii*	PDPLM09140			G2	S2	1B.2
16	Jepson's milk-vetch *Astragalus rattanii var. jepsonianus*	PDFAB0F7E1			G4T3	S3	1B.2
17	Kenwood Marsh checkerbloom *Sidalcea oregana ssp. valida*	PDMAL110K5	Endangered	Endangered	G5T1	S1	1B.1
18	Konocti manzanita *Arctostaphylos manzanita ssp. elegans*	PDERI04271			G5T3	S3	1B.3
19	Leech's skyline diving beetle *Hydroporus leechi*	IICOL55040			G1?	S1?	
20	Loch Lomond button-celery *Eryngium constancei*	PDAPI0Z0W0	Endangered	Endangered	G1	S1	1B.1
21	Marin County navarretia *Navarretia rosulata*	PDPLM0C0Z0			G2?	S2?	1B.2
22	Mead's owls-clover *Castilleja ambigua var. meadii*	PDSCR0D404			G4T1	S1	1B.1
23	Morrison's jewelflower *Streptanthus morrisonii*	PDBRA2G0S0			G2	S2	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Mt. Saint Helena morning-glory *Calystegia collina ssp. oxyphylla*	PDCON04032			G4T3	S3.2	4.2
25	Napa blue grass *Poa napensis*	PMPOA4Z1R0	Endangered	Endangered	G1	S1	1B.1
26	Napa bluecurls *Trichostema ruygtii*	PDLAM220H0			G2	S2	1B.2
27	Napa checkerbloom *Sidalcea hickmanii ssp. napensis*	PDMAL110A6			G3T1	S1	1B.1
28	Napa false indigo *Amorpha californica var. napensis*	PDFAB08012			G4T2	S2	1B.2
29	Northern Vernal Pool	CTT44100CA			G2	S2.1	
30	Ricksecker's water scavenger beetle *Hydrochara rickseckeri*	IICOL5V010			G2?	S2?	
31	Rincon Ridge ceanothus *Ceanothus confusus*	PDRHA04220			G1	S1	1B.1
32	Rincon Ridge manzanita *Arctostaphylos stanfordiana ssp. decumbens*	PDERI041G4			G3T1	S1	1B.1
33	Santa Lucia dwarf rush *Juncus luciensis*	PMJUN013J0			G2G3	S2S3	1B.2
34	Sebastopol meadowfoam *Limnanthes vinculans*	PDLIM02090	Endangered	Endangered	G1	S1	1B.1
35	Serpentine Bunchgrass	CTT42130CA			G2	S2.2	
36	Sharsmith's western flax *Hesperolinon sharsmithiae*	PDLIN010E0			G2Q	S2	1B.2
37	Socrates Mine jewelflower *Streptanthus brachiatus ssp. brachiatus*	PDBRA2G072			G2T1	S1	1B.2
38	Sonoma alopecurus *Alopecurus aequalis var. sonomensis*	PMPOA07012	Endangered		G5T1Q	S1	1B.1
39	Sonoma beardtongue *Penstemon newberryi var. sonomensis*	PDSCR1L483			G4T1	S2	1B.3
40	Sonoma canescent manzanita *Arctostaphylos canescens ssp. sonomensis*	PDERI04066			G3G4T2	S2	1B.2
41	Sonoma ceanothus *Ceanothus sonomensis*	PDRHA04420			G2	S2	1B.2
42	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S3	
43	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
44	Valley Needlegrass Grassland	CTT42110CA			G3	S3.1	
45	Wildflower Field	CTT42300CA			G2	S2.2	
46	Yuma myotis *Myotis yumanensis*	AMACC01020			G5	S4?	
47	adobe-lily *Fritillaria pluriflora*	PMLIL0V0F0			G3	S3	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
48	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
49	bent-flowered fiddleneck *Amsinckia lunaris*	PDBOR01070			G2?	S2?	1B.2
50	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
51	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S3	SC
52	double-crested cormorant *Phalacrocorax auritus*	ABNFD01020			G5	S3	
53	dwarf downingia *Downingia pusilla*	PDCAM060C0			GU	S2	2B.2
54	early jewelflower *Streptanthus vernalis*	PDBRA2G120			G1	S1	1B.2
55	few-flowered navarretia *Navarretia leucocephala ssp. pauciflora*	PDPLM0C0E4	Endangered	Threatened	G4T1	S1	1B.1
56	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
57	fringed myotis *Myotis thysanodes*	AMACC01090			G4	S4	
58	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
59	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
60	great egret *Ardea alba*	ABNGA04040			G5	S4	
61	green jewelflower *Streptanthus hesperidis*	PDBRA2G510			G2	S2	1B.2
62	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
63	holly-leaved ceanothus *Ceanothus purpureus*	PDRHA04160			G2	S2	1B.2
64	long-eared myotis *Myotis evotis*	AMACC01070			G5	S4?	
65	marsh checkerbloom *Sidalcea oregana ssp. hydrophila*	PDMAL110K2			G5T3	S3	1B.2
66	narrow-anthered brodiaea *Brodiaea leptandra*	PMLIL0C022			G3?	S3?	1B.2
67	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G5	S2.3	2B.3
68	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
69	pappose tarplant *Centromadia parryi ssp. parryi*	PDAST4R0P2			G3T1	S1	1B.2
70	prairie falcon *Falco mexicanus*	ABNKD06090			G5	S4	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
71	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
72	saline clover *Trifolium hydrophilum*	PDFAB400R5			G2	S2	1B.2
73	serpentine cryptantha *Cryptantha dissita*	PDBOR0A0H2			G2	S2	1B.2
74	serpentine cypress long-horned beetle *Vandykea tuberculata*	IICOLX7010			G1	S1	
75	serpentine cypress wood-boring beetle *Trachykele hartmani*	IICOLX6010			G1	S1	
76	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S3	
77	showy rancheria clover *Trifolium amoenum*	PDFAB40040	Endangered		G1	S1	1B.1
78	silver-haired bat *Lasionycteris noctivagans*	AMACC02010			G5	S3S4	
79	small pincushion navarretia *Navarretia myersii ssp. deminuta*	PDPLM0C0X2			G1T1	S1	1B.1
80	small-flowered calycadenia *Calycadenia micrantha*	PDAST1P0C0			G2	S2	1B.2
81	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2Q	S2	
82	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
83	two-carpellate western flax *Hesperolinon bicarpellatum*	PDLIN01020			G3	S3	1B.2
84	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
85	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	
86	woolly meadowfoam *Limnanthes floccosa ssp. floccosa*	PDLIM02043			G4T4	S3.2	4.2

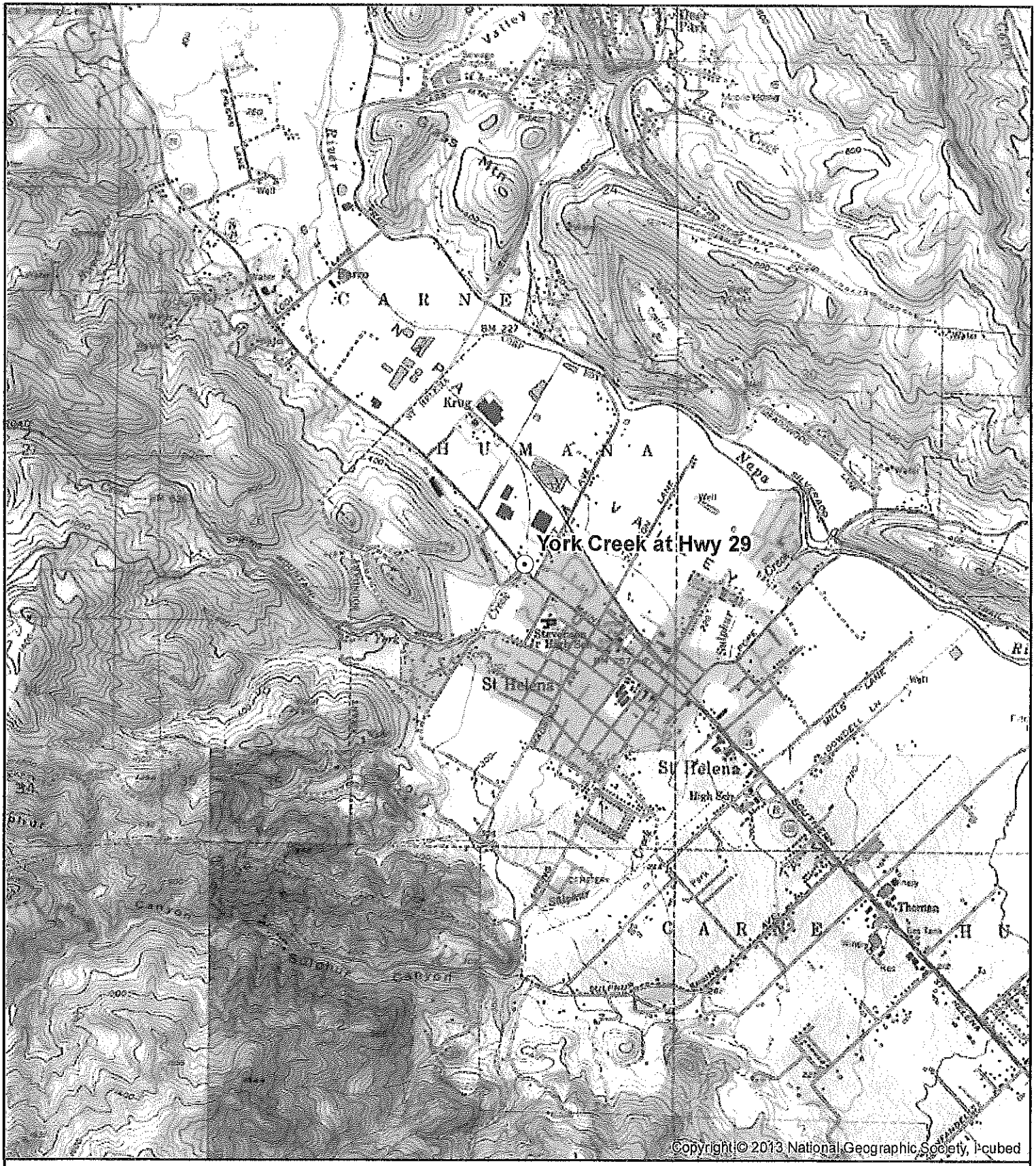


Location of Ritchey Creek Streamgaging Station

N

0 0.25 0.5 1 1.5 Miles

Napa County RCD
Resource Conservation District

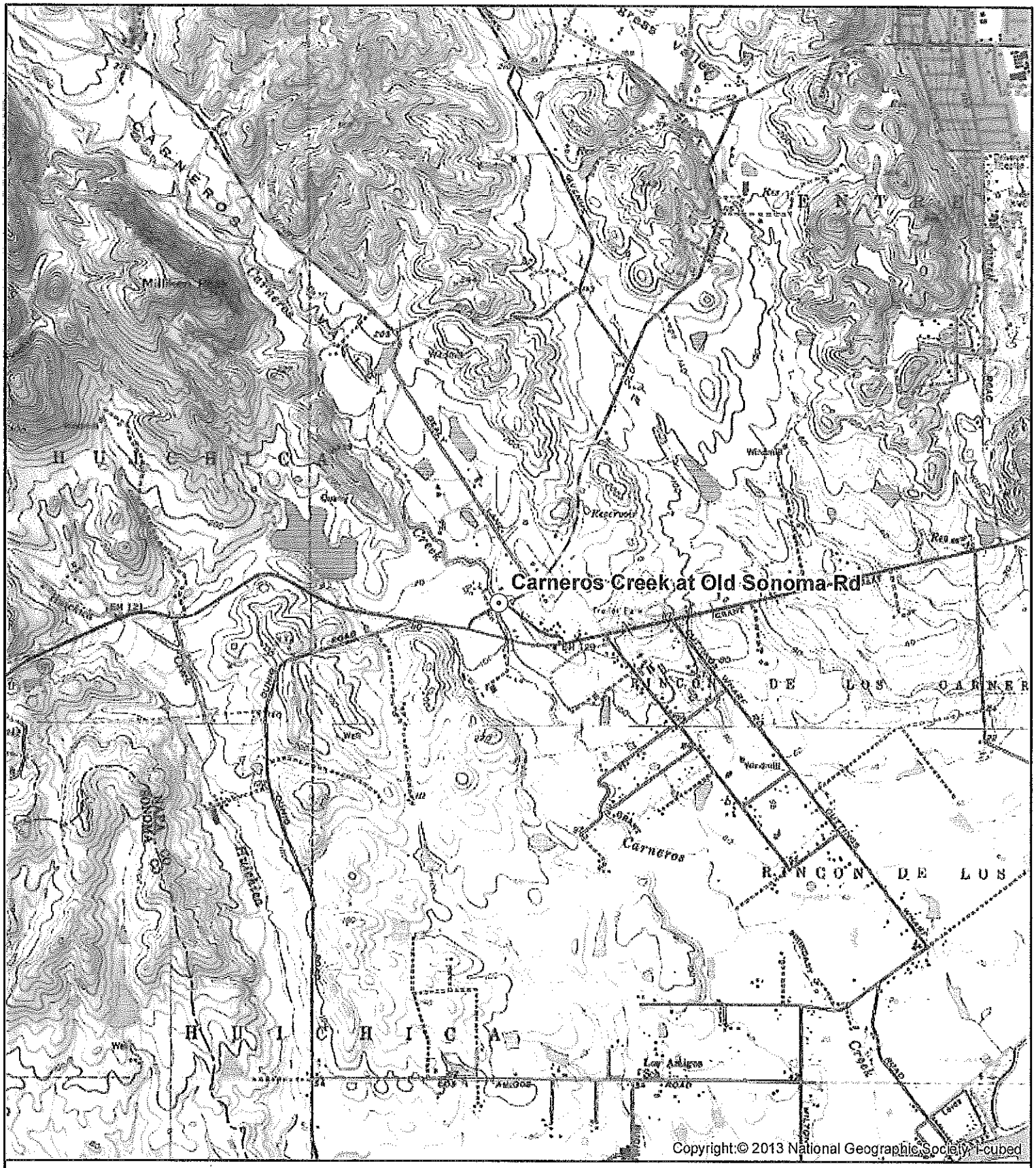


Location of York Creek Streamgaging Station

N

0 0.25 0.5 1 1.5 Miles

NAPA COUNTY RCD Resource Conservation District

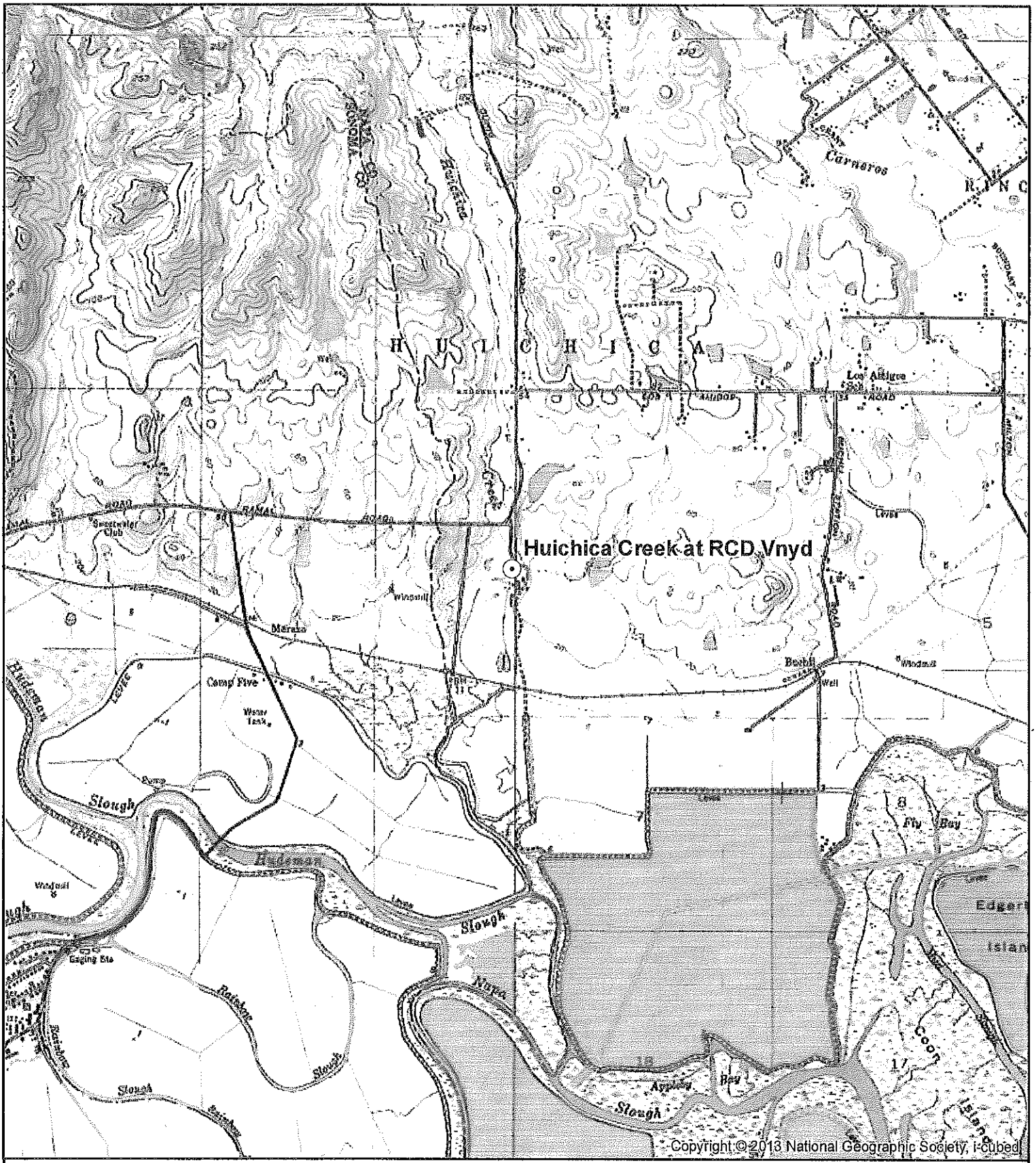


Location of Carneros Creek Streamgaging Station

N

0 0.25 0.5 1 1.5
Miles

NAPA COUNTY RCD
Resource Conservation District



Location of Huichica Creek Streamgaging Station

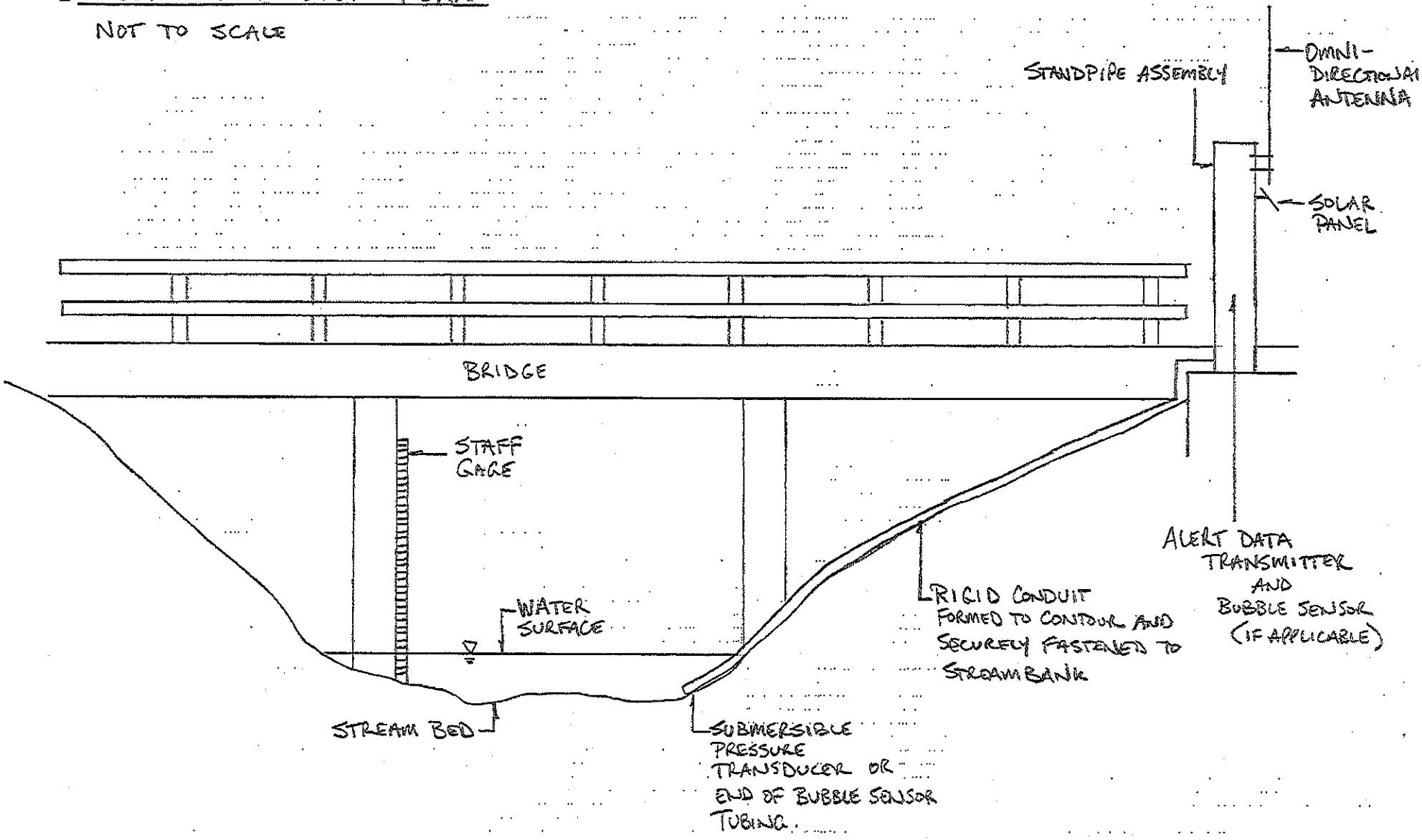
N

0 0.25 0.5 1 1.5 Miles

NAPA COUNTY RCD Resource Conservation District

Conceptual Design Plan

Not to scale



Reducing Road-related Sediment Delivery to Stream Systems in the Wing Canyon Subwatershed, Napa River

Introduction:

The proposed project by the Resource Conservation District (NRCD) is a complete implementation project that has two goals: 1) hydrologically disconnect all road lengths in one-third of the Wing Canyon Creek watershed, and 2) provide outreach regarding road-related sediment delivery to project landowner, Napa River watershed landowners in general, and Napa River watershed road maintenance workers.

The need for this project is two-fold: 1) the Napa Reiver watershed has been designated as critical habitat for the Central CA Coast steelhead via the National Marine Fisheries Service recovery planning process and as an anchor watershed for steelhead (restoration considered critical to recovery of the San Francisco Bay's salmonid population) by the Center for Ecological Management and Restoration (2007), and 2) the Napa River is also listed as impaired under Section 303(d) of the Federal Clean Water Act for excess sediment, pathogens and nutrients. With anthropogenic sediment delivery as the largest contributor to poor water quality in the watershed, implementing these sediment reduction practices will prevent 4,400 cubic yards of sediment from being delivered to the Napa River watershed in the next 20 years.

The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

All habitat improvement will follow techniques in the California Stream Habitat Restoration Manual Section X.

Objective(s):

1. The proposed project's goals are directed towards improving water quality by reducing road-related sediment delivery to the stream system, while also normalizing the hydrology of the watershed to reduce peak flows and improve summer low flow conditions. Implementing the sediment reduction practices will prevent 4,400 cubic yards of sediment from being delivered to the Napa River watershed in the next 20 years.

Project Description:

Location: Wing Canyon Creek is a tributary to Dry Creek, which is a tributary to the Napa River, which flows to the Pacific Ocean via San Pablo Bay. Wing Canyon Creek is a second order stream and has approximately 4.78 miles of

blue line stream according to the USGS Rutherford 7.5 minute quadrangle. Elevations range from about 450 feet to 2,630 feet. The project is located on a private 0.48 sq. mi. property which includes the lower portion of Wing Canyon Creek down to the confluence of Dry Creek (38.39404° N, 122.41847° W). Project area can be accessed from CA Highway 29 by traveling west on Redwood Road. From Redwood Road turn north onto Mt. Veeder Road. The address of the property is 3390 Mt Veeder Road.

Project Set Up:

1. NRCD will oversee grant contract and perform all necessary reporting and invoicing as determined by the grant agreement (task 1).
2. NRCD will meet with property owner and regulatory officials to review the proposed implementation plan, ascertain landowner requirements and concerns, and explain and ensure compliance with post project 20-year maintenance agreement. NRCD will conduct at least four workshops on the topics of anadromous fish species and preventing road-related sediment delivery (task 2).
3. NRCD will develop road treatment prescriptions for use by heavy equipment operator and permitting agencies. Professional Geologist will consult on and approve final design (task 3).
4. NRCD will obtain all necessary permits and fulfill CEQA requirements (task 4).
5. NRCD will obtain competitive bids for construction and develop necessary contractual agreements between landowner, contractor, and NRCD (task 5).
6. 1.8 miles of road will be hydrologically disconnected from the stream system. NRCD will oversee heavy equipment operator (HEO) in upgrading 28 sites to withstand 100-year storms. HEO will treat all road lengths contributing runoff to the stream system by outsloping roads and constructing rolling dips and ditch relief culverts. Professional Geologist will review completed treatments and approve the as-built project description (task 6).
7. NRCD will monitor project during first winter following construction by field examination and photo-monitoring of road treatments with landowner after major storms (task 7).

Materials: Rock, Culverts, Seed, weedfree straw

Tasks:

Task 1: Contract Oversight
Task 2: Education and Outreach
Task 3: Developing Final Layout and Design

Task 4: Permitting/CEQA
Task 5: Bidding and Contracting
Task 6: Construction
Task 7: Monitoring

Deliverables:

Task 1: Contract Oversight
Interim reports, Draft final report, Final report

Task 2: Education and Outreach
Landowner agreement Announcements, agendas, and sign-in sheets for 4 workshops, Post-workshop knowledge surveys of attendees from 4 workshops, Materials from 4 workshops, including presentations, handouts, and links to where resources are located on websites.

Task 3: Final Layout and Design
100% Layout for road-related sediment reduction (road logs) Meeting minutes for meetings between permitting staff and RCD to gain approval of final layout Meeting minutes for meeting between landowner and RCD to gain approval of final layout Contract between Licensed Geologist and RCD.

Task 4: Permitting/CEQA
CEQA Compliance, 1600 Agreement, ACOE and SWQRCB clearance (404 and 401 permits, as required)
Task 5: Bidding and Contracting
Request for Bid document, Contract between winning contractor and RCD

Task 6: Construction Photo documentation of construction
Photo monitoring, As-built road logs and maps showing treatments completed

Timelines:

- Task 1: Contract Oversight. June 2015-March 2017
- Task 2: Education and Outreach. June 2015-December 2016
- Task 3: Developing Final Layout and Design. June 1- December 1 2015
- Task 4: Permitting/CEQA. June 2015-June 2016
- Task 5: Bidding and Contracting. December 1, 2015- June 1, 2016
- Task 6: Construction June 15-Oct 31, 2016
- Task 7: Monitoring December 1, 2016- march 2017
- Seasonal Work Window June 15-Oct 31

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Timing of work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:
   - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
   - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
   - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
   - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.
   - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. Final structure design and placement of habitat structures will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

4. All road decommissioning will be done in accordance with techniques described in the Handbook for Forest and Ranch Roads, (PWA, 1994c.) and the *California Salmonid Stream Habitat Restoration Manual*, Volume II, Part X. All road upgrade and decommissioning sites and techniques shall be

approved by the Grantor Project Manager before any equipment work takes place.

5. All crossings treated in fish bearing reaches of streams will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and the criteria for adult and juvenile salmonid fish passage as described in Volume II, Part IX of the *California Salmonid Stream Habitat Restoration Manual*.

6. Seeding and mulching of all exposed soils shall be done for all slopes which may deliver sediment to a stream. Woody debris will be concentrated on finished slopes adjacent to stream crossings. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. Mulching and seeding will take place as sites are completed to avoid unforeseen erosion. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

7. Sites which are expected to erode and deliver sediment to the stream are the only locations where work will be authorized for reimbursement under the terms of this agreement. Reimbursement will not be authorized for work done to improve aesthetics only.

8. The landowner or responsible party must sign an access agreement stating they agree to maintain the erosion control project for a period of not less than 10 years. Maintenance will consist of repair to the road or stream crossing to a level that will effectively reduce sediment from entering the stream. In the event of an act of nature which results in partial or complete failure of the project, the landowner or applicant will not be held responsible for costs incurred after the act of nature. Acts of nature include, but are not limited to floods, earthquakes, volcanic eruptions, and wind storms.

9. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
D035 Reducing road related sediment delivery to stream systems in the Wing Canyon subwatershed, Napa River

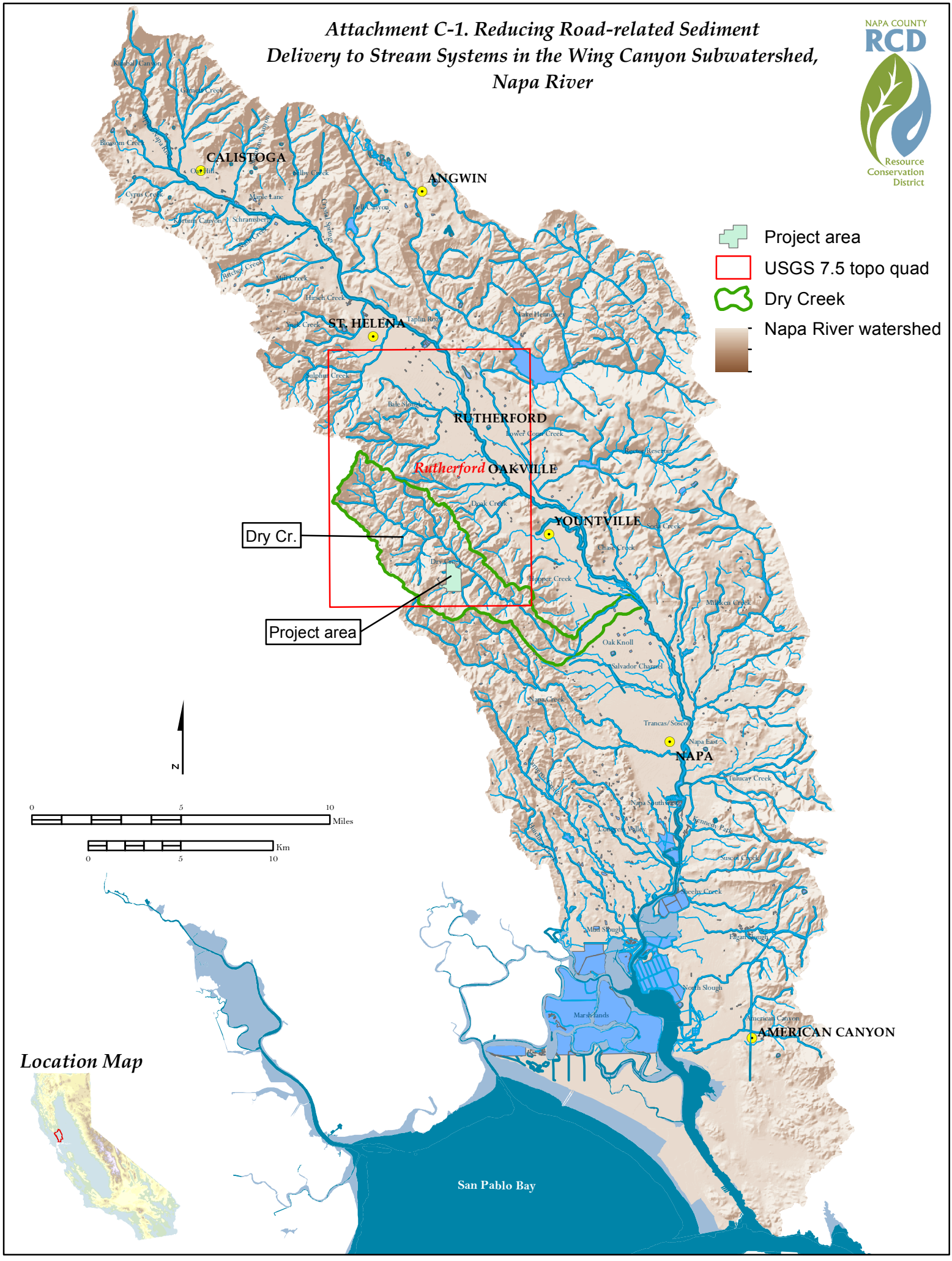
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S4	SC
2	American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
3	An isopod *Calasellus californicus*	ICMAL34010			G2	S2	
4	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
5	Burke's goldfields *Lasthenia burkei*	PDAST5L010	Endangered	Endangered	G1	S1	1B.1
6	California freshwater shrimp *Syncaris pacifica*	ICMAL27010	Endangered	Endangered	G1	S1	
7	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
8	Calistoga ceanothus *Ceanothus divergens*	PDRHA04240			G2	S2	1B.2
9	Calistoga popcornflower *Plagiobothrys strictus*	PDBOR0V120	Endangered	Threatened	G1	S1	1B.1
10	Clara Hunt's milk-vetch *Astragalus claranus*	PDFAB0F240	Endangered	Threatened	G1	S1	1B.1
11	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
12	Cobb Mountain lupine *Lupinus sericatus*	PDFAB2B3J0			G2	S2	1B.2
13	Colusa layia *Layia septentrionalis*	PDAST5N0F0			G2	S2	1B.2
14	Contra Costa goldfields *Lasthenia conjugens*	PDAST5L040	Endangered		G1	S1	1B.1
15	Delta tule pea *Lathyrus jepsonii var. jepsonii*	PDFAB250D2			G5T2	S2	1B.2
16	Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1			G5T1	S1	1B.2
17	Greene's narrow-leaved daisy *Erigeron greenei*	PDAST3M5G0			G2	S2	1B.2
18	Jepson's leptosiphon *Leptosiphon jepsonii*	PDPLM09140			G2	S2	1B.2
19	Kenwood Marsh checkerbloom *Sidalcea oregana ssp. valida*	PDMAL110K5	Endangered	Endangered	G5T1	S1	1B.1
20	Leech's skyline diving beetle *Hydroporus leechi*	IICOL55040			G1?	S1?	
21	Loch Lomond button-celery *Eryngium constancei*	PDAPI0Z0W0	Endangered	Endangered	G1	S1	1B.1
22	Marin County navarretia *Navarretia rosulata*	PDPLM0C0Z0			G2?	S2?	1B.2
23	Mason's lilaeopsis *Lilaeopsis masonii*	PDAPI19030		Rare	G2	S2	1B.1

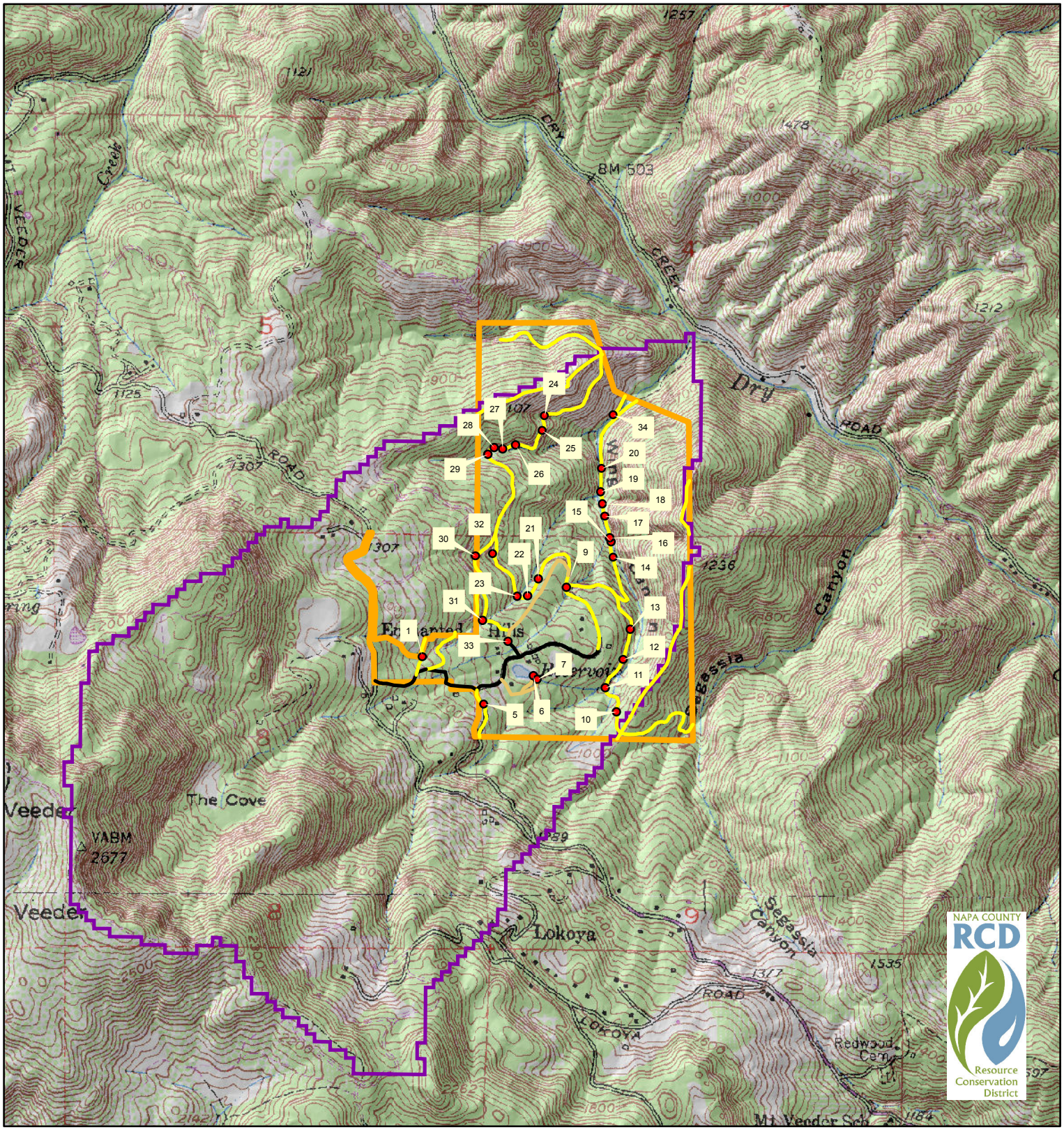
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Mead's owls-clover *Castilleja ambigua var. meadii*	PDSCR0D404			G4T1	S1	1B.1
25	Napa blue grass *Poa napensis*	PMPOA4Z1R0	Endangered	Endangered	G1	S1	1B.1
26	Napa bluecurls *Trichostema ruygtii*	PDLAM220H0			G2	S2	1B.2
27	Napa checkerbloom *Sidalcea hickmanii ssp. napensis*	PDMAL110A6			G3T1	S1	1B.1
28	Napa false indigo *Amorpha californica var. napensis*	PDFAB08012			G4T2	S2	1B.2
29	Northern California black walnut *Juglans hindsii*	PDJUG02040			G1	S1	1B.1
30	Northern Vernal Pool	CTT44100CA			G2	S2.1	
31	Ricksecker's water scavenger beetle *Hydrochara rickseckeri*	IICOL5V010			G2?	S2?	
32	Rincon Ridge ceanothus *Ceanothus confusus*	PDRHA04220			G1	S1	1B.1
33	Rincon Ridge manzanita *Arctostaphylos stanfordiana ssp. decumbens*	PDERI041G4			G3T1	S1	1B.1
34	San Joaquin spearscale *Atriplex joaquinana*	PDCHE041F3			G2	S2	1B.2
35	San Pablo song sparrow *Melospiza melodia samuelis*	ABPBXA301W			G5T2?	S2?	SC
36	Sebastopol meadowfoam *Limnanthes vinculans*	PDLIM02090	Endangered	Endangered	G1	S1	1B.1
37	Sharsmith's western flax *Hesperolinon sharsmithiae*	PDLIN010E0			G2Q	S2	1B.2
38	Sonoma alopecurus *Alopecurus aequalis var. sonomensis*	PMPOA07012	Endangered		G5T1Q	S1	1B.1
39	Sonoma beardtongue *Penstemon newberryi var. sonomensis*	PDSCR1L483			G4T1	S2	1B.3
40	Sonoma canescent manzanita *Arctostaphylos canescens ssp. sonomensis*	PDERI04066			G3G4T2	S2	1B.2
41	Sonoma ceanothus *Ceanothus sonomensis*	PDRHA04420			G2	S2	1B.2
42	Sonoma sunshine *Blennosperma bakeri*	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
43	Suisun Marsh aster *Symphyotrichum lentum*	PDASTE8470			G2	S2	1B.2
44	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S3	
45	Tomales isopod *Caecidotea tomalensis*	ICMAL01220			G2	S2	
46	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
47	Valley Needlegrass Grassland	CTT42110CA			G3	S3.1	
48	Yuma myotis *Myotis yumanensis*	AMACC01020			G5	S4?	
49	alkali milk-vetch *Astragalus tener var. tener*	PDFAB0F8R1			G2T2	S2	1B.2
50	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
51	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
52	big-scale balsamroot *Balsamorhiza macrolepis*	PDAST11061			G2	S2	1B.2
53	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
54	double-crested cormorant *Phalacrocorax auritus*	ABNFD01020			G5	S3	
55	dwarf downingia *Downingia pusilla*	PDCAM060C0			GU	S2	2B.2
56	few-flowered navarretia *Navarretia leucocephala ssp. pauciflora*	PDPLM0C0E4	Endangered	Threatened	G4T1	S1	1B.1
57	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
58	fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0			G2	S2	1B.2
59	fringed myotis *Myotis thysanodes*	AMACC01090			G4	S4	
60	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
61	great egret *Ardea alba*	ABNGA04040			G5	S4	
62	green jewelflower *Streptanthus hesperidis*	PDBRA2G510			G2	S2	1B.2
63	holly-leaved ceanothus *Ceanothus purpureus*	PDRHA04160			G2	S2	1B.2
64	legenere *Legenere limosa*	PDCAM0C010			G2	S2	1B.1
65	long-eared myotis *Myotis evotis*	AMACC01070			G5	S4?	
66	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
67	marsh checkerbloom *Sidalcea oregana ssp. hydrophila*	PDMAL110K2			G5T3	S3	1B.2
68	narrow-anthered brodiaea *Brodiaea leptandra*	PMLIL0C022			G3?	S3?	1B.2
69	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
70	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G5	S2.3	2B.3
71	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
72	pappose tarplant *Centromadia parryi ssp. parryi*	PDAST4R0P2			G3T1	S1	1B.2
73	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
74	saline clover *Trifolium hydrophilum*	PDFAB400R5			G2	S2	1B.2
75	saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A			G5T2	S2	SC
76	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S3	
77	showy rancheria clover *Trifolium amoenum*	PDFAB40040	Endangered		G1	S1	1B.1
78	small-flowered calycadenia *Calycadenia micrantha*	PDAST1P0C0			G2	S2	1B.2
79	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2Q	S2	
80	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
81	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
82	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
83	western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Proposed Threatened	Endangered	G5T3Q	S1	
84	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
85	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	

Attachment C-1. Reducing Road-related Sediment Delivery to Stream Systems in the Wing Canyon Subwatershed, Napa River





Attachment C-2. Reducing Road-related Sediment Delivery to Stream Systems in the Wing Canyon Subwatershed, Napa River

Road Treatments

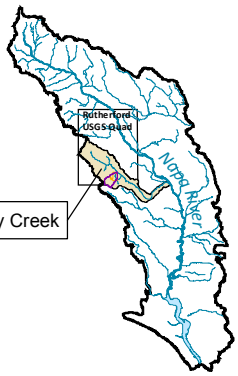
- Paved Road
- Roads converted to trail
- Unsurfaced Road

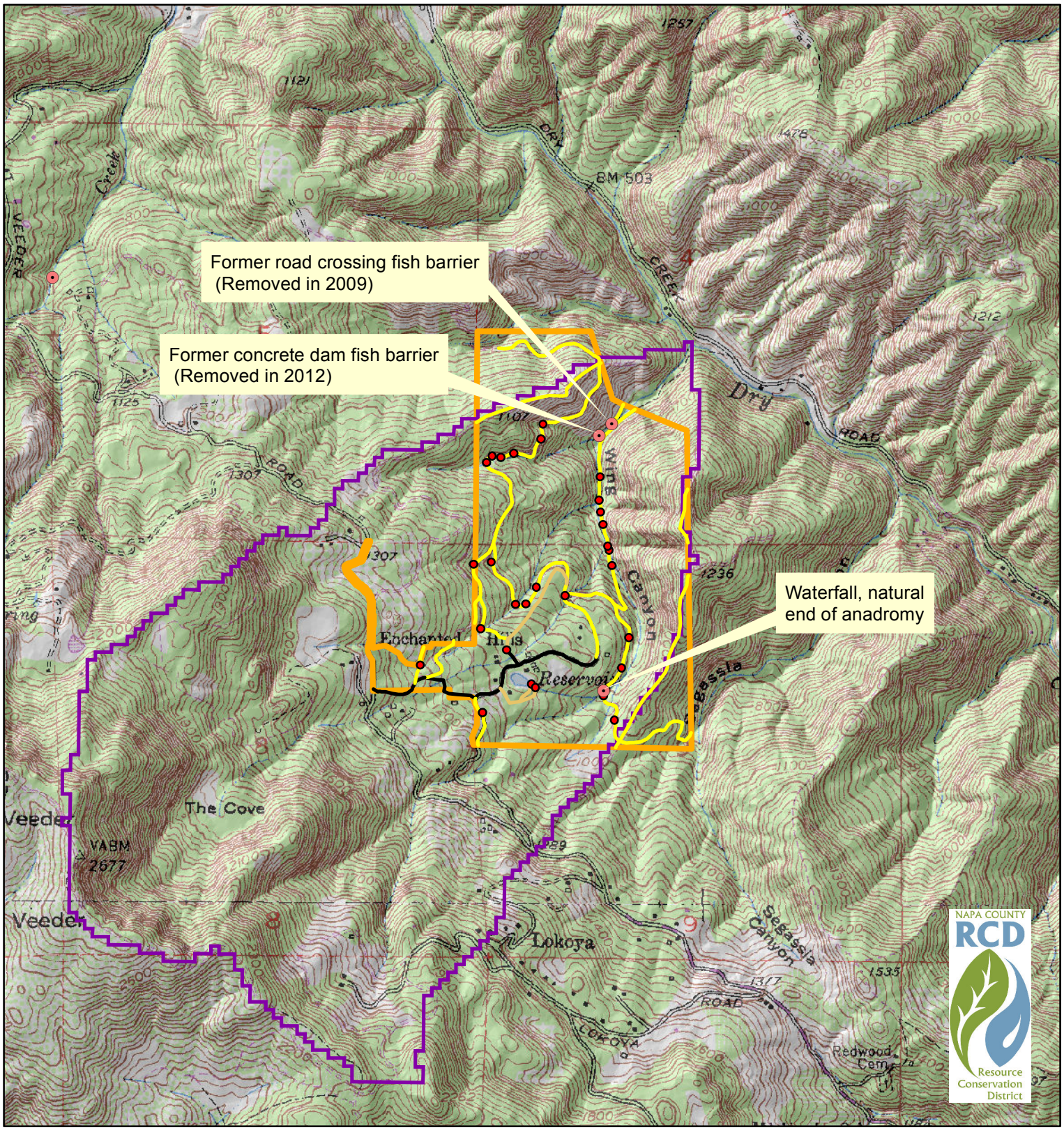
- Treatment Sites
- Wing Canyon Creek Watershed
- Treatment Area

N

Miles

0 0.25 0.5



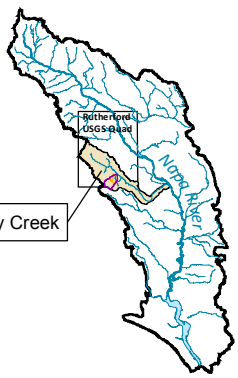


Attachment C-3. Reducing Road-related Sediment Delivery to Stream Systems in the Wing Canyon Subwatershed, Napa River

Road Treatments

- Paved Road
- Roads converted to trail
- Unsurfaced Road

- Fish Passage Sites
- Treatment Sites
- Wing Canyon Creek Watershed
- Treatment Area



N

0 0.25 0.5 Miles

The Chorro Valley Cape Ivy Removal Project

Introduction:

The Chorro Valley Cape Ivy Removal Project, led by the Land Conservancy of San Luis Obispo, will facilitate the removal of Cape ivy from multiple locations on Chorro Creek Watershed in order to improve steelhead habitat. The project will continue an ongoing effort to control Cape ivy from the Chorro Creek Watershed.

This is Phase 2 of a four part project to control and ultimately remove Cape ivy from the Chorro Creek watershed. The California Invasive Plant Council has placed Cape ivy "High" on the overall list of most invasive plants. Non-native invasive plants have been identified as one of the leading threats degrading this crucial habitat for steelhead. Preserving and enhancing these riparian corridors is identified as a priority action in the federally approved Comprehensive Conservation and Management Plan for the Morro Bay Watershed. Due to impacts on local ecology and its ability to thrive in the local environment, Cape ivy was identified as a priority species for control in the: Exotic Pest Plant Identification and Control Plan for The Morro Bay Watershed, prepared by the Coastal Resource Institute, Cal Poly State University, San Luis Obispo for the Morro Bay National Estuary Program in February 2002.

Permit Disclosure: The Grantee shall not proceed with on-the-ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secure.

Objective(s):

The specific objective of this project is to remove of Cape ivy from the project's Phase II portion of Chorro Creek, San Luis Obispo County.

The goal of this project is to treat a total of 3.5 of stream miles (a total of 7 miles of each stream bank) in Chorro Creek starting at the downstream end of Camp San Luis Obispo and running through the Department of Fish and Wildlife's Chorro Creek Ecological Reserve. This will include approximately 86 acres of riparian area treated for removal of the targeted non-native invasive plant.

Project Description:

Location:

Project site is located between the City of San Luis Obispo and Morro Bay on Chorro Creek. The most downstream point is approximately 4 miles from Morro Bay at the boundary of the Chorro Creek Ecological Reserve. The treatment area continues upstream onto California Polytechnic State University ranchland property to the National Guard's property line near the Wastewater Treatment Plant. The upstream starting location is at 35.324121 north latitude, -120.741746 west longitude and the ending point is at 35.341635 north latitude, -120.770873 west longitude.

Project Set Up:

The Grantee's Executive Director will provide grant oversight and project management including scheduling restoration staff, and contracting, obtaining land owner access agreements. The Executive Director will also be reviewing the invoice and progress reports before being sent to the Grantor. The Project Manager and Site Manager will be responsible for budget tracking, materials procurement, writing progress reports, and final report development. The Restoration Specialists crew will be responsible for the herbicide treatment on the entire 86 acre project area.

Subcontractor California Conservation Corps (CCC): The CCC Corpsmember crew of 12 will be employed to manually remove Cape ivy from dense areas. The CCC Fish Habitat Specialists will be assisting the Grantee with permit acquisition and ensuring all permit stipulations are followed. Furthermore, the CCC Fish Habitat Specialists will be conducting the California red-legged frog surveys and assist with post treatment monitoring. The CCC Fish Tech will be assisting the CCC Fish Habitat Specialists and coordinating with the CCC Corpsmember crew. Subcontractor Morro Bay National Estuary Program (MBNEP): The MBNEP Restoration Manager with be responsible for watershed stakeholder coordination to ensure upstream Cape ivy populations under management continue to be treated, represent project efforts through MBNEP Committee Meetings, San Luis Obispo's Weed Management Area (SLOWMA) meetings, Central Coast Invasive Species Action Network Meetings and help coordinate and inform adjacent landowners of the work being conducted.

Materials:

The material used for this project will include the following items:

- Herbicide (Aquamaster, Garlon3A, Milestone, or a combination)
- Herbicide dye
- Herbicide surfactant
- Poison Oak prevention supplies for the field crews
- Native seed mix for revegetation

Tasks:

Task 1: Project management and administration

The Grantee will be responsible for managing the project implementation, contracting, budget management and invoicing and grant reporting requirements. The Grantee will be responsible for staff coordination, budget tracking, materials procurement, progress reports, annual reports, and final report development, and general contract management. The Grantee will be responsible for scheduling restoration staff, contract and land access agreements, budget tracking and review, annual and final report review.

Task 2: Detailed survey and mapping of Cape ivy infestations in the Phase II target Area

The Grantee will conduct a detailed survey on foot and map Cape ivy infestations in the Phase II target area. All infestations of Cape ivy will be mapped by location and infestation level using a Trimble Juno hand held GPS unit and uploaded to the Grantee's Cape ivy geodatabase. Project monitoring photo points will be set-up during this task and pre-project photos will be taken to track project effectiveness. The Grantee will assist with coordination to assure Phase I (previously completed) and Phase II of the Chorro Creek Cape ivy Eradication Program with watershed stakeholders (e.g. Central Coast Invasive Species Action network, Camp San Luis Obispo, Cal Poly, SLOWMA, California State parks, San Luis coastal Resource Conservation District) involved with future planned phases of the eradication.

Task 3: Permitting and Regulatory Compliance

The Grantee will coordinate and comply with regulatory agencies such as the Department of Fish and Wildlife for a streambed alteration agreement, and compliance and reporting to the Department of Pesticide Regulation. Additional coordination will be done with the DFW Land Manager for work on Chorro Creek Ecological Preserve requiring Pest Control Advisor (PCA) approval and an approved 880 form from DFW's Senior Environmental Scientist from the Lands Program, Wildlife Branch. The Grantee will conduct pre-project surveys and project implementation support for California red-legged frogs as required by permits. Permit elements will be performed by the Grantee with support from the subcontractors.

Task 4: Mechanical removal of Cape Ivy

The Grantee will initially hand remove Cape ivy to reduce the total amount of herbicides required to be sprayed into the environment. There will be no disturbed areas in the channel due to Cape ivy removal activities as Cape ivy growth is restricted to stream banks and not the stream channel. The Grantee's sub-contractor will provide a crew of 12 persons to manually remove Cape ivy in dense areas, estimated to cover up to 50% of the total treatment area. The crew will work up to 43 days and cover approximately one (1) acre per day manually removing Cape ivy. The Grantee will give the subcontract crew training prior to manual removal activities. The training will include demonstrating the manual removal method and explain the growth pattern of Cape ivy. Manual biomass removal will primarily be by hand with the possible use of loppers and McLeod rakes. Colored flagging will be used to delineate the limits of the work areas and access routes. The work areas will be kept to the minimum needed to accomplish the proposed task. Removed biomass will be dried on-site on tarps to reduce "wet-weight" decreasing dumping fees. The tarps are used to keep plant fragments contained

and off the ground during the drying process to prevent fragments from re-rooting on-site. Dried plant material will then be placed in 30 gallon plastic bags and removed from the site to a dump facility to reduce the risk of re-introducing Cape ivy to the Chorro Creek watershed.

Task 5: Chemical treatment of Cape Ivy

The Grantee's trained and certified herbicide applicators, Restoration Specialist crew of five and the Qualified Applicator (QAL), licensed through the Department of Pesticide Regulation, will begin herbicide treatment of the entire 86 acres within the proposed treatment area after manual removal is complete. The QAL and PCA will ensure all label requirements are followed and reporting requirements to the San Luis Obispo County Ag Commissioner's Office are met. Chemical treatment includes populations that were not large enough to warrant hand removal. The Grantee's crew and QAL will work up to 70 days to complete the initial chemical treatment, covering one (1) to two (2) acres per day. Chemical treatment will be accomplished using of 3-gallon backpack sprayers and a truck mounted sprayer with a 300-foot hose will be rented. For easily accessible sites/areas the truck sprayer will be used, and for sites/areas that are difficult to access or requiring only smaller spot treatments the backpack sprayer will be used. Herbicide application will occur when Cape ivy is actively growing and outside of the flowering period to achieve the best results.

Studies have shown excellent control of Cape with herbicides Aquamaster (Active ingredient glyphosate), Garlon3A (active ingredient tryclopyr), and Milestone (active ingredient aminopyradil). Herbicide application will most likely be a combination of these different formulas.

Task 6: Re-vegetation of disturbed areas

The Grantee will implement the Riparian Restoration Plan and hand broadcast native seed mix at sites that were heavily infested with Cape ivy occurred. The Grantee will obtain native seed mix from S&S Seed Company in Santa Barbara.

Task 7: Post treatment monitoring and retreatment if necessary

The Grantee and subcontractors will perform post treatment monitoring. After the initial removal/treatment, the 86 acres will be resurveyed annually for three (3) consecutive years to determine project effectiveness. Post treatment monitoring is best achieved in the winter when the willows are dormant and Cape ivy is flowering. The Grantee's Restoration Crew will conduct chemical re-treatments on Cape ivy regrowth identified during the annual survey using the equipment and chemicals described in Task 5. Herbicide application will occur when Cape ivy is actively growing and outside of the flowering period to achieve the best results. The Grantee's crew will spend up to 40 days to

complete annual surveys and re-treatment, covering up to four (4) acres per day.

Other project monitoring will be completed as outlined in the Riparian Restoration Plan. Post project photo monitoring will happen in year five to visually show project success.

Deliverables:

Task 1: Final Report, Annual Reports, and Quarterly Progress Reports– summarizing projects methods, money spent, matching funds spent, results of project as determined by Task 7, Lessons Learned and Future steps needed to complete the next Phase (Phase III) of the "Chorro Creek Watershed Cape Ivy Eradication Program."

Task 2: Map displaying location of fixed photo point monitoring stations and results of the pre-project Cape ivy survey across the Phase II Treatment Area.

Task 3: Copy of all permits acquired as part of this project and a copy of DFW 880 pesticide use form for work on land owned by DFW.

Task 4: Map depicting all areas cleared of Cape ivy during manual removal is submitted with the Annual and Final Reports.

Task 5: Map and associated GIS files (with approved metadata) of all Cape ivy treatment areas submitted with the Annual and Final Reports.

Task 6: Map showing location of areas seeded with native seed. All of this information is submitted with the Annual and Final Reports.

Task 7: Results of the post project monitoring and before/after photos from fixed point photo monitoring stations are submitted with the Annual and Final Reports.

Timelines:

Task 1: Project management and administration

- General Project Management July 2015 – March 2019
- Quarterly Project Reporting October 2015 – March 2019
- Annual Reporting – December 1st of each year
- Final Report Creation February 1, 2019 – March, 1 2019
- Final Report Submittal March 31, 2019

Task 2: Detailed survey and mapping in the Phase II target Area

- GIS field work July 1, 2015 – August 30, 2015

Task 3: Permitting and Regulatory Compliance

- Permit Acquisition: July 1, 2015 – August 30, 2015
- Pest Control Advisor Recommendations: July 1, 2015 - August 30, 2015
- DFW 880 Form submittal: September 1, 2015 (annually after that)
- Department of Pesticide Regulation Herbicide Use Reporting: monthly, Sept 1 – March 1, 2019
- Pre project surveys CRLF: August 15 – 30, 2015
- Task 4 monitoring and support: September – October 1, 2015

Note: Pest Control Advisor recommendations will be secured during this time frame and DFW 880 form will be submitted. Herbicide reporting happens on a monthly basis and will occur throughout the life of the project.

Task 4: Mechanical removal of Cape ivy

- Mechanical removal: September 1 – October 15, 2015

Task 5: Chemical treatment of Cape ivy

- Initial Treatment September 1st – December 1, 2015
- Retreatment: April – October 1, 2016
- Retreatment: April – October 1, 2017
- Retreatment: April – October 1, 2018

Task 6: Revegetation of disturbed areas

- Hand Broadcast Native Seed: December 1, 2015

Task 7: Post treatment monitoring and retreatment if necessary.

- Post treatment site evaluation year 1: January 1 – February 1, 2016
- Post treatment site evaluation year 2: January 1 – February 1, 2017
- Post treatment site evaluation year 3: January 1 – February 1, 2018
- Post Project Photo Monitoring: January 1 – February 1, 2019
- Post Project vegetation RAP monitoring: January 1 – February 1, 2019

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Timing of work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. Project implementation will follow techniques described in the California Salmonid Stream Habitat Restoration Manual (Parts VI, VII and XI).

3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
724554 Chorro Valley Cape Ivy Removal Project

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S4	SC
2	Arroyo de la Cruz manzanita *Arctostaphylos cruzensis*	PDERI040B0			G3	S3	1B.2
3	Atascadero June beetle *Polyphylla nubila*	IICOL68040			G1	S1	
4	Betty's dudleya *Dudleya abramsii ssp. bettinae*	PDCRA04011			G3T1	S1	1B.2
5	Blochman's dudleya *Dudleya blochmaniae ssp. blochmaniae*	PDCRA04051			G2T2	S2	1B.1
6	Blochman's leafy daisy *Erigeron blochmaniae*	PDAST3M5J0			G2	S2	1B.2
7	Brewer's spineflower *Chorizanthe breweri*	PDPGN04050			G2	S2	1B.3
8	California black rail *Laterallus jamaicensis coturniculus*	ABNME03041		Threatened	G4T1	S1	
9	California clapper rail *Rallus longirostris obsoletus*	ABNME05016	Endangered	Endangered	G5T1	S1	
10	California horned lark *Eremophila alpestris actia*	ABPAT02011			G5T3Q	S3	
11	California linderiella *Linderiella occidentalis*	ICBRA06010			G3	S2S3	
12	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
13	California seablite *Suaeda californica*	PDCHE0P020	Endangered		G1	S1	1B.1
14	Cambria morning-glory *Calystegia subacaulis ssp. episcopalis*	PDCON040J1			G3T3	S3	4.2
15	Carmel Valley bush-mallow *Malacothamnus palmeri var. involucratus*	PDMAL0Q0B1			G3T3Q	S3	1B.2
16	Central Dune Scrub	CTT21320CA			G2	S2.2	
17	Central Foredunes	CTT21220CA			G1	S1.2	
18	Central Maritime Chaparral	CTT37C20CA			G2	S2.2	
19	Coast Range newt *Taricha torosa*	AAAAF02032			G4	S4	SC
20	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
21	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
22	Congdon's tarplant *Centromadia parryi ssp. congdonii*	PDAST4R0P1			G3T2	S2	1B.1
23	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
24	Coulter's goldfields *Lasthenia glabrata ssp. coulteri*	PDAST5L0A1			G4T2	S2	1B.1
25	Coulter's saltbush *Atriplex coulteri*	PDCHE040E0			G2	S2	1B.2

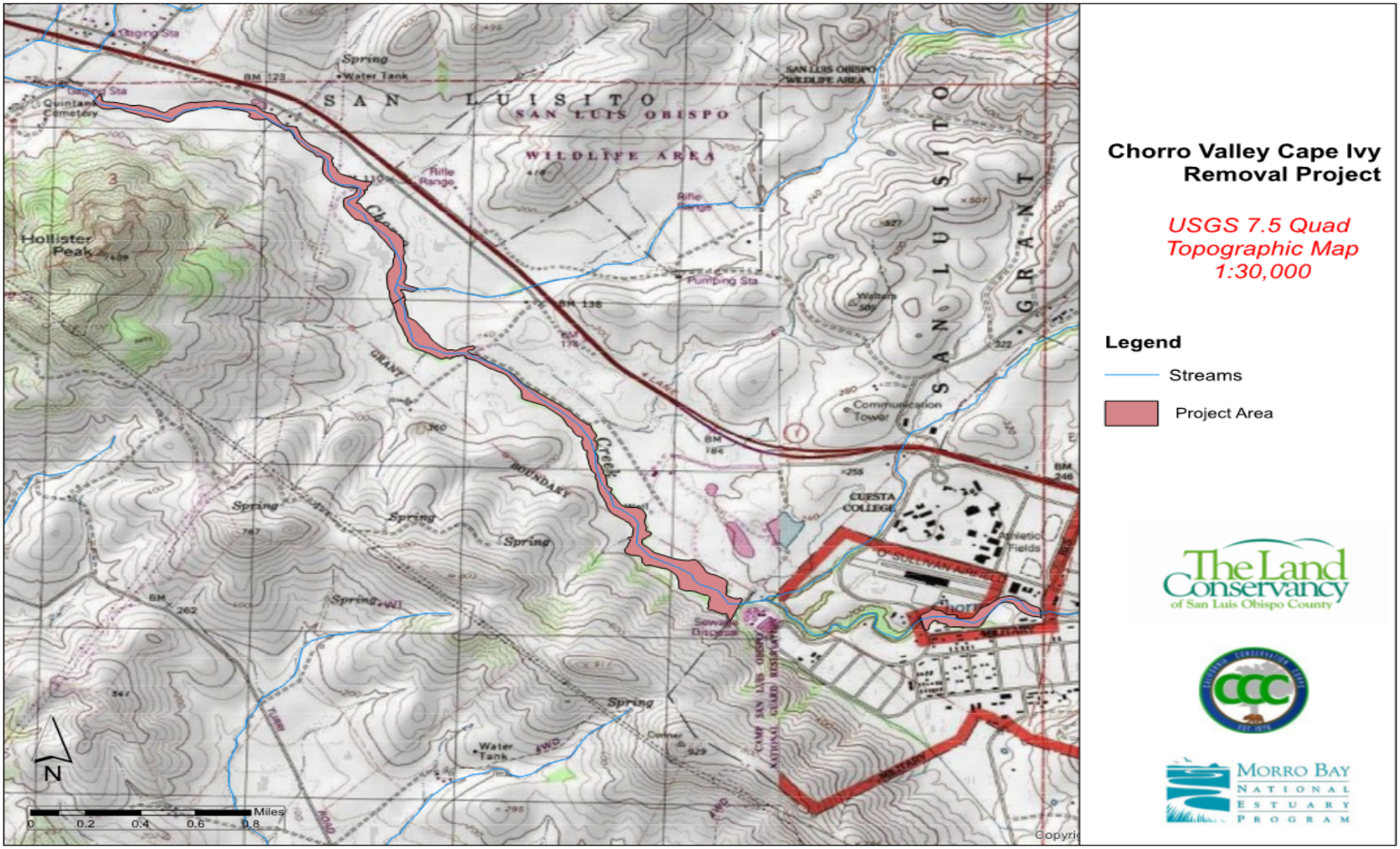
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
26	Cuesta Pass checkerbloom *Sidalcea hickmanii ssp. anomala*	PDMAL110A1		Rare	G3T1	S1	1B.2
27	Cuesta Ridge thistle *Cirsium occidentale var. lucianum*	PDAST2E1Z6			G3G4T2	S2	1B.2
28	Diablo Canyon blue grass *Poa diaboli*	PMPOA4Z390			G2	S2	1B.2
29	Eastwood's larkspur *Delphinium parryi ssp. eastwoodiae*	PDRAN0B1B2			G4T2	S2	1B.2
30	Hardham's evening-primrose *Camissoniopsis hardhamiae*	PDONA030N0			G1Q	S1	1B.2
31	Hoover's bent grass *Agrostis hooveri*	PMPOA040M0			G2	S2	1B.2
32	Hoover's button-celery *Eryngium aristulatum var. hooveri*	PDAPI0Z043			G5T1	S1	1B.1
33	Indian Knob mountainbalm *Eriodictyon altissimum*	PDHYD04010	Endangered	Endangered	G1	S1	1B.1
34	Jones' layia *Layia jonesii*	PDAST5N090			G1	S1	1B.2
35	La Panza mariposa-lily *Calochortus simulans*	PMLIL0D170			G2	S2	1B.3
36	Miles' milk-vetch *Astragalus didymocarpus var. milesianus*	PDFAB0F2X3			G5T2	S2	1B.2
37	Morro Bay blue butterfly *Plebejus icarioides moroensis*	IILEPG801B			G5T2	S2	
38	Morro Bay kangaroo rat *Dipodomys heermanni morroensis*	AMAFD03063	Endangered	Endangered	G3G4T1	S1	
39	Morro manzanita *Arctostaphylos morroensis*	PDERI040S0	Threatened		G2	S2	1B.1
40	Morro shoulderband (=banded dune) snail *Helminthoglypta walkeriana*	IMGASC2510	Endangered		G1	S1	
41	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
42	Northern Interior Cypress Forest	CTT83220CA			G2	S2.2	
43	Oso manzanita *Arctostaphylos osoensis*	PDERI042S0			G1	S1	1B.2
44	Palmer's monardella *Monardella palmeri*	PDLAM180H0			G2	S2	1B.2
45	Pecho manzanita *Arctostaphylos pechoensis*	PDERI04140			G2	S2	1B.2
46	Pismo clarkia *Clarkia speciosa ssp. immaculata*	PDONA05111	Endangered	Rare	G4T1	S1	1B.1
47	San Benito fritillary *Fritillaria viridea*	PMLIL0V0L0			G2	S2	1B.2
48	San Diego desert woodrat *Neotoma lepida intermedia*	AMAFF08041			G5T3?	S3?	SC
49	San Joaquin spearscale *Atriplex joaquinana*	PDCHE041F3			G2	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
50	San Luis Obispo County lupine *Lupinus ludovicianus*	PDFAB2B2G0			G1	S1	1B.2
51	San Luis Obispo fountain thistle *Cirsium fontinale var. obispoense*	PDAST2E162	Endangered	Endangered	G2T2	S2	1B.2
52	San Luis Obispo owl's-clover *Castilleja densiflora var. obispoensis*	PDSCR0D453			G5T2	S2	1B.2
53	San Luis Obispo pyrg *Pyrgulopsis taylori*	IMGASJ0A50			G1	S1	
54	San Luis Obispo sedge *Carex obispoensis*	PMCYP039J0			G2G3	S2S3	1B.2
55	San Luis mariposa-lily *Calochortus obispoensis*	PMLIL0D110			G2	S2	1B.2
56	Santa Lucia bush-mallow *Malacothamnus palmeri var. palmeri*	PDMAL0Q0B5			G3T2Q	S2	1B.2
57	Santa Lucia manzanita *Arctostaphylos luciana*	PDERI040N0			G3	S3	1B.2
58	Santa Margarita manzanita *Arctostaphylos pilosula*	PDERI04160			G3	S3	1B.2
59	Serpentine Bunchgrass	CTT42130CA			G2	S2.2	
60	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
61	Valley Needlegrass Grassland	CTT42110CA			G3	S3.1	
62	adobe sanicle *Sanicula maritima*	PDAPI1Z0D0		Rare	G2	S2.2	1B.1
63	beach spectaclepod *Dithyrea maritima*	PDBRA10020		Threatened	G2	S2.1	1B.1
64	big free-tailed bat *Nyctinomops macrotis*	AMACD04020			G5	S2	SC
65	black legless lizard *Anniella pulchra nigra*	ARACC01011			G3G4T2T3Q	S2	SC
66	black-flowered figwort *Scrophularia atrata*	PDSCR1S010			G2	S2.2	1B.2
67	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S3	SC
68	chaparral ragwort *Senecio aphanactis*	PDAST8H060			G3?	S2	2B.2
69	coast horned lizard *Phrynosoma blainvillii*	ARACF12100			G3G4	S3S4	SC
70	coast woolly-heads *Nemacaulis denudata var. denudata*	PDPGN0G011			G3G4T2	S2	1B.2
71	coastal goosefoot *Chenopodium littoreum*	PDCHE091Z0			G2	S2	1B.2
72	dacite manzanita *Arctostaphylos tomentosa ssp. daciticola*	PDERI041HD			G4T1	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
73	dwarf soaproot *Chlorogalum pomeridianum var. minus*	PMLIL0G042			G5T2	S2	1B.2
74	ferruginous hawk *Buteo regalis*	ABNKC19120			G4	S3S4	
75	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
76	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	
77	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
78	hooked popcornflower *Plagiobothrys uncinatus*	PDBOR0V170			G2	S2	1B.2
79	loggerhead shrike *Lanius ludovicianus*	ABPBR01030			G4	S4	SC
80	marsh sandwort *Arenaria paludicola*	PDCAR040L0	Endangered	Endangered	G1	S1	1B.1
81	mesa horkelia *Horkelia cuneata var. puberula*	PDROS0W045			G4T1	S1	1B.1
82	mimic tryonia (=California brackishwater snail) *Tryonia imitator*	IMGASJ7040			G2G3	S2S3	
83	monarch butterfly *Danaus plexippus*	IILEPP2010			G5	S3	
84	most beautiful jewelflower *Streptanthus albidus ssp. peramoenus*	PDBRA2G012			G2T2	S2.2	1B.2
85	mouse-gray dudleya *Dudleya abramsii ssp. murina*	PDCRA04012			G3T2	S2	1B.3
86	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
87	popcorn lichen *Cladonia firma*	NLT0008460			G4	S1	2B.1
88	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
89	round-leaved filaree *California macrophylla*	PDGER01070			G2	S2	1B.1
90	saline clover *Trifolium hydrophilum*	PDFAB400R5			G2	S2	1B.2
91	salt marsh bird's-beak *Chloropyron maritimum ssp. maritimum*	PDSCR0J0C2	Endangered	Endangered	G4?T1	S1	1B.2
92	sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101			G5T2	S1	
93	silvery legless lizard *Anniella pulchra pulchra*	ARACC01012			G3G4T3T4Q	S3	SC
94	southern curly-leaved monardella *Monardella sinuata ssp. sinuata*	PDLAM18161			G3T2	S2	1B.2
95	splitting yarn lichen *Sulcaria isidiifera*	NLTEST0020			G1	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
96	steelhead - south/central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209H	Threatened		G5T2Q	S2	SC
97	straight-awned spineflower *Chorizanthe rectispina*	PDPGN040N0			G1	S1	1B.3
98	surf thistle *Cirsium rhothophilum*	PDAST2E2J0		Threatened	G1	S1	1B.2
99	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
100	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
101	twisted horsehair lichen *Bryoria spiralifera*	NLTEST5460			G3	S1S2	1B.1
102	vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened		G3	S2S3	
103	western mastiff bat *Eumops perotis californicus*	AMACD02011			G5T4	S3?	SC
104	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
105	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
106	western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Proposed Threatened	Endangered	G5T3Q	S1	
107	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	
108	woodland woollythreads *Monolopia gracilens*	PDAST6G010			G2G3	S2S3	1B.2
109	yellow-flowered eriastrum *Eriastrum luteum*	PDPLM03080			G2	S2	1B.2

Project Location Topographic Map



San Gregorio Creek Habitat Enhancement Project

Introduction:

San Mateo County Resource Conservation District (RCD) is the Grantee for the proposed San Gregorio Creek Habitat Enhancement Project (HI 204). The project is an instream habitat improvement project that will increase instream habitat complexity for all life stages of coho salmon –immigration, spawning, summer and winter rearing, and emigration. Twelve to thirteen large wood structures will be installed in the creek, along 0.42 miles of mainstem San Gregorio Creek in coastal San Mateo County.

The project is necessary because instream habitat complexity along San Gregorio Creek has been identified as poor and is a known limiting factor for coho salmon adults, summer rearing juveniles, winter rearing juveniles, and smolts. Encouraging retention and recruitment of large woody debris for all historical salmonid rearing habitats in San Gregorio Creek is identified as a priority 1 immediate restoration action in NMFS Final recovery Plan for CCC coho salmon ESU (2012).

The project will follow established techniques outlined in the California Salmonid Stream Habitat Restoration Manual (Part VII Project Implementation).

The Grantee shall not proceed with on the ground implementation until all necessary permits, consultation, and/or Notice to Proceed are secured.

Objective(s):

The main goal of the project is to increase habitat complexity and shelter value by creating winter refuge and summer rearing habitat, improving gravel sorting and increasing cover for all life stages of coho salmon. This will be accomplished by installing large wood structures in channel reaches that are devoid of habitat complexity. A total of 12-13 large wood structures along 0.42 miles of San Gregorio Creek will be installed, creating eight additional pools and enhancing four existing pool habitats. An additional goal is to use the project as a pilot project for the Grantee's Large Woody Debris program for coastal San Mateo County. Following implementation, the project will be showcased as an educational example to local landowners on the necessity of large and small wood structures in creeks for salmonid habitat complexity and how wood structures in San Gregorio creek can be installed without undue risk to life and/or property.

Project Description:

Location:

The project site is located in the San Gregorio watershed in coastal San Mateo County near the unincorporated community of San Gregorio. The upstream end of the project site is 10 miles upstream of the mouth of San Gregorio Creek and extends 0.42 miles downstream. The approximate mid-point of the project site is

at 37.31900; -122.29800 (Decimal Degrees, Geographic, NAD83). The project site is on Peninsula Open Space Trust's (POST) Driscoll Ranch Property, with one structure partially and one optional structure entirely on neighboring Tichenor Ranch. This portion of POST's Driscoll Ranch Property, commonly referred to as the Apple Orchard, is managed by the Midpeninsula Regional Open Space District.

Project Set Up:

Task 1 will be performed by the San Mateo RCD. The RCD Conservation Project Coordinator with support from the RCD Executive Director and RCD Finance Director will be specifically performing Task 1.

Task 2 will be performed by the RCD Conservation Project Coordinator with assistance from the RCD Executive Director and subcontractor, Alnus Ecological.

Task 3 will be accomplished by subcontractoe, Alnus Ecological and RCD Conservation Project Coordinator

Task 4 will be accomplished by yet to be determined licensed timber operators under the supervision of a Registered Professional Forester of Blencowe Watershed Management. LWD structures may be modified or "field fitted" by the project team which includes Blencowe Watershed Management, Alnus Ecological, and the RCD Project Manager.

Task 5 will be performed by the RCD Conservation Project Coordinator with assistance from two RCD interns.

Materials:

- LWD: 21 logs and/or whole trees harvested on site (trees greater than 36inches DBH or large snags greater than 16inches DBH and 20 feet high will be use; NO DECADENT TREES)
- small Woody Debris
- rubber tired tractor
- hand tools (chainsaw, winches, rockbars, and shovels)
- one inch threaded rebar
- washers and nuts
- wood screws
- boulders
- polyester resin adhesive
- sandbags, gravel bags or logs covered by plywood and/or Visqueen for stream crossing

Tasks: ***Task 1: Project Management***
The Grantee, San Mateo RCD, will take the lead in fiscal management, developing and managing subcontracts, meeting reporting and performance requirements, convening project team meetings, developing project information, and coordinating with funders and partners. In addition, the Grantee will be responsible for dissemination of project materials and results.

Task elements include: convene project team meetings; finalize workplan; draft and finalize subcontracts; manage contracts ; manage project budget; coordinate with project partners; submit financial and progress reports; draft and submit final report ; disseminate project materials and results.

Task 2: Permitting
RCD staff and subcontractor, Alnus Ecological, will work with the CDFW Fisheries Restoration Grant Program (FRGP) grant manager to develop and finalize the Lake and Streambed Alteration Agreement (LSAA) and prepare other necessary local permits and environmental compliance consultation and documents to include: the San Mateo County Tree Removal Permit; consultation with the U. S. Fish and Wildlife Service on the fully ESA protected San Francisco garter snake; and consultation with CDFW Habitat Conservation on appropriate protective measures for the CESA listed San Francisco garter snake. The RCD project coordinator will work with CDFW to finalize the scope of work for San Francisco garter snake protective measures.

Task 3: Biological Monitoring and Physical Surveys
Pre-implementation wildlife surveys will be conducted in the project area and along access routes by Alnus Ecological as per the requirements of the FRGP CEQA document and RGP to identify potential habitat for special status species. Sensitive species with potential habitat within the project area will be assumed present to avoid impacts to those species. California red legged frogs, San Francisco garter snakes, marbled murrelets, San Francisco dusky footed woodrat, western pond turtle, and salmonids are species with special status protections that will be assumed to be present in the project area.

Qualified biological monitors will be on-site during all construction activities to ensure compliance with all permits. All aspects of construction, including staging and implementation, will comply with all resource protection measures and permit requirements such as worker training, exclusionary fencing, revegetation, and species avoidance.

Physical surveys include: pre- and post-construction topographic surveys of LWD sites to measure changes in physical conditions associated with project goals. Pre-construction surveys will be conducted after the winter prior to construction. Post-construction surveys will be repeated at the same time of year following the next five winters. Pre- and post-construction physical surveys will include the following: a longitudinal profile will be measured throughout the project reach

along with cross sections no less than 100' apart. At each LWD site a minimum of five cross sections will be measured along with pool scour depths, pool area, amount of cover contributed, and aggradation of streambed material. Pebble counts will be conducted no less than 100' apart and below each LWD structure projected to scour pools and sort gravel. At the minimum, presence or absence of juvenile rearing will be recorded along the entire project reach through above water observations. If anticipated matching funds are awarded, counts of individual juveniles will occur through snorkel surveys instead of presence/absence surveys. Photos of each site looking up and downstream at the structure will be taken. Photo monitoring protocols will be based on those developed by the State Water Resources Control Board's Stream Photo Documentation Procedure (SOP 4.2.1.4). Habitat typing of the stream reach will be recorded to Level IV as described CDFW's California Salmonid Stream Habitat Restoration Manual, 4th edition.

Task 4: Construction

Construction will start no earlier than September 1 to avoid marbled murrelet nesting season.

Approximately of 21 logs and/or whole trees will be harvested on site and placed in the channel using a rubber-tired tractor. When placing wood, the equipment will be restricted to flat or gently sloping ground (less than 40%) or existing roads, and will not enter the wetted portion of the channel. There will be no channel excavation, dewatering, or fish relocation. Fine adjustment and bucking (where appropriate) of placed logs may be performed with hand tools including chain saws, winches, rockbars, and shovels. None of the site designs call for logs to be placed in a manner to control grade; channel-spanning logs will be placed with one end on the streambank and the other in the channel (i.e. not level).

Some large trash is present at the proposed LWD sites, and will be removed from the stream channel before placing wood. Trees will be sourced on site, and in most cases will be thinned from dense clusters according to accepted forestry practices. No "decadent" trees, or those with defects, cavities, nests, late seral characteristics, trees greater than 36 inches DBH, or large snags greater than 16 inches DBH and 20 feet high will be used.

A total of 12-13 specific placement locations requiring approximately 21 pieces have been identified within the 0.42 mile project reach. All placed wood pieces will be tagged for identification and monitoring. All sourced project material will have a minimum of 16 inches in diameter or greater on the large end and be 30-65 feet in length. Licensed timber operators will be retained to fall trees and place large wood pieces under the supervision of a Registered Professional Forester.

The LWD structures described below may be modified or "field fit" by the project team. Adjustments via field fit could include minor changes in alignment and

station location based on changed sites conditions between 2014 and construction as well as specific dimensions and post-felling condition of local trees to be used for the project. The following descriptions of the proposed LWD structures are intended to provide site specific details on the variations to the engineered structure design typicals provided in the supplemental materials. Anchoring techniques for connecting two pieces of wood will utilize two 1" threaded rebar fitted through a drilled hole and capped with washers and nuts. When the backside of one of the pieces of wood is not accessible, wood screws will be used. It is anticipated that only two of the sites (2 and 10) where logs are anchored to existing stable LWD will need wood screws. Logs that will be anchored to boulders will use threaded rebar and a polyester resin adhesive. Boulders will be added to structures and anchored at the contractor's discretion. In order to reduce potential impacts to the aquatic environment and control project costs, the current project proposal avoids the need to dewater the channel. There will be no grading or earthmoving work conducted in the wetted channel for construction of any of the proposed structures. All work will be done from either the top of bank or a stable dry gravel bars along the toe of the banks. Grantee expects one necessary channel crossing to access sites 1 and 2. Rubber tired equipment will cross the creek on a series of sandbags, gravel bags, or logs that will be covered in either plywood and/or Visqueen to (a) allow unimpeded flow through the crossing, (b) keep equipment at least 12" above the water surface elevation, and (c) prevent any accident spill of fluids into the live stream. Water level at this site is very low during the typical construction season, and stream flow will be able to percolate through the sand/gravel bags or logs. Remaining sites will be accessed via the main ranch road which crosses the creek at an established wet crossing. Grantee will use on-site small wood debris (SWD) and pin remnant pieces under larger LWD structures and/or incorporate them into the structures to add complexity.

The start of the survey reach is at bottom of riffle next to a bedrock cut-bank on the right bank (-122.2950 W, 37.319 N). Station 0 + 00 (feet).

LWD site 1: Station 1 + 29, structure type A

- Two logs on the right bank will be anchored to redwood trees at the far end away from the active channel and wedged against alder trees towards the middle of the logs. The logs may be anchored to the alder trees if the contractor determines this is necessary. The two logs will be pinned together where the meet in the thalweg. The upstream log will have a downstream angle while the downstream log will have an upstream angle.

- The primary goals of this structure are to 1) increase cover habitat for all age classes under thesuspended lengths of the logs, 2) create low-velocity refuge during high-flows near the gravel bar on the rightbank, and 3) improve summertime rearing habitat by increasing pool scouring at the downstream end of a current riffle and next to an undercut bank

- The wood for this structure will be sourced from two redwood trees located just up the right bank (northeast) of LWD site 1. The logs will be transported and placed using a rubber tire skidder, which will cross the creek downstream of LWD site 1 at the temporary crossing.

LWD site 2: Station 3 + 61, structure type B

- One log will be placed alongside the right bank and anchored at the up and downstream ends to existing pieces of stable LWD (redwood logs that have rootwads embedded in the right bank). Available SWD will be placed underneath the log, keyed into the bank and to existing LWD and SWD. An optional log will span the channel in a downstream angle towards the right bank and the existing downstream LWD. On the left bank the optional log will be anchored to an imported boulder.

- The primary goals of this structure are to 1) create cover habitat underneath suspended lengths of the logs, 2) create year-round cover habitat along the right bank mimicking an undercut bank, 3) create low velocity refuge during high flows along the right bank (and left bank if optional log is included), and 4) promote the recruitment of SWD.

- The wood for this structure will likely be sourced from a redwood grove located just up the right bank from LWD sites 4 through 8 if suitable logs cannot be sourced from the redwood grove located up the right bank from LWD site 1 and 2. This site will be accessed using the same temporary crossing as site 1.

LWD site 3: Station 7 + 89, structure type B

- One log will be placed parallel to the channel over a point bar towards the left bank and anchored at its upstream end to a redwood rootwad. The log will be anchored to an embedded boulder at its downstream end. Additional SWD will be placed underneath the log and keyed into the bank.

- The primary goals of this structure are to 1) increase cover habitat associated with the existing rootwad and the pool it has formed, 2) create year-round habitat mimicking and undercut bank over both the main channel and the secondary channel on the left side of the point bar, 3) increase high flow refuge by slowing water velocities along the left side of the channel, 4) promote the recruitment of additional SWD, and 5) support the further development of the existing point bar and related deposition of spawning gravels.

- The wood for this structure will likely be sourced from a redwood grove located just up the right bank (north) from LWD site 4 through 8. The skidder will transport these logs to the site overland and be placed in the

stream channel without entering the creek.

LWD site 4: Station 9 + 28, structure type D

- One Douglass fir log with rootwad attached or two stacked redwood logs will be anchored to a redwood clump at the upslope end and again towards the middle to a clump of alders. The log(s) will be oriented roughly perpendicular to flow with the root wad positioned in the thalweg. A boulder may be placed at the downstream end of the log(s) and anchored if the contractor determines this is necessary. This station is located at the upstream end of a relatively straight and homogenous plane bed reach with little to no LWD, pool and cover habitat.

- The primary goals of this structure are to 1) create cover habitat underneath the suspended length of the log on the right bank, 2) create a sour pool immediately downstream of the in-stream end of the log(s), and 3) increase low-velocity refuge during high-flows along the right bank next to the base of the alder trees growing within the bankfull channel.

- The wood for this structure will likely be sourced from a mixed conifer grove north of the barn and/or a redwood grove located just up the right bank from LWD site 4 through 8. The skidder will transport these logs to the site overland and be placed in the stream channel without entering the creek.

LWD site 5: Station 10 + 35, structure type D

- Refer to site 4.

LWD site 6: Station 12 + 10, structure type D

- Refer to site 4.

LWD site 7: Station 13 + 28, structure type C

- Two logs will cross at a roughly 45 degree angle, oriented upstream in the middle of the plane bed stream channel and pinned together. The upslope end of the logs will be anchored to large alder trees and to the ground if conditions permit. Invasive ivy is currently growing on the alder trees and it will be girdled to reduce the deleterious effects of the ivy on the anchor trees. While not funded through this grant, the Grantee and landowners are seeking additional funding to address the ivy infestation along this reach.

- The primary goals of this structure are to 1) increase cover habitat for all age classes under the suspended lengths of the logs, 2) improve summertime rearing habitat by increasing pool scouring downstream of where the logs cross, and 3) create low-velocity refuge during high-flows near both banks

- The wood for this structure will likely be sourced from a redwood grove located just up the right bank from LWD site 4 through 8. The skidder will transport these logs to the site overland and be placed in the stream channel without entering the creek.

LWD site 8: Station 14 + 24, structure type C

- Refer to site 7.

LWD site 9: Station 15 + 66, structure type A

- Two logs on the left bank will be anchored at their ends to redwood trees and pinned together where they meet in the thalweg at a roughly 45 degree angle. The upstream log will be oriented with a downstream angle, while the downstream log will be roughly perpendicular to the stream channel.

- The primary goals of this structure are to 1) increase cover habitat for all age classes under the suspended lengths of the logs, 2) create low-velocity refuge during high-flows near the base of the redwood clump on the left bank, and 3) improve summertime rearing habitat by increasing pool scouring at the bend in the creek.

- The wood for this structure will likely be sourced from a redwood grove located just up the right bank from LWD site 4 through 8. The skidder will transport these logs to the site overland and be placed in the stream channel without entering the creek.

LWD site 10: Station 16 + 29, structure type B

- Two logs will be anchored to the right bank and pinned together where they cross over the downstream end of an existing redwood log with rootwad that is embedded along the right bank. One log will be positioned at a roughly 45 degree upstream angle and also anchored to alder trees at the upslope end. The end of this log will be positioned over the thalweg and above the wintertime base-flow stage. The second log will be positioned parallel to the stream flow and the existing LWD piece. Additional SWD will be placed underneath the second log and keyed into the existing LWD and SWD.

- The primary goals of this structure are to 1) increase cover habitat associated with the existing LWD and SWD pieces on the right bank, 2) create year-round habitat mimicking and undercut bank over slightly undercut right bank, 3) increase low-velocity refuge during high-flows by slowing water velocities along the right side of the channel, and 4) promote the recruitment of additional SWD.

- The wood for this structure will likely be sourced from a redwood grove

located just up the right bank (north) from LWD site 4 through 8. The skidder will transport these logs to the site overland and be placed in the stream channel without entering the creek. LWD site 11: Station 16 + 63, structure type A.

- Two logs on the right bank will be anchored once at their ends and a second time towards the middle to several alder trees. The two logs will be pinned together where they meet in the thalweg at a roughly 45 degree angle. The upstream log will be oriented with a downstream angle, while the downstream log will have an upstream angle.

- The primary goals of this structure are to 1) increase cover habitat for all age classes under the suspended lengths of the logs, 2) create low-velocity refuge during high-flows near the right bank, and 3) improve summertime rearing habitat by increasing pool scouring in a relatively homogenous stream reach.

- The wood for this structure will likely be sourced from a redwood grove located just up the right bank from LWD site 4 through 8. The skidder will transport these logs to the site overland and be placed in the stream channel without entering the creek.

LWD site 12: Station 18 + 09, structure type C

- Two logs will cross at a roughly 45 degree angle, oriented upstream in the middle of the plane bed stream channel and pinned together. The upslope end of the logs will be anchored to large alder trees and to the ground if conditions permit.

- The primary goals of this structure are to 1) increase cover habitat for all age classes under the suspended lengths of the logs, 2) improve summertime rearing habitat by increasing pool scouring downstream of where the logs cross, and 3) create low-velocity refuge during high-flows near both banks.

- The wood for this structure will likely be sourced from a redwood grove located just up the right bank from LWD site 4 through 8. The skidder will transport these logs to the site overland and be placed in the stream channel without entering the creek. LWD site 13: Station 20 + 37, structure type A.

- Two logs on the right bank will be anchored once at their ends and a second time towards the middle to several alder trees, and to the ground if conditions permit. The two logs will be pinned together where they meet in the thalweg at a roughly 45 degree angle. The upstream log will be oriented with a downstream angle, while the downstream log will have an

upstream angle.

- The primary goals of this structure are to 1) increase cover habitat for all age classes under the suspended lengths of the logs, 2) create low-velocity refuge during high-flows near the right bank, and 3) improve summertime rearing habitat by increasing pool scouring at the bend in the creek.

- The wood for this structure will likely be sourced from a redwood grove located just up the right bank from LWD site 4 through 8. The skidder will transport these logs to the site overland and be placed in the stream channel without entering the creek.

Task 5: Public School Watershed and Fishery Conservation Education

The Grantee has established a partnership with CA State University (CSU), San Francisco, Geography and Environment Department and will provide undergraduate students the opportunity to become involved with a real-life project implementing the concepts they are learning in the Watershed Restoration course. Students will learn about the different phases of project planning and implementation, visit the project site, and assist with collection of physical survey data. The RCD Conservation Project Coordinator will coordinate with the CSU Geography Department, prepare educational materials, and lead at least two site visits to educate at least 40 students. In addition to these educational site visits, two students will be hired as RCD interns (one per semester during the project period) and will attend two additional educational events by assisting the project coordinator with surveys described under Task 3.

Deliverables

Task 1: Project Management
- final access agreements with landowners
- progress reports and invoices
- executed contracts
- draft and Final report

Task 2: Permitting
- permit application(s)
- secured permits

Task 3: Biological Monitoring & Physical Surveys
- pre-construction wildlife survey results
- daily monitoring logs
- pre and post construction physical surveys

Task 4: Construction
- as-built descriptions of each structure
- log tag ID number, length, and large and small end diameters for each log
- photos taken before, during, and after construction to show conditions and restoration techniques

Task 5: Public School Watershed and Fishery Conservation Education

- three educational documents
- photos of four educational event with students

Timelines:

1. Provide completion dates for all tasks, deliverables, and steps of implementation.
2. List time frame (the season's work window). Use generic time frame (June 15 – October 31) if actual time frame is not known.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

4. The Grantee needs to pursue USFWS Section 7 ESA consultation for San Francisco garter snake avoidance measures.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
724568 San Gregorio Creek Habitat Enhancement Project

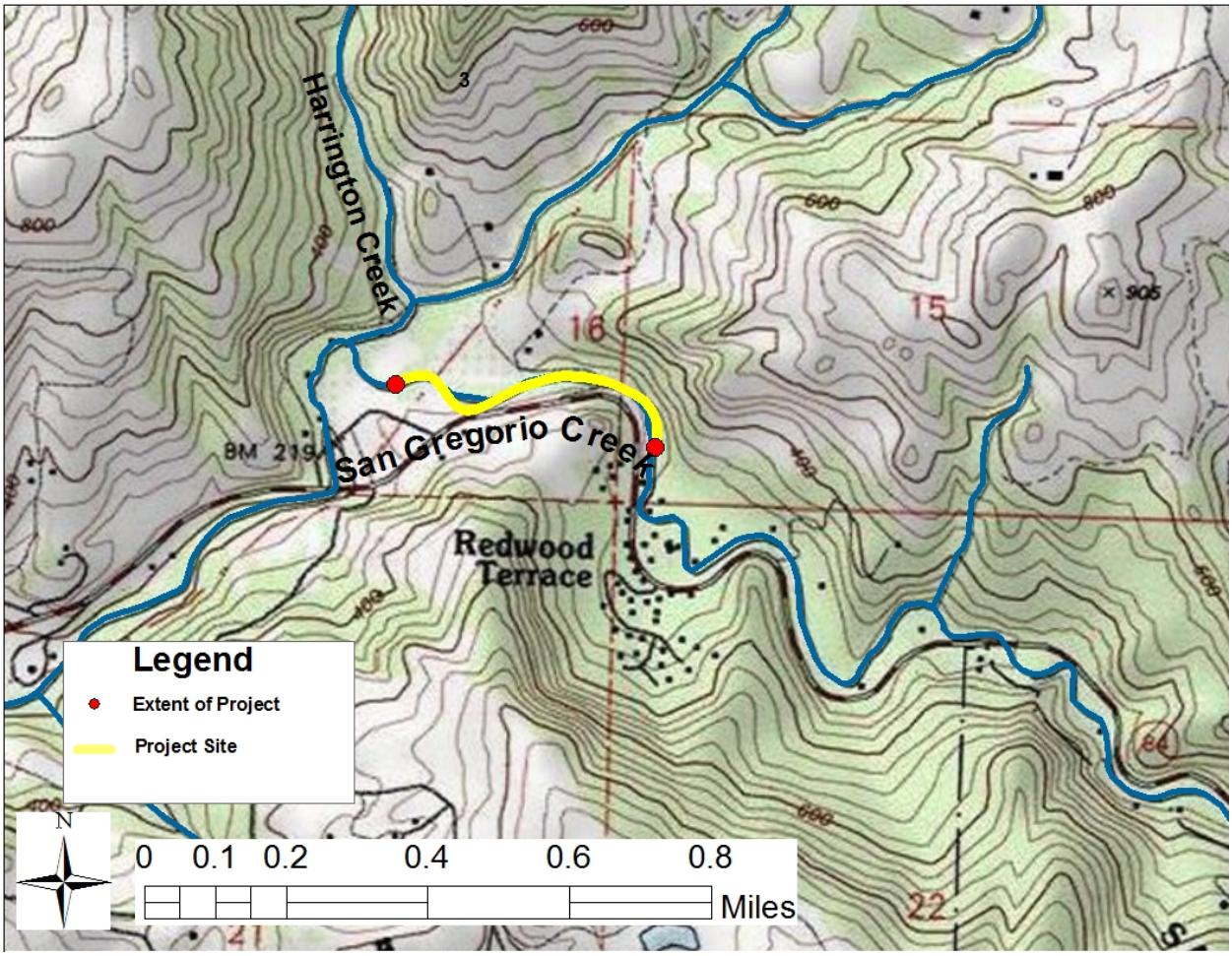
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Alameda song sparrow *Melospiza melodia pusillula*	ABPBXA301S			G5T2?	S2?	SC
2	American badger *Taxidea taxus*	AMAJF04010			G5	S4	SC
3	Anderson's manzanita *Arctostaphylos andersonii*	PDERI04030			G2	S2?	1B.2
4	Bay checkerspot butterfly *Euphydryas editha bayensis*	IILEPK4055	Threatened		G5T1	S1	
5	Ben Lomond buckwheat *Eriogonum nudum var. decurrens*	PDPGN08492			G5T1	S1	1B.1
6	Ben Lomond spineflower *Chorizanthe pungens var. hartwegiana*	PDPGN040M1	Endangered		G2T1	S1	1B.1
7	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
8	Bonny Doon manzanita *Arctostaphylos silvicola*	PDERI041F0			G1	S1	1B.2
9	Butano Ridge cypress *Hesperocyparis abramsiana var. butanoensis*	PGCUP04082	Endangered	Endangered	G1T1	S1	1B.2
10	California black rail *Laterallus jamaicensis coturniculus*	ABNME03041		Threatened	G4T1	S1	
11	California clapper rail *Rallus longirostris obsoletus*	ABNME05016	Endangered	Endangered	G5T1	S1	
12	California least tern *Sternula antillarum browni*	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2S3	
13	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
14	California tiger salamander *Ambystoma californiense*	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SC
15	Choris' popcornflower *Plagiobothrys chorisianus var. chorisianus*	PDBOR0V061			G3T2Q	S2	1B.2
16	Congdon's tarplant *Centromadia parryi ssp. congdonii*	PDAST4R0P1			G3T2	S2	1B.1
17	Crystal Springs fountain thistle *Cirsium fontinale var. fontinale*	PDAST2E161	Endangered	Endangered	G2T1	S1	1B.1
18	Crystal Springs lessingia *Lessingia arachnoidea*	PDAST5S0C0			G1	S1	1B.2
19	Davidson's bush-mallow *Malacothamnus davidsonii*	PDMAL0Q040			G2	S2	1B.2
20	Dudley's lousewort *Pedicularis dudleyi*	PDSCR1K0D0		Rare	G2	S2	1B.2
21	Edgewood Park micro-blind harvestman *Microcina edgewoodensis*	ILARA47010			G1	S1	
22	Edgewood blind harvestman *Calicina minor*	ILARA13020			G1	S1	
23	Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1			G5T1	S1	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Franciscan thistle *Cirsium andrewsii*	PDAST2E050			G3	S3	1B.2
25	Hall's bush-mallow *Malacothamnus hallii*	PDMAL0Q0F0			G2Q	S2	1B.2
26	Hoover's button-celery *Eryngium aristulatum var. hooveri*	PDAPI0Z043			G5T1	S1	1B.1
27	Kellman's bristle moss *Orthotrichum kellmanii*	NBMUS56190			G2	S2	1B.2
28	Kellogg's horkelia *Horkelia cuneata var. sericea*	PDROS0W043			G4T2	S2?	1B.1
29	Kings Mountain manzanita *Arctostaphylos regismontana*	PDERI041C0			G2	S2	1B.2
30	Marin western flax *Hesperolinon congestum*	PDLIN01060	Threatened	Threatened	G2	S2	1B.1
31	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
32	Monterey Pine Forest	CTT83130CA			G1	S1.1	
33	Monterey pine *Pinus radiata*	PGPIN040V0			G1	S1	1B.1
34	Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	IILEPJ608C	Endangered		G5T1	S1	
35	N. Central Coast Calif. Roach/Stickleback/Steelhead Stream	CARA2633CA			GNR	SNR	
36	North Central Coast Drainage Sacramento Sucker/Roach River	CARA2623CA			GNR	SNR	
37	North Central Coast Short-Run Coho Stream	CARA2632CA			GNR	SNR	
38	North Central Coast Steelhead/Sculpin Stream	CARA2637CA			GNR	SNR	
39	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
40	Northern Interior Cypress Forest	CTT83220CA			G2	S2.2	
41	Ohlone manzanita *Arctostaphylos ohloneana*	PDERI042Y0			G1	S1	1B.1
42	Pajaro manzanita *Arctostaphylos pajaroensis*	PDERI04100			G1	S1	1B.1
43	Point Reyes meadowfoam *Limnanthes douglasii ssp. sulphurea*	PDLIM02038		Endangered	G4T2	S2	1B.2
44	Ricksecker's water scavenger beetle *Hydrochara ricksecker*i	IICOL5V010			G2?	S2?	
45	Sacramento-San Joaquin Coastal Lagoon	CALA1360CA			GNR	SNR	
46	San Francisco Bay spineflower *Chorizanthe cuspidata var. cuspidata*	PDPGN04081			G2T1	S1	1B.2
47	San Francisco campion *Silene verecunda ssp. verecunda*	PDCAR0U213			G5T2	S2.2	1B.2
48	San Francisco collinsia *Collinsia multicolor*	PDSCR0H0B0			G2	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
49	San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	AMAFF08082			G5T2T3	S2S3	SC
50	San Francisco garter snake *Thamnophis sirtalis tetrataenia*	ARADB3613B	Endangered	Endangered	G5T2Q	S2	
51	San Francisco popcornflower *Plagiobothrys diffusus*	PDBOR0V080		Endangered	G1Q	S1	1B.1
52	San Mateo thorn-mint *Acanthomintha duttonii*	PDLAM01040	Endangered	Endangered	G1	S1	1B.1
53	San Mateo woolly sunflower *Eriophyllum latilobum*	PDAST3N060	Endangered	Endangered	G1	S1	1B.1
54	Santa Clara red ribbons *Clarkia concinna ssp. automixa*	PDONA050A1			G5?T3	S3.3	4.3
55	Santa Cruz Mountains beardtongue *Penstemon rattanii var. kleei*	PDSCR1L5B1			G4T2	S2	1B.2
56	Santa Cruz Mountains pussypaws *Calyptridium parryi var. hesseae*	PDPOR09052			G3G4T2	S2	1B.1
57	Santa Cruz cypress *Hesperocyparis abramsiana var. abramsiana*	PGCUP04081	Endangered	Endangered	G1T1	S1	1B.2
58	Santa Cruz kangaroo rat *Dipodomys venustus venustus*	AMAFD03042			G4T1	S1	
59	Santa Cruz microseris *Stebbinsoseris decipiens*	PDAST6E050			G2	S2.2	1B.2
60	Santa Cruz wallflower *Erysimum teretifolium*	PDBRA160N0	Endangered	Endangered	G2	S2	1B.1
61	Schreiber's manzanita *Arctostaphylos glutinosa*	PDERI040G0			G1	S1	1B.2
62	Serpentine Bunchgrass	CTT42130CA			G2	S2.2	
63	Toren's grimmia *Grimmia torenii*	NBMUS32330			G2	S2	1B.3
64	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
65	Valley Needlegrass Grassland	CTT42110CA			G3	S3.1	
66	Valley Oak Woodland	CTT71130CA			G3	S2.1	
67	arcuate bush-mallow *Malacothamnus arcuatus*	PDMAL0Q0E0			G1Q	S1	1B.2
68	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
69	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
70	coast yellow leptosiphon *Leptosiphon croceus*	PDPLM09170			G1	S1	1B.1
71	coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2			G2T2	S2	1B.2
72	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
73	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
74	fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0			G2	S2	1B.2
75	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
76	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
77	legenere *Legenere limosa*	PDCAM0C010			G2	S2	1B.1
78	long-eared owl *Asio otus*	ABNSB13010			G5	S3?	SC
79	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
80	lost thistle *Cirsium praeteriens*	PDAST2E2B0			GX	SX	1A
81	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
82	marsh microseris *Microseris paludosa*	PDAST6E0D0			G2	S2	1B.2
83	mimic tryonia (=California brackishwater snail) *Tryonia imitator*	IMGASJ7040			G2G3	S2S3	
84	monarch butterfly *Danaus plexippus*	IILEPP2010			G5	S3	
85	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
86	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
87	rose leptosiphon *Leptosiphon rosaceus*	PDPLM09180			G1	S1	1B.1
88	round-leaved filaree *California macrophylla*	PDGER01070			G2	S2	1B.1
89	salt-marsh harvest mouse *Reithrodontomys raviventris*	AMAFF02040	Endangered	Endangered	G1G2	S1S2	
90	salt-marsh wandering shrew *Sorex vagrans halicoetes*	AMABA01071			G5T1	S1	SC
91	saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A			G5T2	S2	SC
92	sand-loving wallflower *Erysimum ammophilum*	PDBRA16010			G2	S2	1B.2
93	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
94	showy rancheria clover *Trifolium amoenum*	PDFAB40040	Endangered		G1	S1	1B.1
95	slender silver moss *Anomobryum julaceum*	NBMUS80010			G4G5	S2	4.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
96	slender-leaved pondweed *Stuckenia filiformis ssp. alpina*	PMPOT03091			G5T5	S3	2B.2
97	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2Q	S2	
98	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
99	unsilvered fritillary *Speyeria adiaste adiaste*	IILEPJ6143			G1G2T1	S1	
100	vaginulate grimmia *Grimmia vaginulata*	NBMUS32340			G2G3	S1	1B.1
101	western leatherwood *Dirca occidentalis*	PDTHY03010			G2G3	S2S3	1B.2
102	western pearlshell *Margaritifera falcata*	IMBIV27020			G4G5	S1S2	
103	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
104	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
105	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
106	white-rayed pentachaeta *Pentachaeta bellidiflora*	PDAST6X030	Endangered	Endangered	G1	S1	1B.1
107	woodland woollythreads *Monolopia gracilens*	PDAST6G010			G2G3	S2S3	1B.2


Harrington Creek
San Gregorio Creek
Redwood Terrace
BM 219
16
15
3
22
Legend
Extent of Project
Project Site
N
0 0.1 0.2 0.4 0.6 0.8
Miles

Circle G Ranch Fish Passage Restoration

Introduction:

Earth Island Institute's South Coast Habitat Restoration project will implement the Circle G Ranch Fish Passage Restoration project. The purpose of this project is to facilitate fish passage by addressing the last major barrier to Southern California steelhead, a federally endangered species, in the Carpinteria Creek Watershed, Santa Barbara County. The project will make upstream habitat accessible by steelhead from the ocean to the headwaters of Carpinteria Creek.

This project is necessary because over several decades Carpinteria Creek, which was once home to plentiful runs of steelhead trout, has been negatively impacted by many factors, including loss of native vegetation, an influx of highly aggressive exotic species, increased scouring of creek beds, barriers to upstream passage, etc.

Permit Disclosure: The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

All habitat improvement will follow techniques in the California Stream Habitat Restoration Manual Volume I and Volume II.

Objective(s):

The objective of this project is to provide access to 1.27 miles of steelhead habitat up to a natural waterfall. The waterfall may be passable at certain flows, which would provide access to an additional 4.72 miles. Improved passage will be achieved by the removal of an undersized bridge, removal of all concrete from the stream channel, re-grading and construction of a new stream channel that provides fish passage through the site, vegetation of creek bank with native plantings, and construction of a new bridge and abutments.

Project Description:

Location:

The project site is located on the mainstem of Carpinteria Creek, 2.94 miles upstream of the Pacific Ocean and 0.7 miles upstream of the confluence of Gobernador with Carpinteria Creek. From the 101 Freeway, exit Casitas Pass, turn North away from the ocean; at the stop sign turn right onto Casitas Pass, drive about ¾ of a mile, and take a left onto Lillingston Canyon Road; continue up Lillingston Canyon Road about a half mile; driveway is on the left (marked by stone wall on either side of the driveway.

The project is located at Latitude 34.40853000, Longitude -119.48156600 of the White Ledge Peak 7.5 Minute U.S.G.S. Quadrangle, as depicted in the Project Location Map (Attachment 1).

Project Set Up:
The Grantee's South Coast Habitat Restoration (SCHR) Project Director will coordinate the project through securing necessary permits, hiring of all subcontractors, coordinating project related meetings and communication, compiling of project status reports, grant management, and oversight of project implementation. SCHR's Project Manager will be involved in the day-to-day construction management, implementation of the restoration plan, and maintenance and monitoring of the restoration site following construction. SCHR will also hire a local land-use planner to assist with securing local county permits. Project construction will be implemented by a licensed contractor with experience working on stream restoration projects. A Waterways Consulting (Waterways) engineer will be on site during construction activities to ensure the project is implemented according to the designs. All native vegetation will be collected locally from seed stock or cuttings from the Carpinteria Creek watershed or adjacent watersheds and grown by a local native plant nursery. The California Conservation Corps will be used to assist with site preparation including the installation of exclusionary fencing and grubbing/salvaging of tree stakes, the installation of erosion control materials, native plants, and an irrigation system. The project will be implemented during the dry season; but if flow is present at the project site at the time of implementation, sensitive species will be removed and excluded from the project site and stream flows will be captured and diverted downstream. A biological monitor will periodically check for sensitive species within the work area. Fish relocation activities will likely not be necessary as the project site is will most likely be dry at the time of construction. If flow is present, the applicant will contact the Grantor's Project Manager for assistance with capturing and relocating any fish in the project site.

Materials:
The project will utilize engineered stream bed material (gravel, cobble rock), concrete, prefabricated bridge, bridge railings, road base and asphalt, native plants, rootwads, erosion control fabric and logs.

Tasks:
1. Pre-Implementation
    - Finalize plan sets (65%) to bring to Construction-ready level (100%)
    - Acquire all necessary county and state permits
    - Set up photo monitoring sites
2. Implementation of Fish Passage Improvement
    - Removal of concrete stream channel to improve fish passage.
    - Removal of undersized bridge and concrete abutments.

- Removal and relocation of utility lines, both water and electrical. Hiring of a utility consultant to coordinate relocation activities with Southern California Edison may be necessary.

- Removal and re-grading of near vertical stacked rock stream bank walls to a ~2:1 slope.

- Construction of new bridge abutments and installation of an approximately 53-foot clear span bridge.

- Geotechnical and structural monitoring during abutment constructing and structural back filling.

- Re-grading of road approaches, paving and chip-sealing of driveway.

- Re-building of rock walls and stone pillars along the driveway.

- Restoration of approximately 325 feet of channel by grading to a stable profile grade and installing streambed material that matches the size and gradation of the surrounding channel material.

- On-site construction monitoring by Waterways staff to ensure project is implemented as designed.

- Installation of planted rock slope protection to stabilize the banks and provide protection for the newly installed structure.

- Installation of one large woody debris structure to create pool habitat within the project reach.

- Re-vegetation of approximately 7,000 square feet of banks within the riparian corridor will include installation of erosion control fabric and re-vegetation with native seeding and plants (~200 1 gal) and live stakes (100).

3. Conduct post-project Implementation monitoring and maintenance.
   - Maintenance and monitoring of restoration site for a period of 3-5 years, including irrigation set up, weed planted areas and re-plant, if necessary.

   - Monitor storm events to see if weirs, water diversion and log structures are functioning as designed. Consult Grantor Project Manager, National Marine Fisheries Service (NMFS) and Waterways if problems are noted.

   - Evaluate fish habitat improvement projects as described in the California

Salmonid Stream Habitat Restoration Manual.

4. Prior to the bid and construction company selection process, the Grantee will define the role of the Waterways Engineering staff during construction. All subcontractors bidding on the project should understand that the design engineer(s) will be given the authority to direct the selection and placement of all rock during that phase of the project. During the selection process, the Grantee should select the subcontractor with prior experience installing bridges and/or bottomless arched culverts and rock weirs or the most comparable construction experience with regards to building rock weirs since this component is critical to the success and durability of the project.

5. The Grantee will notify Waterways that they will be required to provide weekly QA/QC reports to the Grantor's engineer using the Grantor's QA/QC reporting template.

6. Develop as-built drawings of final project post-implementation including longitudinal surveys.

7. Prepare final report including monitoring photos and continue to supply on-going monitoring data to regulatory agencies as required by permits and grant agreements.

   All work done under this project will comply with the additional requirements noted below.

Deliverables:

Unless otherwise specified, submit all progress reports, invoices, compliance reports and draft and final reports to the Grantor Project Manager.

- Implementation plans (Dewatering, Erosion control, Fish removal, Maintenance and Monitoring and Re-vegetation).
- Weekly QA/QC reports.
- Monthly progress reports.
- Final report, including copies of: final designs, permits and photos of project pre-, during, and post-construction.
- Monitoring of re-vegetation effort after project completion along with project monitoring report.
- As-built design drawings and report
- Post project longitudinal survey.

Upon completion of the project, the Grantee shall provide a full set of final project design plans, signed as-built construction drawings, a final construction report, permits and project photos from pre, during and post construction. An electronic copy of all material will also be submitted. All project photographs will also be included (as jpeg files) on the CD. Additional deliverables include any public outreach materials (a newsletter and summary of a public meeting) and copies of annual performance evaluation reports of the structural stability and fish passage condition as well as the success of the re-vegetation efforts.

Timelines:

The bridge construction phase of this project is expected to take place from August 2015 – November 2015 with installation of native riparian plantings complete by February 2016. The following outlines the various phases that must be accomplished in order to successfully complete the project:

- June to September 2015 - Permits submission and completion
- Summer 2015 – Finalization and approval of 100% design approval
- August 15 to October 30, 2015 - pre-construction monitoring and bridge construction
- November 2015 – December 2015: re-vegetation of site;
- March 2016 - April 2019: post-construction monitoring and maintenance

Additional Requirements:

1. The Grantee will not proceed with on-the-ground implementation until all necessary permits and consultations are secured and they have received a notice to proceed from the Grantor's Project Manager. Work in flowing streams is restricted per the U.S. Army Corps of Engineers' Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

2. Since Grantor will provide permit coverage under its Army Corp of Engineers Regional General Permit, the applicant must submit to the Grantor's Project Manager the following five specific implementation documents: Dewatering, Erosion Control, Fish Removal, Maintenance and Monitoring and Re-vegetation plans. The plans will be reviewed and approved by Grantor's Project Manager and NMFS before construction can begin. Submittal of these plans will occur once the 100% design for the bridge and stream channel have been finalized and approved by Grantor and NMFS.

3. In instances where water is present in the work area, the Grantee shall notify the Grantor's Project Manager a minimum of **five (5) working days** before the project site is de-watered and the stream flow diverted. The notification

will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

- Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.

- The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.

- All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

- The Grantee will provide fish relocation data to the Grantor's Project Manager on a form provided by the Grantor.

- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the California Salmonid Stream Habitat Restoration Manual.

4. The bridge (culvert) design and installation will meet flow carrying capacity required for a 100-year flood event, as identified by specifications determined by the National oceanic and Atmospheric Administration (NOAA) Fisheries and the Grantor, for adult and juvenile salmonid fish passage. The project will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and criteria for fish passage as described in Volume II, Part XII, of the California Salmonid Stream Habitat Restoration Manual. The engineered plans for the bridge (culvert) installation shall be visually reviewed and authorized by NOAA Fisheries or Grantor's engineers prior to commencement of work.

5. Final structure design and placement will be determined by field consultation between the Grantee's and Grantor's Project Managers.

6. Any modification to the design that occurs during construction must be approved by the Grantee's design engineers and the Grantor's Engineer in writing prior to the change being implemented. The Grantor's Project Manager will also be notified by telephone. **Failure to do so will result in cancellation of the grant.**

7. All habitat improvements will follow techniques described in the California Salmonid Stream Habitat Restoration Manual, Volume I, Chapter VII, and Volume II, Chapter XII. The Grantee/landowner will maintain the new crossing, inspect the crossing in a timely manner and remove debris as necessary during the storm season.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad is (White Ledge Peak (3411944) or Carpinteria (3411945) or Hildreth Peak (3411955) or Old Man Mountain (3411954) or Wheeler Springs (3411953) or Matilija (3411943) or Ventura (3411933) or Pitas Point (3411934))

724431 Circle G Ranch Fish Passage Restoration

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Abrams' oxytheca *Acanthoscyphus parishii var. abramsii*	PDPGN0J041	None	None	G4?T2	S2	1B.2
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S4	SSC
aphanisma *Aphanisma blitoides*	PDCHE02010	None	None	G3G4	S3	1B.2
arroyo chub *Gila orcuttii*	AFCJB13120	None	None	G2	S2	SSC
arroyo toad *Anaxyrus californicus*	AAABB01230	Endangered	None	G2G3	S2S3	SSC
Belding's savannah sparrow *Passerculus sandwichensis beldingi*	ABPBX99015	None	Endangered	G5T3	S3	
California condor *Gymnogyps californianus*	ABNKA03010	Endangered	Endangered	G1	S1	
California red-legged frog *Rana draytonii*	AAABH01022	Threatened	None	G2G3	S2S3	SSC
California satintail *Imperata brevifolia*	PMPOA3D020	None	None	G3	S3	2B.1
California Walnut Woodland *California Walnut Woodland*	CTT71210CA	None	None	G2	S2.1	
chaparral nolina *Nolina cismontana*	PMAGA080E0	None	None	G2	S2	1B.2
coast horned lizard *Phrynosoma blainvillii*	ARACF12100	None	None	G3G4	S3S4	SSC
Coast Range newt *Taricha torosa*	AAAAF02032	None	None	G4	S4	SSC
Coulter's goldfields *Lasthenia glabrata ssp. coulteri*	PDAST5L0A1	None	None	G4T2	S2	1B.1
Coulter's saltbush *Atriplex coulteri*	PDCHE040E0	None	None	G2	S2	1B.2
Davidson's saltscale *Atriplex serenana var. davidsonii*	PDCHE041T1	None	None	G5T1	S1	1B.2
Dulzura pocket mouse *Chaetodipus californicus femoralis*	AMAFD05021	None	None	G5T3	S2?	SSC
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S2S3	SSC
globose dune beetle *Coelus globosus*	IICOL4A010	None	None	G1G2	S1S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
hoary bat *Lasiurus cinereus*	AMACC05030	None	None	G5	S4?	
late-flowered mariposa-lily *Calochortus fimbriatus*	PMLIL0D1J2	None	None	G3	S3	1B.2
least Bell's vireo *Vireo bellii pusillus*	ABPBW01114	Endangered	Endangered	G5T2	S2	
light-footed clapper rail *Rallus longirostris levipes*	ABNME05014	Endangered	Endangered	G5T1T2	S1	FP
mesa horkelia *Horkelia cuneata var. puberula*	PDROS0W045	None	None	G4T1	S1	1B.1
Mexican long-tongued bat *Choeronycteris mexicana*	AMACB02010	None	None	G4	S1	SSC
Miles' milk-vetch *Astragalus didymocarpus var. milesianus*	PDFAB0F2X3	None	None	G5T2	S2	1B.2
monarch butterfly *Danaus plexippus*	IILEPP2010	None	None	G5	S3	
Nuttall's scrub oak *Quercus dumosa*	PDFAG050D0	None	None	G2	S2	1B.1
Ojai fritillary *Fritillaria ojaiensis*	PMLIL0V0N0	None	None	G2	S2	1B.2
Ojai navarretia *Navarretia ojaiensis*	PDPLM0C130	None	None	G1	S1	1B.1
Orcutt's pincushion *Chaenactis glabriuscula var. orcuttiana*	PDAST20095	None	None	G5T1	S1	1B.1
pale-yellow layia *Layia heterotricha*	PDAST5N070	None	None	G2	S2	1B.1
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G5	S3	SSC
Palmer's mariposa-lily *Calochortus palmeri var. palmeri*	PMLIL0D122	None	None	G3T3?	S3?	1B.2
salt marsh bird's-beak *Chloropyron maritimum ssp. maritimum*	PDSCR0J0C2	Endangered	Endangered	G4?T1	S1	1B.2
Salt Spring checkerbloom *Sidalcea neomexicana*	PDMAL110J0	None	None	G4?	S2S3	2B.2
San Diego desert woodrat *Neotoma lepida intermedia*	AMAFF08041	None	None	G5T3?	S3?	SSC
sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101	None	None	G5T2	S1	
Sanford's arrowhead *Sagittaria sanfordii*	PMALI040Q0	None	None	G3	S3	1B.2
Santa Barbara honeysuckle *Lonicera subspicata var. subspicata*	PDCPR030R3	None	None	G5T2	S2	1B.2

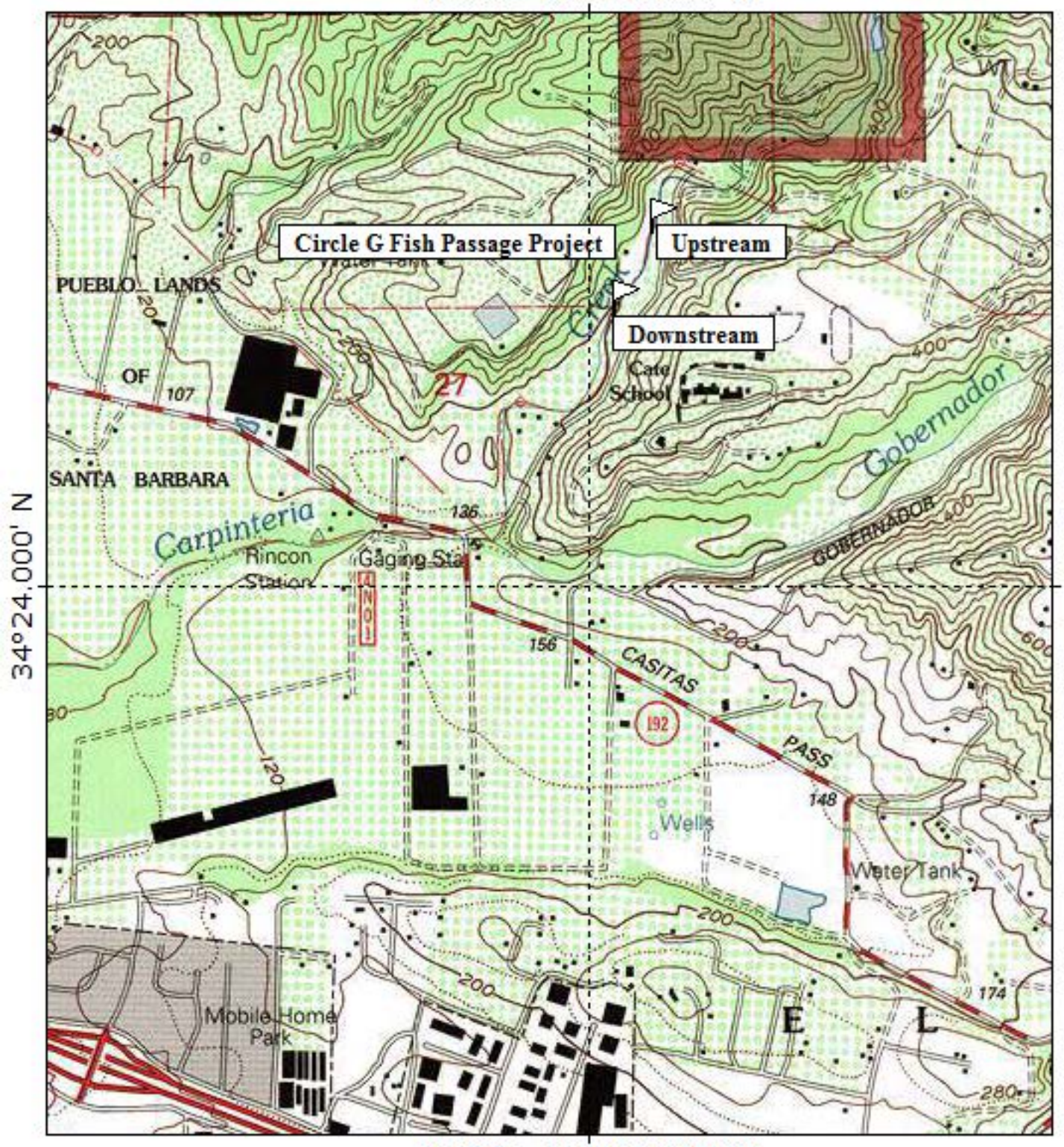
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
silvery legless lizard *Anniella pulchra pulchra*	ARACC01012	None	None	G3G4T3T4Q	S3	SSC
Sonoran maiden fern *Thelypteris puberula var. sonorensis*	PPTHE05192	None	None	G5T3	S2.2?	2B.2
south coast saltscale *Atriplex pacifica*	PDCHE041C0	None	None	G3G4	S2	1B.2
Southern California Coastal Lagoon *Southern California Coastal Lagoon*	CALE1220CA	None	None	GNR	SNR	
Southern California Steelhead Stream *Southern California Steelhead Stream*	CARE2310CA	None	None	GNR	SNR	
Southern Coast Live Oak Riparian Forest *Southern Coast Live Oak Riparian Forest*	CTT61310CA	None	None	G4	S4	
Southern Coastal Salt Marsh *Southern Coastal Salt Marsh*	CTT52120CA	None	None	G2	S2.1	
southern jewelflower *Streptanthus campestris*	PDBRA2G0B0	None	None	G2	S2.3	1B.3
southern steelhead - southern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209J	Endangered	None	G5T2Q	S2	SSC
Southern Sycamore Alder Riparian Woodland *Southern Sycamore Alder Riparian Woodland*	CTT62400CA	None	None	G4	S4	
southern tarplant *Centromadia parryi ssp. australis*	PDAST4R0P4	None	None	G3T2	S2	1B.1
southwestern willow flycatcher *Empidonax traillii extimus*	ABPAE33043	Endangered	Endangered	G5T1T2	S1	
tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered	None	G3	S2S3	SSC
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2S3	SSC
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	None	G2G3	S1S2	SSC
two-striped garter snake *Thamnophis hammondii*	ARADB36160	None	None	G4	S3S4	SSC
umbrella larkspur *Delphinium umbraculorum*	PDRAN0B1W0	None	None	G3	S3	1B.3
Ventura Marsh milk-vetch *Astragalus pycnostachyus var. lanosissimus*	PDFAB0F7B1	Endangered	Endangered	G2T1	S1	1B.1
wandering (=saltmarsh) skipper *Panoquina errans*	IILEP84030	None	None	G4G5	S1	
western mastiff bat *Eumops perotis californicus*	AMACD02011	None	None	G5T4	S3?	SSC
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
western snowy plover	ABNNB03031	Threatened	None	G3T3	S2	SSC
Charadrius alexandrinus nivosus						
white-veined monardella	PDLAM180A3	None	None	G4T2T3	S2S3	1B.3
Monardella hypoleuca ssp. hypoleuca						

Record Count: 63

Circle G Fish Passage Project

WGS84 119°29.000' W



WGS84 119°29.000' W

TN 13½° MN

0 .5 1 MILE

0 1000 FEET 0 500 1000 METERS

Little Arthur Creek Residential Storage & Forbearance Project

Introduction:

The Grantee for the Little Arthur Creek Residential Storage & Forbearance Project is Trout Unlimited (TU). The purpose of the project is to increase dry season streamflow in the target reach of Little Arthur Creek to improve salmonid rearing habitat.

The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured. All habitat improvement will follow techniques outlined in the California Salmonid Stream Habitat Restoration Manual (Part VII Project Implementation).

Objectives:

The proposed project will construct potable water storage tanks for 10 residences in exchange for dry season forbearance agreements.

Project Description:

Location:

The project is located in Little Arthur Creek which is a tributary of Uvas Creek in the Pajaro River watershed in Santa Clara County. The project reach starts at the Second Bridge at RM 2.4 (measured upstream from the confluence of Uvas Creek) and extends to the upper limit of anadromy at RM 4.9. From the town of Gilroy, travel Hecker Pass Road (HWY 152 W) to Watsonville Road. Turn north on Watsonville Road, travel north 1.1 miles to Redwood Retread Road. Travel two miles west to the Second Bridge.
37.030 N, -121.695 W

Project Set Up:

Project management, execution of forbearance agreements, will be conducted by TU. Landowner outreach will be performed by Coastal habitat Education & Environmental Restoration (CHEER). Site selection and ranking, will be performed by the Project Team; TU, CHEER, CEMAR, and potentially, NOAA Fisheries and CDFW staff. Individual sub-project design will be performed by the subcontracted project engineer with gauging, rating and hydrographs performed by CEMAR. Permitting, contractor selection and management will be conducted by TU in consultation with the subcontracted project engineer and general contractor. Conceptual design (which was already completed by the subcontracted project engineer--this was not funded by FRGP or used as cost-share), ordering equipment and materials, onsite support, as-builts & close-outs, will be conducted by the subcontracted project engineer. Construction will be conducted by subcontracted general contractor.

Materials:

Gravel for pad construction, water tanks, utility trench materials, water pumps, water treatment systems, waste/debris dumpster rentals

Tasks:

Task 1: Project Management

TU will hire and oversee all contractors including CHEER, the project engineer and general contractor. TU will also coordinate grant reporting, invoicing and communications among the Project Team (TU, the Project Engineer, CHEER, and contractors).

Task 2: Landowner Outreach

Landowner outreach will be handled by Coastal Habitat Education & Environmental Restoration (CHEER), a Gilroy-based non-profit organization whose mission is to restore coastal ecosystems in a way that safeguards resource-based local economies. CHEER will be primarily responsible for making contact with landowners, and for coordinating all communications and meetings between landowners and the Project Team.

Task 3: Site Selection

The Project Team will initially rank each potential project site in order of priority based on a rough screen of site suitability and cost/benefit. The Project Team and (if desired) CDFW staff will then meet on-site with the owner of each potential sub-project site, and conduct a thorough site review to identify potential tank locations and configurations based on the needs of the landowner and characteristics of the site. Based on the outcome of each site visit, the Project Team will decide whether to propose the parcel as a sub-project site and proceed to Tasks 4 - 12 for that site, subject to CDFW approval. To the extent viable sites are identified, approval to proceed may be issued without awaiting the outcome of all site visits.

Task 4: Execute Forbearance Agreements

TU will be responsible for negotiating and drafting a forbearance agreement with each landowner. Each agreement will provide for the construction of the water tank system and require the landowner to refrain from all diversion from Little Arthur Creek and tributary ground and surface water for a minimum of 15 years. A model agreement has already been drafted and is available on request. (The forbearance agreement for the first tank sub-project has already been completed with non-FRGP funds).

Task 5: Conceptual Design [This task was completed in February 2014, but is included in this grant proposal to provide context.]

The Project Engineer will develop a "menu" of water storage systems that will be used as the basis for participating landowners, in consultation with TU to select a preferred system based on" (a) storage capacity (30,000 gallons; 50,000 gallons; or 100,000 gallons); (b) potable/non-potable supply options; (c) conventional vs. solar power options; and (d) annual estimated operation and maintenance costs. These findings will be presented as two matrices (construction cost matrix; annual estimated operations and maintenance) along with general system schematics.

Task 6: Gauging, Rating and Development of Hydrographs

This will be performed by subcontractor, CEMAR.

Task 7: Individual Sub-project Design

The Project Engineer will provide engineering support for layout and design of each individual tank project. The system configuration will be based on typical layouts from the "menu" previously developed. This will include the following sub-tasks:

- Site Survey and Topographic Mapping:
  The Project Engineer will visit the site and perform a topographic survey to determine site elevations and site layout. The survey will be performed using a Terrestrial LiDAR unit (Faro 3D Scanner) and positions will be surveyed using an RTK GPS and/or Total Station. If no site survey control exists, the Project Engineer will establish survey control. The topographic map will be included in the project plan set.

- Plans, Specifications, and Estimates (PS&Es):
  The Project Engineer will develop the technical aspects and complete the analyses required for formal system design. The Project Engineer will evaluate seismic safety, foundation conditions, and plumbing details (pumps, piping, electrical supply, valves, etc.). Following completion of the technical details, the Project Engineer will develop plans, specifications, and assist in generating the cost estimate for implementation of the system.

  Because of the individual nature of each project, the designs will allow for a flexible "design- build" approach, with details of the plumbing and other components to be worked out between the Project Engineer and General Contractor before and during

construction. The deliverable for Task 6 will be a 90% sub-project design subject to DFW approval. (The site-specific design for the first tank sub-project has already been completed with non-FRGP funds).

Task 8: Permitting

TU will have primary responsibility for securing all necessary permits including: building and grading permits (if required and in consultation with the Project Engineer and General Contractor); water rights permits, and §1602 Streambed Alteration Agreements. (Construction-related permitting for the first tank project has been completed with non-FRGP funds).

Task 9: Contractor Selection & Management

For each tank project, TU will work with the Project Engineer and each landowner to select a general contractor to perform the general site work, plumbing, and electrical work. Once the contractor has been selected and a contract negotiated, TU will work with the Project Engineer, the contractor, and the landowner to develop the project construction schedule. (Contractor selection for the first tank project has been completed with non-FRGP funds. It is anticipated that the same general contractor will be employed for all ten subprojects, assuming satisfactory performance).

Task 10: Equipment and Materials Ordering

The Project Engineer will oversee the selection and ordering materials for the project. The Project Engineer will ensure that all materials meet the intent of the project drawings. Materials will be ordered and scheduled to arrive onsite in accordance with the developed construction schedule. The Project Engineer will have onsite staff to oversee installation of materials and equipment.

Task 11: Onsite Support

The Project Engineer will have staff onsite during major construction tasks to observe and document installation of the improvements. The Project Engineer will also provide site stakeout services to mark locations/alignments of project improvements. The Project Engineer will also perform quality control functions during construction to confirm correct and proper installation of project improvements.

Task 12: Construction

The general contractor will be responsible for all aspects of project construction, including: pad construction, tank installation, utility trenching, pump, pressure tank and housing installation, piper pressure testing, water treatment system installation, and system test-out.

Task 13: As-Builts and Close-Outs

Upon completion of work at the site, the Project Engineer will perform an as-built survey to document as-constructed conditions. The Project Engineer will provide the landowner with all pertinent owner manuals and warranty documents for the procured equipment. The Project Engineer will, in conjunction with the landowner and plumbing contractor, test the system to ensure all components are properly functioning and the landowner understands how to operate and maintain the installed system.

Deliverables

Task 1: Interim grant reports, invoices, final project report

Task 2: Provisional landowner access agreements

Task 3: Report of each site visit including aerial photos/ maps of parcel, parcel-specific information (zoning and other land use restrictions, etc.), notes of landowner meetings, and recommendations

Task 4: Signed forbearance agreement for each landowner/tank sub-project

Task 5: Menu of Conceptual design options and supporting information

Task 6: 90 % design for each sub-project allowing for design-build. The plans will have the following sheets: title sheet (vicinity map, site map), site plan & tank layout, details/notes.

Task 7: As applicable, for each sub-project: Building permit, grading permit, 1602 Streambed Alteration Agreement, small domestic use registration

Task 11: Tank system constructed to design specifications

Task 12: As-built letter confirming the project construction conforms to design

Timelines (Various tasks for designs, permitting, and construction will occur for the 10 tanks between June 1, 2015 and November 2016).

Task 1: Project Management (June 1, 2015 – February 28, 2017); Final Invoice/Final Report (February 28, 2017)

Task 2: Landowner Outreach (June 1, 2015 – February 28, 2017)

Task 3: Site Selection (10 sites) (June 2015 – March 2016)

Task 4: Forbearance Agreements (June 2015 – May 2016)

Task 5: Conceptual Designs Completed (non-FRGP funding)

Task 6: Gaging, Rating, Hydrograph Development (June 2015 – February 2017)

Task 7: Site-Specific Designs (June 2015 – March 2016)

Task 8: Permitting (August 2015 – February 2017)

Task 9: Contractor Selection & Management (September 2015 – November 2016)

Task 10: Equipment & Materials Ordering (September 2015 – September 2016)

Task 11: On-site Construction Support (September 2015 – November 2016)

Task 12: Construction (September 2015 – November 2016)

Task 13: As-Built and Close-out (December 2016)

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
D037 Little Arthur Creek residential storage and forebearance project

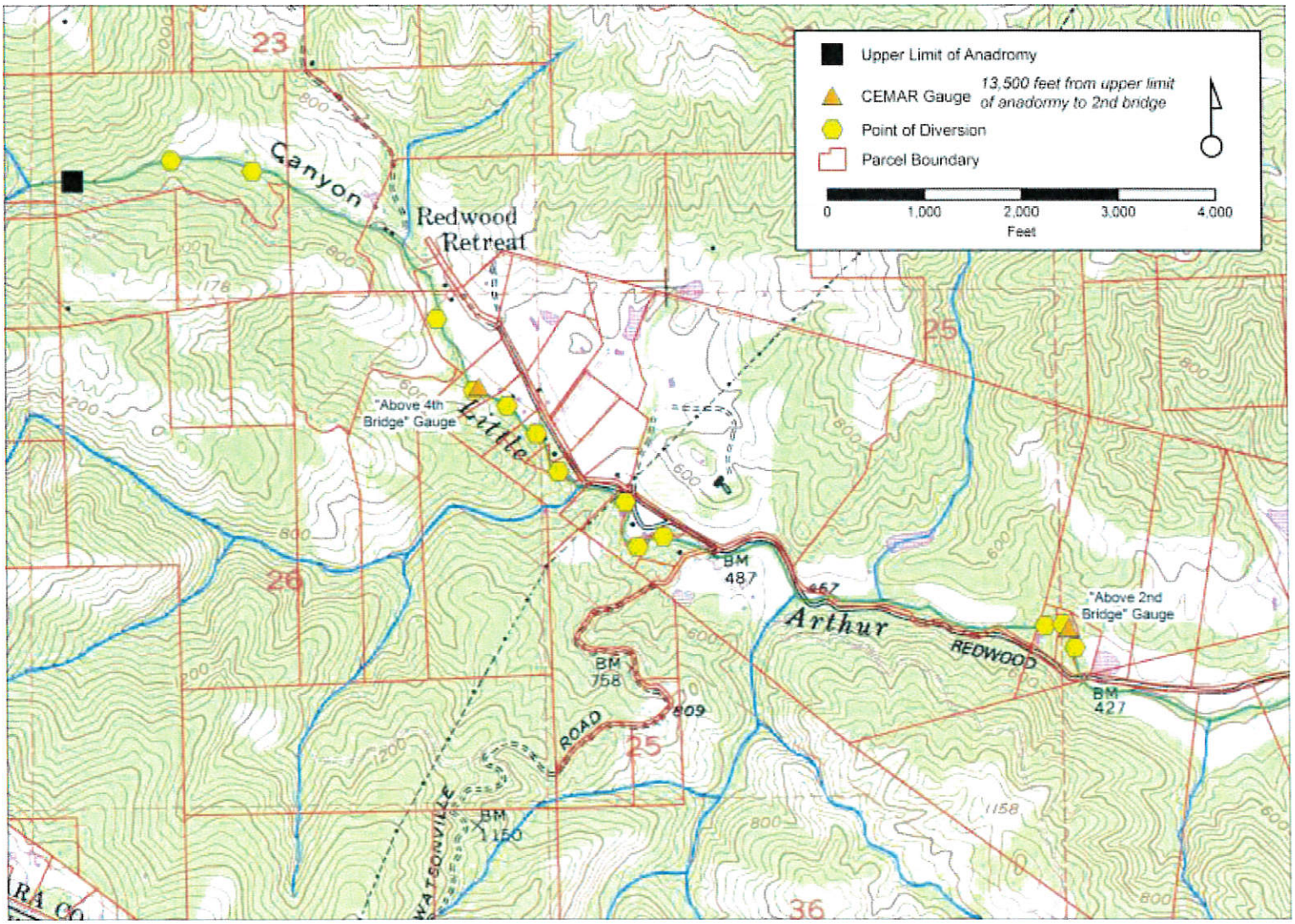
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S4	SC
2	Anderson's manzanita *Arctostaphylos andersonii*	PDERI04030			G2	S2?	1B.2
3	Bay checkerspot butterfly *Euphydryas editha bayensis*	IILEPK4055	Threatened		G5T1	S1	
4	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
5	California tiger salamander *Ambystoma californiense*	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SC
6	Central Dune Scrub	CTT21320CA			G2	S2.2	
7	Choris' popcornflower *Plagiobothrys chorisianus var. chorisianus*	PDBOR0V061			G3T2Q	S2	1B.2
8	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
9	Congdon's tarplant *Centromadia parryi ssp. congdonii*	PDAST4R0P1			G3T2	S2	1B.1
10	Coyote ceanothus *Ceanothus ferrisiae*	PDRHA041N0	Endangered		G2	S2	1B.1
11	Dudley's lousewort *Pedicularis dudleyi*	PDSCR1K0D0		Rare	G2	S2	1B.2
12	Hall's bush-mallow *Malacothamnus hallii*	PDMAL0Q0F0			G2Q	S2	1B.2
13	Hom's micro-blind harvestman *Microcina homi*	ILARA47020			G1	S1	
14	Hooker's manzanita *Arctostaphylos hookeri ssp. hookeri*	PDERI040J1			G3T2?	S2?	1B.2
15	Hoover's button-celery *Eryngium aristulatum var. hooveri*	PDAPI0Z043			G5T1	S1	1B.1
16	Indian Valley bush-mallow *Malacothamnus aboriginum*	PDMAL0Q020			G2	S2	1B.2
17	Kellogg's horkelia *Horkelia cuneata var. sericea*	PDROS0W043			G4T2	S2?	1B.1
18	Kings Mountain manzanita *Arctostaphylos regismontana*	PDERI041C0			G2	S2	1B.2
19	Loma Prieta hoita *Hoita strobilina*	PDFAB5Z030			G2	S2	1B.1
20	Metcalf Canyon jewelflower *Streptanthus albidus ssp. albidus*	PDBRA2G011	Endangered		G2T1	S1	1B.1
21	Monterey gilia *Gilia tenuiflora ssp. arenaria*	PDPLM041P2	Endangered	Threatened	G3G4T2	S2	1B.2
22	Monterey spineflower *Chorizanthe pungens var. pungens*	PDPGN040M2	Threatened		G2T2	S2	1B.2
23	Mt. Hamilton fountain thistle *Cirsium fontinale var. campylon*	PDAST2E163			G2T2	S2	1B.2
24	Mt. Hamilton jewelflower *Streptanthus callistus*	PDBRA2G0A0			G1	S1	1B.3

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Opler's longhorn moth *Adela oplerella*	IILEE0G040			G2	S2	
26	Pajaro manzanita *Arctostaphylos pajaroensis*	PDERI04100			G1	S1	1B.1
27	Pinnacles optioservus riffle beetle *Optioservus canus*	IICOL5E020			G1	S1	
28	San Francisco collinsia *Collinsia multicolor*	PDSCR0H0B0			G2	S2	1B.2
29	San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	AMAFF08082			G5T2T3	S2S3	SC
30	San Joaquin kit fox *Vulpes macrotis mutica*	AMAJA03041	Endangered	Threatened	G4T2T3	S2S3	
31	Santa Clara Valley dudleya *Dudleya abramsii ssp. setchellii*	PDCRA040Z0	Endangered		G3T2	S2	1B.1
32	Santa Clara red ribbons *Clarkia concinna ssp. automixa*	PDONA050A1			G5?T3	S3.3	4.3
33	Santa Cruz Mountains beardtongue *Penstemon rattanii var. kleei*	PDSCR1L5B1			G4T2	S2	1B.2
34	Santa Cruz Mountains pussypaws *Calyptridium parryi var. hesseae*	PDPOR09052			G3G4T2	S2	1B.1
35	Santa Cruz clover *Trifolium buckwestiorum*	PDFAB402W0			G2	S2	1B.1
36	Santa Cruz kangaroo rat *Dipodomys venustus venustus*	AMAFD03042			G4T1	S1	
37	Santa Cruz long-toed salamander *Ambystoma macrodactylum croceum*	AAAAA01082	Endangered	Endangered	G5T1T2	S1S2	
38	Santa Cruz tarplant *Holocarpha macradenia*	PDAST4X020	Threatened	Endangered	G1	S1	1B.1
39	Serpentine Bunchgrass	CTT42130CA			G2	S2.2	
40	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S3	
41	Sycamore Alluvial Woodland	CTT62100CA			G1	S1.1	
42	Tiburon paintbrush *Castilleja affinis var. neglecta*	PDSCR0D013	Endangered	Threatened	G4G5T1	S1	1B.2
43	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
44	Yuma myotis *Myotis yumanensis*	AMACC01020			G5	S4?	
45	arcuate bush-mallow *Malacothamnus arcuatus*	PDMAL0Q0E0			G1Q	S1	1B.2
46	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
47	big-scale balsamroot *Balsamorhiza macrolepis*	PDAST11061			G2	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
48	black legless lizard *Anniella pulchra nigra*	ARACC01011			G3G4T2T3Q	S2	SC
49	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
50	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S3	SC
51	coast horned lizard *Phrynosoma blainvillii*	ARACF12100			G3G4	S3S4	SC
52	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
53	fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0			G2	S2	1B.2
54	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
55	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
56	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
57	least Bell's vireo *Vireo bellii pusillus*	ABPBW01114	Endangered	Endangered	G5T2	S2	
58	legenere *Legenere limosa*	PDCAM0C010			G2	S2	1B.1
59	monarch butterfly *Danaus plexippus*	IILEPP2010			G5	S3	
60	most beautiful jewelflower *Streptanthus albidus ssp. peramoenus*	PDBRA2G012			G2T2	S2.2	1B.2
61	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
62	pink creamsacs *Castilleja rubicundula var. rubicundula*	PDSCR0D482			G5T2	S2	1B.2
63	robust spineflower *Chorizanthe robusta var. robusta*	PDPGN040Q2	Endangered		G2T1	S1	1B.1
64	rock sanicle *Sanicula saxatilis*	PDAPI1Z0H0		Rare	G2	S2	1B.2
65	saline clover *Trifolium hydrophilum*	PDFAB400R5			G2	S2	1B.2
66	sand-loving wallflower *Erysimum ammophilum*	PDBRA16010			G2	S2	1B.2
67	smooth lessingia *Lessingia micradenia var. glabrata*	PDAST5S062			G2T2	S2	1B.2
68	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2Q	S2	
69	steelhead - south/central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209H	Threatened		G5T2Q	S2	SC
70	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
71	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
72	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
73	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	
74	woodland woollythreads *Monolopia gracilens*	PDAST6G010			G2G3	S2S3	1B.2

ATTACHMENT 1 – PROJECT LOCATION MAP



Lower Scotts Creek Salmonid Habitat Improvement Project

Introduction

The Grantee for the Lower Scotts Creek Salmonid Habitat Improvement Project is the Resource Conservation District of Santa Cruz County (RCD).

The proposed project will construct nine to ten instream wood complexes, grade two backwater connections with two existing off-channel ponds, grade one backwater floodplain connection with an existing floodplain drain, and reconfigure the confluence area of Archibald Creek to form a backwater connection with Scotts Creek. The objective of the proposed Project is to increase the resilience of the entire system to climate variation by addressing both salmonid rearing and refuge habitat during high flows and extremely low flows. Specifically, the Project will increase accessibility to off-channel, alcove, and instream refuge and rearing habitat for juvenile and adult Central California Coast (CCC) coho (*Oncorhynchus kisutch*) and CCC steelhead (*Oncorhynchus mykiss*).

The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

All habitat improvement will follow techniques outlined in the California Salmonid Stream Habitat Restoration Manual (Part VII Project Implementation).

Objectives

The goals of the proposed project is to increase the amount of available off-channel/alcove, floodplain and instream habitat for winter refugia and summer rearing by grading four new connections between lower Scotts Creek and existing off-channel features, and constructing nine instream wood complexes.

Project Description

Location

Scotts Creek is located approximately 13 miles north of the city of Santa Cruz, on the central coast of California between the San Francisco and Monterey Bays. The project reach extends from 3000 feet to 6000 feet upstream from the CA-1 Bridge over Scotts Creek. The coordinates of the upstream boundary of the Project reach are N37.054229° W122.226761°. The downstream boundary coordinates are N37.047529° W122.225974°

Project Set Up

- Task 1 will be performed by the RCD (Executive Director, Program Director, Grants Manager, Grants Administrator), Cal Poly staff, and consultant, Kelli Camara.
- Task 2 will be performed by Cal Poly staff, the RCD Grants Manager, and consultant, Kelli Camara

- Task 3 will be performed by consultants Alnus Ecological, and Kelli Camara with assistance from Cal Poly staff and the RCD Grants Manager. The NMFS Salmon Ecology Group will complete fisheries monitoring and relocation which will not be funded by FRGP or used as cost-share.
- Task 4 will be performed by Cal Poly staff, RCD Grants Manager, Alnus Ecological and a Licensed Contractor that is yet to be identified.
- Task 5 will be performed by Cal Poly staff and volunteers from the Watershed Stewardship Project, in coordination with consultants, Kelli Camara and Alnus Ecological and the RCD Grants Manager.

Materials

- Nine large wood complexes (Each: one redwood log, one boulder, one redwood rootwad, one toppled in-situ alder and two live standing alders)
- Native Plants for revegetation
- Eyebolts
- Quick link
- Nuts and Washers
- lag screws
- Silt fence
- Impervious plastic
- T-posts
- Low block and mortar floodwall
- Erosion control material
- Excavator
- 10-yard dump truck
- Front-end loader
- Bulldozer
- Level logger

Tasks

Task 1: Project Oversight

Conduct grant management tasks including reporting and invoicing, completion of final report, prevailing wage oversight, ensuring completion of deliverables by applicable due dates and compliance with grant conditions. The RCD Communications Specialist will provide assistance with public outreach and/or press opportunities associated with the Project. The RCD Grants Manager, Program Director and consultant, Kelli Camara, will complete project contracting and construction bidding.

Task 2: Project Permitting

Draft and finalize the CDFW permit application. Secure all other required permits using cost-share funding.

Task 3: Biological Monitoring

Conduct required surveys and monitoring and relocation of sensitive species as needed. NMFS Salmon Ecology Group will complete fisheries monitoring and relocations which will not be funded by FRGP or used as cost-share. Cal Poly staff, assisted by NOAA Fisheries staff, will conduct snorkel surveys at appropriate locations within the project reach to characterize salmonid utilization of the reach and the proposed features. These surveys will document presence/absence, density, and life-stage.

Task 4 Construction

The locations, configurations, and extents of all features will be staked or flagged in the field by Cal Poly staff with assistance from RCD Grants Manager, and Alnus Ecological. Cal Poly staff will clear all access routes. Clearing activities will include mowing weeds, removing brush, limbing trees, or removing trees when necessary. All removed trees will be low-stumped. Whenever feasible and appropriate, existing native vegetation located in the proposed areas of disturbance will be stockpiled to the side of the project area or in a nursery and replanted following construction using cost-share funding. A licensed contractor will construct each feature requiring earthwork. Features requiring earthwork will be constructed using a combination of one or more of the following pieces of heavy equipment: excavator, 10-yard dump truck, front-end loader, and bulldozer. Features will be constructed during summer low-flow conditions. No stream dewatering will be required to construct these features since construction will take place outside of the wetted channel. All excavated material will be end hauled to the disposal area specified in the design drawings. In preparation for construction of large wood complexes instream, Cal Poly staff will construct flow diversion structures around the work area by installing silt fence lined with impervious plastic, and supported by t-posts. The licensed contractor will construct nine instream wood complexes to the specifications of design drawings and engineering docket. The contractor/operator may utilize a combination of hand crews, rigging, and heavy equipment. Cal Poly staff will construct a low block and mortar floodwall around an existing well adjacent to the project reach. The licensed contractor will decommission 860 feet of an existing road according to the specifications found in the design drawings. Cal Poly staff will use hand tools and light equipment to plant seed and native vegetation and install erosion control materials on all disturbed areas within the project reach, including the decommissioned road segment.

RCD staff, with assistance from Cal Poly, will complete photo documentation and construction oversight services.

1. Create one new connection between lower Scotts Creek and an existing floodplain drain by grading a portion of the levee on the left bank of lower Scotts Creek, for the purpose of improving floodplain connectivity and facilitating a return to a natural flood cycle. The proposed connection will be graded perpendicular to Scotts Creek at station 4400. The total area of grading associated with the connection grading is 1677square feet, with a grading volume of 168 cubic yards. The maximum depth of the grading will be 9' where it intersects the top of the existing levee. The breaches will be graded at the elevation of the existing floodplain drain invert. This improved connection is expected to form off-channel backwater habitat for salmonids over a range of flow conditions from winter base to peak flows, improve access to floodplain refuge habitat for salmonids during peak flows, and provide a return flow path for salmonids on the receding limb of flood flows, thereby reducing the potential for floodplain stranding. The channels will be revegetated with a palette of locally-sourced native plants including rushes (juncus) to stabilize soils and increase roughness.

2. Create two backwater connections between Scotts Creek and two existing floodplain ponds by grading portions of the left bank levee and floodplain. These connections will become functional at or above baseflows and fully connect the ponds and floodplain to Scotts Creek at high flows. These connections will provide backwater and side-channel refuge habitat and access to off-channel refuge habitat for salmonids. The channels will be revegetated with a palette of locally-sourced native plants including rushes (juncus) to stabilize soils and increase roughness.

3. Reconfigure the confluence of Archibald Creek and Scotts Creek by grading a portion of the left bank and floodplain. The new configuration will form a backwater connection with Scotts Creek and a low-gradient side-channel component of Archibald Creek. This feature will become functional as a backwater connection at or above baseflows in Scotts Creek, and as a low-gradient side-channel for Archibald Creek when Archibald Creek flows at or above baseflows. The channels will be revegetated with a palette of locally-sourced native plants including rushes (juncus) to stabilize soils and increase roughness.

4. Construct nine instream wood complexes using a combination of materials including in-situ red alders, imported redwood logs and rootwads, and imported boulders. Each large wood complex will be constructed from one redwood log, one boulder, one redwood rootwad, one toppled in-situ alder, and two live standing alders located on the left bank. One end of the redwood log will be anchored to the streambed by the boulder, and the other end will be braced against the trunk of the upstream live standing alders. The live toppled alder will be pinned beneath the redwood log and braced against the trunk of the downstream live standing alder. The redwood rootwad will be attached to the mid-point of the redwood log. One end of the redwood log will be attached to the boulder while the other end will be braced against a live standing alder tree and free to rise and fall with changes in stage. The rootwad attached near the log's midpoint will also be free to rise and fall relative to the log. The structure will be able to float above the bedload. The large wood complex will be braced against live standing alders to provide additional resistance against drag forces. Bracing the large wood complex against the trunk of live standing alders rather than creating fixed attachment points will allow the complex to rise and fall above the bedload with changes in stream stage as would occur with naturally recruited large wood pieces. Flexible joints will be achieved using two eye bolts linked together with a quick link. A hole will be bored through each of the structural elements of the wood complex. The boulder attachment point will consist of one eyebolt epoxied into a slip fit bore hole in the boulder. The log attachment point will consist of one eyebolt fastened through a clearance-fit through hole in the redwood log, secured with a nut and washer. The rootwad attachment point will be identical to the log attachment point, or alternatively, consist of an eyeleted lag screw threaded into a pilot hole bored into the rootwad. Shouldered eyebolts and screws or shoulder washers shall be used to prevent bending at the head of the eyebolt. The boulders will be partially buried in the bed substrate to oppose the drag force on the structure in the direction of flow.

4.1. Five of these wood complexes will be distributed along two sub-reaches of low complexity: two wood complexes will be constructed between stations 3400 and 3600, and three wood complexes will be constructed between stations 4600 – 4900. These wood complexes will increase channel complexity, provide instream cover, improve sediment sorting, and encourage the formation of instream pool habitat.

4.2. Four of these wood complexes will be constructed in association with the four floodplain, pond, and tributary connections. One wood

complex will be constructed at each of the four confluence areas between Scotts Creek and the floodplain, pond, and tributary connections at stations 3300, 3900, 4400, and 5600. These four wood complexes will be configured to maintain sediment transport, provide instream cover, and encourage pool formation at each of these confluence areas.

Task 5: Effectiveness Monitoring

Longitudinal Profile or Channel Topo Survey

Cal Poly staff will conduct a spatially referenced longitudinal profile or topo survey of the project reach or sub-reach or reaches within the project reach. The longitudinal profile or topo survey will be spatially referenced using one or more of the following techniques: new survey monuments, existing survey control monuments, or GPS. Longitudinal profiling or topo surveying will be conducted once in the low flow season before construction, once in the low flow season immediately following construction, and once in each of the first and second post-construction seasons.

Longitudinal Profile or Topo Survey of Proposed Off-Channel Features

Cal Poly staff will conduct a spatially referenced longitudinal profile or topo survey of the proposed off-channel features. The longitudinal profile or topo survey will be spatially referenced using one or more of the following techniques: new survey monuments, existing survey control monuments, or GPS. Longitudinal profiling or topographic surveying will be conducted once in the low flow season before construction, and once in each of the first and second post-construction seasons.

Pre- and Post-Project Photo Monitoring

Cal Poly staff will conduct photo monitoring at monumental photo points. At least one photo point will be established at each of the proposed features including nine instream wood complexes and four off-channel features. Cal Poly staff will conduct photo monitoring once prior to construction, once closely following construction, and once in each of the first and second post-construction seasons.

Flow Surveys or Determinations of Connectivity for Proposed Off-Channel Features

Flow velocities are not expected to be appreciable in each of the proposed off-channel features, with the exception of the enhanced Archibald Creek confluence area. Cal Poly staff will observe the four off-channel features during the first and second storm season following construction to determine the timing and duration of connectivity with Scotts Creek. Cal Poly staff will take flow measurements when feasible

and appropriate in the first storm season following construction to characterize the hydrologic function of each feature.

Biologic Surveys

Cal Poly staff, assisted by NOAA Fisheries staff, will conduct snorkel surveys at appropriate locations within the project reach to characterize salmonid utilization of the reach and the proposed features. The lower reach of Scotts Creek is not well understood in terms of fish utilization, and there is not sufficient pre-construction data to characterize baseline conditions. However, going forward, effectiveness monitoring may be able to show patterns of utilization in the lower reach, particularly how fish are utilizing constructed features versus the reach overall. Effectiveness analyses will focus on characterizing patterns of utilization going forward. If snorkel surveys reveal that there are concentrations of biological activity in particular areas of the stream, inferences might be made about the physical attributes that are associated with concentrated utilization. These surveys will document presence/absence, density, and life-stage. Snorkel surveys will be performed once in spring of 2016, and once in spring of 2017 but prior to March 1st, 2017

Water Quality Monitoring

Water quality will be sampled using a handheld multi-parameter DO meter. Samples will be taken opportunistically in each of the four off-channel features in the first and second post-construction seasons.

Reach Scale Monitoring

Continuous flow data will be recorded using an existing stream gage located on lower Scotts Creek near the upstream extend of the project reach. Manual flow measurements will be taken opportunistically to verify the accuracy of the automated gage station and further calibrate the existing rating curve. In conjunction with these upstream readings, manual flow readings will be taken at the downstream extent of the project reach to determine what inflows or outflows may be present along the reach. Continuous flow data will cover the year of construction, and the first and second years following construction.

Floodplain Inundation

One level-logger will be placed in one of the off -channel ponds, and one-level logger will be placed in the existing floodplain drain following construction. These level-loggers will record continuous data over the winter and spring in the first and second seasons following construction in order to characterize the timing and duration of floodplain inundation.

Deliverables

Task 1 Project Oversight

- Monthly progress reports
- Monthly invoices
- Final Report which will include the following:
- Grant Number
- Project Name
- Geographic Area
- Location of Work
- Photo documentation
- Final project budget and match
- Record drawings (which will include a post longitudinal profile)
- Miles of instream habitat treated
- Type of channel reconfiguration and connectivity
- Miles of stream treated for channel reconfiguration and connectivity
- Miles of off-channel stream created
- Number of instream pools created for channel reconfiguration
- Type of materials used for channel structure placement
- Miles of stream treated with channel structure placement
- Number of instream pools created by structure placement
- Number of structures placed in channel

Task 2 Project Permitting

- Copy of final DFW permit

Task 3 Biological monitoring

- Copy of monitoring logs/surveys completed

Task 4 Construction

- Pre, during and post photo documentation
- Notice of Completion

Task 5 Effectiveness Monitoring

- Monitoring Report summarizing the following:
- “As-built” survey upon project completion
- Longitudinal Profile or Channel Topo Survey Results
- Longitudinal Profile or Topo Survey Results of Proposed Off-Channel Features
- Pre- and Post-Project Photos
- Flow Surveys or Determinations of Connectivity for Proposed Off-Channel Features
- Biologic Survey Results
- Water Quality Monitoring Results

- Reach Scale Continuous Flow Data and Verification Results
- Floodplain Inundation Data

Timelines

Task 1: Project Oversight
Begin June 1, 2015 and completed Dec 15, 2016. Deliverables for Monthly Reports and Invoices will be completed monthly and Final Report completed Dec 15, 2016.

Task 2: Project Permitting
Begin June 1, 2015 and completed August 1, 2015.

Task 3: Biological Monitoring
Begin August 1, 2015 and completed November 15, 2015.

Task 4: Construction
Begin August 1 2015 and completed November 15, 2015

Task 5: Effectiveness Monitoring
Begin August 1, 2015 and completed November 30, 2016.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Timing of work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.

    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.

- All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

- The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.

- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. The bridge (culvert) design and installation will meet flow carrying capacity required for a 100-year flood event as identified by specifications determined by National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Wildlife (CDFW), for adult and juvenile salmonid fish passage. The project will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and criteria for fish passage as described in Volume II, Part IX, of the *California Salmonid Stream Habitat Restoration Manual*. The engineered plans for the bridge (culvert) installation shall be visually reviewed and authorized by NOAA Fisheries or California Department of Fish and Wildlife engineers prior to commencement of work.

4. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*, Volume I, and Volume II Part XI and Part XII. The Grantee/landowner will maintain the new crossing, inspect the crossing in a timely manner and remove debris as necessary during the storm season.

5. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

6. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
D023 Lower Scott Creek salmonid habitat improvement project

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S4	SC
2	American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
3	An isopod *Calasellus californicus*	ICMAL34010			G2	S2	
4	Anderson's manzanita *Arctostaphylos andersonii*	PDERI04030			G2	S2?	1B.2
5	Antioch specid wasp *Philanthus nasalis*	IIHYM20010			G1	S1	
6	Ben Lomond buckwheat *Eriogonum nudum var. decurrens*	PDPGN08492			G5T1	S1	1B.1
7	Ben Lomond spineflower *Chorizanthe pungens var. hartwegiana*	PDPGN040M1	Endangered		G2T1	S1	1B.1
8	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
9	Bonny Doon manzanita *Arctostaphylos silvicola*	PDERI041F0			G1	S1	1B.2
10	Butano Ridge cypress *Hesperocyparis abramsiana var. butanoensis*	PGCUP04082	Endangered	Endangered	G1T1	S1	1B.2
11	California black rail *Laterallus jamaicensis coturniculus*	ABNME03041		Threatened	G4T1	S1	
12	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
13	Choris' popcornflower *Plagiobothrys chorisianus var. chorisianus*	PDBOR0V061			G3T2Q	S2	1B.2
14	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
15	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S3	
16	Dolloff Cave spider *Meta dolloff*	ILARA17010			G1	S1	
17	Dudley's lousewort *Pedicularis dudleyi*	PDSCR1K0D0		Rare	G2	S2	1B.2
18	Empire Cave pseudoscorpion *Neochthonius imperialis*	ILARAD1010			G1	S1	
19	Empire Cave pseudoscorpion *Fissilicreagris imperialis*	ILARAE5010			G1	S1	
20	Franciscan thistle *Cirsium andrewsii*	PDAST2E050			G3	S3	1B.2
21	Indian Valley bush-mallow *Malacothamnus aboriginum*	PDMAL0Q020			G2	S2	1B.2
22	Kellman's bristle moss *Orthotrichum kellmanii*	NBMUS56190			G2	S2	1B.2
23	Kellogg's horkelia *Horkelia cuneata var. sericea*	PDROS0W043			G4T2	S2?	1B.1

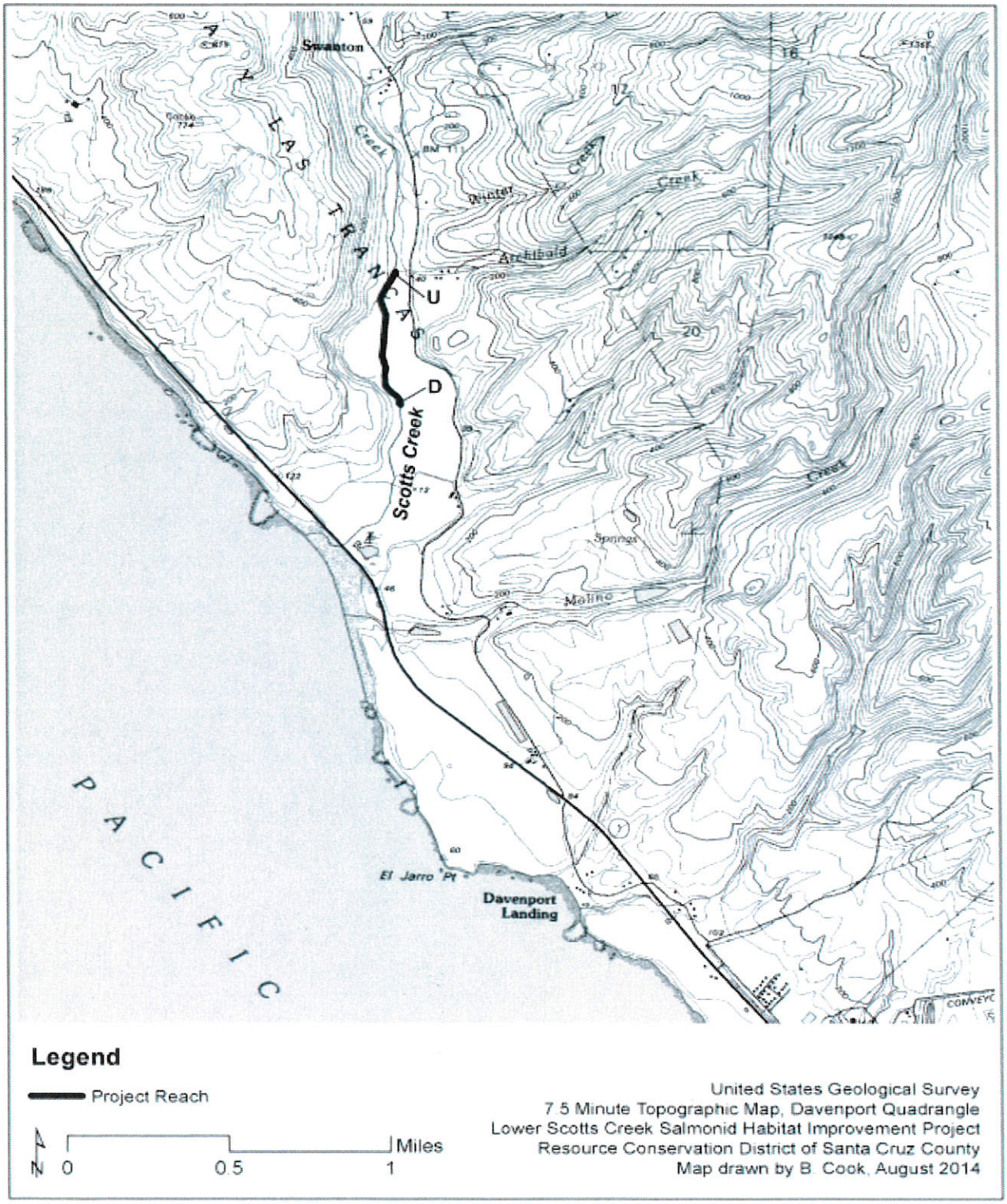
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Kings Mountain manzanita *Arctostaphylos regismontana*	PDERI041C0			G2	S2	1B.2
25	Loma Prieta hoita *Hoita strobilina*	PDFAB5Z030			G2	S2	1B.1
26	Mackenzie's Cave amphipod *Stygobromus mackenziei*	ICMAL05530			G1	S1	
27	Maritime Coast Range Ponderosa Pine Forest	CTT84132CA			G1	S1.1	
28	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
29	Monterey Pine Forest	CTT83130CA			G1	S1.1	
30	Monterey pine *Pinus radiata*	PGPIN040V0			G1	S1	1B.1
31	Mount Hermon (=barbate) June beetle *Polyphylla barbata*	IICOL68030	Endangered		G1	S1	
32	Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	IILEPJ608C	Endangered		G5T1	S1	
33	N. Central Coast Calif. Roach/Stickleback/Steelhead Stream	CARA2633CA			GNR	SNR	
34	North Central Coast Drainage Sacramento Sucker/Roach River	CARA2623CA			GNR	SNR	
35	North Central Coast Short-Run Coho Stream	CARA2632CA			GNR	SNR	
36	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
37	Northern Interior Cypress Forest	CTT83220CA			G2	S2.2	
38	Northern Maritime Chaparral	CTT37C10CA			G1	S1.2	
39	Ohlone manzanita *Arctostaphylos ohloneana*	PDERI042Y0			G1	S1	1B.1
40	Ohlone tiger beetle *Cicindela ohlone*	IICOL026L0	Endangered		G1	S1	
41	Pajaro manzanita *Arctostaphylos pajaroensis*	PDERI04100			G1	S1	1B.1
42	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
43	Point Reyes meadowfoam *Limnanthes douglasii ssp. sulphurea*	PDLIM02038		Endangered	G4T2	S2	1B.2
44	San Francisco campion *Silene verecunda ssp. verecunda*	PDCAR0U213			G5T2	S2.2	1B.2
45	San Francisco collinsia *Collinsia multicolor*	PDSCR0H0B0			G2	S2	1B.2
46	San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	AMAFF08082			G5T2T3	S2S3	SC
47	San Francisco garter snake *Thamnophis sirtalis tetrataenia*	ARADB3613B	Endangered	Endangered	G5T2Q	S2	
48	San Francisco popcornflower *Plagiobothrys diffusus*	PDBOR0V080		Endangered	G1Q	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
49	Santa Clara red ribbons *Clarkia concinna ssp. automixa*	PDONA050A1			G5?T3	S3.3	4.3
50	Santa Cruz Mountains beardtongue *Penstemon rattanii var. kleei*	PDSCR1L5B1			G4T2	S2	1B.2
51	Santa Cruz Mountains pussypaws *Calyptridium parryi var. hesseae*	PDPOR09052			G3G4T2	S2	1B.1
52	Santa Cruz clover *Trifolium buckwestiorum*	PDFAB402W0			G2	S2	1B.1
53	Santa Cruz cypress *Hesperocyparis abramsiana var. abramsiana*	PGCUP04081	Endangered	Endangered	G1T1	S1	1B.2
54	Santa Cruz kangaroo rat *Dipodomys venustus venustus*	AMAFD03042			G4T1	S1	
55	Santa Cruz microseris *Stebbinsoseris decipiens*	PDAST6E050			G2	S2.2	1B.2
56	Santa Cruz tarplant *Holocarpha macradenia*	PDAST4X020	Threatened	Endangered	G1	S1	1B.1
57	Santa Cruz wallflower *Erysimum teretifolium*	PDBRA160N0	Endangered	Endangered	G2	S2	1B.1
58	Schreiber's manzanita *Arctostaphylos glutinosa*	PDERI040G0			G1	S1	1B.2
59	Scotts Valley polygonum *Polygonum hickmanii*	PDPGN0L310	Endangered	Endangered	G1	S1	1B.1
60	Scotts Valley spineflower *Chorizanthe robusta var. hartwegii*	PDPGN040Q1	Endangered		G2T1	S1	1B.1
61	Smith's blue butterfly *Euphilotes enoptes smithi*	IILEPG2026	Endangered		G5T1T2	S1S2	
62	Steller (=northern) sea-lion *Eumetopias jubatus*	AMAJC03010	Threatened		G3	S2	
63	Toren's grimmia *Grimmia torenii*	NBMUS32330			G2	S2	1B.3
64	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
65	Zayante band-winged grasshopper *Trimerotropis infantilis*	IIORT36030	Endangered		G1	S1	
66	arcuate bush-mallow *Malacothamnus arcuatus*	PDMAL0Q0E0			G1Q	S1	1B.2
67	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
68	bent-flowered fiddleneck *Amsinckia lunaris*	PDBOR01070			G2?	S2?	1B.2
69	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
70	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S3	SC
71	chaparral ragwort *Senecio aphanactis*	PDAST8H060			G3?	S2	2B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
72	coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2			G2T2	S2	1B.2
73	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
74	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
75	elongate copper moss *Mielichhoferia elongata*	NBMUS4Q022			G4	S2	2B.2
76	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	
77	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
78	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
79	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
80	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3G4	S3S4.2	4.2
81	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
82	marsh microseris *Microseris paludosa*	PDAST6E0D0			G2	S2	1B.2
83	marsh sandwort *Arenaria paludicola*	PDCAR040L0	Endangered	Endangered	G1	S1	1B.1
84	mimic tryonia (=California brackishwater snail) *Tryonia imitator*	IMGASJ7040			G2G3	S2S3	
85	moestan blister beetle *Lytta moesta*	IICOL4C020			G2	S2	
86	monarch butterfly *Danaus plexippus*	IILEPP2010			G5	S3	
87	northern curly-leaved monardella *Monardella sinuata ssp. nigrescens*	PDLAM18162			G3T2	S2	1B.2
88	osprey *Pandion haliaetus*	ABNKC01010			G5	S3	
89	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
90	pine rose *Rosa pinetorum*	PDROS1J0W0			G2Q	S2.2	1B.2
91	robust spineflower *Chorizanthe robusta var. robusta*	PDPGN040Q2	Endangered		G2T1	S1	1B.1
92	round-leaved filaree *California macrophylla*	PDGER01070			G2	S2	1B.1
93	saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A			G5T2	S2	SC
94	sand-loving wallflower *Erysimum ammophilum*	PDBRA16010			G2	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
95	sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101			G5T2	S1	
96	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
97	slender silver moss *Anomobryum julaceum*	NBMUS80010			G4G5	S2	4.2
98	slender-leaved pondweed *Stuckenia filiformis ssp. alpina*	PMPOT03091			G5T5	S3	2B.2
99	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2Q	S2	
100	stinkbells *Fritillaria agrestis*	PMLIL0V010			G3	S3.2	4.2
101	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
102	tear drop moss *Dacryophyllum falcifolium*	NBMUS8Z010			G1	S1	1B.3
103	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
104	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
105	unsilvered fritillary *Speyeria adiaste adiaste*	IILEPJ6143			G1G2T1	S1	
106	vaginulate grimmia *Grimmia vaginulata*	NBMUS32340			G2G3	S1	1B.1
107	western pearlshell *Margaritifera falcata*	IMBIV27020			G4G5	S1S2	
108	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
109	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
110	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
111	white-rayed pentachaeta *Pentachaeta bellidiflora*	PDAST6X030	Endangered	Endangered	G1	S1	1B.1
112	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	
113	woodland woollythreads *Monolopia gracilens*	PDAST6G010			G2G3	S2S3	1B.2

ATTACHMENT 1 – PROJECT LOCATION MAP



2014 Dutch Bill Creek Coho Habitat Enhancement Project

Introduction:

The Gold Ridge Resource Conservation District (Grantee) will implement the 2014 Dutch Bill Creek Coho Habitat Enhancement Project, which will increase habitat complexity and cover for coho salmon through the installation of ten large wood structures (LWM) throughout a 1,300 foot reach of Dutch Bill Creek. Structures have been designed to enhance pools, promote gravel deposition, and provide shelter. This project will address the recommendations set forth in the 1997 CDFW Stream Inventory Report for the lower Russian River Watershed wich suggests woody cover, woddy debris, and boulder cover/scour be implemented along the entire Dutch Bill Creek to increase habitat complexity.

The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured.

All habitat improvement will follow techniques in the California Stream Habitat Restoration Manual (list appropriate section of manual).

Objective(s):

The goal of this project is to increase habitat complexity and cover for coho salmon through the installation of ten large wood structures throughout a 1,300' reach of Dutch Bill Creek. The reach was shown during UCCE fall streamflow surveys to have a high potential for pool enhancement, as the channel remained wet or had intermittent flow (disconnected pools) during the 2012 and 2013 surveys. A field review by the engineer and GRRCD staff during the development of the proposal before the first February 2014 storms confirmed the presence of multiple pools throughout the reach, although lacking in cover. The proposed structures have 6 been designed to enhance these pools, improve gravel deposition, and provide shelter.

Project Description:

Location:

The project reach is located on the mainstem of Dutch Bill Creek, approximately 2.5 miles upstream of the confluence with the Russian River. The upstream end of the project reach is approximately 180' downstream of the structures installed under grant P1130408, implemented in 2013. The project is bounded by the following points along Dutch Bill Creek: 38.44316000^0 north, 122.99393800^0 east downstream end of project reach; 38.44263000^0 north, 122.99307300^0 east upstream end of project reach. The project site is located in sections 20 and 17 of township 7 north, range 10 west, Mount Diablo Base and Meridian in the Camp Meeker United States Geologic Service 7.5 minute quadrangle.

From Santa Rosa, follow Highway 12 west through Sebastopol. At Freestone, turn north on Bohemian Highway to Occidental. From Occidental, continue north on Bohemian Highway for approximately 4 more miles. The Gold Ridge Resource Conservation District will contact landowners before site visits.

Project Set Up:

Project management and biological surveys will be done by Gold Ridge Resource Conservation District (GRRCD). The Executive Manager of GRRCD will conduct contract and site reviews. As needed a subcontracted qualified Biologist will perform biological surveys. An operator and skilled labor will perform all aspects of project construction. The GRRCD Conservation Planner and Conservation Assistant will perform photo-monitoring. Finnaly, GRRCD's Conservation Planner will produce annual and final project reports.

Materials:

Equipment and materials needed for project construction, as itemized in the budget (section 8.01 Budget Summary), are as follows:

- Boulder and log transport: The cost of delivering boulders from the quarry to the different sites. Log delivery is the cost of delivering logs and root wads to the different sites. These materials can originate from different sources, depending on what's available.
- Mileage: This is to reimburse contractors for picking up materials, going to the quarry to pick out the appropriate boulders and the daily drive to the work site.
- Grass seed, rice straw, erosion control blanket and pins. Are for providing cover over the soil that will be exposed as a result of the project.
- Epoxy, allthread, flat washers, nuts, 5/8 inch cable and cable clamps: Are used for anchoring the log and root wads to the boulders.
- Sand bags, sand, and sheet plastic : Are used for constructing coffer dams.
- 2 inch PVC pipe: Will be used for pumping stream flow around the work sites.
- Rental equipment, front loader and excavator: The front loader will be used for transporting boulders and wood materials to the job sites. The excavator will be used for placing the boulders, logs and root wads in the stream channel.
- Rental equipment (generator, wood drills, rock drill etc). Needed for anchoring.
- Logs, root wads and boulders: Key components of structures

- Permits: CDFW 1602 and roiling permit are required for instream work. Encroachment permit is required for work within the county right-of-way.

Tasks:

Task 1: Project Management

Gold Ridge Resource Conservation District (GRRCD) Conservation Planner will be responsible for all aspects of project management, including subcontract development, scheduling, permitting, construction oversight, invoicing, and reporting. The Executive Director will review contracts and perform the final site review.

Task 2: Biological Surveys

GRRCD Ecologist and a subcontracted Qualified Biologist will perform all biological surveys as needed to comply with permit requirements before and during construction, and coordinate fish relocation as needed.

Task 3: Project Construction

The project will entail the construction and installation of 10 new large wood structures. The Equipment Operator and Skilled Labor will perform all aspects of project construction. This includes materials acquisition, site preparation, dewatering, mobilization of equipment, construction, and erosion control. They will also assist with fish relocation as needed. The contractor will conform to the techniques and methodologies outlined in the California Department of Fish and Wildlife (CDFW) Salmonid Stream Habitat Restoration Manual, Chapter VII and will follow protocols to prevent the spread of invasive aquatic species. Structure sites will be surveyed for presence of fish, as well as other listed or sensitive species as appropriate, and fish and other species will be removed from project sites by the Qualified Biologist and GRRCD Ecologist. Structures will be installed during low flow periods when the stream channel is mostly dry. If necessary, the channel will be dewatered per CDFW specifications for work on specific sites. Fish relocation will be coordinated by the subcontracted Qualified Biologist and GRRCD Ecologist, with assistance from the Conservation Planner and Conservation Assistant. The Project Engineer and GRRCD Lead Scientist will provide technical oversight during construction.

Mulitple structures will be constructed during this project. Structures will utilize trees, logs, root wads, and boulders, in a variety of combinations (LWM). Structures will consist of redwood logs measuring 24 inches in diameter and 30 feet in length, 5+-foot diameter rootwads, and 1-ton boulders for anchoring. Assembly and anchoring will use 1” all-thread and epoxy. Materials for the structures will moved and structures will be

assembled using a small excavator, and wherever possible, the excavator will operate outside of the active stream channel. Some trees and logs may be moved using block and tackle and hand methods. Erosion control fabric, straw, and native grass seed will be spread over access points once construction is complete.

Proposed structures:

- Structure 1 Opposing log and seven root wads along existing pool, to enhance pool depth and provide shelter.
- Structure 2 Right (outside) bank pool scour log and four root wads to enhance pool depth, volume, and provide shelter.
- Structure 3 Right (outside) bank pool scour log, a habitat log, and three root wads to enhance pool depth, volume, and provide shelter.
- Structure 4 Four right (outside) bank root wads to provide existing pool shelter.
- Structure 5 Three habitat logs and three root wads to provide pool shelter and bank protection.
- Structure 6 Two root wads to enhance pool depth and provide pool shelter.
- Structure 7 Four habitat logs and four root wads to increase channel complexity, enhance pools, and provide pool shelter.
- Structure 8 Two habitat logs and four root wads to enhance pool depth and volume, and provide shelter.
- Structure 9 One habitat log and four root wads to enhance pool shelter.
- Structure 10 Right (outside) bank pool scour log and three root wads to enhance pool depth, volume, and provide shelter.

GRRCD has been advised by CDFW biologists to use longer wood pieces (30-40 ft in length) wherever possible for LWM structures, both to amplify their effects on habitat and more closely mimic natural wood recruitment.

Because Dutch Bill Creek has residences along its banks both within and downstream of the project reaches and an important county road closely parallels the stream for most of its length, and because of the flashy nature of the stream, structures of this size must be very well-

anchored. Anchoring must account for wood buoyancy and the force of high flows, and will be accomplished by keying logs into streambanks, attaching logs to existing large riparian trees, and using appropriately-sized boulders as anchor weights. Rock of sufficiently high quality in sizes adequate to serve as anchor weights is available from only one or two suppliers in Sonoma County. Additionally, redwood logs of this size are more costly to purchase due to their value as lumber, and more costly to transport to the site. The rock and log costs in the project budget reflect these constraints.

Task 4: Post Construction Photo-monitoring and As-Builts

All project sites have been photographed prior to submission of this application, and photos are attached.

Post-construction photos will be taken from the same photo points to allow comparison of pre- and postconstruction conditions and evaluate project effectiveness. The GRRCD Conservation Planner and Conservation Assistant will perform photo-monitoring. The Project Engineer will develop as-built drawings, including a post-construction profile.

Task 5: Reporting

GRRCD's Conservation Planner will produce annual and final project reports.

Deliverables:

1. The installation of 10 large wood structures as described above (Section 6.03.04 Tasks)

2. Annual reports and final report (hard copy and Compact Disc) with the following:
   - as-built construction plans with post-construction profile
   - description of work accomplished
   - documentation of listed species surveys as required
   - final budget including cost share
   - pre- and post-construction photo documentation of all sites
   - all reporting metrics as specified by project type by CDFW
   - any pertinent Geographic Information System (GIS) data

Timelines:

Task 1: Project Management will occur from June 1, 2015 through March 31, 2017.

Task 2: Biological Surveys will occur from July 1, 2016 through October 15, 2016.

Task 3: Project Construction will occur from August 1, 2016 through October 15, 2016.

Task 4: Post Construction Photo-monitoring and As-Builts will occur from October 16, 2016 through December 15, 2016.

Task 5: Reporting will occur from December 1, 2014 through March 31, 2017.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
    - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
    - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.

- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*, Volume I, and Volume II Part XI and Part XII. The Grantee/landowner will maintain the new crossing, inspect the crossing in a timely manner and remove debris as necessary during the storm season.

4. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

5. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

6. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
724507 Westminster Woods Water Conservation and Storage Project

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S4	SC
2	Baker's goldfields *Lasthenia californica ssp. bakeri*	PDAST5L0C4			G3TH	SH	1B.2
3	Baker's larkspur *Delphinium bakeri*	PDRAN0B050	Endangered	Endangered	G1	S1	1B.1
4	Baker's manzanita *Arctostaphylos bakeri ssp. bakeri*	PDERI04221		Rare	G2T2	S2	1B.1
5	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
6	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
7	Blennosperma vernal pool andrenid bee *Andrena blennospermatis*	IIHYM35030			G2	S2	
8	Burke's goldfields *Lasthenia burkei*	PDAST5L010	Endangered	Endangered	G1	S1	1B.1
9	California beaked-rush *Rhynchospora californica*	PMCYP0N060			G1	S1	1B.1
10	California freshwater shrimp *Syncaris pacifica*	ICMAL27010	Endangered	Endangered	G1	S1	
11	California linderiella *Linderiella occidentalis*	ICBRA06010			G3	S2S3	
12	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
13	California tiger salamander *Ambystoma californiense*	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SC
14	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
15	Coastal Terrace Prairie	CTT41100CA			G2	S2.1	
16	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
17	Contra Costa goldfields *Lasthenia conjugens*	PDAST5L040	Endangered		G1	S1	1B.1
18	Crystal Springs lessingia *Lessingia arachnoidea*	PDAST5S0C0			G1	S1	1B.2
19	Cunningham Marsh cinquefoil *Potentilla uliginosa*	PDROS1B4A0			GH	SH	1A
20	Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1			G5T1	S1	1B.2
21	Franciscan thistle *Cirsium andrewsii*	PDAST2E050			G3	S3	1B.2
22	Giuliani's dubiraphian riffle beetle *Dubiraphia giulianii*	IICOL5A020			G1G3	S1S3	
23	Greene's narrow-leaved daisy *Erigeron greenei*	PDAST3M5G0			G2	S2	1B.2
24	Gualala roach *Lavinia symmetricus parvipinnis*	AFCJB19025			G4T1T2	S1S2	SC

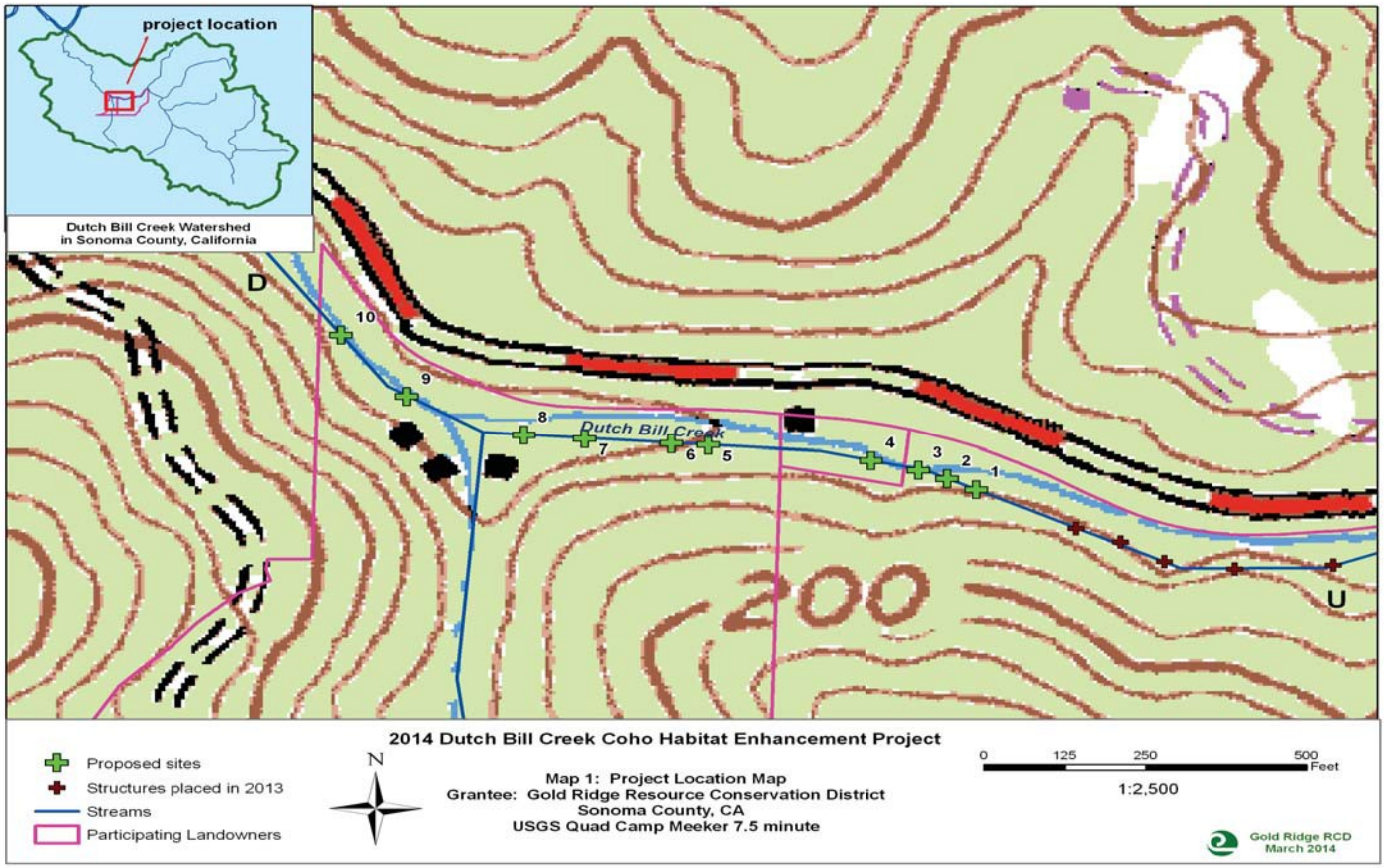
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Hoffman's bristly jewelflower *Streptanthus glandulosus ssp. hoffmanii*	PDBRA2G0J4			G4TH	SH	1B.3
26	Jepson's leptosiphon *Leptosiphon jepsonii*	PDPLM09140			G2	S2	1B.2
27	Marin hesperian *Vespericola marinensis*	IMGASA4140			G2	S2	
28	Marin knotweed *Polygonum marinense*	PDPGN0L1C0			G2Q	S2	3.1
29	Mendocino dodder *Cuscuta pacifica var. papillata*	PDCUS011A2			G5T1	S1	1B.2
30	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
31	Morrison's jewelflower *Streptanthus morrisonii*	PDBRA2G0S0			G2	S2	
32	Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	IILEPJ608C	Endangered		G5T1	S1	
33	Napa false indigo *Amorpha californica var. napensis*	PDFAB08012			G4T2	S2	1B.2
34	Navarro roach *Lavinia symmetricus navarroensis*	AFCJB19023			G4T1T2	S1S2	SC
35	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
36	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
37	Northern Hardpan Vernal Pool	CTT44110CA			G3	S3.1	
38	Northern Vernal Pool	CTT44100CA			G2	S2.1	
39	Oregon polemonium *Polemonium carneum*	PDPLM0E050			G4	S1	2B.2
40	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
41	Pennell's bird's-beak *Cordylanthus tenuis ssp. capillaris*	PDSCR0J0S2	Endangered	Rare	G4G5T1	S1	1B.2
42	Peruvian dodder *Cuscuta obtusiflora var. glandulosa*	PDCUS01111			G5T4T5	SH	2B.2
43	Pitkin Marsh lily *Lilium pardalinum ssp. pitkinense*	PMLIL1A0H3	Endangered	Endangered	G5T1	S1	1B.1
44	Pitkin Marsh paintbrush *Castilleja uliginosa*	PDSCR0D380		Endangered	GXQ	SX	1A
45	Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012			G5T2	S2.2	1B.2
46	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
47	Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3			G4?T2	S2	1B.2
48	Rincon Ridge ceanothus *Ceanothus confusus*	PDRHA04220			G1	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
49	Rincon Ridge manzanita *Arctostaphylos stanfordiana ssp. decumbens*	PDERI041G4			G3T1	S1	1B.1
50	Russian River tule perch *Hysterocarpus traski pomo*	AFCQK02011			G5T2	S2	SC
51	San Bruno elfin butterfly *Callophrys mossii bayensis*	IILEPE2202	Endangered		G4T1	S1	
52	San Francisco Bay spineflower *Chorizanthe cuspidata var. cuspidata*	PDPGN04081			G2T1	S1	1B.2
53	San Francisco owl's-clover *Triphysaria floribunda*	PDSCR2T010			G2	S2.2	1B.2
54	Santa Cruz clover *Trifolium buckwestiorum*	PDFAB402W0			G2	S2	1B.1
55	Sebastopol meadowfoam *Limnanthes vinculans*	PDLIM02090	Endangered	Endangered	G1	S1	1B.1
56	Sonoma alopecurus *Alopecurus aequalis var. sonomensis*	PMPOA07012	Endangered		G5T1Q	S1	1B.1
57	Sonoma spineflower *Chorizanthe valida*	PDPGN040V0	Endangered	Endangered	G1	S1	1B.1
58	Sonoma sunshine *Blennosperma bakeri*	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
59	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
60	The Cedars buckwheat *Eriogonum cedrorum*	PDPGN087A0			G1	S1	1B.3
61	The Cedars fairy-lantern *Calochortus raichei*	PMLIL0D1L0			G2	S2	1B.2
62	The Cedars manzanita *Arctostaphylos bakeri ssp. sublaevis*	PDERI04222		Rare	G2T2	S2	1B.2
63	Thurber's reed grass *Calamagrostis crassiglumis*	PMPOA17070			G3Q	S2?	2B.1
64	Tidestrom's lupine *Lupinus tidestromii*	PDFAB2B3Y0	Endangered	Endangered	G1	S1	1B.1
65	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
66	Vine Hill ceanothus *Ceanothus foliosus var. vineatus*	PDRHA040D6			G3T1	S1?	1B.1
67	Vine Hill clarkia *Clarkia imbricata*	PDONA050K0	Endangered	Endangered	G1	S1	1B.1
68	Vine Hill manzanita *Arctostaphylos densiflora*	PDERI040C0		Endangered	G1	S1	1B.1
69	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
70	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
71	blue coast gilia *Gilia capitata ssp. chamissonis*	PDPLM040B3			G5T2	S2	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
72	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
73	bristly sedge *Carex comosa*	PMCYP032Y0			G5	S2	2B.1
74	brownish beaked-rush *Rhynchospora capitellata*	PMCYP0N080			G5	S1	2B.2
75	bumblebee scarab beetle *Lichnanthe ursina*	IICOL67020			G2	S2	
76	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S3	SC
77	coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2			G4T2T3	S2S3	1B.2
78	coastal triquetrella *Triquetrella californica*	NBMUS7S010			G1	S1	1B.2
79	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
80	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
81	dwarf downingia *Downingia pusilla*	PDCAM060C0			GU	S2	2B.2
82	dwarf soaproot *Chlorogalum pomeridianum var. minus*	PMLIL0G042			G5T2	S2	1B.2
83	eulachon *Thaleichthys pacificus*	AFCHB04010	Threatened		G5	S3	SC
84	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
85	fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0			G2	S2	1B.2
86	fringed myotis *Myotis thysanodes*	AMACC01090			G4	S4	
87	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	
88	golden larkspur *Delphinium luteum*	PDRAN0B0Z0	Endangered	Rare	G1	S1	1B.1
89	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
90	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
91	holly-leaved ceanothus *Ceanothus purpureus*	PDRHA04160			G2	S2	1B.2
92	legenere *Legenere limosa*	PDCAM0C010			G2	S2	1B.1
93	long-eared myotis *Myotis evotis*	AMACC01070			G5	S4?	
94	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
95	many-flowered navarretia *Navarretia leucocephala ssp. plieantha*	PDPLM0C0E5	Endangered	Endangered	G4T1	S1	1B.2
96	marsh microseris *Microseris paludosa*	PDAST6E0D0			G2	S2	1B.2
97	mimic tryonia (=California brackishwater snail) *Tryonia imitator*	IMGASJ7040			G2G3	S2S3	
98	monarch butterfly *Danaus plexippus*	IILEPP2010			G5	S3	
99	narrow-anthered brodiaea *Brodiaea leptandra*	PMLIL0C022			G3?	S3?	1B.2
100	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
101	osprey *Pandion haliaetus*	ABNKC01010			G5	S3	
102	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G5	S2.3	2B.3
103	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
104	pappose tarplant *Centromadia parryi ssp. parryi*	PDAST4R0P2			G3T1	S1	1B.2
105	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
106	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
107	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T2	S2.2	1B.2
108	rhinoceros auklet *Cerorhinca monocerata*	ABNNN11010			G5	S3	
109	rose leptosiphon *Leptosiphon rosaceus*	PDPLM09180			G1	S1	1B.1
110	round-headed beaked-rush *Rhynchospora globularis*	PMCYP0N0W0			G5	S1	2B.1
111	saline clover *Trifolium hydrophilum*	PDFAB400R5			G2	S2	1B.2
112	serpentine daisy *Erigeron serpentinus*	PDAST3M5M0			G2	S2	1B.3
113	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
114	showy rancheria clover *Trifolium amoenum*	PDFAB40040	Endangered		G1	S1	1B.1
115	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2Q	S2	
116	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
117	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
118	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
119	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
120	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S2	SC
121	western leatherwood *Dirca occidentalis*	PDTHY03010			G2G3	S2S3	1B.2
122	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
123	western red bat *Lasiurus blossevillii*	AMACC05060			G5	S3?	SC
124	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
125	western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Proposed Threatened	Endangered	G5T3Q	S1	
126	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
127	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
128	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
129	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	
130	whiteworm lichen *Thamnolia vermicularis*	NLTES43860			G3G5	S1	2B.1
131	woolly-headed gilia *Gilia capitata ssp. tomentosa*	PDPLM040B9			G5T2	S2	1B.1
132	woolly-headed spineflower *Chorizanthe cuspidata var. villosa*	PDPGN04082			G2T2	S2	1B.2


project location
Dutch Bill Creek Watershed
in Sonoma County, California
D
U
10
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2
1
Dutch Bill Creek
200
2014 Dutch Bill Creek Coho Habitat Enhancement Project
Proposed sites
Structures placed in 2013
Streams
Participating Landowners
N
Map 1: Project Location Map
Grantee: Gold Ridge Resource Conservation District
Sonoma County, CA
USGS Quad Camp Meeker 7.5 minute
0 125 250 500 Feet
1:2,500
Gold Ridge RCD
March 2014

Porter Creek Instream Habitat Restoration Project, Phase II

Introduction:

1. Sonoma Resource Conservation District's Porter Creek Instream Habitat Restoration Project, Phase II project.
2. The Porter Creek Instream Habitat Restoration Project, Phase II project will increase habitat structure and complexity to enhance habitat diversity that includes velocity refuge, cover and improved pool frequency and depth by increasing the number of key pieces of large wood to approximately 6 per 100 meters for the project reach, and to increase the shelter values from 0 to 2 at two sites, from 0 to 3 at one site, from 1 to 2 at four sites, and from 1 to 3 at three sites. Design flows are sufficiently deep (about 10 ft for the 100-year flood) that buoyant forces and drag forces would have the potential to destabilize proposed wood installations at many sites. Consequently, we have specified methods to enhance stability of placed logs including connecting logs together with steel rebar at points of contact with other logs, bracing or wedging logs against riparian trees, and anchoring logs to placed boulders. Although this wood placement project will use anchoring techniques to stabilize log installations, designs have been developed to minimize the use of ballast boulders attached to logs by cables. The large woody material (LWM) sites are concentrated in the reach where perennial flow is supported by the local water table as observed during field reconnaissance in January 2014 under extreme drought conditions.
3. The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured.
4. All habitat improvement will follow techniques in the California Stream Habitat Restoration Manual (list appropriate section of manual).

Objective(s):

The specific objective of this project is to increase habitat structure and complexity to enhance habitat diversity that includes velocity refuge, cover and improved pool frequency and depth by increasing the number of key pieces of large wood to approximately 6 per 100 meters for the project reach, and to increase the shelter values from 0 to 2 at two sites, from 0 to 3 at one site, from 1 to 2 at four sites, and from 1 to 3 at three sites.

Project Description:

Location:

The project reach is located within the McMurray Ranch on Porter Creek, approximately 2800 feet upstream from where Porter Creek flows into the Russian River. The project reach begins about 500 feet upstream of Westside

Road and continues upstream 1600 feet to structure 10. Structures one through ten are concentrated in the reach where perennial flow is supported by the local water table as observed during field reconnaissance in January 2014 under extreme drought conditions. The upstream-most enhancement site for this project, structure 11, is located 5,000 feet upstream from Westside Road. The downstream limit of the project is located at 38.51841400^0 north: -122.89204700^0 east in section 18, township 8 north, range 9 west Mount Diablo Base and Meridian, in the United States Geologic Survey Guerneville 7.5 minute quadrangle.

From Santa Rosa, take U.S. 101 North to Exit #503 at Healdsburg. Head northwest toward Healdsburg Avenue for 0.2 mile. Take slight left onto Healdsburg Avenue for 0.3 mile. Turn left onto Mill Street. Continue west on Westside Road for 8.6 miles. Immediately after Porter Creek bridge on Westside Road (heading west) take right turn into vineyard driveway through white gate with MacMurray Ranch sign at 9010 Westside Road.

Project Set Up:

Task 1: Project Planning and Permitting

Sonoma Resource Conservation District (SRCD) will execute subcontracts for the implementation of the projects, and oversee the work performed by the construction contractors. SRCD will arrange and lead site visits as permitting agencies request and will coordinate field meetings within the project's area. Pre-project photo documentation will be conducted prior to the start of construction. O'Connor Environmental Inc. (OEI) and SRCD will complete pre-project condition monitoring, site plan adjustments and layout. Photographs will be taken during and post-project implementation, taken from the same photo points to allow comparison of pre- and post-construction conditions and evaluate project effectiveness.

Task 2: Instream Habitat Project Implementation

SRCD will meet with CDFW, Gallo Vineyard Inc. Coastal (GVIC), OEI, and anchoring subcontractor pre, during and post project implementation. SRCD staff will be onsite during instream habitat project implementation and act as landowner and subcontractor liaisons in the field. OEI will provide construction supervision during the implementation phase. GVIC and anchoring subcontractor crews will place selected large woody material in sequence and forming based on diagrams using the following equipment (provided by GVIC along with operator): track skidder, small excavator. The anchoring subcontractor will provide the generator, rock drill, wood drill, chainsaw, rebar, plates, washers and nuts. To track the effectiveness of the instream habitat improvements,

project evaluation will be completed post project implementation, after the first winter following installation. This includes site inspections of all project sites to determine if the sites are intact and stable, and generating instream habitat as designed. As-built documentation and first winter monitoring (assessment) will be completed.

Task 3: Administration, Contract Oversight, and Landowner Communications

Sonoma Resource Conservation District (SRCD) will coordinate with the landowner to obtain property access needed to perform the projects and throughout implementation of the project, as well as coordinate with California Department of Fish and Game (CDFW) and other agencies and organizations as necessary to plan the project. Coordination of materials needed to complete the project will be done by SRCD, OEI, GVIC and anchoring subcontractor.

SRCD will perform all contractual and administrative elements of this program including processing invoices from subcontractors and submitting monthly invoices and progress reports to CDFW, communication with the CDFW's contract manager regarding the status of the project. SRCD will work with OEI to prepare the final report that will include as-built drawings of project sites, as well as pre and post construction photos and monitoring. All reporting and billing will be pursuant to contract and regulatory guidelines.

Materials:

The project will be completed using the following equipment: track skidder and small excavator. The anchoring subcontractor will provide the generator, rock drill, wood drill, chainsaw, wire rope, epoxy, rebar, plates, washers and nuts.

Tasks:

Task 1: Project Planning and Permitting

Sonoma Resource Conservation District (SRCD) will execute subcontracts for the implementation of the projects, and oversee the work performed by the construction contractors. SRCD will arrange and lead site visits as permitting agencies request and will coordinate field meetings within the project's area. Pre-project photo documentation will be conducted prior to the start of construction. O'Connor Environmental Inc. (OEI) and SRCD will complete pre-project condition monitoring, site plan adjustments and layout. Photographs will be taken during and post-project implementation, taken from the same photo points to allow comparison of pre- and post-construction conditions and evaluate project effectiveness.

Task 2: Instream Habitat Project Implementation

SRCD will meet with CDFW, Gallo Vineyard Inc. Coastal (GVIC), OEI, and anchoring subcontractor pre, during and post project implementation. SRCD staff will be onsite during instream habitat project implementation and act as landowner and subcontractor liaisons in the field. OEI will provide construction supervision during the implementation phase. GVIC and anchoring crews will place selected large woody material in sequence and forming based on diagrams using the following equipment (provided by GVIC along with operator): track skidder, small excavator. The anchoring subcontractor will provide the generator, rock drill, wood drill, chainsaw, rebar, plates, washers and nuts. To track the effectiveness of the instream habitat improvements, project evaluation will be completed post project implementation, after the first winter following installation. This includes site inspections of all project sites to determine if the sites are intact and stable, and generating instream habitat as designed. As-built documentation and first winter monitoring (assessment) will be completed.

Task 3: Administration, Contract Oversight, and Landowner Communications

Sonoma Resource Conservation District (SRCD) will coordinate with the landowner to obtain property access needed to perform the projects and throughout implementation of the project, as well as coordinate with California Department of Fish and Game (CDFW) and other agencies and organizations as necessary to plan the project. Coordination of materials needed to complete the project will be done by SRCD, OEI, GVIC and anchoring subcontractor.

SRCD will perform all contractual and administrative elements of this program including processing invoices from subcontractors and submitting monthly invoices and progress reports to CDFW, communication with the CDFW's contract manager regarding the status of the project. SRCD will work with OEI to prepare the final report that will include as-built drawings of project sites, as well as pre and post construction photos and monitoring. All reporting and billing will be pursuant to contract and regulatory guidelines.

Deliverables:

Deliverable 1: Monthly invoices and progress reports, and other reporting documents that are necessary according to reporting requirements.

Deliverable 2: As-built drawings and photos of project sites, and pre and post project implementation evaluation results.

Deliverable 3: Project Final Report and a monitoring report.

Timelines:

Task 1: Project Planning and Permitting will be completed between June 1, 2015 and January 15, 2016.

Task 2: Instream Habitat Project Implementation will be completed between July 1, 2015 and October 15 2015.

Task 3: Administration, Contract Oversight, and Landowner Communications will be completed from June 1, 2015 through January 15, 2016

Additional Requirements:

1. The Grantee will not proceed with on ground work until all necessary permits and consultations are secured. Work in flowing streams is restricted by the Army Corp of Engineers Regional General Permit.
2. Actual project start and end dates listed in Timelines section are at the discretion of the California Department of Fish and Wildlife.

3. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and elocation of salmonids and other aquatic animals from the project area.

4. If the project requires dewatering of the site and fish removal, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
    - All electrofishing activities shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
    - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.
    - Additional measures to minimize injury and mortality of salmonids during fish relocations and dewatering activities shall be implemented as described in Part IX, pages 52, 53 of the California Salmonid Stream Habitat restoration Manual.

- All Habitat improvement will follow techniques described in the California Salmonid Stream Habitat restoration Manual, Volume I and Volume II Part XI.

5. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

Grape Creek Instream Habitat Improvement Project

Introduction:

The Sonoma Resource Conservation District's Grape Creek Instream Habitat Improvement Project is designed to enhance instream habitat complexity and high flow refugia for salmonids within Grape Creek. The implementation of rootwads and large wood pieces, planting of riparian trees, and excavating of an alcove planted with sedges and rushes will provide habiat, shade, high flow refugia, and feeding opportunities within nine sites along the Grape Creek.

The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured. All habitat improvement will follow techniques in the California Stream Habitat Restoration Manual (list appropriate section of manual)

Objective(s):

The overall goal of the project is to increase habitat structure and complexity in Grape Creek to enhance habitat diversity, including depositional areas for spawning gravels for coho salmon by placing large wood and boulders in the stream.

The specific objective of this project is to increase habitat complexity, provide instream cover, high-flow refugia, and enhance pool scour along 500 feet in a critical coho spawning and rearing reach of Grape Creek by constructing 8 large wood structures, excavating an alcove and planting trees. This project will increase habitat structure and complexity to enhance habitat diversity that includes velocity refuge, cover and improved pool frequency and depth by increasing the number of key pieces of large wood to approximately 11 per 50 meters for the project reach, and to increase the shelter values from 0 to 3 at most sites. More than three new pools are expected to be formed.

Project Description:

Location:

The project reach is located on the mainstem of Grape Creek, approximately 4000 feet upstream from where Grape Creek flows into Dry Creek. The project reach begins 400 feet upstream from the confluence with Wine Creek and continues upstream approximately 500 feet to the upstream end of project reach. The downstream extent of the project is located at 36.65534200^0 north : -122.94820800^0 east in section 3 of township 9 north, range 10 west, Mount Diablo Base and Meridian of the United States Geologic Survey Geyserville 7.5 minute quadrangle.

From Highway 101 near Healdsburg take Dry Creek Road exit, and then take a left onto Dry Creek Road. Take left onto Lambert Bridge Road to West Dry Creek

Road. Take right on West Dry Creek Road and then left on Wine Creek Road. Proceed 0.8 mile, project area on left at 4250 Wine Creek Road.

Project Set Up:

Sonoma Resource Conservation District (SRCD) will be responsible for project planning & permitting; instream habitat project implementation; and administration, contract oversight, & landowner communications. Prunuske Chatham, Inc., the subcontractors, will prform the physical work associated with the instream habitat implementation.

Materials:

Logs and rootwads, boulders, washers, nuts, all-thread, epoxy, straw, mat, pins, seeds, tube and treepot sizes, irrigation lines, drip lines, emitters.

Tasks:

Task 1: Project Planning and Permitting

Sonoma Resource Conservation District (SRCD) will execute subcontracts for the implementation of the project, and oversee the work performed by Prunuske Chatham, Inc. and other selected project contractors. SRCD will arrange and lead site visits as permitting agencies request and will coordinate field meetings within the project's area. All project sites have been photographed prior to submission of this application, and photos are attached. Photo points will be established and monumented, and more extensive pre-project photo documentation will be conducted prior to the start of construction. Photographs will be taken during and post-project implementation, and taken from the same photo points to allow comparison of pre- and post-construction conditions and evaluate project effectiveness.

Task 2: Instream Habitat Project Implementation

SRCD will meet with California Department of Fish and Game (CDFW) and other agency staff, landowner and Prunuske Chatham, Inc pre, during, and post project implementation. SRCD staff will be onsite during instream habitat project implementation and will act as landowner and subcontractor liaison in the field. The subcontractor will place selected large woody material in sequence and forming based on diagrams using the following equipment: steel-tracked excavator, wheel loader, generator, rock drill, wood drill, chainsaw, rebar, plates, washers and nuts. To track the effectiveness of the instream habitat improvements, project evaluation will be completed post project implementation, after the first winter following installation. This includes site inspections of all project sites to determine if the sites are intact and stable, and generating instream habitat as designed.

Task 3: Administration, Contract Oversight, and Landowner Communications

SRCD will coordinate with the landowner to obtain property access needed to perform the projects and throughout implementation of the project, as well as coordinate with CDFW and other agencies and organizations as necessary to plan and implement the project. Coordination of materials needed to complete the project will be done by SRCD and Prunuske Chatham, Inc. SRCD will perform all contractual and administrative elements of this program including processing invoices from subcontractors and submitting monthly invoices and progress reports to CDFW, communication with the CDFW's contract manager regarding the status of the project. SRCD will work with Prunuske Chatham, Inc to prepare the final report that will include as-built drawings of project sites, as well as pre- and post-construction photos. All reporting and billing will be pursuant to contract and regulatory guidelines.

Deliverables:

Deliverable 1: Monthly invoices and progress reports, or other documents that are necessary according to Grant requirements.

Deliverable 2: Final Report that will also include as-built drawings and photos of project sites pre and post project implementation evaluation results.

Timelines:

Task 1: Project Planning and Permitting will be completed from June 1, 2015 through January 15, 2016.

Task 2: Instream Habitat Project Implementation will be completed between July 1, 2015 through October 15, 2015.

Task 3: Administration, Contract Oversight, and Landowner Communications will be completed between June 1, 2015 and January 15, 2016.

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the California Salmonid Stream Habitat Restoration Manual.

3. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment

may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

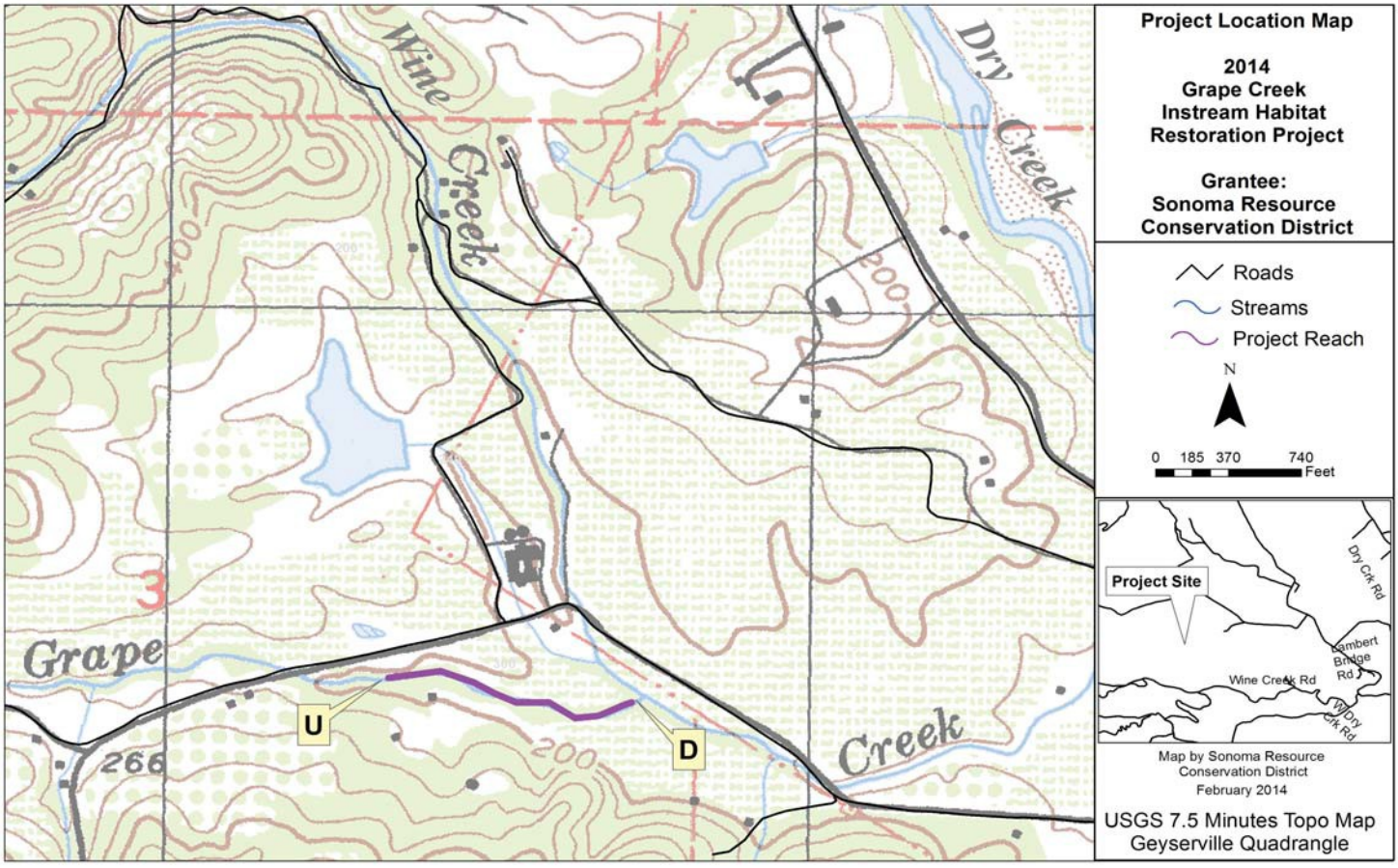
California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
724520 Grape Creek Instream Habitat Improvement Project

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
2	Brandegee's eriastrum *Eriastrum brandegeeae*	PDPLM03020			G1Q	S1	1B.1
3	Burke's goldfields *Lasthenia burkei*	PDAST5L010	Endangered	Endangered	G1	S1	1B.1
4	California freshwater shrimp *Syncaris pacifica*	ICMAL27010	Endangered	Endangered	G1	S1	
5	California linderiella *Linderiella occidentalis*	ICBRA06010			G3	S2S3	
6	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
7	Clear Lake Drainage Resident Trout Stream	CARA2520CA			GNR	SNR	
8	Cobb Mountain lupine *Lupinus sericatus*	PDFAB2B3J0			G2	S2	1B.2
9	Colusa layia *Layia septentrionalis*	PDAST5N0F0			G2	S2	1B.2
10	Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1			G5T1	S1	1B.2
11	Freed's jewelflower *Streptanthus brachiatus ssp. hoffmanii*	PDBRA2G071			G2T2	S2	1B.2
12	Geysers panicum *Panicum acuminatum var. thermale*	PMPOA24028		Endangered	G5T2Q	S2	1B.2
13	Giuliani's dubiraphian riffle beetle *Dubiraphia giulianii*	IICOL5A020			G1G3	S1S3	
14	Greene's narrow-leaved daisy *Erigeron greenei*	PDAST3M5G0			G2	S2	1B.2
15	Gualala roach *Lavinia symmetricus parvipinnis*	AFCJB19025			G4T1T2	S1S2	SC
16	Hoffman's bristly jewelflower *Streptanthus glandulosus ssp. hoffmanii*	PDBRA2G0J4			G4TH	SH	1B.3
17	Jepson's leptosiphon *Leptosiphon jepsonii*	PDPLM09140			G2	S2	1B.2
18	Konocti manzanita *Arctostaphylos manzanita ssp. elegans*	PDERI04271			G5T3	S3	1B.3
19	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
20	Morrison's jewelflower *Streptanthus morrisonii*	PDBRA2G0S0			G2	S2	
21	Mt. Saint Helena morning-glory *Calystegia collina ssp. oxyphylla*	PDCON04032			G4T3	S3.2	4.2
22	Napa false indigo *Amorpha californica var. napensis*	PDFAB08012			G4T2	S2	1B.2
23	Navarro roach *Lavinia symmetricus navarroensis*	AFCJB19023			G4T1T2	S1S2	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Northern Hardpan Vernal Pool	CTT44110CA			G3	S3.1	
25	Pennell's bird's-beak *Cordylanthus tenuis ssp. capillaris*	PDSCR0J0S2	Endangered	Rare	G4G5T1	S1	1B.2
26	Rincon Ridge ceanothus *Ceanothus confusus*	PDRHA04220			G1	S1	1B.1
27	Rincon Ridge manzanita *Arctostaphylos stanfordiana ssp. decumbens*	PDERI041G4			G3T1	S1	1B.1
28	Russian River tule perch *Hysterocarpus traski pomo*	AFCQK02011			G5T2	S2	SC
29	Santa Cruz clover *Trifolium buckwestiorum*	PDFAB402W0			G2	S2	1B.1
30	Sebastopol meadowfoam *Limnanthes vinculans*	PDLIM02090	Endangered	Endangered	G1	S1	1B.1
31	Socrates Mine jewelflower *Streptanthus brachiatus ssp. brachiatus*	PDBRA2G072			G2T1	S1	1B.2
32	Sonoma alopecurus *Alopecurus aequalis var. sonomensis*	PMPOA07012	Endangered		G5T1Q	S1	1B.1
33	Sonoma canescent manzanita *Arctostaphylos canescens ssp. sonomensis*	PDERI04066			G3G4T2	S2	1B.2
34	Sonoma sunshine *Blennosperma bakeri*	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
35	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
36	The Cedars buckwheat *Eriogonum cedrorum*	PDPGN087A0			G1	S1	1B.3
37	The Cedars fairy-lantern *Calochortus raichei*	PMLIL0D1L0			G2	S2	1B.2
38	The Cedars manzanita *Arctostaphylos bakeri ssp. sublaevis*	PDERI04222		Rare	G2T2	S2	1B.2
39	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
40	bristly sedge *Carex comosa*	PMCYP032Y0			G5	S2	2B.1
41	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S3	SC
42	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
43	dwarf downingia *Downingia pusilla*	PDCAM060C0			GU	S2	2B.2
44	dwarf soaproot *Chlorogalum pomeridianum var. minus*	PMLIL0G042			G5T2	S2	1B.2
45	few-flowered navarretia *Navarretia leucocephala ssp. pauciflora*	PDPLM0C0E4	Endangered	Threatened	G4T1	S1	1B.1
46	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
47	fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0			G2	S2	1B.2
48	glandular western flax *Hesperolinon adenophyllum*	PDLIN01010			G3	S3	1B.2
49	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
50	hardhead *Mylopharodon conocephalus*	AFCJB25010			G3	S3	SC
51	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
52	holly-leaved ceanothus *Ceanothus purpureus*	PDRHA04160			G2	S2	1B.2
53	many-flowered navarretia *Navarretia leucocephala ssp. plieantha*	PDPLM0C0E5	Endangered	Endangered	G4T1	S1	1B.2
54	marsh checkerbloom *Sidalcea oregana ssp. hydrophila*	PDMAL110K2			G5T3	S3	1B.2
55	marsh microseris *Microseris paludosa*	PDAST6E0D0			G2	S2	1B.2
56	narrow-anthered brodiaea *Brodiaea leptandra*	PMLIL0C022			G3?	S3?	1B.2
57	osprey *Pandion haliaetus*	ABNKC01010			G5	S3	
58	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
59	pappose tarplant *Centromadia parryi ssp. parryi*	PDAST4R0P2			G3T1	S1	1B.2
60	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
61	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T2	S2.2	1B.2
62	serpentine cryptantha *Cryptantha dissita*	PDBOR0A0H2			G2	S2	1B.2
63	serpentine daisy *Erigeron serpentinus*	PDAST3M5M0			G2	S2	1B.3
64	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2Q	S2	
65	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
66	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
67	western red bat *Lasiurus blossevillii*	AMACC05060			G5	S3?	SC
68	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
69	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
70	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	


Project Location Map
2014
Grape Creek
Instream Habitat
Restoration Project
Grantee:
Sonoma Resource
Conservation District
Roads
Streams
Project Reach
N
0 185 370 740
Feet
Project Site
Dry Crk Rd
Lambert Bridge Rd
Wine Creek Rd
Dry Crk Rd
Map by Sonoma Resource
Conservation District
February 2014
USGS 7.5 Minutes Topo Map
Geyserville Quadrangle
Wine Creek
Dry Creek
Grape
Creek
U
D
3
266
200

Westminster Woods Water Conservation and Storage Project

Introduction:

The Grantee's Westminster Woods Water Conservation and Storage Project by North Coast Resource Conservation and Development Council (NCRCDC) will eliminate a significant irrigation diversion on Dutch Bill Creek by implementing water conservation measures and constructing sufficient water storage to extract irrigation water from springs during the winter and store it for summer use. The purpose of this project is to improve instream habitat for salmonids.

The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

All habitat improvement will follow techniques in the California Stream Habitat Restoration Manual Section VII Project Implementation.

Objective(s):

The Westminster Woods diversion decreases stream discharge by 0.3 cubic feet per second (cfs). By eliminating the irrigation diversion the Westminster Woods Water Conservation and Storage Project will help to retain a wetted volume at higher levels in the project reach during a 180-day summer and fall dry season (approximately May 1 through November 1) each year. Thus, positively impacting juvenile coho rearing, especially in drought years.

Elimination of the Westminster Woods diversion will be accomplished by implementing a suite of water conservation measures to reduce summer irrigation demand by constructing two large volume water storage tanks to store the remaining irrigation water demand and removaling an existing diversion pump from Dutch Bill Creek.

Project Description:

Location:

The project site is the Westminster Woods Camp and Conference Center, located along the mainstem of Dutch Bill Creek, approximately five miles upstream of its confluence with the Russian River in western Sonoma County. The camp is located at the confluence of Dutch Bill and Grub Creeks. The project includes several components, which are located at various sites within the Westminster Woods Camp property. The location of the existing water diversion pump is 38.4390^0 north, 122.9760^0 east, North American Datum 1983; section 21 of township 7 north, range 10 west, Mount Diablo base and meridian; Camp Meeker 7.5 Minute U.S. Geological Survey (USGS) Quadrangle map; 6510 Bohemian Highway, Occidental, California 95465.

From Santa Rosa, follow State Highway 12 west to Sebastopol. Continue west on Bodega Highway to Freestone, and turn north on Bohemian Highway. Follow Bohemian Highway through the town of Occidental and continue north approximately three miles. The Westminster Woods Camp is on the left. There are no locked gates, and the landowner contact is Tony Fry, Facilities Manager, (707) 874 2426 x125.

Project Set Up:

The NCRCDC will be responsible for the overall grant administration and issuing subcontracts for the project. As the subcontractor, Gold Ridge Resource Conservation District (GRRCD) will handle the implementation oversight and project management, landowner relations and coordination, biological surveys, the project operation & maintenance plan, project effectiveness monitoring, outreach & public education. A general contractor will be responsible for mobilization, construction of the tank fill system, water storage tank site preparation and tank construction, an irrigation system, soil amendment, and turf replacement. Prunuske Chatham Incorporated and RGH & Associates Incorporated will be the construction inspectors. The NCRCDC Grantee Project Manager and GRRCD will be responsible for reporting.

Materials:

Water tanks, concrete, pumps, turfgrass

Tasks:

Task 1. Overall Grant Administration will be performed by the Grantee. The Grantee will also be responsible for issuing subcontracts for the project.

Task 2. Implementation Oversight and Project Management will be performed by Gold Ridge Resource Conservation District (GRRCD), and includes permitting, preparation of bid materials, bid advertising and site tours, contractor selection, contract preparation and management, contractor oversight, and invoicing.

Task 3. Landowner Relations and Coordination. This task will consist of coordinating and scheduling implementation activities with camp staff and administration.

Task 4. Biological Surveys. The GRRCD Staff Ecologist will perform all biological surveys as needed to comply with permit requirements before and during construction.

Task 5. Project Construction. A contract for project construction will be awarded to a qualified general contractor through a competitive bid process. The general contractor will construct all project components, except those assigned to subcontractors. General contractor tasks include the following:

- Mobilization.

- Construction of the tank fill system. Water for irrigation will be sourced from the existing potable water supply infrastructure, and the connection will be made at the existing filtration facility.

- Water storage tank site preparation and tank construction. The general contractor will carry out all earthwork and site preparation for the water tank sites. Water tank engineering and construction will be subcontracted to a qualified water tank design and construction firm. Activities of the water tank subcontractor will be overseen by the general contractor and GRRCD. Subcontracts will also be awarded as necessary for specific components of the site preparation process, including tree removal, concrete pad forming and concrete supply.

- Irrigation system. The new irrigation system will include installation of new piping, sprinklers and controllers, as well as soil moisture probes. Installation of the irrigation pump and associated electrical components will be subcontracted to a qualified well and pump contractor.

- Soil amendment. To prepare for turf replacement and reduce irrigation demand, this task will include amending, aerating and composting the soil of the playing field and other grass areas. A subcontract will be awarded for locating camp utilities and existing irrigation lines.

- Turf replacement. Installation of new turf will be subcontracted to a qualified installer. Depending on the capacity of the general contractor, a subcontract for hauling of spoils and debris may also be subcontracted.

Task 6. Construction Inspection will be provided by the project designer, Prunuske Chatham Incorporated, and project geotechnical engineering firm, RGH & Associates Incorporated. Construction inspection includes reviewing bid materials and responding to requests for information, on-site construction and geotechnical observation and reporting, and reviewing construction change orders for design consistency.

Task 7. Project Operation and Maintenance Plan. A plan for ongoing operation and maintenance of the storage tanks and irrigation system, as well as maintenance of the irrigated areas, will be formulated. This document will guide camp facilities staff in maintaining the operability and efficiency of the system, as well as ensuring the durability of the project, and will be incorporated into the landowner agreement. Preparation of the plan will be a cooperative effort of the

GRRCD, Russian River Coho Partnership (Partnership) and Westminster Woods staff, with input from Grantor Project Manager.

Task 8. Project Effectiveness Monitoring. Effectiveness Monitoring will be straightforward, since the diversion's hydrograph signature is very distinct, and the landowner forbearance agreement will require that the means for diverting water (the pump) be removed from Dutch Bill Creek. Effectiveness monitoring will consist of two components:

- Continuous year-round streamflow monitoring will be continued through the Partnership stream gauge. Data analysis will be conducted by the Center for Ecosystem Management and Restoration.

- Water collection and use monitoring. Water collection will be monitored via level indicators installed on both water storage tanks. A water meter will be installed on the irrigation water distribution line, and readings will be taken on a periodic basis. Data collection will be performed by Westminster Woods as part of project operation and maintenance, and data analysis will be undertaken by GRRCD.

- Streamflow monitoring will be performed for a period of at least three years to ensure that all diversion of water from Dutch Bill Creek by Westminster Woods has ceased. This monitoring will be undertaken in the context of ongoing analysis of flow patterns by the Partnership to identify any additional diversions upstream of the project site. During the first year post-implementation, we expect to see the absence of the periodic drops in stream discharge that have been observed to date.

Water use monitoring has multiple purposes. Stored water volume will be monitored periodically through the winter collection period to fine-tune the collection rate. Stored water volume will also be monitored during the summer use period and checked against metered use data to ascertain that water is not collected during the use period. Meter data will also be monitored periodically during the summer use period to verify the effectiveness of water conservation measures constructed as part of the project, and to confirm that no more than the total volume of water collected is being used for irrigation. Water use data collection will be required as part of the landowner agreement, and will continue for the life of the agreement (minimum of 20 years). In addition, monitoring of juvenile coho salmon will continue in the project reach through the Partnership.

Coho survival is currently monitored on a monthly basis for the purpose of identifying correlations between habitat condition indicators (including streamflow or proxies for streamflow) and percent survival. Monthly and over-summer survival data are collected and analyzed by University of California Sea Grant,

University of California Cooperative Extension Sonoma County (UCCE). We expect to see higher over-summer juvenile coho survival numbers as a result of this project, particularly during drought years. The Partnership's goal (as stated above) is to contribute to the establishment of a healthy, selfsustaining coho population in the lower Russian River watershed by restoring streamflow in key reaches of five focus watersheds, including Dutch Bill Creek. The Russian River Keystone Initiative Business Plan has a life span of ten years, so we expect that juvenile coho monitoring will continue throughout that time period as long as funding is available.

Task 9. Outreach and Public Education consists of the following two points:

- Public Tours: GRRCD will coordinate with Westminster Woods to provide a minimum of two tours of the project site, which will be advertised and open to the public.
- GRRCD will publish a minimum of two articles in our periodic newsletter or as e-blasts during and immediately following project construction. Our newsletter is distributed throughout the Gold Ridge District, and is available on our website.

Task 10. Reporting. Annual reports, as well as draft and final project reports, will be composed by GRRCD staff under agency reporting guidelines, and submitted to the Grantor Project Manager, as well as grant managers of agencies providing cost share funding.

Deliverables:

1. Construction and geotechnical inspection reports, pre- and post-construction site photos.
2. Project operation and maintenance plan.
3. Dates and number of attendees or recipients of two public tours, and GRRCD newsletter or e-blast articles.
4. Annual reports and final project report, including the following:
    a. Description of work accomplished
    b. Documentation of listed species surveys as required
    c. Final budget including cost share
    d. Pre- and post-construction photos of work sites
    e. All reporting metrics as specified by Grantor Project Manager

Timelines:

Task 1: Grant Administration will start upon finalization of grant agreement June 1, 2015 and will continue throughout the project to end March 31, 2018.

Task 2: Implementation Oversight and Project Management will start June 1, 2015 and will continue throughout the project to end March 31, 2018.

Task 3: Landowner Relations and Coordination will start June 1, 2015 and will continue throughout the project to end March 31, 2018.

Task 4: Biological surveys will be conducted prior to and throughout the construction period which will be July 1, 2015 through October 15, 2015; July 1, 2016 through October 15, 2016; and July 1, 2017 through October 15, 2017.

Task 5: Project Construction will be implemented throughout the construction period which will be July 1, 2015 through October 15, 2015; July 1, 2016 through October 15, 2016; and July 1, 2017 through October 15, 2017.

Task 6: Construction Inspection will be concurrent with construction throughout July 1, 2015 through October 15, 2015; July 1, 2016 through October 15, 2016; and July 1, 2017 through October 15, 2017.

Task 7: Project Operation and Maintenance Plan development will begin June 1, 2015 and complete by August 31, 2015.

Task 8: Monitoring will be ongoing throughout the project from June 1, 2015 through December 31, 2017.

Task 9: Outreach and Public Education will be ongoing from June 1, 2015 through completion December 31, 2017.

Task 10: Reporting will commence June 1, 2015 and complete March 31, 2018.

Additional Requirements:

1. Grantee shall provide verification of CEQA and permit compliance to the Grantor Project Manager before project work begins. Written permission must be obtained from landowner(s) for access to perform grant work. As may be necessary, the Grantee shall be responsible for obtaining the services of appropriately licensed professionals to comply with the applicable requirements of the Business and Professions Code including but not limited to section 6700 et seq. (Professional Engineers Act) and/or section 7800 et seq. (Geologists and Geophysicists Act).

2. If the Grantee fails to perform in accordance with the provisions of this Agreement, the Grantor retains the right, at its sole discretion, to delay, interrupt, or suspend the work for which the grant monies are supplied.

3. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the

California Department of Fish and Wildlife.

4. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
724507 Westminster Woods Water Conservation and Storage Project

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S4	SC
2	Baker's goldfields *Lasthenia californica ssp. bakeri*	PDAST5L0C4			G3TH	SH	1B.2
3	Baker's larkspur *Delphinium bakeri*	PDRAN0B050	Endangered	Endangered	G1	S1	1B.1
4	Baker's manzanita *Arctostaphylos bakeri ssp. bakeri*	PDERI04221		Rare	G2T2	S2	1B.1
5	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
6	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
7	Blennosperma vernal pool andrenid bee *Andrena blennospermatis*	IIHYM35030			G2	S2	
8	Burke's goldfields *Lasthenia burkei*	PDAST5L010	Endangered	Endangered	G1	S1	1B.1
9	California beaked-rush *Rhynchospora californica*	PMCYP0N060			G1	S1	1B.1
10	California freshwater shrimp *Syncaris pacifica*	ICMAL27010	Endangered	Endangered	G1	S1	
11	California linderiella *Linderiella occidentalis*	ICBRA06010			G3	S2S3	
12	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
13	California tiger salamander *Ambystoma californiense*	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SC
14	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
15	Coastal Terrace Prairie	CTT41100CA			G2	S2.1	
16	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
17	Contra Costa goldfields *Lasthenia conjugens*	PDAST5L040	Endangered		G1	S1	1B.1
18	Crystal Springs lessingia *Lessingia arachnoidea*	PDAST5S0C0			G1	S1	1B.2
19	Cunningham Marsh cinquefoil *Potentilla uliginosa*	PDROS1B4A0			GH	SH	1A
20	Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1			G5T1	S1	1B.2
21	Franciscan thistle *Cirsium andrewsii*	PDAST2E050			G3	S3	1B.2
22	Giuliani's dubiraphian riffle beetle *Dubiraphia giulianii*	IICOL5A020			G1G3	S1S3	
23	Greene's narrow-leaved daisy *Erigeron greenei*	PDAST3M5G0			G2	S2	1B.2
24	Gualala roach *Lavinia symmetricus parvipinnis*	AFCJB19025			G4T1T2	S1S2	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Hoffman's bristly jewelflower *Streptanthus glandulosus ssp. hoffmanii*	PDBRA2G0J4			G4TH	SH	1B.3
26	Jepson's leptosiphon *Leptosiphon jepsonii*	PDPLM09140			G2	S2	1B.2
27	Marin hesperian *Vespericola marinensis*	IMGASA4140			G2	S2	
28	Marin knotweed *Polygonum marinense*	PDPGN0L1C0			G2Q	S2	3.1
29	Mendocino dodder *Cuscuta pacifica var. papillata*	PDCUS011A2			G5T1	S1	1B.2
30	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
31	Morrison's jewelflower *Streptanthus morrisonii*	PDBRA2G0S0			G2	S2	
32	Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	IILEPJ608C	Endangered		G5T1	S1	
33	Napa false indigo *Amorpha californica var. napensis*	PDFAB08012			G4T2	S2	1B.2
34	Navarro roach *Lavinia symmetricus navarroensis*	AFCJB19023			G4T1T2	S1S2	SC
35	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
36	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
37	Northern Hardpan Vernal Pool	CTT44110CA			G3	S3.1	
38	Northern Vernal Pool	CTT44100CA			G2	S2.1	
39	Oregon polemonium *Polemonium carneum*	PDPLM0E050			G4	S1	2B.2
40	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
41	Pennell's bird's-beak *Cordylanthus tenuis ssp. capillaris*	PDSCR0J0S2	Endangered	Rare	G4G5T1	S1	1B.2
42	Peruvian dodder *Cuscuta obtusiflora var. glandulosa*	PDCUS01111			G5T4T5	SH	2B.2
43	Pitkin Marsh lily *Lilium pardalinum ssp. pitkinense*	PMLIL1A0H3	Endangered	Endangered	G5T1	S1	1B.1
44	Pitkin Marsh paintbrush *Castilleja uliginosa*	PDSCR0D380		Endangered	GXQ	SX	1A
45	Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012			G5T2	S2.2	1B.2
46	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
47	Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3			G4?T2	S2	1B.2
48	Rincon Ridge ceanothus *Ceanothus confusus*	PDRHA04220			G1	S1	1B.1

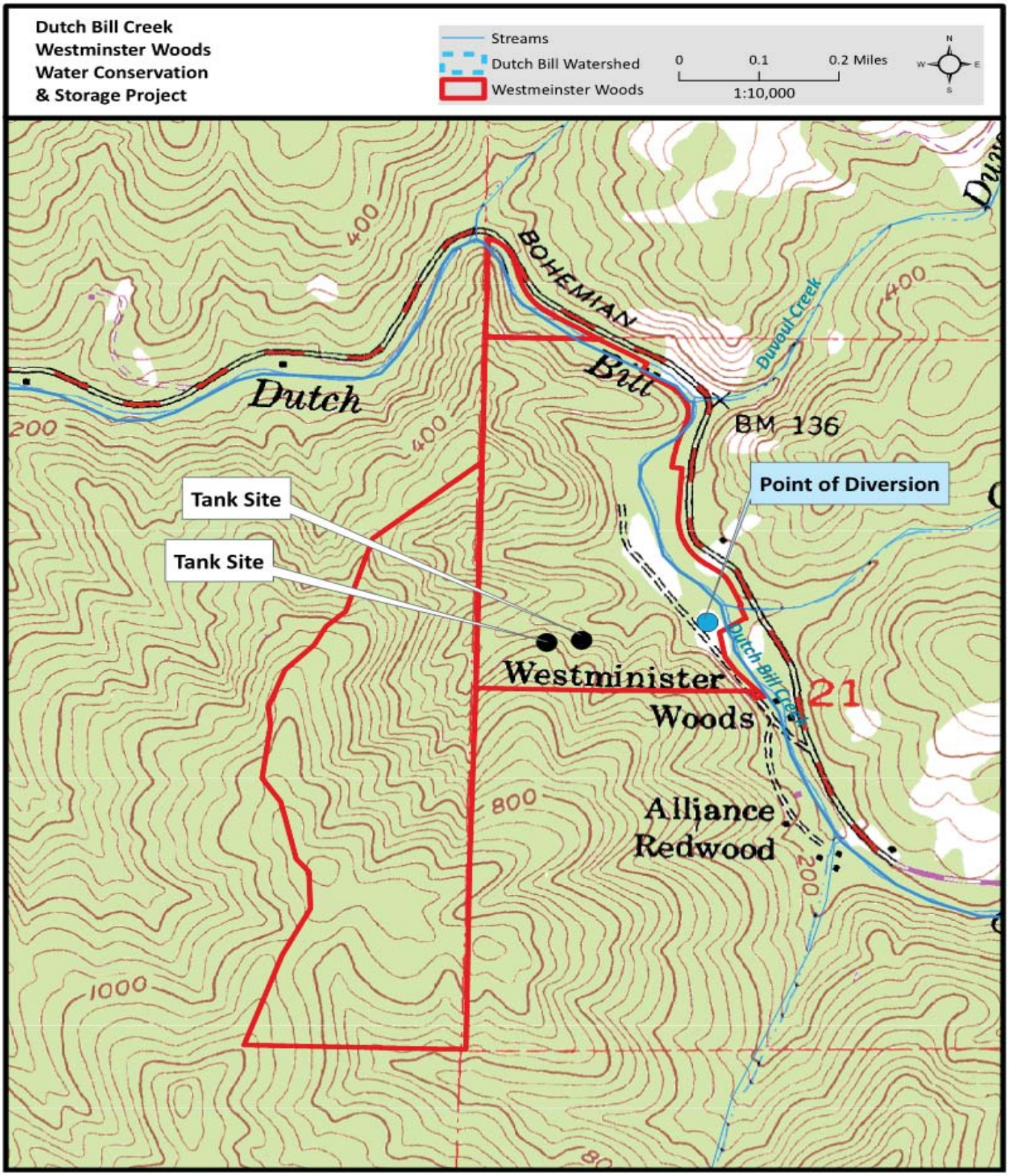
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
49	Rincon Ridge manzanita *Arctostaphylos stanfordiana ssp. decumbens*	PDERI041G4			G3T1	S1	1B.1
50	Russian River tule perch *Hysterocarpus traski pomo*	AFCQK02011			G5T2	S2	SC
51	San Bruno elfin butterfly *Callophrys mossii bayensis*	IILEPE2202	Endangered		G4T1	S1	
52	San Francisco Bay spineflower *Chorizanthe cuspidata var. cuspidata*	PDPGN04081			G2T1	S1	1B.2
53	San Francisco owl's-clover *Triphysaria floribunda*	PDSCR2T010			G2	S2.2	1B.2
54	Santa Cruz clover *Trifolium buckwestiorum*	PDFAB402W0			G2	S2	1B.1
55	Sebastopol meadowfoam *Limnanthes vinculans*	PDLIM02090	Endangered	Endangered	G1	S1	1B.1
56	Sonoma alopecurus *Alopecurus aequalis var. sonomensis*	PMPOA07012	Endangered		G5T1Q	S1	1B.1
57	Sonoma spineflower *Chorizanthe valida*	PDPGN040V0	Endangered	Endangered	G1	S1	1B.1
58	Sonoma sunshine *Blennosperma bakeri*	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
59	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
60	The Cedars buckwheat *Eriogonum cedrorum*	PDPGN087A0			G1	S1	1B.3
61	The Cedars fairy-lantern *Calochortus raichei*	PMLIL0D1L0			G2	S2	1B.2
62	The Cedars manzanita *Arctostaphylos bakeri ssp. sublaevis*	PDERI04222		Rare	G2T2	S2	1B.2
63	Thurber's reed grass *Calamagrostis crassiglumis*	PMPOA17070			G3Q	S2?	2B.1
64	Tidestrom's lupine *Lupinus tidestromii*	PDFAB2B3Y0	Endangered	Endangered	G1	S1	1B.1
65	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
66	Vine Hill ceanothus *Ceanothus foliosus var. vineatus*	PDRHA040D6			G3T1	S1?	1B.1
67	Vine Hill clarkia *Clarkia imbricata*	PDONA050K0	Endangered	Endangered	G1	S1	1B.1
68	Vine Hill manzanita *Arctostaphylos densiflora*	PDERI040C0		Endangered	G1	S1	1B.1
69	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
70	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
71	blue coast gilia *Gilia capitata ssp. chamissonis*	PDPLM040B3			G5T2	S2	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
72	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
73	bristly sedge *Carex comosa*	PMCYP032Y0			G5	S2	2B.1
74	brownish beaked-rush *Rhynchospora capitellata*	PMCYP0N080			G5	S1	2B.2
75	bumblebee scarab beetle *Lichnanthe ursina*	IICOL67020			G2	S2	
76	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S3	SC
77	coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2			G4T2T3	S2S3	1B.2
78	coastal triquetrella *Triquetrella californica*	NBMUS7S010			G1	S1	1B.2
79	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
80	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
81	dwarf downingia *Downingia pusilla*	PDCAM060C0			GU	S2	2B.2
82	dwarf soaproot *Chlorogalum pomeridianum var. minus*	PMLIL0G042			G5T2	S2	1B.2
83	eulachon *Thaleichthys pacificus*	AFCHB04010	Threatened		G5	S3	SC
84	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
85	fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0			G2	S2	1B.2
86	fringed myotis *Myotis thysanodes*	AMACC01090			G4	S4	
87	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	
88	golden larkspur *Delphinium luteum*	PDRAN0B0Z0	Endangered	Rare	G1	S1	1B.1
89	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
90	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
91	holly-leaved ceanothus *Ceanothus purpureus*	PDRHA04160			G2	S2	1B.2
92	legenere *Legenere limosa*	PDCAM0C010			G2	S2	1B.1
93	long-eared myotis *Myotis evotis*	AMACC01070			G5	S4?	
94	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
95	many-flowered navarretia *Navarretia leucocephala ssp. plieantha*	PDPLM0C0E5	Endangered	Endangered	G4T1	S1	1B.2
96	marsh microseris *Microseris paludosa*	PDAST6E0D0			G2	S2	1B.2
97	mimic tryonia (=California brackishwater snail) *Tryonia imitator*	IMGASJ7040			G2G3	S2S3	
98	monarch butterfly *Danaus plexippus*	IILEPP2010			G5	S3	
99	narrow-anthered brodiaea *Brodiaea leptandra*	PMLIL0C022			G3?	S3?	1B.2
100	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
101	osprey *Pandion haliaetus*	ABNKC01010			G5	S3	
102	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G5	S2.3	2B.3
103	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
104	pappose tarplant *Centromadia parryi ssp. parryi*	PDAST4R0P2			G3T1	S1	1B.2
105	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
106	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
107	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T2	S2.2	1B.2
108	rhinoceros auklet *Cerorhinca monocerata*	ABNNN11010			G5	S3	
109	rose leptosiphon *Leptosiphon rosaceus*	PDPLM09180			G1	S1	1B.1
110	round-headed beaked-rush *Rhynchospora globularis*	PMCYP0N0W0			G5	S1	2B.1
111	saline clover *Trifolium hydrophilum*	PDFAB400R5			G2	S2	1B.2
112	serpentine daisy *Erigeron serpentinus*	PDAST3M5M0			G2	S2	1B.3
113	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
114	showy rancheria clover *Trifolium amoenum*	PDFAB40040	Endangered		G1	S1	1B.1
115	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2Q	S2	
116	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
117	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
118	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
119	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
120	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S2	SC
121	western leatherwood *Dirca occidentalis*	PDTHY03010			G2G3	S2S3	1B.2
122	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
123	western red bat *Lasiurus blossevillii*	AMACC05060			G5	S3?	SC
124	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
125	western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Proposed Threatened	Endangered	G5T3Q	S1	
126	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
127	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
128	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
129	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	
130	whiteworm lichen *Thamnolia vermicularis*	NLTES43860			G3G5	S1	2B.1
131	woolly-headed gilia *Gilia capitata ssp. tomentosa*	PDPLM040B9			G5T2	S2	1B.1
132	woolly-headed spineflower *Chorizanthe cuspidata var. villosa*	PDPGN04082			G2T2	S2	1B.2

Project Location Topographic Map



Salmon Creek Dairy Water Conservation Project

Introduction:

The North Coast Resource Conservation and Development Council (NCRCDC) will implement the Salmon Creek Dairy Water Conservation Project. The project will eliminate a dry season water diversion on the mainstem of Salmon Creek. This diversion is estimated to extract up to 1,408,000 gallons of water from the creek each year. The project will build a pond to store rainwater harvested from the barns and buildings on the dairy facility so that no water need be taken from the creek during the 6 month dry period. A pond cover will be used to effectively eliminate water loss from evaporation. The construction of this water storage pond will address the will address the issue of low summer stream discharge in critical coho salmon rearing habitat by eliminating one of the largest water diversions in Salmon Creek.

The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

All habitat improvement will follow techniques in the California Stream Habitat Restoration Manual (list appropriate section of manual).

Objective(s):

The objective is to eliminate a critical diversion from Salmon Creek by approximately 1,408,000 gallons per summer through the construction of a rain water roof-catchment pond. This will leave approximately 7,800 gallons a day during the critical dry season in Salmon Creek. The project will build a pond to store rain water harvested from the barns and buildings on the dairy facility so that no water need be taken from the creek during the 6 month dry period.

Project Description:

Location:

Salmon Creek drains 34.5 square miles of land into a tidal estuary just north of Bodega Harbor along the Sonoma Coast. The seven major tributaries are Nolan Creek, Finley Creek, Coleman Valley Creek, Tannery Creek, Fay Creek and Thurston Creek. The site is located in the Bodega Valley reach of mainstem Salmon Creek, just east of the town of Bodega. This project is located upstream of the estuary at the Pacific Ocean and the town of Bodega approximately 0.5 miles upstream of Nolan Creek. The coordinates of the project are 38.35802800° N lat.: 122.99998600° W long.

Project Set Up:

Overall grant administration and subcontract management will be performed by NCRCDC Grant Coordinator. Project management and subcontractor oversight will be performed by Gold Ridge Resource Conservation District Executive Director, Project Manager, Watershed Coordinator and Office Manager under

applicable regulations and grant requirements. Management & oversight also includes public outreach (tours, social media and fact sheets) of completed project. The Watershed Coordinator and Project Manager will be responsible for progress invoices, quarterly/ final reports as stipulated by grant agreement, outreach materials, and landowner agreement.

Materials:

Rainwater fed pond, pond liner, storm drains, gutters, electrical wiring, and pond floating cover.

Tasks:

1. Design:
   Ninety percent of pond and site designs and project specifications have been prepared by Prunuske Chatham Inc. (PCI), as well as geotechnical evaluation and engineering. Project feasibility and alternatives analysis have been completed, and a tank site has been agreed. The geotechnical analysis has been completed using funding provided by DWR and CDFW.

2. Environmental compliance:
   CDFW is the lead agency for CEQA. NEPA will be addressed under NOAA programmatic compliance documentation. GRRCD will provide all information required by NOAA for NEPA in a timely manner. Staff to perform this task will be the Executive Director, Project Manager, and Conservation Planner. Deliverables: NEPA and CEQA documentation.

3. Permitting:
   GRRCD will acquire all required permits. Based on the pond design, the Grantee anticipates that a Sonoma County building permit will be required. Grading permits for GRRCD projects are covered under a grading exemption with Sonoma County. The project site is within the range of the California red-legged frog, and it is unlikely but possible that the site contains suitable CRLF habitat. The Gold Ridge RCD will therefore conduct habitat and presence/absence surveys of the project site and undertake consultation with the relevant agencies as appropriate. The project does not entail disturbance to aquatic resources or wetlands, so at this time, no other permits are anticipated. Biological surveys will be performed by GRRCD's Ecologist. Deliverable: Sonoma County building permit, consultation documentation as necessary.

4. Water rights permitting:
   As described above, since this is a rainwater fed pond it is not anticipated that an application for an appropriative water right will be needed. The landowner currently has an appropriative right for use of the Salmon Creek well to another pond. GRRCD will be the lead for water rights permitting tasks, with support from the landowner. Staff to perform this

task will be the Executive Director, Project Manager, Conservation Planner and Lead Scientist. Deliverables: Water right documentation.

5. Construction Tasks:
   Project management and grant administration will be performed by GRRCD under applicable regulations and grant requirements. Project management will include labor compliance monitoring, to be performed by a qualified entity under DWR and NOAA regulations (where applicable). Staff to perform this task will be the Executive Director, Project Manager, and Lead Scientist. Deliverables: Progress invoices, periodic and final reports, labor compliance documentation (if applicable).

   a) Site preparation:

      All construction tasks and project components related to site preparation for pond construction, including grading, electrical, plumbing and foundation work, are specified in the design process. A general contractor will be chosen for site preparation and associated work through a competitive bidding process. Staff to perform this task will be the Executive Director, Project Manager, and Lead Scientist. Deliverables: Contractor bid package, documentation of bids received, construction contract.

   b) Pond construction:

      This task will be subcontracted to an appropriate construction firm, which will complete necessary engineering and construct the pond. The contract will be awarded under a competitive bidding process. Staff to perform this task will be the Executive Director, Project Manager, and Lead Scientist. Deliverables: Contractor bid package, documentation of bids received, construction contract.

6. Project effectiveness monitoring:
   Baseline monitoring data have already been collected and analyzed, and effectiveness monitoring for projects already implemented has been ongoing since 2010. Project and ecological effectiveness monitoring for the Salmon Creek Dairy Water Conservation project will be performed for a minimum of two years after project implementation, and extended further depending on funding availability. Monitoring will be a joint effort by PCI and GRRCD, and is described in more detail below and in the attached monitoring plan. Deliverables: Final project monitoring report

Deliverables:

1. Project Management, Public Outreach and Grant Administration:
   Progress invoices, quarterly/ final reports as stipulated by grant agreement, outreach materials, landowner agreement.

2. Design:
   Final Site designs and specifications.

3. Environmental Compliance:
   NEPA and CEQA documentation.

4. Permitting:
   Sonoma County building permit, consultation documentation as necessary.

5. Water rights permitting:
   Water right documentation.

6. Construction:
   Progress invoices, periodic and final reports, labor compliance documentation (if applicable).Contractor bid package, documentation of bids received, construction contract.

7. Project effectiveness monitoring:
   Final project monitoring report

Timelines:

- June 2015 to December 2018 – Task 1: Project management, Public Outreach and Grant Administration. Ongoing throughout the life of the project.
- March 2014 – Task 2: Design Completion 3/2014
- September 2015 to October 2017 – Task 3: Environmental Compliance
- April 2015 – Task 4: Permitting.
- September 2015 – Task 5: Water Rights Permitting.
- August 2015 to October 2015 – Task 6: Construction.
- September 2018 – Task 7: Monitoring. Completion 9/2018

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
724555 Salmon Creek Dairy Water Conservation Project

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S4	SC
2	Baker's goldfields *Lasthenia californica ssp. bakeri*	PDAST5L0C4			G3TH	SH	1B.2
3	Baker's larkspur *Delphinium bakeri*	PDRAN0B050	Endangered	Endangered	G1	S1	1B.1
4	Baker's manzanita *Arctostaphylos bakeri ssp. bakeri*	PDERI04221		Rare	G2T2	S2	1B.1
5	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
6	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
7	Blennosperma vernal pool andrenid bee *Andrena blennospermatis*	IIHYM35030			G2	S2	
8	Bolander's water-hemlock *Cicuta maculata var. bolanderi*	PDAPI0M051			G5T3T4	S2	2B.1
9	Burke's goldfields *Lasthenia burkei*	PDAST5L010	Endangered	Endangered	G1	S1	1B.1
10	California beaked-rush *Rhynchospora californica*	PMCYP0N060			G1	S1	1B.1
11	California black rail *Laterallus jamaicensis coturniculus*	ABNME03041		Threatened	G4T1	S1	
12	California clapper rail *Rallus longirostris obsoletus*	ABNME05016	Endangered	Endangered	G5T1	S1	
13	California freshwater shrimp *Syncaris pacifica*	ICMAL27010	Endangered	Endangered	G1	S1	
14	California linderiella *Linderiella occidentalis*	ICBRA06010			G3	S2S3	
15	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
16	California tiger salamander *Ambystoma californiense*	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SC
17	Central Dune Scrub	CTT21320CA			G2	S2.2	
18	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
19	Coastal Terrace Prairie	CTT41100CA			G2	S2.1	
20	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
21	Contra Costa goldfields *Lasthenia conjugens*	PDAST5L040	Endangered		G1	S1	1B.1
22	Crystal Springs lessingia *Lessingia arachnoidea*	PDAST5S0C0			G1	S1	1B.2
23	Cunningham Marsh cinquefoil *Potentilla uliginosa*	PDROS1B4A0			GH	SH	1A
24	Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1			G5T1	S1	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Franciscan thistle *Cirsium andrewsii*	PDAST2E050			G3	S3	1B.2
26	Greene's narrow-leaved daisy *Erigeron greenei*	PDAST3M5G0			G2	S2	1B.2
27	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
28	Kellogg's horkelia *Horkelia cuneata var. sericea*	PDROS0W043			G4T2	S2?	1B.1
29	Marin checker lily *Fritillaria lanceolata var. tristulis*	PMLIL0V0P1			G5T2	S2	1B.1
30	Marin hesperian *Vespericola marinensis*	IMGASA4140			G2	S2	
31	Marin knotweed *Polygonum marinense*	PDPGN0L1C0			G2Q	S2	3.1
32	Mason's ceanothus *Ceanothus masonii*	PDRHA04200		Rare	G1	S1	1B.2
33	Mendocino dodder *Cuscuta pacifica var. papillata*	PDCUS011A2			G5T1	S1	1B.2
34	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
35	Mt. Vision ceanothus *Ceanothus gloriosus var. porrectus*	PDRHA040F7			G3G4T2	S2	1B.3
36	Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	IILEPJ608C	Endangered		G5T1	S1	
37	Napa false indigo *Amorpha californica var. napensis*	PDFAB08012			G4T2	S2	1B.2
38	North Coast phacelia *Phacelia insularis var. continentis*	PDHYD0C2B1			G2T1	S1	1B.2
39	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
40	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
41	Northern Hardpan Vernal Pool	CTT44110CA			G3	S3.1	
42	Northern Vernal Pool	CTT44100CA			G2	S2.1	
43	Oregon polemonium *Polemonium carneum*	PDPLM0E050			G4	S1	2B.2
44	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
45	Pennell's bird's-beak *Cordylanthus tenuis ssp. capillaris*	PDSCR0J0S2	Endangered	Rare	G4G5T1	S1	1B.2
46	Peruvian dodder *Cuscuta obtusiflora var. glandulosa*	PDCUS01111			G5T4T5	SH	2B.2
47	Pitkin Marsh lily *Lilium pardalinum ssp. pitkinense*	PMLIL1A0H3	Endangered	Endangered	G5T1	S1	1B.1
48	Pitkin Marsh paintbrush *Castilleja uliginosa*	PDSCR0D380		Endangered	GXQ	SX	1A

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
49	Point Reyes blennosperma *Blennosperma nanum var. robustum*	PDAST1A022		Rare	G4T2	S2	1B.2
50	Point Reyes blue butterfly *Plebejus icarioides parapheres*	IILEPG801D			G5T1T2	S1S2	
51	Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012			G5T2	S2.2	1B.2
52	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
53	Point Reyes jumping mouse *Zapus trinotatus orarius*	AMAFH01031			G5T1T3Q	S1S3	SC
54	Point Reyes paintbrush *Castilleja leschkeana*	PDSCR0D1R0			GH	SH	1A
55	Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3			G4?T2	S2	1B.2
56	Raiche's red ribbons *Clarkia concinna ssp. raichei*	PDONA050A2			G5?T1	S1	1B.1
57	Rincon Ridge ceanothus *Ceanothus confusus*	PDRHA04220			G1	S1	1B.1
58	Rincon Ridge manzanita *Arctostaphylos stanfordiana ssp. decumbens*	PDERI041G4			G3T1	S1	1B.1
59	San Bruno elfin butterfly *Callophrys mossii bayensis*	IILEPE2202	Endangered		G4T1	S1	
60	San Francisco Bay spineflower *Chorizanthe cuspidata var. cuspidata*	PDPGN04081			G2T1	S1	1B.2
61	San Francisco forktail damselfly *Ischnura gemina*	IIODO72010			G2	S2	
62	San Francisco owl's-clover *Triphysaria floribunda*	PDSCR2T010			G2	S2.2	1B.2
63	Sebastopol meadowfoam *Limnanthes vinculans*	PDLIM02090	Endangered	Endangered	G1	S1	1B.1
64	Sonoma alopecurus *Alopecurus aequalis var. sonomensis*	PMPOA07012	Endangered		G5T1Q	S1	1B.1
65	Sonoma spineflower *Chorizanthe valida*	PDPGN040V0	Endangered	Endangered	G1	S1	1B.1
66	Sonoma sunshine *Blennosperma bakeri*	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
67	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
68	Thurber's reed grass *Calamagrostis crassiglumis*	PMPOA17070			G3Q	S2?	2B.1
69	Tidestrom's lupine *Lupinus tidestromii*	PDFAB2B3Y0	Endangered	Endangered	G1	S1	1B.1
70	Tomales roach *Lavinia symmetricus ssp. 2*	AFCJB19022			G4T2T3	S2S3	SC
71	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
72	Vine Hill ceanothus *Ceanothus foliosus var. vineatus*	PDRHA040D6			G3T1	S1?	1B.1
73	Vine Hill clarkia *Clarkia imbricata*	PDONA050K0	Endangered	Endangered	G1	S1	1B.1
74	Vine Hill manzanita *Arctostaphylos densiflora*	PDERI040C0		Endangered	G1	S1	1B.1
75	Williams' bronze shoulderband *Helminthoglypta stiversiana williamsi*	IMGASC2034			G2G3T1	S1	
76	ashy storm-petrel *Oceanodroma homochroa*	ABNDC04030			G2	S2	SC
77	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
78	beach layia *Layia carnosa*	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
79	bent-flowered fiddleneck *Amsinckia lunaris*	PDBOR01070			G2?	S2?	1B.2
80	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
81	blue coast gilia *Gilia capitata ssp. chamissonis*	PDPLM040B3			G5T2	S2	1B.1
82	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
83	bristly sedge *Carex comosa*	PMCYP032Y0			G5	S2	2B.1
84	brownish beaked-rush *Rhynchospora capitellata*	PMCYP0N080			G5	S1	2B.2
85	bumblebee scarab beetle *Lichnanthe ursina*	IICOL67020			G2	S2	
86	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S3	SC
87	coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2			G4T2T3	S2S3	1B.2
88	coastal triquetrella *Triquetrella californica*	NBMUS7S010			G1	S1	1B.2
89	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
90	dwarf downingia *Downingia pusilla*	PDCAM060C0			GU	S2	2B.2
91	eulachon *Thaleichthys pacificus*	AFCHB04010	Threatened		G5	S3	SC
92	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
93	fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0			G2	S2	1B.2
94	fringed myotis *Myotis thysanodes*	AMACC01090			G4	S4	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
95	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	
96	golden larkspur *Delphinium luteum*	PDRAN0B0Z0	Endangered	Rare	G1	S1	1B.1
97	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
98	great egret *Ardea alba*	ABNGA04040			G5	S4	
99	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
100	holly-leaved ceanothus *Ceanothus purpureus*	PDRHA04160			G2	S2	1B.2
101	legenere *Legenere limosa*	PDCAM0C010			G2	S2	1B.1
102	long-eared myotis *Myotis evotis*	AMACC01070			G5	S4?	
103	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
104	marsh microseris *Microseris paludosa*	PDAST6E0D0			G2	S2	1B.2
105	mimic tryonia (=California brackishwater snail) *Tryonia imitator*	IMGASJ7040			G2G3	S2S3	
106	monarch butterfly *Danaus plexippus*	IILEPP2010			G5	S3	
107	northern curly-leaved monardella *Monardella sinuata ssp. nigrescens*	PDLAM18162			G3T2	S2	1B.2
108	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
109	osprey *Pandion haliaetus*	ABNKC01010			G5	S3	
110	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G5	S2.3	2B.3
111	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
112	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
113	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
114	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T2	S2.2	1B.2
115	rhinoceros auklet *Cerorhinca monocerata*	ABNNN11010			G5	S3	
116	robust spineflower *Chorizanthe robusta var. robusta*	PDPGN040Q2	Endangered		G2T1	S1	1B.1
117	rose leptosiphon *Leptosiphon rosaceus*	PDPLM09180			G1	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
118	round-headed beaked-rush *Rhynchospora globularis*	PMCYP0N0W0			G5	S1	2B.1
119	saline clover *Trifolium hydrophilum*	PDFAB400R5			G2	S2	1B.2
120	saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A			G5T2	S2	SC
121	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T2T3	S2S3	1B.2
122	showy rancheria clover *Trifolium amoenum*	PDFAB40040	Endangered		G1	S1	1B.1
123	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2Q	S2	
124	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
125	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
126	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
127	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
128	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S2	SC
129	western leatherwood *Dirca occidentalis*	PDTHY03010			G2G3	S2S3	1B.2
130	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
131	western red bat *Lasiurus blossevillii*	AMACC05060			G5	S3?	SC
132	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
133	western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Proposed Threatened	Endangered	G5T3Q	S1	
134	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
135	white seaside tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T2T3	S2S3	1B.2
136	whiteworm lichen *Thamnolia vermicularis*	NLTES43860			G3G5	S1	2B.1
137	woolly-headed gilia *Gilia capitata ssp. tomentosa*	PDPLM040B9			G5T2	S2	1B.1
138	woolly-headed spineflower *Chorizanthe cuspidata var. villosa*	PDPGN04082			G2T2	S2	1B.2


Parcel Boundary
Streams
Salmon Creek Watershed
0
1
2 Miles
1:100,000
N
W
E
S
Finley Creek
Fay Creek
Phinney Creek
Thurston Creek
Nolan Creek
Salmon Creek
Vicinity Map
Napa
Sonoma
Marin

Sharber-Peckham Creek Fish Passage Project

Introduction:

The Northwest California Resource Conservation and Development Council will restore fish access into up to 1 mile of Sharber-Peckham Creek by replacing an existing crossing barrier at Fountain Ranch/Quinby Road with a new culvert.

1. This project is necessary because there is a migration barrier to anadromous salmonids on Sharber-Peckham Creek that blocks access to spawning and rearing habitat. Restoring complete migration access to Sharber-Peckham Creek will allow use of over one mile of suitable spawning, over-wintering and rearing fisheries habitat.
2. This project would allow upstream migration of spawners, presently stopped at the outlet of the culvert, and allow for passage of juveniles seeking cold water refugia, greater food sources and increased habitat availability. Sharber-Peckham is one of the relatively few low gradient tributaries to the Trinity River and is therefore very important for coho. By increasing access to more suitable habitat within the Sharber-Peckham drainage, this will allow for the possibility of natural production, the reproduction of native non-hatchery fish. The Trinity River is chronically temperature impaired. Thermal refugia provided by tributaries to the river like Sharber-Peckham are critical to overall recovery of listed salmon.
3. The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.
4. All habitat improvement will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* Parts VI, VII, IX and XII (Flosi et al 1998 and 2002).

Objective(s):

The objective of this project is to address task "SONCC-LTR.5.1.32.2 – remove barriers, guided by the assessment" from the *Recovery Strategy for So.OR/No.CA Coast Coho Salmon* by implementing the replacement of one existing culvert that is impassable to salmonids at various life history stages and various flows with an embedded bottom culvert that is passable to all life stages of salmonids for the range of fish passage flows.

Project Description:

Location:

The fish passage barrier to be replaced lies at the crossing of Fountain Ranch/Quinby Road and Sharber-Peckham Creek, about 0.2 mile upstream of the confluence with the Trinity River at 40.89719400 N; -123.56276600 W.

Project Set Up:

The Program Director will facilitate the design process; oversee environmental analysis, review and permitting; review and prepare bid documents; oversee installation of a water diversion/by-pass; oversee construction of the new culvert

and simulated streambed; and conduct implementation and effectiveness monitoring.

The Project Coordinator will facilitate the design process; oversee environmental analysis, review and permitting; review and prepare bid documents; help install fish exclusion fencing and relocate fish from the project area prior to construction; assist with construction of the new culvert and simulated streambed; oversee restoration of the road surface to pre-construction condition; oversee traffic detouring; and oversee well and utility line management.

The Field Technician will help install fish exclusion fencing and relocate fish from the project area prior to construction; oversee installation of a water diversion/by-pass; assist with construction of the new culvert and simulated streambed; monitor regularly during construction for any failure of exclusion devices; conduct implementation and effectiveness monitoring; and conduct physical and biological monitoring.

The Account Clerk will review and prepare bid documents.

The Office Manager will monitor construction activities daily to ensure that contracts are being implemented properly and all provisions to safeguard the environment and public safety are being strictly adhered to.

The Licensed Engineer will finalize project design, construction bid drawings, and specifications and oversee restoration of the road surface to pre-construction condition.

The Fisheries Biologist will install fish exclusion fencing and relocate fish from the project area prior to construction; and conduct implementation and effectiveness monitoring.

The USFS Coordinator will conduct physical and biological monitoring; and conduct implementation and effectiveness monitoring.

The USFS Technician will conduct physical and biological monitoring.

A Licensed Contractor will install a water diversion/by-pass; remove the existing culvert; construct the new culvert and simulated streambed; restore the road surface to pre-construction condition; stabilize the banks; and detour traffic.

A licensed electrical/plumbing contractor will ensure that wells and utility lines are secured or relocated.

Materials:

Materials will include structural backfill, non-structural backfill, road base, bank stabilization materials, a temporary culvert, a multi-plate arch culvert, simulated

streambed material, stakes, flagging, nails, sandbags, a water tank, water diversion supplies, seed, plants, wattles, and weed-free mulch.

Tasks:

The grantee will complete the following tasks (tasks funded by sources other than FRGP are indicated with an asterisk*):

Task 1: Complete draft and final engineering and design*

The finalized design, construction bid drawings and specifications will be submitted to CDFW for approval. The finalized design, construction bid drawings and specifications will be subcontracted to a licensed engineer for development.

The Project Coordinator and Project Director will facilitate the design process.

Task: Permitting*

All necessary permits will be secured and submitted to CDFW. Environmental analysis, review and permitting will be overseen by the Project Coordinator and Program Director with the assistance of specialized 5C staff.

Task 3: Project Bid Period & Construction Contract Approval*

Construction will be completed by one to multiple subcontractors, with engineering inspection provided by the licensed engineer hired to finish the design plans. Project construction will be contracted out by 5C Program Staff. Review and preparation of bid documents will be done by the Program Director, Project Coordinator and Account Clerk. Subcontracts will be submitted to CDFW for review.

Task 4: Construction

Construction of the Sharber-Peckham Creek multi-plate arch ellipse with an embedded bottom will begin mid-summer 2015. Best Management Practices as described in A Water Quality and Stream Habitat Protection Manual for County Road Maintenance in Northwestern California Watersheds will be applied throughout the construction phase of this project.

The full manual is available at: www.5counties.org/roadmanual.htm

The project will include:

- Fish removal and exclusion: Prior to removal of fill, existing pipe and installation of the multi-plate arch ellipse, block nets will be placed upstream and downstream of the culvert removal site and seined or electrofished to remove all aquatic species present, which include coho and steelhead, with possibly some Chinook. The organisms will be relocated at least 100 feet outside of the project area. This work

will be performed by Ross Taylor and Associates, a permitted professional fisheries biologist, with the help of the Project Coordinator and the Field Technician.

- Water Management-Water diversion/by-pass: The creek will need to have a by-pass installed, which would consist of routing the flow through PVC pipe and plastic sheeting while maintaining a pump with a diesel or electric generator prior to excavation of the culvert. This will be installed by the contractor with direction and support from 5C Program Director, Project Coordinator and Field Technician. Use of a pumping and routing system will be used to remove all water from the immediate location of the culvert. A total length of approximately 350 feet will be dewatered. The pump may need to run continuously, 24 hours a day, 7 days a week for up to six weeks (flow dependent). This may require the use of either a diesel pump, or if possible, electricity will be made available at the site for the use of an electric pump. This work will be performed by a licensed electrical/plumbing subcontractor. Water traveling downstream will be routed through temporary piping where it will be released in the lower remaining 400 feet of Sharber-Peckham Creek before its entry into the Trinity River. Measures will be in place to capture any sediment that may route via the diverted water before it re-enters the stream. The water by-pass will accomplish three goals: 1) remove excess water from the immediate construction site; 2) prevent injury to juvenile salmonids; and 3) maintain the cool water refugia at the mouth of Sharber-Peckham Creek for riverine fish.

- Excavation -Removal of existing culvert: The project will require removal of approximately 700 cubic feet of road-bed material from above and below the existing culvert. During culvert replacement, material excavated will be temporarily stored outside the immediate riparian area. Some of this material will be used on top of the proposed elliptical culvert. Excess material shall be removed from site via dump truck and disposal of at a location approved by Trinity County. Use of an excavator to remove the existing culvert will occur within the stream channel approximately 200 feet above and below the existing centerline of the road.

  - The old culvert will be disposed of at an approved site. The current road bed is approximately 16 feet wide. The potential exists for disturbance of approximately 200 feet of riparian vegetation both upstream and downstream of the current culvert location, which may include removal of existing alder trees. An excavator will be used to remove the existing culvert and excavate within the stream channel to a width and depth

necessary for placement of the new structure and adjacent compaction of fill materials. Excavation of the channel to achieve the desired grade upstream will extend approximately 150 feet upstream of the inlet of the culvert. Excavation will necessitate removal of approximately 200 square feet of riparian vegetation (majority of vegetation is non-native blackberries) both upstream and downstream of the current culvert location. Removal of all construction materials from the site will occur within 2 weeks following completion of the project. This work will be performed by a licensed subcontractor.

- Construction of Culvert - New structure and simulated streambed: The construction of the 14'-11" span x 11'-2" rise multi-plate ellipse culvert will be constructed with an embedded (approx. 3 feet) simulated streambed bottom. There will also be five rock ribbons installed within the culvert to maintain grade and retain the simulated streambed material within the structure. The design includes additional instream work of grade control structures which will maximize the beneficial effects of culvert replacement and improve both rearing and spawning habitat. Sub-surface grade control rock ribbons will be embedded into the streambed, both upstream and downstream of the new culvert. These ribbons will be set at or below the design channel grade to reduce the potential for upstream headcutting and downstream scouring. Upstream, they will be placed at approximately 5 feet, 75 feet, and 180 feet upstream of the culvert. Downstream, they will be placed at the culvert outlet, and at the site of three existing boulder weirs. These weirs will be converted to subsurface grade control rock ribbons in order to allow juvenile fish passage. The first rock weir is approximately 45 feet downstream of the culvert outlet. The second rock weir is 40 feet beyond the first, and the third weir is 45 feet beyond the second. An excavator will likely access the first rock weir via the access road on the east side of the creek. From this access road, the excavator will travel approximately 50 feet to the creek, impacting vegetation consisting of invasive Himalayan blackberry, stinging nettle and poison hemlock. The excavator will then likely travel within the creek channel to each of the rock weirs, for a total maximum distance of 150 feet. This work will be conducted by a licensed subcontractor, with assistance from the Project Coordinator and Field Technician and supervision by the Program Director.

- Roadway and Backfill: Structural backfill and compaction around the new culvert will occur immediately following completion of the culvert and simulated streambed construction. Non-structural backfill and road base will be placed and compacted. The road surface will be restored to pre-construction condition. All road work will be done by a

licensed subcontractor with oversight by the Project Coordinator and contracted licensed Engineer.

- Equipment: Some equipment that may be necessary will include large trucks necessary to deliver equipment and supplies, excavator, dump trucks, water truck for dust abatement on the remaining road prism, other heavy equipment required for the delivery of construction materials and preparation and compaction of the road surface, and gas or diesel powered electric generators for all power tools and operation of by-pass pump. Staging areas for all equipment delivery and storage will be kept outside of the riparian area. Fueling and lubricating of all equipment shall be done well outside the riparian area.

- Bank stabilization and erosion control: This will include installation of geotextiles or mulch and aid in the prevention of noxious weed introduction to the disturbed site. Bank stabilization will occur along the downstream bank opposite the wells and along the upstream and downstream side of the fill slope. Methods for bank stabilization will use 1-2 ton RSP. Bank stabilization will be done by a licensed contractor, with the assistance of 5C staff. Upon project completion, the necessary final erosion controls will be installed at the project sites. All disturbed areas will be re-vegetated with native seed/riparian plantings suitable for the project area and/or mulched with certified weed-free mulch. The level of disturbance for this project is anticipated to be minimal, but all applicable BMPs for reducing sediment delivery to the stream (Roads Manual Appendix B, Part 4) will be adhered to throughout construction. All permanent and temporary spoils will be stored in a manner to prevent sediment delivery to any stream/waterway throughout and after project construction. A temporary spoils location and stabilization plan will be prepared by 5C staff for the contractor to use, including incorporation of the Roads Manual spoils storage BMPs (Chapter 5 and Appendix B, Part 4).

- Detour Road - Traffic control: In order to prevent a road closure to area residents, a temporary detour road will be installed approximately 30 feet upstream of the existing culvert. This detour road will be within the dewatered channel and constructed with road fill, road base and will have a temporary CMP in place in the event of a summer thunderstorm. Short-term closures may occur, but with the detour road in place, residents and emergency vehicles will be able to pass. All efforts will be made to maintain an open roadway. This work will be done by subcontractor and overseen by the Project Coordinator.

- Utilities: 5C staff and contractors will ensure that wells and utility lines within the project area are secured, or safely relocated to a new location to prevent interruptions in services to residents. This may require excavation to relocate the lines. If interruptions are foreseen, other accommodations, such as temporary water tanks, or water delivery will be installed or provided. This work will be done by a licensed electrical/plumbing subcontractor and overseen by the Project Coordinator.

Task 5: Monitoring

Implementation and effectiveness monitoring will occur as specified below and according to procedures found in the "California Salmonid Stream Habitat Restoration Manual" in order to ensure the project is carried out as planned and that fish passage is realized. Monitoring activities will be performed by Ross Taylor and Associates and 5C staff, including Program Director, Project Coordinator and Field Technician. All monitoring data associated with the project will be reported to all organizations that fund the project in the form of progress or final reports as specified in the grant agreement, as well as having the final report posted to the Five Counties Salmonid Conservation Program's (5C) website (www.5counties.org). These data will include, but are not limited to: photographs, long profile survey data and fish presence survey data.

Implementation Monitoring:

5C staff will monitor the effects of the work in the riparian zone as it occurs. Should any concerns develop that have not been foreseen, appropriate actions, contractual or otherwise, would be taken to avoid deleterious effects to water quality and/or the riparian reserves. Contract administration staff will monitor construction activities daily to ensure that the contract(s) are being implemented properly and that all provisions to safeguard the environment and public safety are being strictly adhered to. This monitoring would begin at project implementation and occur at regular intervals throughout the project. 5C staff will also monitor regularly for any unintentional mortality of juveniles due to failure of exclusion devices. Photo point monitoring will occur pre-project, during construction and post-project for the first two winter seasons.

Physical Monitoring:

Two cross-sections and a longitudinal profile extending from the confluence with the Trinity River upstream of the project area approximately 400 feet has been established to set baseline for post-project monitoring activities. An existing longitudinal profile is available for this area. Re-evaluation of cross-sections and longitudinal profiles will be surveyed immediately following construction and following the first two winter seasons. This monitoring work will be done by fisheries

biologists from the Six Rivers National Forest, 5C Field Technician and Project Coordinator.

Biological Monitoring:
Fish presence surveys will be conducted on Sharber-Peckham Creek following construction to assess success of the project. Post-project, it is likely the stream channel will require at least two to three years of active monitoring to ensure that 1) fish existing pre-project are maintained at least in their pre-project species, life history stages and numbers, 2) riparian vegetation impacted during the project and replaced is not choked out by competitive species, and 3) channel changes are not causing deleterious upstream effects on existing over wintering and spawning habitat. This monitoring work will be done by fisheries biologists from the Six Rivers National Forest, 5C Field Technician and Project Coordinator.

Deliverables:

1) Final design plans
2) Pre and post-project photo monitoring documentation and monitoring reports on post-project surveys
3) Quarterly Progress Reports summarizing work performed during the reporting period
4) Draft Report summarizing the results of the project. This will include a statement of purpose, the scope of the project, final cost breakdowns, and a description of the approach and techniques used during the project
5) Final Report

Timelines:

*Indicates Tasks anticipated to be funded by sources other than FRGP

- May – December 2014: Final Design*
- January – March 2015: Permitting*
- April – June 2015: Project Bid Period & Construction Contract Approval*
- June 2015 – October 2017: Progress Reports
- June 2015: Submit Final Designs, permits, and subcontracts to CDFW for review
- June – August 2015: Pre-project Monitoring
- August – October 2015: Construction
- October 2015 – March 31 2018: Post-project Monitoring*
- February 28, 2018: Submit Final report

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual

project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:
    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
    - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
    - The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.
    - Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. The culvert design and installation will meet flow carrying capacity required for a 100-year flood event as identified by specifications determined by National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Wildlife (CDFW), for adult and juvenile salmonid fish passage. The project will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and criteria for fish passage as described in Volume II, Part IX, of the *California Salmonid Stream Habitat Restoration Manual*. The engineered plans for the bridge (culvert) installation shall be visually reviewed and authorized by NOAA Fisheries or California Department of Fish and Wildlife engineers prior to commencement of work.

4. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*, Volume I, and Volume II Part XI and Part XII. The Grantee/landowner will maintain the new crossing,

inspect the crossing in a timely manner and remove debris as necessary during the storm season.

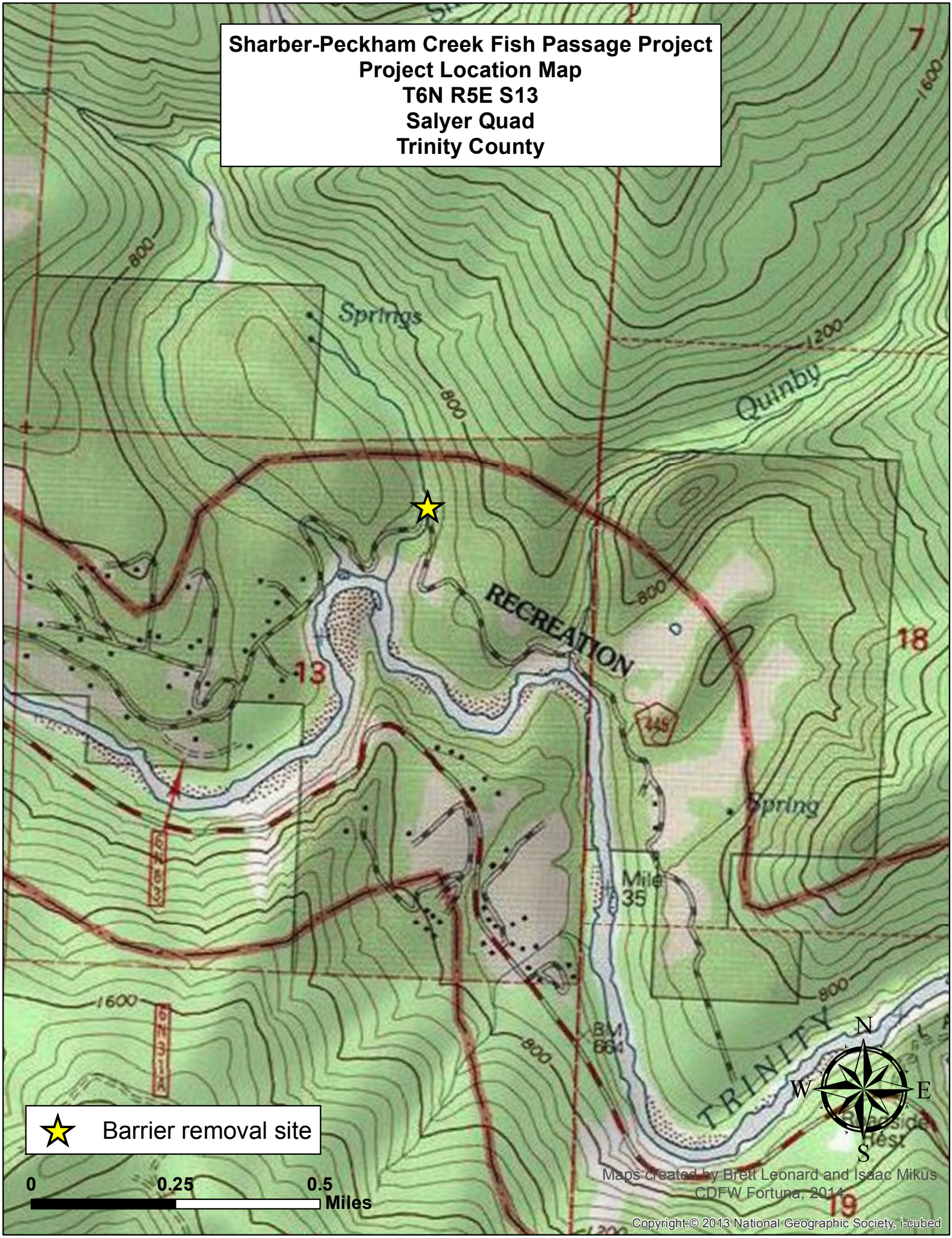
5. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Salyer Quad and Surrounding Quads for:
FP 157 Sharber-Peckham Creek Fish Passage Project
T6N R5E Section 13
Trinity County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Bald Mountain milk-vetch *Astragalus umbraticus*	PDFAB0F990			G4	S2	2B.3
2	California globe mallow *Iliamna latibracteata*	PDMAL0K040			G2G3	S2	1B.2
3	California wolverine *Gulo gulo*	AMAJF03010		Threatened	G4	S1	
4	Cascade stonecrop *Sedum divergens*	PDCRA0A0B0			G5?	S2	2B.3
5	Del Norte salamander *Plethodon elongatus*	AAAAD12050			G4	S3	SC
6	Gasquet rose *Rosa gymnocarpa var. serpentina*	PDROS1J1V1			G5T2	S2	1B.3
7	Heckner's lewisia *Lewisia cotyledon var. heckneri*	PDPOR04052			G4T3	S3	1B.2
8	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
9	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
10	Klamath gentian *Gentiana plurisetosa*	PDGEN060V0			G2G3	S2	1B.3
11	Klamath/North Coast Fall/Winter Run Chinook Salmon River	CARB2332CA			GNR	SNR	
12	Klamath/North Coast Interior Headwater Fishless Stream	CARB2220CA			GNR	SNR	
13	Klamath/North Coast Rainbow Trout Stream	CARB2312CA			GNR	SNR	
14	Oregon fireweed *Epilobium oreganum*	PDONA060P0			G2	S2	1B.2
15	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
16	Pacific fuzzwort *Ptilidium californicum*	NBHEP2U010			G3G4	S3?	4.3
17	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
18	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
19	Sonoma canescent manzanita *Arctostaphylos canescens ssp. sonomensis*	PDERI04066			G3G4T2	S2	1B.2
20	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
21	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
22	Trinity River jewelflower *Streptanthus oblanceolatus*	PDBRA2G500			G1	S1	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
23	Trinity shoulderband *Helminthoglypta talmadgei*	IMGASC2630			G2	S2	
24	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
25	Yuma myotis *Myotis yumanensis*	AMACC01020			G5	S4?	
26	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
27	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
28	bensoniella *Bensoniella oregona*	PDSAX02010		Rare	G3	S2	1B.1
29	buttercup-leaf suksdorfia *Hemieva ranunculifolia*	PDSAX0W010			G5	S2	2B.2
30	chinook salmon - spring-run Klamath-Trinity Rivers pop. *Oncorhynchus tshawytscha*	AFCHA02056			G5	S1S2	SC
31	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2
32	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
33	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
34	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
35	fringed myotis *Myotis thysanodes*	AMACC01090			G4	S4	
36	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2
37	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
38	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
39	hooded lancetooth *Ancotrema voyanum*	IMGAS36130			G1G2	S1S2	
40	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
41	long-eared myotis *Myotis evotis*	AMACC01070			G5	S4?	
42	long-legged myotis *Myotis volans*	AMACC01110			G5	S4?	
43	northern clustered sedge *Carex arcta*	PMCYP030X0			G5	S2	2B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
44	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
45	northern meadow sedge *Carex praticola*	PMCYP03B20			G5	S2S3	2B.2
46	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
47	obtuse starwort *Stellaria obtusa*	PDCAR0X0U0			G5	S3.3	4.3
48	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
49	pale yellow stonecrop *Sedum laxum ssp. flavidum*	PDCRA0A0L2			G5T3Q	S3.3	4.3
50	pink-margined monkeyflower *Erythranthe trinitiensis*	PDPHR01070			G2	S2	1B.3
51	rattlesnake fern *Botrypus virginianus*	PPOPH010H0			G5	S2	2B.2
52	silver-haired bat *Lasionycteris noctivagans*	AMACC02010			G5	S3S4	
53	small groundcone *Kopsiopsis hookeri*	PDORO01010			G5	S1S2	2B.3
54	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
55	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
56	wayside aster *Eucephalus vialis*	PDASTEC0A0			G3	S1	1B.2
57	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
58	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3?	S2	1B.2
59	willow flycatcher *Empidonax traillii*	ABPAE33040		Endangered	G5	S1S2	


Sharber-Peckham Creek Fish Passage Project
Project Location Map
T6N R5E S13
Salyer Quad
Trinity County
Springs
Quinby
RECREATION
Spring
Mile
35
TRINITY
Barrier removal site
0
0.25
0.5
Miles
N
S
E
W
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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Prospect Creek Road Decommissioning (South Fork Trinity)

Introduction:

The Trinity County Resource Conservation District (TCRCD) will prevent 12,239 yards^3 of sediment from delivery to fish bearing streams and maintain critical coho salmon habitat by decommissioning 6.24 miles of roadway, including 33 road crossings on Prospect Creek in the South Fork of the Trinity River Watershed.

1. This project is necessary as road systems have become widely recognized throughout the region as one of the most significant sources of accelerated sediment production and delivery to stream channels. In Prospect Creek, as elsewhere, the disturbance and degradation of stream channels caused by excess sediment input during large rainfall events is clearly one of the most significant factors negatively affecting salmonid habitat. Reducing sediment inputs will increase salmonid survival and improve the aquatic ecosystem as a whole through increased habitat complexity, improved substrate conditions and reduced turbidity levels.

2. The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured.

3. All habitat improvement will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* Parts VII, IX, and XI, XII (Flosi et al 1998 and 2002).

Objectives:

1. Decommission roads, guided by assessment.

2. Improve and protect water quality and salmonid habitat in Prospect Creek and the South Fork of the Trinity River.

3. Implement cost-effective erosion control and erosion prevention work on high priority roads, based on the “Action Plan for the Restoration of the South Fork Trinity River Watershed” (PWA 1994).

4. Reduce threats of both chronic fine sediment from road surfaces and episodic inputs of sediment from road failures during large magnitude storms.

5. Prevent fill failures, stream crossing washouts, stream diversions and chronic road surface erosion.

6. Reduce further degradation of water quality and salmonid habitat in the Prospect Creek watershed.

Project Description:

Location:

Prospect Creek is approximately 18 miles south of Hayfork, Trinity County California. The project area is located approximately 2 miles from the confluence of Prospect Creek and South Fork Trinity River. The project roads and locations are as follows:
29N30A: North 40.310032 West – 123.116545
28N66: North 40.300167 West – 123.112606
28N51, 28N51A, 28N51B: North 40.284201 West – 123.117397

Project Set Up:

The project tasks will be completed as specified below:

- Grant Coordinator: This role is to oversee all aspects of the project, both in the field and administratively, including coordination and problem solving with all agencies, land owners and subcontractors. It is the Grant Coordinator's responsibility to make sure permits, landowner agreements and grant agreements are in place and followed. He assures equipment and materials are provided as needed, often delivering materials on site to review progress and completed work. He reviews work in the field and works regularly with technical consultants to make sure work is being done to the required standards. He is responsible for the review and editing of all invoices and reporting on projects. His time is split between the field, meetings and the office.

- Project Coordinator II: This role is to draft subcontracts, invoices, permit applications and reports, working closely with the Project Coordinator I. This individual assists in tracking project's budgets and progress and conducts some of the documentation in the field as well as communication with partners and subcontractors. This individual spends the majority of time in the office, but does attend meetings with agencies and works in the field as needed.

- Project Coordinator I: This individual conducts project documentation in the field. This individual directs and oversees activities of subcontractors with road decommissioning work and the Conservation Technicians in the implementation of riparian planting, erosion control measures.

- Conservation Technicians I&II: These individuals handle tasks during implementation such as water diversion, riparian planting, mulch and seeding and other erosion control measures. They do whatever is needed to keep implementation running, whether that is staging materials, assisting someone with finding work locations and access as well as many other field-related project tasks. They coordinate their activities with the

Project Coordinator I, and quite often are supervised by the Project Coordinator II.

- Heavy Equipment and Labor Subcontractor: The heavy equipment and labor subcontractor will provide all necessary heavy equipment, operators and skilled laborers required to complete the project as designed. This includes but may not be limited to the excavation of stream crossing and unstable road fills, road drainage treatments (outsloping, cross road drains, etc.), and installation of in-stream structures using a team of hydraulic excavators, bulldozers and dump trucks. In addition, laborers will be used to spread straw and mulch, run and monitor pumps during any necessary dewatering operations, and maintain and monitor equipment.
- Geologic Subcontractor: The geologic subcontractor will provide technical oversight and supervision of heavy equipment and labor operations, field layout prior to heavy equipment and labor arrival, before and after photographic monitoring, maintaining regular communications between the Grant Coordinator, Project Coordinators I&II, and all subcontractors, and reporting of accomplishments completed during the implementation project.

Materials:

Materials include straw bales for mulching, native grass seed for reseeding disturbed areas, 6000 riparian plants and locally procured large wood for instream treatments.

Tasks:

Implement site specific treatments based on the “Action Plan for the Restoration of the South Fork Trinity River Watershed” (PWA 1994) to prevent or control sediment yield to stream channels. Prevent approximately 12,239 cubic yards of future erosion and sediment delivery from the failure of 33 stream crossings, and road related sediment sources. Decommission 6.24 miles of forest logging roads.

1. Complete plant/wildlife surveys and final project staking.
2. Secure all necessary permits.
3. Finalize contracting services.
4. Implement project work.
5. Road ripping or decompaction wherein the surface of the road or landing is "decompacted" or is turned over using mechanical rippers. This action reduces surface runoff and often dramatically improves revegetation.

6. Cross-road drains (deep waterbars) are installed at 50, 75, 100 or 200-foot intervals, or as necessary at springs and seeps, to disperse road surface runoff, especially on roads that are to be permanently decommissioned. Cross-road drains are large ditches or trenches excavated across a road or landing surface to provide permanent drainage and to prevent the collection of concentrated runoff on the former roadbed. In some locations, such as in streamside zones, mild outsloping may be used instead of cross road drain construction.

7. In-place stream crossing excavation (IPRX) is a decommissioning treatment that is employed at locations where roads or landings were built across stream channels. The fill (including the culvert or Humboldt log crossing) is completely excavated and the original stream bed and side slopes are exhumed. Excavated spoil is stored at nearby stable locations where it will not erode, sometimes being pushed several hundred feet from the crossing by tractor(s). A stream crossing excavation typically involves more than simply removing the culvert, as the underlying and adjacent fill material must also be removed and stabilized. Side slopes are excavated to about a 2:1 slope so that they can be mulched and seeded with minimal post-project erosion.

8. Exported stream crossing excavation (ERX) is a decommissioning treatment where stream crossing fill material is excavated and spoil is hauled off-site for storage. Spoil is moved farther up- or down-road from the crossing, due to the limited amount of stable storage locations at the excavation site. This treatment frequently requires dump trucks to endhaul spoil material to the off-site location.

9. In-place outsloping (IPOS) ("pulling the sidecast") calls for excavation of unstable or potentially unstable sidecast material along the outside edge of a road prism or landing, and replacement of the spoil on the roadbed against the corresponding, adjacent cutbank, or within several hundred feet of the site. Placement of the spoil material against the cutbank usually blocks access to the road and is used in road decommissioning. In road upgrading, the excavated material can be used to build up the roadbed and convert an insloped, ditched road to an outsloped road.

10. Exported outsloping (EOS) is comparable to in-place outsloping, except spoil material is moved off-site to a permanent, stable storage location. Where the road prism is very narrow, where there are springs along the road cutbank or where continued use of the road is anticipated, spoil material is typically not placed against the cutbank, and material is end hauled to a spoil disposal site. This treatment frequently requires dump

trucks to endhaul spoil material. This is typically a decommissioning treatment as part of the entire roadbed is removed.

11. Working with the Grantor, place large wood suitable for improving in-stream habitat. Suitable LWD material will be placed along or near the streambank of Prospect Creek or where natural recruitment potential is determined or where material is accessible to labor crews for constructing in-stream habitat improvements.

12. Conduct Riparian planting. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

13. Treat sites for erosion control. Seeding and mulching of all exposed soils shall be done for all slopes which may deliver sediment to a stream. Woody debris will be concentrated on finished slopes adjacent to stream crossings. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. Mulching and seeding will take place as sites are completed to avoid unforeseen erosion.

14. Conduct Project Monitoring.

15. Draft final report for Grantor review.

16. Deliver final Report.

Deliverables:

A final project report which contains: 1) general grant information, 2) location of work, 3) project access, 4) participating landowners names and addresses, 5) a description and analysis of the restoration and planning techniques used, 6) a description of the results of the project, 7) dates of work and the number of person hours expended, 8) labeled before and after photos of selected restoration activities and techniques, 9) grant dollars spent and contributed and/or in kind services used to complete the project, and 10) GIS generated maps and shapefiles for the project area. 11) As built workplans for all work completed, summary database identifying road miles decommissioned, number of road crossings excavated with total cubic yards removed.
12) Monitoring report for work completed in the first year.

Timelines:

- June 1, 2015- Complete plant/wildlife surveys, final project staking
- July thru October 15, 2015- Contracting services, Implementation work, Erosion prevention, Monitoring
- November 2015- Riparian planting
- May/June 2016- Monitoring, planting
- July thru October 15, 2016- Contracting services, Implementation work, Erosion prevention, Monitoring
- November 2016- Riparian planting
- February 2016- Draft final report
- March 2016- Final report, all project deliverables due before end term date of grant agreement

Additional Requirements:

1. The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. Timing of work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the California Department of Fish and Wildlife.

2. The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

    - Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
    - The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
    - All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

- The Grantee will provide fish relocation data to the Grantor Project Manager on a form provided by the Grantor.
- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

3. Final structure design and placement of habitat structures will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

4. All road decommissioning will be done in accordance with techniques described in the Handbook for Forest and Ranch Roads, (PWA, 1994c.) and the *California Salmonid Stream Habitat Restoration Manual*, Volume II, Part X. All road upgrade and decommissioning sites and techniques shall be approved by the Grantor Project Manager before any equipment work takes place.

5. All crossings treated in fish bearing reaches of streams will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and the criteria for adult and juvenile salmonid fish passage as described in Volume II, Part IX of the *California Salmonid Stream Habitat Restoration Manual*.

6. Seeding and mulching of all exposed soils shall be done for all slopes which may deliver sediment to a stream. Woody debris will be concentrated on finished slopes adjacent to stream crossings. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. Mulching and seeding will take place as sites are completed to avoid unforeseen erosion. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

7. Sites which are expected to erode and deliver sediment to the stream are the only locations where work will be authorized for reimbursement under the terms of this agreement. Reimbursement will not be authorized for work done to improve aesthetics only.

8. The landowner or responsible party must sign an access agreement stating they agree to maintain the erosion control project for a period of not less than 10 years. Maintenance will consist of repair to the road or stream crossing to a level that will effectively reduce sediment from entering the stream. In the event of an act of nature which results in partial or complete failure of the

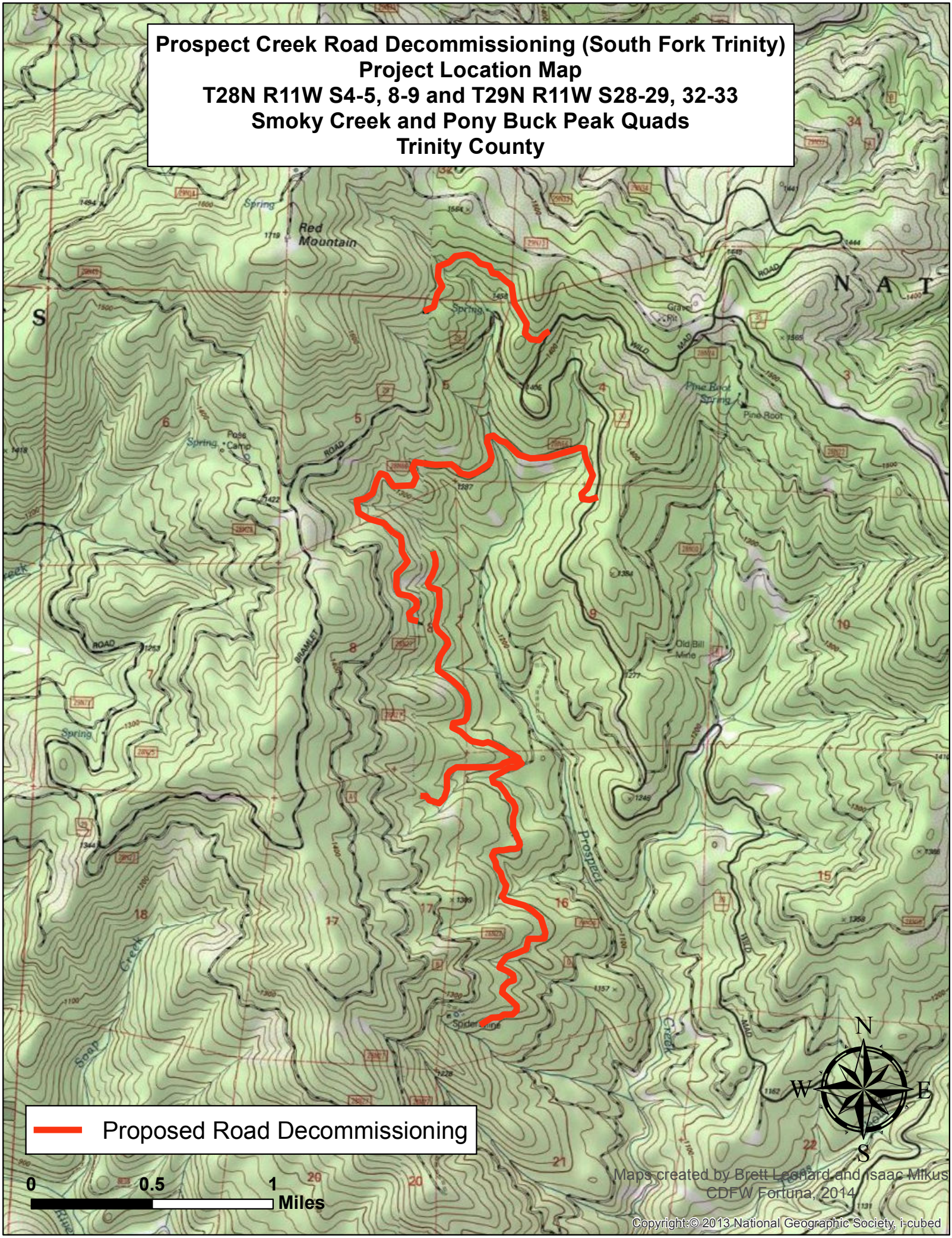
project, the landowner or applicant will not be held responsible for costs incurred after the act of nature. Acts of nature include, but are not limited to floods, earthquakes, volcanic eruptions, and wind storms.

9. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Pony Buck Peak Quad and Surrounding Quads for:
HU D003 Prospect Creek Road Decommissioning (South Fork Trinity)
M 28N 11W Sections 4, 9, and 16
Trinity County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	California wolverine *Gulo gulo*	AMAJF03010		Threatened	G4	S1	
2	Leech's chaetarthrian water scavenger beetle *Chaetarthria leechi*	IICOL5T010			G1?	S1?	
3	Mt. Tedoc leptosiphon *Leptosiphon nuttallii ssp. howellii*	PDPLM090V4			G5T2	S2	1B.3
4	Natural Bridge megomphix *Megomphix californicus*	IMGASB2010			G1G2	S1S2	
5	Niles' harmonia *Harmonia doris-nilesiae*	PDAST650L0			G2	S2	1B.1
6	Oregon fireweed *Epilobium oreganum*	PDONA060P0			G2	S2	1B.2
7	Pacific fuzzwort *Ptilidium californicum*	NBHEP2U010			G3G4	S3?	4.3
8	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S2S3	SC
9	Shasta chaenactis *Chaenactis suffrutescens*	PDAST200H0			G3	S3	1B.3
10	Stebbins' harmonia *Harmonia stebbinsii*	PDAST650K0			G2	S2	1B.2
11	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2S3	SC
12	Tracy's eriastrum *Eriastrum tracyi*	PDPLM030C0		Rare	G3Q	S3	3.2
13	Tracy's sanicle *Sanicula tracyi*	PDAPI1Z0K0			G4	S4	4.2
14	Trinity shoulderband *Helminthoglypta talmadgei*	IMGASC2630			G2	S2	
15	Umpqua green-gentian *Frasera umpquaensis*	PDGEN050F0			G3Q	S1	2B.2
16	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
17	Wawona riffle beetle *Atractelmis wawona*	IICOL58010			G1G3	S1S2	
18	Yolla Bolly Mtns. bird's-foot trefoil *Hosackia yollabolliensis*	PDFAB2A1F0			G2	S2	1B.2
19	chinook salmon - Central Valley spring-run ESU *Oncorhynchus tshawytscha*	AFCHA0205A	Threatened	Threatened	G5	S1	
20	chinook salmon - spring-run Klamath-Trinity Rivers pop. *Oncorhynchus tshawytscha*	AFCHA02056			G5	S1S2	SC
21	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S2S3	2B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
22	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Candidate	Candidate Threatened	G5T2T3Q	S2S3	SC
23	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
24	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
25	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
26	pale yellow stonecrop *Sedum laxum ssp. flavidum*	PDCRA0A0L2			G5T3Q	S3.3	4.3
27	serpentine rockcress *Boechera serpenticola*	PDBRA40110			G1	S1	1B.2
28	silver-haired bat *Lasionycteris noctivagans*	AMACC02010			G5	S3S4	
29	small-flowered calycadenia *Calycadenia micrantha*	PDAST1P0C0			G2	S2	1B.2
30	steelhead - Central Valley DPS *Oncorhynchus mykiss irideus*	AFCHA0209K	Threatened		G5T2Q	S2	
31	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
32	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
33	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
34	woolly meadowfoam *Limnanthes floccosa ssp. floccosa*	PDLIM02043			G4T4	S3	4.2


Prospect Creek Road Decommissioning (South Fork Trinity)
Project Location Map
T28N R11W S4-5, 8-9 and T29N R11W S28-29, 32-33
Smoky Creek and Pony Buck Peak Quads
Trinity County
Red Mountain
Spring
Pass Camp
Pine Root
Old Bill Mine
Prospect
Soap Creek
Spider Gulch
ROAD
BRAMLET
WILD
Proposed Road Decommissioning
0
0.5
1
Miles
N
S
E
W
Maps created by Brett Leonard and Isaac Mikus
CDFW Fortuna, 2014
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12th Street Infiltration Gallery Fish Passage Restoration Project

Introduction:

California Trout will implement the 12th Street Infiltration Gallery Fish Passage Restoration Project. The purpose of this project is to increase steelhead trout populations by restoring access to rearing and spawning habitat, improving water quality by reducing erosion, and eliminating the need for future in-channel construction work in a portion of the Santa Clara River, Ventura County.

This project is necessary because the current earthen diversion is a fish passage barrier, which negatively impacts a federally endangered fish species, while undermining restoration activities elsewhere in the Santa Clara River Watershed (Watershed). The Watershed is one of the largest basins in southern California that supports anadromous runs of steelhead and is identified as a Core 1 steelhead population in the Southern California Steelhead Recovery Plan. Once an iconic steelhead river, dams and diversions built mid-century, and other migration barriers, decreased surface water flows and habitat availability threatening the complete extirpation of southern California steelhead, which had a historic steelhead run of 9,000 returning adults in this river (National Marine Fisheries Service, 2012).

Permit Disclosure: The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

All habitat improvements will follow techniques in the California Stream Habitat Restoration Manual Volume I and Volume II, Chapter XI.

Objective(s):

The objective of this project is to replace a surface diversion, commonly known as the Hyde diversion dam, with an infiltration gallery. Generally, the Project consists of simple network of perforated pipes, bedded in gravel, and buried approximately 20 to 25 feet below the riverbed surface to prevent exposure during storm events.

The goal is to improve fish passage and flow dynamics of the river by restoring upstream and downstream continuity. The new gallery will remove the necessity of building up an earthen dam each year in order to entrain water for several adjacent agricultural operations.

Project Description:

Location:

The project site is located in the Santa Clara River Watershed. The location of the proposed infiltration gallery is adjacent to the City of Santa Paula in Ventura County, along the banks of the mainstem of the Santa Clara River, approximately 100 feet northwest of the south end of the 12th Street Bridge and South Mountain Road, on property owned by The Nature Conservancy.

The project is located at north Latitude 34.3468, west Longitude -119.0514 of the Santa Paula 7.5 Minute U.S.G.S. Quadrangle, as depicted in the Project Location Map (Attachment 1).

Project Set Up:

The Grantee's Project Director and Project Manager will coordinate the project, with additional assistance from an Accountant. This will include securing necessary permits, hiring of all appropriate subcontractors necessary to complete the project (construction contractor, biological monitor, oversight engineer), coordinating project-related meetings and communication, compiling of project status reports, grant management, and oversight of project implementation. The subcontractor, Water Resources Engineering Associates (WREA), engineers are tasked with overseeing construction of the infiltration gallery and dewatering of the project site either through the use of coffer dams or subsurface pumping. The principals for WREA will be Lou Nagy and Michelle Manigold. The construction is likely to be completed by Travis Agricultural Construction or a firm of similar experience.

Materials:

The materials needed to complete the work will include: perforated pvc pipe, solid pvc pipe, washed gravel, concrete, steel pump can, pumps and miscellaneous pipe fittings.

Tasks:

1. Acquisition of all necessary permits, landowner agreements and environmental documents;

2. Biological survey of the site prior to dewatering and installation of exclusion fencing.

3. Pre-project Photo-monitoring Site selection;

4. Dewatering – Finalize the dewatering plan, have it reviewed and approved by the CDFW Project Manager. Depending on the river channel

configuration at the time of construction a coffer dam and diversion with subsurface wells may be necessary.

5. Construction of infiltration gallery – the site preparation will include the construction of a temporary road into the channel and off-channel staging areas. The installation of the pipe network and pump house will be carried out one leg at a time as much as is feasible. A track excavator will be used to trench, place the pipe and backfilled. Once the new infiltration gallery is up and running, the current earthen diversion will be removed and the channel restored to a more natural condition with the upstream and downstream riverbed elevations meeting seamlessly. All impacts will be temporary, and the channel and bank will be restored to post-construction.

    - Mobilize crew and equipment and establish staging area outside of channel.

    - Construct access road and crossing to the infiltration gallery site on the southwest side of the bridge. Move approximately 6,000 cubic yards of soil to establish the gallery footprint and allow access for construction of infiltration trenches.

    - Construct approximately 285 linear feet of infiltration trenches per plan. Includes 12-inch SDR21 PVC slotted well casing with 0.85 slots and gravel pack per plan.

    - Construct approximately 160 linear feet of 14-inch IPS HDPE suction header pipe from the infiltration gallery to the point of the proposed pump assembly.

    - Construct new 12-inch x 33-feet deep vertical steel pump can and install it with concrete base and tie in to the suction pipe. Relocate the existing pump to the new pump can and plumb the new pump discharge assembly.

6. The Grantee will notify WREA that they will be required to provide weekly QA/QC reports to the Grantor's engineer using the CDFW QA/QC reporting template.

7. Site Cleanup and Re-vegetation - The river bottom will be restored to existing grade and re-vegetated with appropriate native plants. Irrigation lines may be installed if it is determined that they are needed.

8. Conduct post-project Implementation monitoring and maintenance.

- Monitoring the restoration site for a period of 3-5 years to document the functionality of the infiltration gallery and report annual withdrawals. Monitor storm events to evaluate how the new system withstands in-stream disturbances. Consult Grantor Project Manager, National Marine Fisheries Service (NMFS) and WREA if problems are noted.

- Evaluate fish habitat improvement projects as described in the California Salmonid Stream Habitat Restoration Manual.
- Maintain riparian plantings such that there is an 80% survival of all plants three years post construction, inspect irrigation lines and emitters, weed planted areas and re-plant as necessary.

9. Grant administration – this includes, but not limited, to personnel oversight, preparation and submission of invoices and progress reports.

10. Prepare final report including monitoring photos and continue to supply on-going monitoring data to regulatory agencies as required by permits and grant agreements. The final report will also contain a complete budget.

All work done under this project will comply with the additional requirements noted under Section 6.03.8 below.

Deliverables:

Unless otherwise specified, submit all progress reports, invoices, compliance reports and draft and final reports to the Grantor Project Manager.

- Implementation plans (Dewatering, Erosion control, Fish removal, Maintenance and Monitoring and Re-vegetation).

- Weekly QA/QC reports.

- Monthly progress reports.

- Final report, including copies of: final as-built design, permits and photos of project pre-, during, and post-construction and outreach materials. Submission of final grant report and final budget.

- Monitoring of re-vegetation effort after project completion along with project monitoring report.

- As-built design drawings and post-construction longitudinal survey report.

Upon completion of the project, the Grantee shall provide a full set of final project design plans, signed as-built construction drawings, a final construction report, permits and project photos from pre, during and post construction. An electronic copy of all material will also be submitted. All project photographs will also be included (as jpeg files) on the CD. Additional deliverables include any public outreach materials (a newsletter and summary of a public meeting) and copies of annual performance evaluation reports of the structural stability and fish passage condition as well as the success of the re-vegetation efforts.

Timelines:

The construction window will be September 15 to October 31, 2015. Any delays will be communicated to the Grantor's Project Manager immediately. The following outlines the various phases that must be accomplished in order to successfully complete the project:

- June 15 to August 30, 2015 – Finalize design, dewatering plan and permits
- September 15 to October 30, 2015 – Construction
- November 1, 2015 to January 30 – Post construction clean-up, riparian planting and installation of irrigation lines
- March 2016 - April 2019: Monitoring and maintenance;
- Weekly (September to October 30, 2015) – submission of QA/QC reports
- Monthly: submission of progress reports and/or updates

Additional Requirements:

1. The Grantee will not proceed with on-the-ground implementation until all necessary permits and consultations are secured and they have received a notice to proceed from the Grantor's Project Manager. Work in flowing streams is restricted per the U.S. Army Corps of Engineers' Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

2. In instances where water is present in the work area, the Grantee shall notify the Grantor's Project Manager a minimum of **five (5) working days** before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee the implementation of the water diversion plan and the safe removal and relocation of steelhead and other fish life from the project area. If the project

requires dewatering of the site, and the relocation of steelhead, the Grantee will implement the following measures to minimize harm and mortality to listed steelhead:

- Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.

- The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.

- All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

- The Grantee will provide fish relocation data to the Grantor's Project Manager on a form provided by the Grantor.

- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the California Salmonid Stream Habitat Restoration Manual.

3. Any modification to the design that occurs during construction must be approved by the Grantee's design engineers and Marcin Whitman, Grantor's Engineer (916) 445-3832, in writing prior to the change being implemented. The Grantor's Project Manager will also be notified by telephone (562)342-7186. **Failure to do so will result in cancellation of the grant.**

4. All habitat improvements will follow techniques described in the California Salmonid Stream Habitat Restoration Manual, Volume I, and Volume II Part XI and Part XII. The Grantee/landowner will maintain the new structure, inspect in a timely manner and remove debris as necessary during the storm season.

5. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

6. New Zealand Mud Snails (NZMS) are not documented to be present in the Ventura River watershed. However, all equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport

of NZM. When transporting traps out of the area, each numbered trap will be bagged in its own bag to avoid cross contamination during transport in and out of the work area. All crew members will decontaminate equipment and shoes for NZM according to the standards detailed in the pamphlet “New Zealand Mudsnails – How to Prevent the Spread of New Zealand Mudsnails Through Field Gear” Second Edition Feb 2010, by Oregon State University.

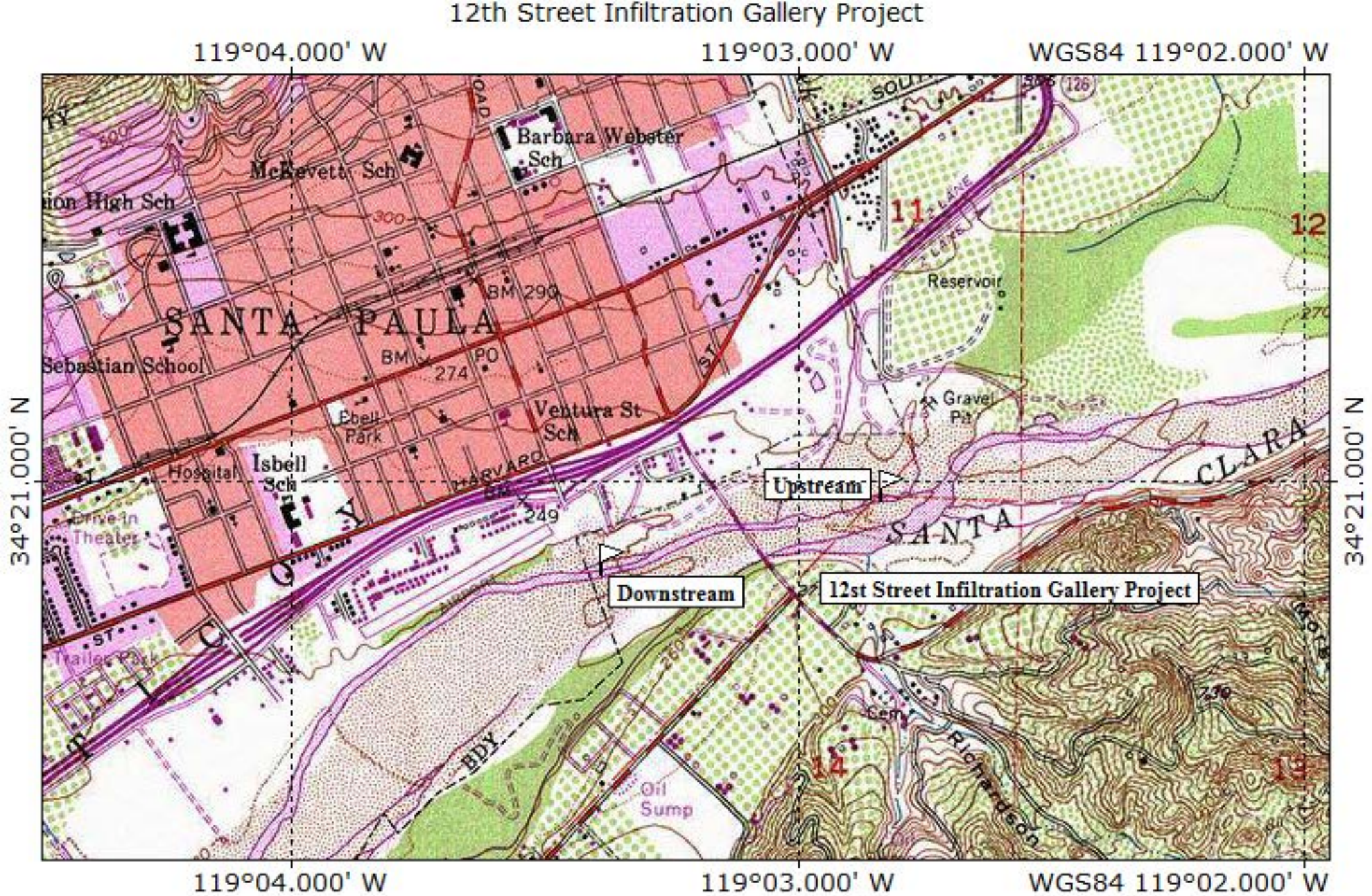
California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
D038 12th Street infiltration gallery fish passage restoration project

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Abrams' oxytheca *Acanthoscyphus parishii var. abramsii*	PDPGN0J041			G4?T2	S2	1B.2
2	American badger *Taxidea taxus*	AMAJF04010			G5	S4	SC
3	Belding's savannah sparrow *Passerculus sandwichensis beldingi*	ABPBX99015		Endangered	G5T3	S3	
4	Blochman's dudleya *Dudleya blochmaniae ssp. blochmaniae*	PDCRA04051			G2T2	S2	1B.1
5	California Walnut Woodland	CTT71210CA			G2	S2.1	
6	California condor *Gymnogyps californianus*	ABNKA03010	Endangered	Endangered	G1	S1	
7	California horned lark *Eremophila alpestris actia*	ABPAT02011			G5T3Q	S3	
8	California least tern *Sternula antillarum browni*	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2S3	
9	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
10	Conejo dudleya *Dudleya parva*	PDCRA04016	Threatened		G2	S2	1B.2
11	Coulter's goldfields *Lasthenia glabrata ssp. coulteri*	PDAST5L0A1			G4T2	S2	1B.1
12	Davidson's saltscale *Atriplex serenana var. davidsonii*	PDCHE041T1			G5T1	S1	1B.2
13	Dulzura pocket mouse *Chaetodipus californicus femoralis*	AMAFD05021			G5T3	S2?	SC
14	Lyon's pentachaeta *Pentachaeta lyonii*	PDAST6X060	Endangered	Endangered	G2	S2	1B.1
15	Mexican malacothrix *Malacothrix similis*	PDAST660D0			G2G3	SH	2A
16	Miles' milk-vetch *Astragalus didymocarpus var. milesianus*	PDFAB0F2X3			G5T2	S2	1B.2
17	Ojai fritillary *Fritillaria ojaiensis*	PMLIL0V0N0			G2	S2	1B.2
18	Ojai navarretia *Navarretia ojaiensis*	PDPLM0C130			G1	S1	1B.1
19	Plummer's mariposa-lily *Calochortus plummerae*	PMLIL0D150			G4	S4	4.2
20	Robinson's pepper-grass *Lepidium virginicum var. robinsonii*	PDBRA1M114			G5T3	S3	4.3
21	Ross' pitcher sage *Lepechinia rossii*	PDLAM0V060			G1	S1	1B.2
22	San Diego desert woodrat *Neotoma lepida intermedia*	AMAFF08041			G5T3?	S3?	SC
23	Santa Ana sucker *Catostomus santaanae*	AFCJC02190	Threatened		G1	S1	SC
24	Santa Monica grasshopper *Trimerotropis occidentiloides*	IIORT36300			G1G2	S1S2	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Southern California Steelhead Stream	CARE2310CA			GNR	SNR	
26	Southern Coast Live Oak Riparian Forest	CTT61310CA			G4	S4	
27	Southern Coastal Salt Marsh	CTT52120CA			G2	S2.1	
28	Southern Cottonwood Willow Riparian Forest	CTT61330CA			G3	S3.2	
29	Southern Mixed Riparian Forest	CTT61340CA			G2	S2.1	
30	Southern Riparian Forest	CTT61300CA			G4	S4	
31	Southern Riparian Scrub	CTT63300CA			G3	S3.2	
32	Southern Sycamore Alder Riparian Woodland	CTT62400CA			G4	S4	
33	Southern Willow Scrub	CTT63320CA			G3	S2.1	
34	Valley Needlegrass Grassland	CTT42110CA			G3	S3.1	
35	Valley Oak Woodland	CTT71130CA			G3	S2.1	
36	Ventura Marsh milk-vetch *Astragalus pycnostachyus var. lanosissimus*	PDFAB0F7B1	Endangered	Endangered	G2T1	S1	1B.1
37	Verity's dudleya *Dudleya verityi*	PDCRA040U0	Threatened		G1	S1	1B.1
38	arroyo chub *Gila orcuttii*	AFCJB13120			G2	S2	SC
39	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2S3	
40	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S3	SC
41	chaparral ragwort *Senecio aphanactis*	PDAST8H060			G3?	S2	2B.2
42	coast horned lizard *Phrynosoma blainvillii*	ARACF12100			G3G4	S3S4	SC
43	coastal California gnatcatcher *Polioptila californica californica*	ABPBJ08081	Threatened		G3T2	S2	SC
44	coastal whiptail *Aspidoscelis tigris stejnegeri*	ARACJ02143			G5T3T4	S2S3	
45	conejo buckwheat *Eriogonum crocatum*	PDPGN081G0		Rare	G1	S1	1B.2
46	dune larkspur *Delphinium parryi ssp. blochmaniae*	PDRAN0B1B1			G4T2	S2	1B.2
47	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
48	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	
49	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
50	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
51	late-flowered mariposa-lily *Calochortus fimbriatus*	PMLIL0D1J2			G3	S3	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
52	least Bell's vireo *Vireo bellii pusillus*	ABPBW01114	Endangered	Endangered	G5T2	S2	
53	marcescent dudleya *Dudleya cymosa ssp. marcescens*	PDCRA040A3	Threatened	Rare	G5T2	S2	1B.2
54	mesa horkelia *Horkelia cuneata var. puberula*	PDROS0W045			G4T1	S1	1B.1
55	mimic tryonia (=California brackishwater snail) *Tryonia imitator*	IMGASJ7040			G2G3	S2S3	
56	monarch butterfly *Danaus plexippus*	IILEPP2010			G5	S3	
57	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
58	salt marsh bird's-beak *Chloropyron maritimum ssp. maritimum*	PDSCR0J0C2	Endangered	Endangered	G4?T1	S1	1B.2
59	sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101			G5T2	S1	
60	silvery legless lizard *Anniella pulchra pulchra*	ARACC01012			G3G4T3T4Q	S3	SC
61	south coast garter snake *Thamnophis sirtalis ssp.*	ARADB3613F			G5T1T2	S1S2	SC
62	southern curly-leaved monardella *Monardella sinuata ssp. sinuata*	PDLAM18161			G3T2	S2	1B.2
63	southern steelhead - southern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209J	Endangered		G5T2Q	S2	SC
64	southern tarplant *Centromadia parryi ssp. australis*	PDAST4R0P4			G3T2	S2	1B.1
65	southwestern willow flycatcher *Empidonax traillii extimus*	ABPAE33043	Endangered	Endangered	G5T1T2	S1	
66	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
67	two-striped garter snake *Thamnophis hammondii*	ARADB36160			G4	S3S4	SC
68	umbrella larkspur *Delphinium umbraculorum*	PDRAN0B1W0			G3	S3	1B.3
69	unarmored threespine stickleback *Gasterosteus aculeatus williamsoni*	AFCPA03011	Endangered	Endangered	G5T1	S1	
70	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
71	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
72	western spadefoot *Spea hammondii*	AAABF02020			G3	S3	SC
73	western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Proposed Threatened	Endangered	G5T3Q	S1	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
74	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3	
75	white-veined monardella *Monardella hypoleuca ssp. hypoleuca*	PDLAM180A3			G4T2T3	S2S3	1B.3
76	woven-spored lichen *Texosporium sancti-jacobi*	NLTEST7980			G3	S1	3


12th Street Infiltration Gallery Project
119°04.000' W
119°03.000' W
WGS84 119°02.000' W
34°21.000' N
Barbara Webster Sch
McKevett Sch
SANTA PAULA
Sebastian School
Ventura St Sch
Ebell Park
Isbell Sch
Hospital
Drive-In Theater
Trailer Park
Reservoir
Gravel Pit
Upstream
Downstream
12st Street Infiltration Gallery Project
SANTA CLARA
Oil Sump
Richardson
TN 13½° MN
0 .5 1 MILE
0 1000 FEET 0 500 1000 METERS
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

San Antonio Creek Arundo Removal

Introduction:

The California Conservation Corps – Camarillo Center, in partnership with the Ojai Valley Land Conservancy (OVLC), will implement the San Antonio Creek Arundo Removal project. The purpose of this project is the removal of non-native plant species *Arundo donax (Arundo)* from San Antonio Creek, Ventura County. San Antonio Creek is critical habitat for southern steelhead, federally listed endangered species. The presence of Arundo reduces the habitat value by utilizing large quantities of water, outcompeting native plants, which nourish the bugs on which steelhead feed and by impairing the natural stream hydrology resulting in excessive bank failure and erosion. This project is part of a larger effort to eradicate *Arundo donax* from the Ventura River watershed.

Permit Disclosure: The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured.

All habitat improvements will follow techniques in the California Stream Habitat Restoration Manual Volume I and Volume II, Chapter XI

Objective(s):

The objective of this project is to remove and chip five (5) acres of *Arundo* from middle San Antonio Creek, Ventura County and improve the riparian function of the stream. This goal is to address one of the limiting factors for steelhead trout in San Antonio Creek.

Project Description:

Location:

The project is located on San Antonio Creek. The upstream extent is 2,029 feet upstream of the Creek Road bridge at Camp Comfort and 5.52 miles upstream of the confluence with the Ventura River. The downstream extent is 3,680 feet downstream of the Creek Road bridge at Camp Comfort and 4.49 miles upstream of the confluence with the Ventura River. The river mouth of the Ventura River is 7.96 miles from the San Antonio Creek confluence.

San Antonio Creek is a tributary to the Ventura River, and the project is located at Latitude 34.43145200, Longitude -119.25509000 (upstream extent)/Latitude 34.42338100, Longitude -119.26496000 (downstream extent) of the Matilija 7.5 Minute U.S.G.S. Quadrangle

Project Set Up:

Grantee's staff (approximately 16 corpsmembers) under the direction of the CCC Conservation Supervisor will cut and remove *Arundo* biomass within the floodplain of San Antonio Creek. The removed biomass will be mulched on site

by the California Conservation Corps (CCC) crew. The cut stumps will be allowed to re-sprout for 8-10 weeks. At this time, the new growth will be foliar sprayed with approved herbicide. This methodology (cut, resprout, spray) has been chosen over the cut stump method because it is the most cost effective method for a CCC crew of approximately 16 corpsmembers to perform during an *Arundo* removal project. The CCC Fish Habitat Assistant and Special Corpmember will obtain the permits for the project and coordinate with the OVLC staff and the CCC staff as well as prepare all project-related reports. OVLC will hire a subcontractor with appropriate experience and permits to monitor and perform herbicide application on re-sprouts for three (3) years, the expense of which is cost share for the project.

Grantee's supervision costs and vehicle and equipment expenses are being provided as in-kind cost share for the project.

Materials:

Materials required for this project are those typically used for removing invasive plants and may include items such as chain saws, loppers, gloves, ropes for hauling, locking carabiner, poison oak scrub, wood chipper and approved herbicide.

Tasks:

Task 1: Secure Permits

Grantee's Fish Habitat Assistant and Fisheries Special Corpsmember will secure a Streambed Alteration Agreement from the Grantor and a Watercourse/Encroachment Permit from the Ventura County Watershed Protection District.

Task 2: Landowner Coordination

Grantee's Fish Habitat Assistant and Fisheries Special Corpsmember will notify all landowners of removal activities two weeks in advance prior to commencing work.

Task 3: Photo Points

Grantee's Fish Habitat Assistant and Fisheries Special Corpsmember will establish photo points in at least five (5) locations along the project site to provide pre- and post- project photos. Photos will be taken once a year for three (3) years after project implementation.

Task 4: Pre-project Implementation

Conduct pre-treatment biological surveys to ensure no listed species are present in the areas to be treated. The Grantee's Fish Habitat Assistant and Fisheries Special Corpsmember will also provide training to the Corpmembers and the Conservation Supervisor on sensitive species and how to report seeing one. They will ensure all permit conditions are being followed during implementation.

Task 5: Implementation

Grantee will implement *Arundo* biomass removal and chipping procedures. All *Arundo* biomass will be cut with hand-held equipment such as chain saws and loppers at a maximum of six (6) inches above grade level. Cuttings will be taken to a chipping site at Camp Comfort or other nearby locations. Cuttings will not be stockpiled in the streambed overnight. Cuttings will not be placed over native vegetation nor will native vegetation be damaged or removed from the work area except as necessary to remove the target species. Stockpiles will only be allowed in the designated staging areas.

Task 6: Herbicide Treatment

Grantee's Fish Habitat Assistant and Fisheries Special Corpsmember will coordinate with the Ojai Valley Land Conservancy (OVLC) to treat *Arundo* regrowth with approved herbicide. The OVLC will hire a contractor to monitor and treat Arundo regrowth. *Arundo* regrowth will be sprayed with approved herbicide 8-10 weeks after the initial biomass removal. Any regrowth will be treated two (2) more times in 8-10 week intervals and monitored and treated quarterly for three (3) years after project implementation.

Task 7: Project Wrap-Up

Billing will be invoiced monthly during project implementation. The final billing, photo points, and final grant report will be submitted to the Grantor's Project Manager.

Deliverables:

Unless otherwise specified, submit all progress reports, invoices, compliance reports and draft and final reports to the Grantor's Project Manager.

- Monthly progress reports and invoices,
- Annual Invasive Plant Removal Report
- Final Invasive Plant Removal Report
- Final Billing and Grant Report

Timelines:

- Secure Permits: January 2015 - September 2015
- Landowner Coordination: August 2015 - January 2017
- Photo Points: September 2015 - March 2017
- Implementation: September 2015 - January 2016 and September 2016 - January 2017
- Herbicide Treatment: December 2015 - December 2019
- Project Wrap-Up: February - March 2017

Additional Requirements:

1. The Grantee will not proceed with on-the-ground implementation until all necessary permits and consultations are secured. Work in flowing streams is restricted per the Army Corps of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

2. No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. Any and all equipment will be removed from the streambed and flood plain areas at the end of each workday.

3. New Zealand Mud Snails (NZMS) are not documented to be present in the Ventura River watershed. However, all equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of NZM. When transporting traps out of the area, each numbered trap will be bagged in its own bag to avoid cross contamination during transport in and out of the work area. All crew members will decontaminate equipment and shoes for NZM according to the standards detailed in the pamphlet “New Zealand Mudsnails – How to Prevent the Spread of New Zealand Mudsnails Through Field Gear” Second Edition Feb 2010, by Oregon State University.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
724448 San Antonio Creek arundo removal

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Abrams' oxytheca *Acanthoscyphus parishii var. abramsii*	PDPGN0J041			G4?T2	S2	1B.2
2	American badger *Taxidea taxus*	AMAJF04010			G5	S4	SC
3	California Walnut Woodland	CTT71210CA			G2	S2.1	
4	California condor *Gymnogyps californianus*	ABNKA03010	Endangered	Endangered	G1	S1	
5	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
6	California satintail *Imperata brevifolia*	PMPOA3D020			G3	S3	2B.1
7	Coast Range newt *Taricha torosa*	AAAAF02032			G4	S4	SC
8	Coulter's goldfields *Lasthenia glabrata ssp. coulteri*	PDAST5L0A1			G4T2	S2	1B.1
9	Coulter's saltbush *Atriplex coulteri*	PDCHE040E0			G2	S2	1B.2
10	Davidson's saltscale *Atriplex serenana var. davidsonii*	PDCHE041T1			G5T1	S1	1B.2
11	Dulzura pocket mouse *Chaetodipus californicus femoralis*	AMAFD05021			G5T3	S2?	SC
12	Mexican long-tongued bat *Choeronycteris mexicana*	AMACB02010			G4	S1	SC
13	Miles' milk-vetch *Astragalus didymocarpus var. milesianus*	PDFAB0F2X3			G5T2	S2	1B.2
14	Ojai fritillary *Fritillaria ojaiensis*	PMLIL0V0N0			G2	S2	1B.2
15	Ojai navarretia *Navarretia ojaiensis*	PDPLM0C130			G1	S1	1B.1
16	Orcutt's pincushion *Chaenactis glabriuscula var. orcuttiana*	PDAST20095			G5T1	S1	1B.1
17	Palmer's mariposa-lily *Calochortus palmeri var. palmeri*	PMLIL0D122			G3T3?	S3?	1B.2
18	Plummer's mariposa-lily *Calochortus plummerae*	PMLIL0D150			G4	S4	4.2
19	Robinson's pepper-grass *Lepidium virginicum var. robinsonii*	PDBRA1M114			G5T3	S3	4.3
20	Salt Spring checkerbloom *Sidalcea neomexicana*	PDMAL110J0			G4?	S2S3	2B.2
21	San Diego desert woodrat *Neotoma lepida intermedia*	AMAFF08041			G5T3?	S3?	SC
22	Sanford's arrowhead *Sagittaria sanfordii*	PMALI040Q0			G3	S3	1B.2
23	Southern California Coastal Lagoon	CALE1220CA			GNR	SNR	
24	Southern California Steelhead Stream	CARE2310CA			GNR	SNR	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Southern Coast Live Oak Riparian Forest	CTT61310CA			G4	S4	
26	Southern Riparian Scrub	CTT63300CA			G3	S3.2	
27	Southern Sycamore Alder Riparian Woodland	CTT62400CA			G4	S4	
28	Ventura Marsh milk-vetch *Astragalus pycnostachyus var. lanosissimus*	PDFAB0F7B1	Endangered	Endangered	G2T1	S1	1B.1
29	aphanisma *Aphanisma blitoides*	PDCHE02010			G3G4	S3	1B.2
30	arroyo chub *Gila orcuttii*	AFCJB13120			G2	S2	SC
31	arroyo toad *Anaxyrus californicus*	AAABB01230	Endangered		G2G3	S2S3	SC
32	chaparral nolina *Nolina cismontana*	PMAGA080E0			G2	S2	1B.2
33	coast horned lizard *Phrynosoma blainvillii*	ARACF12100			G3G4	S3S4	SC
34	coastal whiptail *Aspidoscelis tigris stejnegeri*	ARACJ02143			G5T3T4	S2S3	
35	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S2S3	SC
36	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	
37	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4?	
38	late-flowered mariposa-lily *Calochortus fimbriatus*	PMLIL0D1J2			G3	S3	1B.2
39	least Bell's vireo *Vireo bellii pusillus*	ABPBW01114	Endangered	Endangered	G5T2	S2	
40	mesa horkelia *Horkelia cuneata var. puberula*	PDROS0W045			G4T1	S1	1B.1
41	monarch butterfly *Danaus plexippus*	IILEPP2010			G5	S3	
42	pale-yellow layia *Layia heterotricha*	PDAST5N070			G2	S2	1B.1
43	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
44	silvery legless lizard *Anniella pulchra pulchra*	ARACC01012			G3G4T3T4Q	S3	SC
45	south coast saltscale *Atriplex pacifica*	PDCHE041C0			G3G4	S2	1B.2
46	southern jewelflower *Streptanthus campestris*	PDBRA2G0B0			G2	S2.3	1B.3
47	southern steelhead - southern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209J	Endangered		G5T2Q	S2	SC
48	southern tarplant *Centromadia parryi ssp. australis*	PDAST4R0P4			G3T2	S2	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
49	southwestern willow flycatcher *Empidonax traillii extimus*	ABPAE33043	Endangered	Endangered	G5T1T2	S1	
50	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S2S3	SC
51	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
52	two-striped garter snake *Thamnophis hammondii*	ARADB36160			G4	S3S4	SC
53	umbrella larkspur *Delphinium umbraculorum*	PDRAN0B1W0			G3	S3	1B.3
54	unarmored threespine stickleback *Gasterosteus aculeatus williamsoni*	AFCPA03011	Endangered	Endangered	G5T1	S1	
55	western mastiff bat *Eumops perotis californicus*	AMACD02011			G5T4	S3?	SC
56	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
57	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
58	western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Proposed Threatened	Endangered	G5T3Q	S1	
59	white-veined monardella *Monardella hypoleuca ssp. hypoleuca*	PDLAM180A3			G4T2T3	S2S3	1B.3

San Antonio Creek Arundo Removal Project

119°17.000' W | 119°16.000' W | WGS84 119°15.000' W

34°26.000' N

34°25.000' N

Upstream

Downstream

San Antonio Creek Arundo Removal

Mira Monte

Kroiona Hill

OJAI COUNTRY CLUB

Villanova School

Camp Comfort Park

Water Tanks

Water Tanks

Hospital BM 760

Disposal

Wells San Antonio

Lion Canyon

Creek

OJAI VALLEY TRAIL

VENTURA ROAD

VILLANOVA ROAD

LA LUNA AVE

TICO ROAD

OJAI AVE

BM 664

1363

1793

1141

1037

1040

536

714

TN 13½° MN

0 .5 1 MILE

0 1000 FEET 0 500 1000 METERS

APPENDIX B

MITIGATION MEASURES, MONITORING AND REPORTING PROGRAM FOR THE 2015 FISHERIES RESTORATION GRANT PROGRAM

SECTION 1: MITIGATION

General mitigation measures are implemented for all action items. Specific mitigation measures are identified for the various species found at or near the project site. A CDFW grant manager is assigned to each action item and is responsible for ensuring the general and specific mitigation measures are implemented.

I. AESTHETICS

No specific mitigation measures are required to protect aesthetics.

II. AGRICULTURE RESOURCES

No specific mitigation measures are required to protect agricultural resources.

III. AIR QUALITY

No specific mitigation measures are required to protect air quality.

IV. BIOLOGICAL RESOURCES

A. General Measures for Protection of Biological Resources

1) Timing. To avoid impacts to aquatic habitat the activities carried out in the restoration program typically occur during the summer dry season where flows are low or streams are dry.

   a) Work around streams is restricted to the period of June 15 through November 1 or the first significant rainfall, which ever comes first. Actual project start and end dates, within this timeframe, are at the discretion of the Department of Fish and Wildlife (i.e. on the Shasta River projects must be completed between July 1 and September 15 to avoid impacts to immigrating and emigrating salmonids). This is to take advantage of low stream flow and avoid the spawning and egg/alevin incubation period of salmon and steelhead.

   b) Upslope work generally occurs during the same period as stream work. Road decommissioning and other sediment reduction activities are dependent on soil moisture content. Non jurisdictional upslope projects do not have seasonal restrictions in the Incidental Take

Statement but work may be further restricted at some sites to allow soils to dry out adequately. In some areas equipment access and effectiveness is constrained by wet conditions.

c) The approved work window for individual work sites will be further constrained as necessary to avoid the nesting or breeding seasons of birds and terrestrial animals. At most sites with potential for raptor (including northern spotted owls) and migratory bird nesting, if work is conditioned to start after July 9, potential impacts will be avoided and no surveys will be required. For work sites that might contain nesting marbled murrelets, the starting date will be September 16 in the absence of surveys. The work window at individual work sites could be advanced if surveys determine that nesting birds will not be impacted.

d) For restoration work that may affect swallow nesting habitat (such as removal or modification of bridges, culverts or other structures that show evidence of past swallow nesting activities), construction shall occur after August 31 to avoid the swallow nesting period. Suitable nesting habitat shall be netted prior to the breeding season to prevent nesting. Netting shall be installed before any nesting activity begins, generally prior to March 1. Swallows shall be excluded from areas where construction activities cause nest damage or abandonment.

e) All project activities shall be confined to daylight hours.

2) Projects shall not disturb or dewater more than 500 feet of contiguous stream reach.

3) During all activities at project work sites, all trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.

4) Staging/storage areas for equipment, materials, fuels, lubricants, and solvents, will be located outside of the stream's high water channel and associated riparian area where it cannot enter the stream channel. Stationary equipment such as motors, pumps, generators, compressors, and welders located within the dry portion of the stream channel or adjacent to the stream, will be positioned over drip-pans. Vehicles will be moved out of the normal high water area of the stream prior to refueling and lubricating. The grantee shall ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, CDFW shall ensure that the grantee has prepared a plan to allow a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

5) The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the restoration action while minimizing riparian disturbance without affecting less stable areas, which may increase the risk of channel instability. Existing roads shall be used to access work sites as much as practicable.

6) The access and work area limits shall be identified with brightly colored flagging or fencing. Flagging and fencing shall be maintained in good repair for the duration of project activities. All areas beyond the identified work area limits shall not be disturbed.

7) Any construction debris shall be prevented from falling into the stream channel. Any material that does fall into a stream during construction shall be immediately removed in a manner that has minimal impact to the streambed and water quality.

8) Where feasible, the construction shall occur from the bank, or on a temporary pad underlain with filter fabric.

9) Any work within the stream channel shall be performed in isolation from the flowing stream and erosion protection measures shall be in place before work begins.

   a) Prior to dewatering, the best means to bypass flow through the work area to minimize disturbance to the channel and avoid direct mortality of fish and other aquatic invertebrates shall be determined.

   b) If there is any flow when work will be done, the grantee shall construct coffer dams upstream and downstream of the excavation site and divert all flow from upstream of the upstream dam to downstream of the downstream dam.

   c) No heavy equipment shall operate in the live stream, except as may be necessary to construct coffer dams to divert stream flow and isolate the work site.

   d) Coffer dams may be constructed with clean river run gravel or sand bags, and may be sealed with sheet plastic. Upon project completion, sand bags and any sheet plastic shall be removed from the stream. Clean river run gravel may be left in the stream channel, provided it does not impede stream flow or fish passage, and conforms to natural channel morphology without significant disturbance to natural substrate.

   e) Dewatering shall be coordinated with a qualified fisheries biologist to perform fish and amphibian relocation activities.

f) The length of the dewatered stream channel and the duration of the dewatering shall be kept to a minimum and shall be expected to be less than 300 contiguous feet or 500 total feet per site.

g) When bypassing stream flow around work area, stream flow below the construction site shall be maintained similar to the unimpeded flow at all times.

h) The work area shall be periodically pumped dry of seepage. Pumps shall be placed in flat areas, away from the stream channel. Pumps shall be secured by tying off to a tree or staked in place to prevent movement by vibration. Pump intakes shall be covered with 0.125 inch mesh to prevent entrainment of fish or amphibians that failed to be removed. Pump intakes shall be periodically checked for impingement of fish or amphibians, and shall be relocated according to the approved measured outlined for each species bellow.

i) If necessary, flow shall be diverted around the work site, either by pump or by gravity flow, the suction end of the intake pipe shall be fitted with fish screens meeting CDFW and NOAA criteria to prevent entrainment or impingement of small fish. Any turbid water pumped from the work site itself to maintain it in a dewatered state shall be disposed of in an upland location where it will not drain directly into any stream channel.

j) Fish shall be excluded from the work area by blocking the stream channel above and below the work area with fine-meshed net or screen. Mesh shall be no greater than 1/8-inch diameter. The bottom edge of the net or screen shall be completely secured to the channel bed to prevent fish from reentering the work area. Exclusion screening shall be placed in areas of low water velocity to minimize fish impingement. Screens shall be regularly checked and cleaned of debris to permit free flow of water.

10) Where the disturbance to construct coffer dams to isolate the work site would be greater than to complete the action (for example, placement of a single boulder cluster), the action shall be carried out without dewatering and fish relocation. Furthermore, measures shall be put in place immediately downstream of the work site to capture suspended sediment. This may include installation of silt catchment fences across the stream, or placement of a filter berm of clean river gravel. Silt fences and other non-native materials will be removed from the stream following completion of the activity. Gravel berms may be left in the stream channel provided it does not impede stream flow or fish passage, and conforms to natural channel morphology without significant disturbance to natural substrate.

11) Best management practices associated with fish screens and measures to minimize effects to salmonids associated with fish screen construction, maintenance, and repair are presented below:

a) Screening projects shall only take place on diversions with a capacity of 60 cfs or less. Screening larger diversions shall require separate consultation. Fish screens shall be operated and maintained in compliance with current law, including Fish and Game Code, and CDFW fish screening criteria. CDFW screening criteria may be referenced on the Internet at: http://www.dfg.ca.gov/fish/Resources/Projects/Engin/Engin_ScreenCriteria.asp.

b) Notwithstanding Fish and Game Code section 6027, fish screens and bypass pipes or channels shall be in-place and maintained in working order at all times water is being diverted.

c) If a screen site is dewatered for repairs or maintenance when targeted fish species are likely to be present, measures shall be taken to minimize harm and mortality to targeted species resulting from fish relocation and dewatering activities. The responsible party shall notify CDFW before the project site is de-watered and streamflow diverted. The notification shall provide a reasonable time for personnel to supervise the implementation of a water diversion plan and oversee the safe removal and relocation of salmonids and other fish life from the project area. If the project requires site dewatering and fish relocation, the responsible party shall implement the dewatering and relocation measures as described in this document to minimize harm and mortality to listed species.

d) If a fish screen is removed for cleaning or repair, measures shall be undertaken to ensure juvenile fish are not passively entrained into the diversion canal. The area shall be isolated, cleared of fish, and dewatered prior to screen maintenance or replacement. If dewatering the work area is infeasible, then the area in front of the screen shall be cleared of fish utilizing a seine net that remains in place until the project is complete. In the case of a damaged screen, a replacement screen shall be installed immediately or the diversion shut down until a screen is in place.

e) Fish screens shall be inspected and maintained regularly (not less than two times per week) to ensure that they are functioning as designed and meeting CDFW fish screening criteria. During the diversion season, screens shall be visually inspected while in operation to ensure they are performing properly. Outside the diversion season when the screening structure is dewatered, the screen and associated diversion structure shall be more thoroughly evaluated.

f) Existing roads shall be used to access screen sites with vehicles and/or equipment whenever possible. If it is necessary to create access to a screen site for repairs or maintenance, access points shall be identified at stable stream bank locations that minimize riparian disturbance.

g) Sediment and debris removal at a screen site shall take place as often as needed to ensure that screening criteria are met. Sediment and debris shall be removed and disposed at a location where it will not re-enter the water course.

h) Stationary equipment used in performing screen maintenance and repairs, such as motors, pumps, generators, and welders, located within or adjacent to a stream shall be positioned over drip pans.

i) Equipment which is used to maintain and/or repair fish screens shall be in good condition and checked and maintained on a daily basis to prevent leaks of materials that could be deleterious to aquatic life, wildlife, or riparian habitat.

j) To the extent possible repairs to a fish screen or screen site shall be made during a period of time when the target species of fish are not likely to be present (for example, in a seasonal creek, repair work should be performed when the stream is dry).

k) Equipment used to maintain and/or repair fish screens shall not operate in a flowing stream except as may be necessary to construct coffer dams to divert stream flow and isolate the work site.

l) Turbid water which is generated by screen maintenance or repair activities shall be discharged to an area where it will not re-enter the stream. If the CDFW determines that turbidity/siltation levels resulting from screen maintenance or repair activities constitute a threat to aquatic life, all activities associated with the turbidity/siltation shall cease until effective CDFW-approved sediment control devices are installed and/or abatement procedures are implemented.

12) Any equipment entering the active stream (for example, in the process of installing a coffer dam) shall be preceded by an individual on foot to displace wildlife and prevent them from being crushed.

13) If any non-special status wildlife are encountered during the course of construction, said wildlife shall be allowed to leave the construction area unharmed, and shall be flushed, hazed, or herded in a safe direction away from the project site. “Special status wildlife” is defined as any species that meets the definition of “endangered, rare, or threatened species” in section 15380, article 20 in Title 14 of the California Code of Regulations, also known as the “CEQA Guidelines”.

14) Any red tree vole nests encountered at a work site shall be flagged and avoided during construction.

15) For any work sites containing western pond turtles, salamander, foothill yellow-legged frogs, or tailed frogs, the grantee shall provide to the CDFW grant manager for review and approval, a list of the exclusion measures that will be used at their work site to prevent take or injury to any individual pond turtles, salamanders, or frogs that could occur on the site. The grantee shall ensure that the approved exclusion measures are in place prior to construction. Any turtles or frogs found within the exclusion zone shall be moved to a safe location upstream or downstream of the work site, prior to construction.

16) All habitat improvements shall be done in accordance with techniques in the *California Salmonid Stream Habitat Restoration Manual*. The most current version of the manual is available at: http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp.

17) The grantee shall have dependable radio or phone communication on-site to be able to report any accidents or fire that might occur.

18) Installation of bridges, culverts, or other structures shall be done so that water flow is not impaired and upstream and downstream passage of fish is assured at all times. Bottoms of temporary culverts shall be placed at or below stream channel grade.

19) Temporary fill shall be removed in its entirety prior to close of work-window.

B. Specific Measures for Endangered, Rare, or Threatened Species That Could Occur at Specific Work Sites

1) Rare Plants

The work sites for the 2015 grants projects are within the range of a variety of rare plant species. The plant species found on a State or Federal special status list that might be associated with the 2015 grants projects, was determined from a search of CDFW's Natural Diversity Database. Because of the large number of widely scattered work sites proposed, it is not feasible to survey individual work sites in advance and still be able to implement the restoration projects, due to time limits on the availability of restoration funds. Lists of special status plant species that might occur at individual work sites are presented in Appendix A. Past experience with grants projects from previous years has shown that the potential for adverse impacts on rare plants at salmonid restoration work sites is very

low. Few sites surveyed for rare plants between 1999 and 2012 were found to have rare plant colonies; disturbance of rare plants was avoided in all cases. In order to avoid impacts to rare plants during the 2015 grants projects, the following mitigation measures will be implemented:

a) CDFW or another qualified biological consultant shall survey all work sites for rare plants prior to any ground disturbing activities. Rare plant surveys will be conducted following the "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities" (CDFW, 2009). These guidelines are available in Appendix C or on the web at: http://www.dfg.ca.gov/habcon/plant/.

b) If any special status plant species are identified at a work site, CDFW shall require one or more of the following protective measures to be implemented before work can proceed:

   i. Fencing to prevent accidental disturbance of rare plants during construction,

   ii. On-site monitoring by a qualified biologist during construction to assure that rare plants are not disturbed, and

   iii. Redesign of proposed work to avoid disturbance of rare plants.

c) If it becomes impossible to implement the project at a work site without potentially significant impacts to rare plants, then activity at that work site shall be discontinued.

d) CDFW shall ensure that the grantee or responsible party is aware of these site-specific conditions, and shall inspect the work site before, during, and after completion of the action item.

2) Arroyo toad (*Anaxyrus californicus*)

Of the 66 work sites proposed as part of the 2015 grants program, two sites (724431 Circle G Ranch Passage Restoration and 724448 San Antonio Creek Arundo Removal) shows the Arroyo Toad listed on the corresponding species list in Appendix A. In a recent survey of the project area the Arroyo toad was not found. None of the activities proposed for this site will significantly degrade existing habitat. The following measures will be taken to avoid any potential impact to habitat:

a) The proponent shall retain a biologist who is familiar with arroyo toads to monitor all construction activities and assist the proponent in the implementation of the monitoring program. This person will be approved by the USFWS prior to the onset of ground-disturbing activities. Prior to the onset of any construction activities, the proponent shall request a formal consultation with the USFWS. The proponent shall meet on-site with staff from the USFWS and the

authorized biologist. The proponent shall provide information on the general location of construction activities within habitat of the arroyo toad and the actions taken to reduce impacts to this species. Because arroyo toads may occur in various locations during different seasons of the year, the proponent, the Service, and biologist will, at this preliminary meeting, determine the seasons when specific construction activities would have the least adverse effect on arroyo toads. The goal of this effort is to reduce the level of mortality of arroyo toads during construction. The authorized biologist will be present during all activities immediately adjacent to or within the project site.

b) Prior to the onset of construction activities, the proponent shall provide all personnel who will be present on work areas within or adjacent to the project area the following information:

   i. A detailed description of the arroyo toad including color photographs;

   ii. The protection the arroyo toad receives under the Endangered Species Act and possible legal action or that may be incurred for violation of the Act;

   iii. The protective measures being implemented to conserve the arroyo toad and other species during construction activities associated with the proposed project; and

   iv. A point of contact if arroyo toads are observed.

c) All trash that may attract predators of the arroyo toad will be removed from work sites or completely secured at the end of each work day.

3) California freshwater shrimp (*Syncaris pacifica*)

Eleven out of 66 work sites proposed as part of the 2015 grants program, occur within the range of California freshwater shrimp (CFS) (724435 Redi-mix Concrete Plant Riparian Enhancement Project, 724539 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase I, 724540 Black Mountain Creek Sediment Reduction and Fish Passage Project, 724615 San Geronimo Fish Passage & Habitat Enhancement for Drought Resilience, 724631 Napa River Dry Season Stream Flow Monitoring, 724632 Reducing Road related Sediment Delivery to stream systems in the Wing Canyon Subwatershed, Napa River, 724507 Westminster Woods Water Conservation and Storage Project, 724517 2014 Dutch Bill Creek Coho Habitat Enhancement Project, 724519 Porter Creek Instream Habitat Restoration Project, Phase II, 724520 Grape Creek Instream Habitat Improvement Project, and 724555 Salmon Creek Dairy Water Conservation Project) (Appendix A). The range of the CFS includes Marin, Napa, and Sonoma counties, excluding the Gualala River watershed. Therefore, the potential for impacts to CFS shall be mitigated by complying

with all of the mandatory terms and conditions associated with incidental take authorized by the U. S. Fish and Wildlife Service (USFWS), Biological Opinions (file no. 1-1-03-F-273 and 81420-2009-I-0748-1). CDFW proposes to implement the following measures to minimize adverse effects to the CFS and its habitat:

a) Project activities in potential shrimp habitat shall be restricted to the period between July 1 and November 1.

b) At least 15 days prior to the onset of activities, CDFW shall submit the name(s) and credentials of biologists who will conduct activities specified in the following measures to the USFWS. The grantee shall implement any additional conservation measures requested by CDFW and/or the USFWS.

c) CDFW shall be notified at least one week in advance of the date on which work will start in the stream, so that a qualified CDFW biologist can monitor activities at the work site. All work in the stream shall be stopped immediately if it is determined by CDFW that the work has the potential to adversely impact shrimp or its habitat. Work shall not recommence until CDFW is satisfied that there will be no impact on the shrimp.

d) Where appropriate, a USFWS-approved CDFW biologist will survey each site for shrimp before allowing work to proceed and prior to issuance of a Streambed Alteration Agreement. All overhanging vegetation, undercut banks, and tree roots will be surveyed with a butterfly net or fish net.

e) Prior to the onset of work at a work site that may contain shrimp, the USFWS-approved CDFW biologist shall conduct a training session for all construction personnel. At a minimum the training shall include a description of the shrimp and its habitat, the importance of the shrimp and its habitat, the general measures that are being implemented to conserve the shrimp as they relate to the work site, and the work site boundaries where construction may occur.

f) Only USFWS-approved biologists shall participate in the capture, handling, and monitoring of shrimp. CDFW shall report annually on the number of capture, release and injuries/mortality and agrees to modify capture/release strategy with USFWS staff as needed to prevent adverse effects.

g) In site locations where shrimp are present, CDFW will require the grantee to implement the mitigation measures listed:

    i. Equipment work shall be performed only in riffle, shallow run, or dry habitats, avoiding low velocity pool and run habitats occupied by shrimp, unless shrimp are relocated according to the protocol described below. “Shallow” run habitat is defined as a run with a

maximum water depth, at any point, less than 12 inches, and without undercut banks or vegetation overhanging into the water.

ii. Hand placement of logs or rocks shall be permitted in pool or run habitat in stream reaches where shrimp are known to be present, only if the placement will not adversely affect shrimp or their habitat.

iii. Care shall be taken during placement or movement of materials in the stream to prevent any damage to undercut stream banks and to minimize damage to any streamside vegetation. Streamside vegetation overhanging into pools or runs shall not be removed, trimmed, or otherwise modified.

iv. No log or rock weirs (including vortex rock weirs), or check dams shall be constructed that would span the full width of the low flow stream channel. Vegetation shall be incorporated with any structures involving rocks or logs to enhance migration potential for shrimp.

v. No dumping of dead trees, yard waste or brush shall occur in shrimp streams, which may result in oxygen depletion of aquatic systems.

h) If in the opinion of the USFWS-approved biologist, adverse effects to shrimp would be further minimized by moving shrimp away from the project site, the following procedure shall be used:

i. A second survey shall be conducted within 24 hours of any construction activity and shrimp shall be relocated to the nearest suitable habitat. Shrimp shall be moved while in the net, or placed in buckets containing stream water. Stress and temperature monitoring of shrimp shall be performed by the USFWS-approved biologist. Numbers of shrimp and any mortalities or injuries shall be identified and recorded. Shrimp habitat is defined as reaches in low elevation (less than 116 m) and low gradient (less than one percent) streams where banks are structurally diverse with undercut banks, exposed fine root systems, overhanging woody debris or overhanging vegetation.

ii. When no other habitat exists on a landowner's property, the shrimp shall be held in suitable containers with site water and released at the end of the day. Containers shall be placed in the shade.

i) If moving the shrimp out of the work area cannot be accomplished, and other avoidance measures have been deemed inappropriate, CDFW shall drop activities at the work site from the project.

j) A USFWS-approved CDFW biologist shall be present at the work site until such time as all removal of shrimp, instruction of workers, and habitat disturbance associated with the restoration project have been completed. The USFWS-approved biologist shall have the authority to halt any action that might result in the loss of any shrimp or its habitat. If work is stopped, the USFWS-approved biologist shall immediately notify CDFW and the USFWS.

k) If a work site is temporarily dewatered by pumping, intakes shall be completely screened with wire mesh no larger than 0.2 inch to prevent shrimp from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow with the least disturbance to the substrate.

l) A USFWS-approved biologist shall permanently remove from within the project work site, any individuals of exotic species, such as bullfrogs, centrarchid fishes, and non-native crayfish, to the maximum extent possible. The grantee shall have the responsibility that such removals are done in compliance with the California Department of Fish and Wildlife.

m) Invasive non-native vegetation that provides shrimp habitat and is removed as a result of Program activities shall be replaced with native vegetation that provides comparable habitat for the shrimp. Re-vegetated sites shall be irrigated as necessary until vegetation is established. Re-vegetated sites shall be monitored until shading and cover achieves 80% of pre-project shading and cover and for a minimum of 5 years.

4) California red-legged frog (*Rana draytonii*)

Of the 66 work sites proposed as part of the 2015 grants program, 26 occur within the range of the California red-legged frog (CRLF). Activities proposed for (724435 Redi-mix Concrete Plant Riparian Enhancement Project, 724539 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase I, 724615 San Geronimo Fish Passage & Habitat Enhancement for Drought Resilience, 724446 Marble Gulch Instream Coho Habitat Enhancement Project, 724469 Manly Gulch Coho Access and Habitat Restoration Project, 724477 S. Daugherty Creek Sediment Reduction and Instream Habitat Enhancement, 724480 Little River Coho Stream Habitat Enhancement Project, 724482 South Branch North Fork Navarro River Coho Stream Habitat Enhancement, 724494 Flynn Creek Coho Habitat Enhancement Project, 724502 South Fork Albion River Coho Stream Habitat Enhancement Project-Phase II, 724570 Graphite Creek Sediment Reduction and Habitat Enhancement Project, 724603 John Smith Creek Coho Habitat Enhancement Project, 724608 Big River Road M14 Watercourse Restoration & Road to Trail Conversion, 724466 Big

Sur River Fish Passage Restoration Project – Riverside Campground, 724631 Napa River Dry Season Stream Flow Monitoring, 724632 Reducing Road related Sediment Delivery to stream systems in the Wing Canyon Subwatershed, Napa River, 724554 Chorro Valley Cape Ivy Removal Project, 724568 San Gregorio Creek Habitat Enhancement Project, 724431 Circle G Ranch Fish Passage Restoration, 724634 Little Arthur Creek Residential Storage & Forbearance Project, 724620 Lower Scotts Creek Salmonid Habitat Improvement Project, 724507 Westminster Woods Water Conservation and Storage Project, 724517 2014 Dutch Bill Creek Coho Habitat Enhancement Project, 724519 Porter Creek Instream Habitat Restoration Project, Phase II, 724555 Salmon Creek Dairy Water Conservation Project, and 724448 San Antonio Creek Arundo Removal) (Appendix A) will not remove or degrade CRLF habitat; however, precautions shall be required at these sites to avoid the potential for take of CRLF while using heavy equipment. The potential for impacts to CRLF will be mitigated by complying with all of the mandatory terms and conditions associated with incidental take authorized by the USFWS, Biological Opinion (file no. 1-1-03-F-273, 81420-2009-I-0748-1, and 81440-2009-F-0387 for projects within the San Francisco District of the USACE, and file no. 2008-F-0441 for projects within the Los Angeles District of the USACE). CDFW shall implement the following measures to minimize adverse effects to the CRLF and its habitat:

a) Project activities in potential red-legged frog habitat shall be restricted to the period between July 1 and October 15.

b) At least 15 days prior to the onset of project activities, CDFW shall submit the names(s) and credentials of biologists who would conduct activities specified in the following measures. No project activities shall begin until CDFW has received written approval from the USFWS that the biologist(s) is qualified to conduct the work.

c) Prior to the onset of any project-related activities, the approved biologist must identify appropriate areas to receive red-legged frog adults and tadpoles from the project areas. These areas must be in proximity to the capture site, contain suitable habitat, not be affected by project activities, and be free of exotic predatory species (i.e. bullfrogs, crayfish) to the best of the approved biologist's knowledge.

d) A USFWS-approved biologist shall survey the project site at least two weeks before the onset of activities. If red-legged frogs are found in the project area and these individuals are likely to be killed or injured by work activities, the USFWS-approved biologist will allow sufficient time to move them from the site before work activities resume. Only USFWS-approved biologists will participate in activities with the capture, handling, and monitoring of red-legged frogs.

e) Prior to the onset of project activities, a USFWS-approved biologist shall conduct a training session for all construction personnel. At a minimum,

the training shall include a description of the red-legged frog and its habitat, the importance of the red-legged frog and its habitat, the general measures that are being implemented to conserve the red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.

f) A USFWS-approved biologist shall be present at the work site until such time as removal of red-legged frogs, instruction of workers, and habitat disturbance has been completed. The USFWS-approved biologist shall have the authority to halt any action that might result in impacts that exceed the levels anticipated by the USACE and USFWS during review of the proposed action. If work is stopped, the USACE and the USFWS shall be notified immediately by the USFWS-approved biologist or on-site biological monitor.

g) If red-legged frogs are found and these individuals are likely to be killed or injured by work activities, the USFWS-approved biologists must be allowed sufficient time to move them from the site before work activities resume. The USFWS-approved biologist must relocate the red-legged frogs the shortest distance possible to one of the predetermined areas. The USFWS-approved biologist must maintain detailed records of any individuals that are moved (e.g., size, coloration, any distinguishing features, photographs (digital preferred) to assist in determining whether translocated animals are returning to the point of capture. Only red-legged frogs that are at risk of injury or death by project activities may be moved.

h) A CDFW monitoring plan shall be developed to determine the level of incidental take of the red-legged frog associated with the Restoration Program funded activities in the area. The monitoring plan must include a standardized mechanism to report any observations of dead or injured red-legged frog to the appropriate USACE and USFWS offices.

i) If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than 0.125 inch to prevent red-legged frogs from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain down stream flows during construction activities and eliminate the possibility of ponded water. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the lease disturbance to the substrate.

j) Ponded areas shall be monitored for red-legged frogs that may become entrapped. Any entrapped red-legged frog shall be relocated to a pre-determined receiving area by a USFWS-approved biologist.

k) A USFWS-approved biologist will permanently remove from the project area, any individuals of exotic species, such as bullfrogs (*Rana catesbiana),* centrarchid fishes, and non-native crayfish to the maximum extent possible. The biologist will have the responsibility to ensure that their activities are in compliance with the Fish and Game Code.

l) The USFWS-approved biologist(s) who handle red-legged frogs shall ensure that their activities do not transmit diseases. To ensure that diseases are not conveyed between work sites by the USFWS-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force (http://www.fws.gov/ventura/species_information/protocols_guidelines/docs/DAFTA.pdf) shall be followed at all times.

m) The CDFW or USACE shall report any observation of the incidental take of red-legged frogs associated with the implementation of the Restoration Program projects in accordance with RGP78. The USFWS and the USACE must review the circumstances surrounding the incident to determine whether any patterns of repeated authorized or unauthorized activities are occurring that may indicate that additional protective measures are required. If, after completion of the review, the USACE and the USFWS agree that additional protective measures are required and can be implemented within the existing scope of the action, the USACE must require the CDFW to implement the agreed-upon measures within a reasonable time frame; if the corrective actions cannot be implemented with the scope of the existing action, the USACE and USFWS will determine whether re-initiation of consultation is appropriate.

n) Despite term and condition h of this section (above), the USACE must immediately re-initiate formal consultation with the USFWS, pursuant to 7(a) (2) of the Endangered Species Act, if red-legged frogs are taken within the action area at or in excess of the incidental take anticipated in the Incidental Take Statement section of the U.S, Fish and Wildlife biological opinion (file no. 2008-F-0441), whether by project or by year.

o) If these mitigation measures cannot be implemented or the project activities proposed at a specific work site cannot be modified to prevent or avoid potential impacts to CRLF or its habitat, then project activity at that work site shall be discontinued.

5) California tiger salamander (*Ambystoma californiense)*

Nine of the 66 prosed projects of the 2015 grant program are within the range of the California tiger salamander (724435 Redi-mix Concrete Plant Riparian Enhancement Project, 724539 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase I, 724540 Black Mountain Creek Sediment Reduction and Fish Passage Project, 724615 San Geronimo Fish Passage & Habitat Enhancement for Drought Resilience, 724466 Big

Sur River Fish Passage Restoration Project – Riverside Campground, 724568 San Gregorio Creek Habitat Enhancement Project, 724634 Little Arthur Creek Residential Storage & Forbearance Project, 724507 Westminster Woods Water Conservation and Storage Project, 724517 2014 Dutch Bill Creek Coho Habitat Enhancement Project, 724519 Porter Creek Instream Habitat Restoration Project, Phase II, and 724555 Salmon Creek Dairy Water Conservation Project) (Appendix A), however impacts to the species are highly unlikely as most implementation projects occur in or near the stream and riparian corridor. The species uses ponds and vernal pools for breeding and grassland habitat for estivation, both of which are usually not in proximity to anadromous fish-bearing streams.

6) Coho salmon (*Oncorhynchus kisutch*), Chinook salmon (*Oncorhynchus tshawytscha*), steelhead (*Oncorhynchus mykiss*), and coast cutthroat trout (*Oncorhynchus clarki clarki*)

While all of the work proposed under this program will enhance habitat for one or more of these species, all of the work sites proposed as part of the 2015 grants program could involve instream work in their habitat (Appendix A). In order to avoid any potential for negative impacts to these species, the following measures will be implemented:

a) Project work within the wetted stream shall be limited to the period between June 15 and November 1, or the first significant rainfall, or which ever comes first. This is to take advantage of low stream flows and to avoid the spawning and egg/alevin incubation period of salmon and steelhead. Actual project start and end dates, within this timeframe, are at the discretion of the Department of Fish and Wildlife (i.e. on the Shasta River projects must be completed between July 1 and September 15 to avoid impacts to immigrating and emigrating salmonids). Whenever possible, the work period at individual sites shall be further limited to entirely avoid periods when salmonids are present (for example, in a seasonal creek, work will be confined to the period when the stream is dry).

b) Suitable large woody debris removed from fish passage barriers that is not used for habitat enhancement, shall be left within the riparian zone so as to provide a source for future recruitment of wood into the stream, reduce surface erosion, contribute to amounts of organic debris in the soil, encourage fungi, provide immediate cover for small terrestrial species and to speed recovery of native vegetation.

c) Prior to dewatering a construction site, fish and amphibian species shall be captured and relocated by CDFW personnel (or designated agents). The following measures shall be taken to minimize harm and mortality

to listed salmonids resulting from fish relocation and dewatering activities:

i. Fish relocation and dewatering activities shall only occur between June 15 and November 1 of each year.

ii. Fish relocation shall be performed by a qualified fisheries biologist, with all necessary State and Federal permits. Rescued fish shall be moved to the nearest appropriate site outside of the work area. A record shall be maintained of all fish rescued and moved. The record shall include the date of capture and relocation, the method of capture, the location of the relocation site in relation to the project site, and the number and species of fish captured and relocated. The record shall be provided to CDFW within two weeks of the completion of the work season or project, whichever comes first.

iii. Electrofishing shall be conducted by properly trained personnel following NOAA *Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act*, June 2000.

iv. Prior to capturing fish, the most appropriate release location(s) shall be determined. The following shall be determined:

   i) Temperature: Water temperature shall be similar as the capture location.

   ii) Habitat: There shall be ample habitat for the captured fish.

   iii) Exclusions from work site: There shall be a low likelihood for the fish to reenter the work site or become impinged on exclusion net or screen.

v. The most efficient method for capturing fish shall be determined by the biologist. Complex stream habitat generally requires the use of electrofishing equipment, whereas in outlet pools, fish may be concentrated by pumping-down the pool and then seining or dipnetting fish.

vi. Handling of salmonids shall be minimized. However, when handling is necessary, always wet hands or nets prior to touching fish.

vii. Temporarily hold fish in cool, shaded, aerated water in a container with a lid. Provide aeration with a battery-powered external bubbler. Protect fish from jostling and noise and do not remove fish from this container until time of release.

viii. Air and water temperatures shall be measured periodically. A thermometer shall be placed in holding containers and, if

necessary, periodically conduct partial water changes to maintain a stable water temperature. If water temperature reaches or exceeds 18 °C, fish shall be released and rescue operations ceased.

ix. Overcrowding in containers shall be avoided by having at least two containers and segregating young-of-year (YOY) fish from larger age-classes to avoid predation. Larger amphibians, such as Pacific giant salamanders, shall be placed in the container with larger fish. If fish are abundant, the capturing of fish and amphibians shall cease periodically and shall be released at the predetermined locations.

x. Species and year-class of fish shall be visually estimated at time of release. The number of fish captured shall be counted and recorded. Anesthetization or measuring fish shall be avoided.

xi. If feasible, initial fish relocation efforts shall be performed several days prior to the start of construction. This provides the fisheries biologist an opportunity to return to the work area and perform additional electrofishing passes immediately prior to construction. In many instances, additional fish will be captured that eluded the previous day's efforts.

xii. If mortality during relocation exceeds three percent, capturing efforts shall be stopped and the appropriate agencies shall be contacted immediately.

xiii. In regions of California with high summer temperatures, relocation activities shall be performed in the morning when the temperatures are cooler.

xiv. CDFW shall minimize the amount of wetted stream channel that is dewatered at each individual project site to the fullest extent possible.

xv. Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

d) If these mitigation measures cannot be implemented, or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to anadromous salmonids or their habitat, then activity at that work site shall be discontinued.

7) Least Bell's Vireo (*Vireo bellii pusillus*)

Of the 66 projects proposed as part of the 2015 grants program, four (724635 12th Street Infiltration Gallery Fish Passage Restoration Project,

724431 Circle G Ranch Fish Passage Restoration, 724634 Little Arthur Creek Residential Storage & Forbearance Project, and 724448 San Antonio Creek Arundo Removal) are within the range of the least Bell's vireo. None of the activities proposed for these sites will significantly degrade existing vireo habitat, but the potential exists for the noise from heavy equipment work and the harvesting of willow branches for revegetation at these sites to disrupt vireo nesting. To avoid this potential impact, the following mitigation measures will be implemented:

a) Work shall not begin within one quarter mile of any site with known or potential habitat for the Least Bell's Vireo until after September 15.

b) Harvest of willow branches at any site with potential habitat for the Least Bell's Vireo will not occur between March 1 and September 15.

c) The work window at individual work sites may be modified, if protocol surveys determine that nesting birds do not occur within 0.25 miles of the site during the breeding season.

d) The DFG shall ensure that the grantee or responsible party is aware of this site-specific condition, and will inspect the work site before, during, and after completion of the action item.

e) If for some reason these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to Least Bell's Vireo or their habitat, then activity at that work site will be discontinued

8) Marbled murrelet (*Brachyrampus marmoratus*)

Twelve of the 66 work sites proposed as part of the 2015 grants program are in potentially suitable habitat for the marbled murrelet. Activities proposed for the sites (724582 Rowdy Creek Instream Habitat Enhancement Project: Reach III, 724584 Yontocket Slough Fish Passage Project, 724451 Lower Mattole River and Estuary Riparian Enhancement, 724471 Lower Mattole Coho Habitat Enhancement - Heliwood Phase 2, 724567 Little River Coho Habitat Improvement Project, 724569 Hall Creek Coho Habitat Improvement Project, 724613 Supply Creek Restoration Project, 724524 Upper Mattole Coho Habitat Enhancement Phase II, 724639 Klamath River Tributary Fish Passage Improvement Project (2015-2017), 724539 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase I, 724469 Manly Gulch Coho Access and Habitat Restoration Project, 724501 Cahto Creek Coho Salmon Habitat Enhancement, 724577 Fish Creek Fish Passage Improvement Project, 724607 James Creek Road Decommissioning and Fish Passage Implementation Project, 724568 San Gregorio Creek Habitat Enhancement Project, 724620 Lower Scotts Creek Salmonid Habitat Improvement Project, and 724572 Seiad Creek Coho Habitat Enhancement Project)

(Appendix A) will not remove, degrade, or downgrade suitable marbled murrelet habitat. As a result, direct injury or mortality of murrelets is not an issue. The potential exists for noise from heavy equipment work at these sites to disrupt marbled murrelet nesting. To avoid this potential impact, the following mitigation measures shall be implemented:

a) Restoration work in areas considered by the Arcata and Ventura USFWS offices shall not be conducted within 0.25 mile of occupied or un-surveyed suitable marbled murrelet habitat between March 24 and September 15. Restoration work in areas considered by the Sacramento USFWS Office shall not be conducted within 0.25 mile of any occupied or un-surveyed suitable marbled murrelet habitat between November 1 and September 15.

b) The work window at individual work sites near suitable habitat may be modified, if protocol surveys determine that habitat quality is low and occupancy is very unlikely.

c) If these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential adverse effects to marbled murrelet or their habitat, then activity at that work site shall be discontinued.

d) For projects contained in streams and watersheds included in a USFWS Habitat Conservation Plan the mitigation measures contained within those Habitat Conservation Plans shall be followed.

9) Northern spotted owl (*Strix occidentalis caurina*)

Of the 66 work sites proposed as part of the 2015 grants program, 38 are in potentially suitable habitat for the northern spotted owl (724582 Rowdy Creek Instream Habitat Enhancement Project: Reach III, 724451 Lower Mattole River and Estuary Riparian Enhancement, 724452 Sullivan Gulch Road Decommissioning and Erosion Prevention Project, 724467 Lawrence Creek Road Decommissioning and Coho Habitat Improvement Project, 724471 Lower Mattole Coho Habitat Enhancement - Heliwood Phase 2, 724532 Mattole Flow Program-Water Storage and Forbearance 2015-2018, 724533 West Fork Ryan Creek Sediment Reduction and Coho Habitat Improvement Project, 724567 Little River Coho Habitat Improvement Project, 724569 Hall Creek Coho Habitat Improvement Project, 724642 Bobcat Run Riparian Restoration, 724524 Upper Mattole Coho Habitat Enhancement Phase II, 724639 Klamath River Tributary Fish Passage Improvement Project (2015-2017), 724435 Redi-mix Concrete Plant Riparian Enhancement Project, 724539 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase I, 724615 San Geronimo Fish Passage & Habitat Enhancement for Drought Resilience, 724446 Marble Gulch Instream Coho Habitat Enhancement Project, 724468 Hayworth Creek Watershed Restoration and Implementation

Project, Phase I, 724469 Manly Gulch Coho Access and Habitat Restoration Project, 724472 Upper Jack of Hearts Creek Coho Habitat Restoration Project. 724473 Standley Creek Sediment Reduction Project, Phase 6, 724477 S. Daugherty Creek Sediment Reduction and Instream Habitat Enhancement, 724489 North Fork Noyo River Coho Stream Habitat Enhancement Project, 724494 Flynn Creek Coho Habitat Enhancement Project, 724495 Redwood Creek Coho Stream Habitat Enhancement Project, 724500 Upper Noyo River Large Wood Enhancement Project–Phase III, 724502 South Fork Albion River Coho Stream Habitat Enhancement Project-Phase II, 724577 Fish Creek Fish Passage Improvement Project, 724603 John Smith Creek Coho Habitat Enhancement Project, 724619 Campbell Creek Instream Coho Salmon Habitat Enhancement Project, 724632 Reducing Road related Sediment Delivery to stream systems in the Wing Canyon Subwatershed, Napa River, 724507 Westminster Woods Water Conservation and Storage Project, 724517 2014 Dutch Bill Creek Coho Habitat Enhancement Project, 724519 Porter Creek Instream Habitat Restoration Project, Phase II, 724555 Salmon Creek Dairy Water Conservation Project, 724601 Trinity County Resource Conservation District, and 724531 Sharber-Peckham Creek Fish Passage Project) (Appendix A). None of the activities will remove, degrade, or downgrade northern spotted owl habitat. As a result, direct injury or mortality of owls is not likely. The potential exists for heavy equipment work at these sites to disturb spotted owl nesting. To avoid this potential effect, the following mitigation measures will be implemented:

a) Work with heavy equipment at any site within 0.25 miles of suitable habitat for the northern spotted owl shall not occur from November 1 to July 31 for projects in areas under the jurisdiction of the Sacramento USFWS Office and from November 1 to July 9 for projects in areas under the jurisdiction of the Arcata USFWS Office.

b) The work window at individual work sites may be advanced prior to July 9 or July 31 (corresponding to the different time constraints of the Sacramento and Arcata USFWS office), if protocol surveys determine that suitable habitat is unoccupied.

c) If these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to northern spotted owls or their habitat, then activity at that work site shall be discontinued and CDFW must reinitiate consultation with USFWS.

d) For projects contained within streams and watersheds included in a USFWS Habitat Conservation Plan the mitigation measures contained within those Habitat Conservation Plans shall be followed.

10) Point Arena mountain beaver (*Aplodontia rufa nigra*)

Of the 66 projects proposed as part of the 2015 grants program, five (724472 Upper Jack of Hearts Creek Coho Habitat Restoration Project, 724494 Flynn Creek Coho Habitat Enhancement Project, 724502 South Fork Albion River Coho Stream Habitat Enhancement Project-Phase II, 724570 Graphite Creek Sediment Reduction and Habitat Enhancement Project, and 724603 John Smith Creek Coho Habitat Enhancement Project) (Appendix A). If PAMB or PAMB habitats are encountered during implementation of any projects, to avoid potential impacts to PAMB the following mitigation measures will be implemented:

a) Qualified DFW personnel will survey each work site for PAMB. Qualification of surveyors, survey protocols, and reporting will conform to USFWS's
Guidelines for Project-Related Habitat Assessments and Surveys for Point
Arena Mountain Beaver. Per the *Guidelines*, if the activity status of a burrow is in doubt, or if there is un-surveyed potential habitat, PAMB active presence will be assumed.

b) For work sites where PAMB active presence is confirmed or assumed, all protective measures prescribed by USFWS's *Draft Point Arena Mountain Beaver Standard Protection Measures for No-Take Determinations* will be followed, through issuance of a Streambed Alteration Agreement and/or directives to the grantee by the DFW Contract Manager. The protective measures most pertinent to DFW salmonid habitat improvement projects include:

i. No operation of noise generating equipment (e.g. chainsaws) within 100 feet of active burrows during the breeding season (December 15 – June 30).

ii. No operation of mechanical equipment (e.g. backhoes, excavators) within 100 feet of active burrows during the breeding season (December 15 – June 30), and within 50 feet the remainder of the year.

iii. No ground disturbance (e.g. dumping of boulders) within 500 feet of active burrows during breeding season, and within 100 feet the remainder of the year. No severe ground disturbance (e.g. driving of bridge piles, blasting) within 500 feet of active burrows at any time.

iv. No habitat modification (e.g. vegetation removal) within 400 feet of active burrows.

v. No vegetation modification or removal, or construction of permanent barriers (e.g. fences) at any location or time that may disrupt dispersal or movement of PAMB.

vi. No vehicular or foot traffic within 25 feet of active burrows, and no alteration of water drainage or hydrology in active burrow areas.

c) DFW will require that the Contract Manager must be notified at least one week in advance of the date on which work will start, so that a qualified DFW biologist can monitor activities at the work site. If the necessary protective measures cannot be implemented at a work site, then no work at the site will occur.

11) San Francisco Garter snake (*Thamnophis sirtalis tetrataenia*)

Of the 66 projects proposed in the 2015 grants program, two (724472 Upper Jack of Hearts Creek Coho Habitat Restoration Project, 724568 San Gregorio Creek Habitat Enhancement Project) (Appendix A) is located within the range of the San Francisco garter snake. The activities proposed for this site will not significantly degrade existing habitat. To avoid potential impact, the following mitigation measures will be implemented:

a) Prior to the onset of any construction activities, the proponent shall request a formal consultation with the USFWS and obtain all required permits. The proponent shall meet on-site with staff from the USFWS and the authorized biologist. The proponent shall provide information on the general location of construction activities within habitat of the San Francisco garter snake and the actions taken to reduce impacts to this species. Because San Francisco garter snakes may occur in various locations during different seasons of the year, the proponent, the USFWS, and biologist will, at this preliminary meeting, determine the seasons when specific construction activities would have the least adverse effect on San Francisco garter snake. The goal of this effort is to reduce the level of mortality of San Francisco garter snake during construction.

b) The proponent shall retain a biologist who is familiar with the San Francisco garter snake and will monitor all construction activities and assist the proponent in the implementation of the monitoring program. This person will be approved by the USFWS prior to the onset of ground-disturbing activities. This biologist will be referred to as the authorized biologist hereafter in this document. The authorized biologist will be present during all activities immediately adjacent to or within the project site.

c) Prior to the onset of construction activities, the proponent shall provide all personnel who will be present on work areas within or adjacent to the project area the following information:

i. A detailed description of the San Francisco garter snake including color photographs;

ii. The protection the San Francisco garter snake receives under the Endangered Species Act and possible legal action or that may be incurred for violation of the Act;

iii. The protective measures being implemented to conserve the San Francisco garter snake and other species during construction activities associated with the proposed project; and

iv. A point of contact if San Francisco garter snakes are observed.

d) All trash that may attract predators of the San Francisco garter snake will be removed from work sites or completely secured at the end of each work day.

12) Southwestern Willow flycatcher (*Empidonax traillii extimus*)

Of the 66 work sites proposed as part of the 2015 grants program, three are in potentially suitable habitat for the southwestern willow flycatcher (724431 Circle G Ranch Fish Passage Restoration, 724635 12th Street Infiltration Gallery Fish Passage Restoration Project, 724448 San Antonio Creek Arundo Removal) (Appendix A). None of the activities proposed for these sites will significantly degrade existing southwestern willow flycatcher habitat; however, the potential exists for the noise from heavy equipment work or harvesting of re-vegetation material at these sites to disrupt southwestern willow flycatcher nesting. To avoid this potential impact, the following mitigation measures shall be implemented:

a) Heavy equipment work shall not begin within one quarter mile of any site with known or potential habitat for the southwestern willow flycatcher until after September 15.

b) Prior to any work in areas where riparian habitat is present, a qualified biologist shall do a habitat assessment and determine whether the area within 500 feet of the project site is suitable for nesting by southwestern willow flycatchers. If not, work may proceed without further surveys. If the biologist determines that the area is suitable, a qualified biologist must monitor before and during the project to determine the status of the southwestern willow flycatchers within 500 feet of the project site.

c) The work window at individual work sites may be modified, if protocol surveys determine that nesting birds do not occur within 0.25 miles of the site during the breeding season.

d) Harvest of willow branches at any site with potential habitat for the southwestern willow flycatcher shall not occur between May 1 and September 15.

e) No more than 1/3 of any willow plant shall be harvested annually. Care shall be taken during harvest not to trample or over harvest the willow sources.

f) If any southwestern willow flycatchers are observed nesting within 500 feet of the project activities, work shall cease temporarily until is determined that either the birds are not nesting or young have fledged.

g) DFG shall ensure that the grantee or responsible party is aware of this site-specific condition, and shall inspect the work site before, during, and after completion of the action item.

h) If these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to willow flycatcher or their habitat, then activity at that work site shall be discontinued.

13) Tidewater goby (*Eucyclogobius newberryi*)

Twenty-seven of the 66 work sites proposed as part of the 2015 grants program sites show the tidewater goby listed on the corresponding species lists in Appendix A (724582 Rowdy Creek Instream Habitat Enhancement Project: Reach III, 724452 Sullivan Gulch Road Decommissioning and Erosion Prevention Project, 724467 Lawrence Creek Road Decommissioning and Coho Habitat Improvement Project, 724510 Ryan Creek Coho Habitat Enhancement Project, 724553 Lindsay Creek Coho Habitat Enhancement Project, 724567 Little River Coho Habitat Improvement Project, 724569 Hall Creek Coho Habitat Improvement Project, 724585 Lower Jacoby Creek Off-Channel Rearing Habitat Restoration Project, 724635 12th Street Infiltration Gallery Fish Passage Restoration Project, 724435 Redi-mix Concrete Plant Riparian Enhancement Project, 724539 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase I, 724540 Black Mountain Creek Sediment Reduction and Fish Passage Project, 724615 San Geronimo Fish Passage & Habitat Enhancement for Drought Resilience, 724468 Hayworth Creek Watershed Restoration and Implementation Project, Phase I, 724469 Manly Gulch Coho Access and Habitat Restoration Project, 724472 Upper Jack of Hearts Creek Coho Habitat Restoration Project, 724489 North Fork Noyo River Coho Stream Habitat Enhancement Project, 724570 Graphite Creek Sediment Reduction and Habitat Enhancement Project, 724607 James Creek Road Decommissioning and Fish Passage Implementation Project, 724619 Campbell Creek Instream Coho Salmon Habitat Enhancement Project, 724568 San Gregorio Creek Habitat Enhancement Project, 724431 Circle G Ranch Fish Passage Restoration, 724620 Lower Scotts Creek Salmonid Habitat Improvement Project, 724507 Westminster Woods Water Conservation and Storage Project, 724517 2014 Dutch Bill Creek Coho Habitat Enhancement Project, 724555 Salmon Creek Dairy Water Conservation Project, and 724448 San Antonio Creek Arundo Removal) (Appendix A). Actual work sites are not within the tidal zone and as such will not affect suitable habitat for the tidewater goby.

14) Willow flycatcher (*Empidonax traillii)*

Of the 66 work sites proposed as part of the 2015 grants program, 15 (724582 Rowdy Creek Instream Habitat Enhancement Project: Reach III, 724584 Yontocket Slough Fish Passage Project, 724449 Lower Mill Creek Instream Restoration Project, 724510 Ryan Creek Coho Habitat Enhancement Project, 724553 Lindsay Creek Coho Habitat Enhancement Project, 724567 Little River Coho Habitat Improvement Project, 724569 Hall Creek Coho Habitat Improvement Project, 724585 Lower Jacoby Creek Off-Channel Rearing Habitat Restoration Project, 724610 Mattole Flow Program: McKee Creek Water Storage & Forbearance, 724613 Supply Creek Restoration Project, 724639 Klamath River Tributary Fish Passage Improvement Project (2015-2017), 724551 Bogus Creek Fish Passage - Implementation Project, 724602 Scott River Mile 21 Road Crossing Repair, 724623 Fiock Bank Fine Sediment Reduction, and 724531 Sharber-Peckham Creek Fish Passage Project) are in potentially suitable habitat for the Willow flycatcher (Appendix A). None of the activities proposed for these sites will significantly degrade existing willow flycatcher habitat, but the potential exists for the noise from heavy equipment work or harvesting of revegetation material at these sites to disrupt willow flycatcher nesting. To avoid this potential impact, the following mitigation measures will be implemented:

a) Heavy equipment work shall not begin within one quarter mile of any site with known or potential habitat for the willow flycatcher until after August 31.

b) Harvest of willow branches at any site with potential habitat for the willow flycatcher will not occur between May 1 and August 31.

c) The work window at individual work sites may be modified, if protocol surveys determine that nesting birds do not occur within 0.25 miles of the site during the breeding season.

d) No more than 1/3 of any willow plant shall be harvested annually. Care shall be taken during harvest not to trample or over harvest the willow sources.

e) DFW shall ensure that the grantee or responsible party is aware of this site specific condition, and will inspect the work site before, during, and after completion of the action item.

f) If for some reason these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to willow flycatcher or their habitat, then activity at that work site will be discontinued.

C. Riparian and re-vegetation

1) Planting of seedlings shall begin after December 1, or when sufficient rainfall has occurred to ensure the best chance of survival of the seedlings, but in no case after April 1.

2) Any disturbed banks shall be fully restored upon completion of construction. Revegetation shall be done using native species. Planting techniques can include seed casting, hydroseeding, or live planting methods using the techniques in Part XI of the *California Salmonid Stream Habitat Restoration Manual*.

3) Disturbed and compacted areas shall be re-vegetated with native plant species. The species shall be comprised of a diverse community structure that mimics the native riparian corridor. Planting ratio shall be 2:1 (two plants to every one removed).

4) Unless otherwise specified, the standard for success is 80 percent survival of plantings or 80 percent ground cover for broadcast planting of seed after a period of 3 years.

5) To ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible, equipment shall be cleaned of all dirt, mud, and plant material prior to entering a work site. When possible, invasive exotic plants at the work site shall be removed. Areas disturbed by project activities will be restored and planted with native plants.

6) Mulching and seeding shall be done on all exposed soil which may deliver sediment to a stream. Soils exposed by project operations shall be mulched to prevent sediment runoff and transport. Mulches shall be applied so that not less than 90% of the disturbed areas are covered. All mulches, except hydro-mulch, shall be applied in a layer not less than two (2) inches deep. Where feasible, all mulches shall be kneaded or tracked-in with track marks parallel to the contour, and tackified as necessary to prevent excessive movement. All exposed soils and fills, including the downstream face of the road prism adjacent to the outlet of culverts, shall be reseeded with a mix of native grasses common to the area, free from seeds of noxious or invasive weed species, and applied at a rate which will ensure establishment.

7) If erosion control mats are used in re-vegetation, they shall be made of material that decomposes. Erosion control mats made of nylon plastic, or other non-decomposing material shall not be used.

8) CDFW shall retain as many trees and brush as feasible, emphasizing shade producing and bank stabilizing trees and brush to minimize impacts to the riparian corridor.

9) If riparian vegetation is to be removed with chainsaws, the grantee shall use saws that operate with vegetable-based bar oil when possible.

10) Disturbed and decompacted areas shall be re-vegetated with native species specific to the project location that comprise a diverse community of woody and herbaceous species.

V. CULTURAL RESOURCES

Ground-disturbance will be required to implement the project at certain locations that, despite efforts to identify cultural resources, have the potential to affect these resources. The procedure for a programmatic evaluation of archeological resources is provided in Appendix E. Potential for inadvertent impacts will be avoided through implementation of the following mitigation measures:

1) CDFW shall contract with an archaeologist(s) or other historic preservation professional that meets The Secretary of the Interior's Professional Qualifications Standards (36 CFR Part 61, and 48 FR 44716) to complete cultural resource surveys at any sites with the potential to be impacted prior to any ground disturbing activities. This work may be augmented with the aid of a Native American cultural resources specialist that is culturally affiliated with the project area. Cultural and paleontological resource surveys shall be conducted using standard protocols to meet CEQA Guideline requirements. Paleontological survey protocols are listed in Appendix D.

2) If cultural and/or paleontological resource sites are identified at a project location, CDFW will require one or more of the following protective measures to be implemented before work can proceed: a) fencing to prevent accidental disturbance of cultural resources during construction, b) on-site monitoring by cultural and/or paleontological resource professionals during construction to assure that cultural resources are not disturbed, c) redesign of proposed work to avoid disturbance of cultural resources.

3) CDFW shall report any previously unknown historic, archeological, and paleontological remains discovered at a project location to the USACE as required in the RGP.

4) CDFW shall ensure that the grantee or responsible party is aware of these site-specific conditions, and shall inspect the work site before, during, and after completion of the action item.

5) Inadvertent Discovery of Cultural Resources - If cultural resources, such as lithic debitage, ground stone, historic debris, building foundations, or bone, are discovered during ground-disturbance activities, work shall be stopped within 20 meters (66 feet) of the discovery, per the requirements of CEQA (January 1999 Revised Guidelines, Title 14 CCR 15064.5 (f)). Work near the archaeological finds shall not resume until an archaeologist that meets the Secretary of the Interior's Standards and Guidelines suited to the discovery, has evaluated the materials and offered recommendations for further action. Cultural materials not associated with human interments shall be documented and curated in place.

6) Inadvertent Discovery of Human Remains - If human remains are discovered during project construction, work shall stop at the discovery location, within 20 meters (66 feet), and any nearby area reasonably suspected to overlie adjacent to human remains (Public Resources Code, Section 7050.5). The county coroner shall be contacted to determine if the cause of death must be investigated. If the coroner determines that the remains are of Native American origin, it is necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the Native American heritage Commission (NAHC) (Public Resources Code, Section 5097). The coroner will contact the NAHC. The descendants or most likely descendants of the deceased will be contacted, and work shall not resume until they have made a recommendation to the landowner or the person responsible for the excavation work for means of treatment and disposition, with appropriate dignity, of the human remains and any associated grave goods, as provided in Public Resources Code, Section 5097.98.

7) Procedures for treatment of an inadvertent discovery of human remains:

   a) Immediately following discovery of known or potential human remains all ground-disturbing activities at the point of discovery shall be halted.

   b) No material remains shall be removed from the discovery site, a reasonable exclusion zone shall be cordoned off.

   c) The CDFW Grant Manager and property owner shall be notified and the CDFW Grant Manager shall contact the county coroner.

   d) CDFW shall retain the services of a professional archaeologist to immediately examine the find and assist the process.

   e) All ground-disturbing construction activities in the discovery site exclusion area shall be suspended.

f) The discovery site shall be secured to protect the remains from desecration or disturbance, with 24-hour surveillance, if prudent.

g) Discovery of Native American remains is a very sensitive issue, and all project personnel shall hold any information about such a discovery in confidence and divulge it only on a need-to-know basis, as determined by the CDFW.

h) The coroner has two working days to examine the remains after being notified. If the remains are Native American, the coroner has 24 hours to notify the NAHC in Sacramento (telephone 916/653-4082).

i) The NAHC is responsible for identifying and immediately notifying the Most Likely Descendant (MLD) of the deceased Native American.

j) The MLD may, with the permission of the landowner, or their representative, inspect the site of the discovered Native American remains and may recommend to the landowner and CDFW Grant Manager means for treating or disposing, with appropriate dignity, the human remains and any associated grave goods. The descendants shall complete their inspection and make recommendations or preferences for treatment with 48 hours of being granted access to the site (Public Resource Code, Section 5097.98(a)). The recommendation may include the scientific removal and non-destructive or destructive analysis of human remains and items associated with Native American burials.

k) Whenever the NAHC is unable to identify a MLD, or the MLD identified fails to make a recommendation, or the landowner or his/her authorized representative rejects the recommendation of the MLD and mediation between the parties by the NAHC fails to provide measures acceptable to the landowner, the landowner or his/her authorized representatives shall re-inter the human remains and associated grave offerings with appropriate dignity on the property in a location not subject to further subsurface disturbance in accordance with Public Resource Code, Section 5097.98(e).

l) Following final treatment measures, the CDFW shall ensure that a report is prepared that describes the circumstances, nature and location of the discovery, its treatment, including results of analysis (if permitted), and final disposition, including a confidential map showing the reburial location. Appended to the report shall be a formal record about the discovery site prepared to current California standards on DPR 523 form(s). CDFW shall ensure that report copies are distributed to the appropriate California Historic Information Center, NAHC, and MLD.

8) Pursuant to RGP78 and in accordance to 36 C.F.R. Section 800.13, in the event of any discovery during construction of human remains, archeological deposits, or any other type of historic property, the CDFW shall notify the

USACE archeological staff (Steve Dibble at 213-452-3849 or John Killeen at 213-452-3861) within 24 hours. Construction work shall be suspended immediately and shall not resume until USACE re-authorizes project construction.

9) If it becomes impossible to implement the project at a work site without disturbing cultural or paleontological resources, then activity at that work site shall be discontinued.

VI. GEOLOGY AND SOILS

There is no potential for a significant adverse impact to geology and soils; implementation of the restoration project will contribute to an overall reduction in erosion and sedimentation. Existing roads will be used to access work sites. Ground disturbance at most work sites will be minimal, except for road improvements or decommissioning. Road improvements and decommissioning will involve moving large quantities of soil from road fills and stream crossings to restore historic land surface profiles and prevent chronic erosion and sediment delivery to streams. In order to avoid temporary increases in surface erosion, the following mitigation measures will be implemented:

1) CDFW will implement the following measures to minimize harm to listed salmonids resulting from culvert replacement activities and other instream construction work:

   a) All stream crossing replacement or modification designs, involving fish passage, shall be reviewed and approved by NOAA (or CDFW) engineers prior to onset of work.

   b) If the stream in the project location was not passable to, or was not utilized by all life stages of, all covered salmonids prior to the existence of the road crossing, the project shall pass the life stages and covered salmonid species that historically did pass there. Retrofit culverts shall meet the fish passage criteria for the passage needs of the listed species and life stages historically passing through the site prior to the existence of the road crossing.

2) CDFW shall implement the following measures to minimize harm to listed salmonids resulting from road decommissioning activities:

   a) Woody debris will be concentrated on finished slopes of decommissioned roads adjacent to stream crossings to reduce surface erosion; contribute to amounts of organic debris in the soil; encourage fungi; provide immediate cover for small terrestrial species; and to speed recovery of native forest vegetation.

b) Work sites shall be winterized at the end of each day to minimize the eroding of unfinished excavations when significant rains are forecasted. Winterization procedures shall be supervised by a professional trained in erosion control techniques and involve taking necessary measures to minimize erosion on unfinished work surfaces. Winterization includes the following: smoothing unfinished surfaces to allow water to freely drain across them without concentration or ponding; compacting unfinished surfaces where concentrated runoff may flow with an excavator bucket or similar tool, to minimize surface erosion and the formation of rills; and installation of culverts, silt fences, and other erosion control devices where necessary to convey concentrated water across unfinished surfaces, and trap exposed sediment before it leaves the work site.

3) Effective erosion control measures shall be in-place at all times during construction. Construction within the 5-year flood plain shall not begin until all temporary erosion controls (i.e., straw bales or silt fences that are effectively keyed-in) are in place down slope or down stream of project activities within the riparian area. Erosion control measures shall be maintained throughout the construction period. If continued erosion is likely to occur after construction is completed, then appropriate erosion prevention measures shall be implemented and maintained until erosion has subsided.

4) An adequate supply of erosion control materials (gravel, straw bales, shovels, etc.) shall be maintained onsite to facilitate a quick response to unanticipated storm events or emergencies.

5) Use erosion controls that protect and stabilize stockpiles and exposed soils to prevent movement of materials. Use devices such as plastic sheeting held down with rocks or sandbags over stockpiles, silt fences, or berms of hay bales, to minimize movement of exposed or stockpiled soils.

6) When needed, instream grade control structures shall be utilized to control channel scour, sediment routing, and headwall cutting.

7) Temporary stockpiling of excavated material shall be minimized. However, excavated material shall be stockpiled in areas where it cannot enter the stream channel. Available sites at or near the project location shall be determined prior to the start of construction. If feasible, topsoil shall be conserved for reuse at project location or use in other areas.

8) For projects located within the USACE San Francisco District, an annual limit on the number of sediment-producing projects per HUC 10 watershed shall be implemented to ensure that potential sediment impacts will remain spatially isolated, thus minimizing cumulative turbidity effects. Sediment

producing projects include instream habitat improvement, instream barrier removal, stream bank stabilization, fish passage improvement, upslope road work, and fish screen construction (unless the screen is located in a diversion ditch and is disconnected from the waterway). The limit of projects shall be as follows:

Square mile of HUC 10 watershed	Maximum number of instream and upslope projects per year
<50	2
51-100	3
101-150	4
151-250	5
251-350	6
351-500	9
>500	12

Projects funded by the FRGP that are not authorized under the RGP (i.e., they have undergone separate consultation) or have already been authorized by the RGP in previous years(s) do not count toward the limits described above.

9) Each year, all instream projects shall be separated both upstream and downstream from other proposed instream projects by at least 1500 linear feet in fish bearing stream reaches. In non-fish bearing reaches, the distance separating sediment- producing projects will be 500 feet.

10) Upon project completion, all exposed soil present in and around the project site shall be stabilized within 7 days. Soils exposed by project operations shall be mulched to prevent sediment runoff and transport. Mulches shall be applied so that not less than 90% of the disturbed areas are covered. All mulches, except hydro-mulch, shall be applied in a layer not less than two (2) inches deep. Where feasible, all mulches shall be kneaded or tracked-in with track marks parallel to the contour, and tackified as necessary to prevent excessive movement. All exposed soils and fills, including the downstream face of the road prism adjacent to the outlet of culverts, shall be reseeded with a mix of native grasses common to the area, free from seeds of noxious or invasive weed species, and applied at a rate which will ensure establishment.

11) Soil compaction shall be minimized by using equipment with a greater reach or that exerts less pressure per square inch on the ground, resulting in less overall area disturbed and less compaction of disturbed areas.

12) Disturbed soils shall be decompacted at project completion as heavy equipment exits the construction area.

13) At the completion of the project, soil compaction that is not an integral element of the design of a crossing should be de-compacted.

VII. GREENHOUSE GAS EMISSIONS

No specific mitigation measures are required. Re-vegetation practices will help offset the short term, less than significant, greenhouse gas emissions.

VIII. HAZARDS AND HAZARDOUS MATERIALS

The project will not create a significant hazard to the public or the environment. At work sites requiring the use of heavy equipment, there is a small risk of an accident upsetting the machine and releasing fuel, oil, and coolant, or of an accidental spark from equipment igniting a fire. The potential for these impacts will be reduced to a less than significant level through implementation of the following mitigation measures:

1) Heavy equipment that will be used in these activities will be in good condition and will be inspected for leakage of coolant and petroleum products and repaired, if necessary, before work is started.

2) When operating vehicles in wetted portions of the stream channel, or where wetland vegetation, riparian vegetation, or aquatic organisms may be destroyed, the responsible party shall, at a minimum, do the following:

   a) check and maintain on a daily basis any vehicles to prevent leaks of materials that, if introduced to water, could be deleterious to aquatic life, wildlife, or riparian habitat;

   b) take precautions to minimize the number of passes through the stream and to avoid increasing the turbidity of the water to a level that is deleterious to aquatic life; and

   c) allow the work area to “rest” to allow the water to clear after each individual pass of the vehicle that causes a plume of turbidity above background levels, resuming work only after the stream has reached the original background turbidity levels.

3) All equipment operators shall be trained in the procedures to be taken should an accident occur. Prior to the onset of work, CDFW shall ensure that the grantee has prepared a Spill Prevention/Response plan to help avoid spills and allow a prompt and effective response should an accidental spill occur. All workers shall be informed of the importance of preventing spills. Operators shall have spill clean-up supplies on site and be knowledgeable in their proper deployment.

4) All activities performed in or near a stream will have absorbent materials designed for spill containment and cleanup at the activity site for use in case of an accidental spill. In an event of a spill, work shall cease immediately. Clean-up of all spills shall begin immediately. The responsible party shall notify the State Office of Emergency Services at 1-800-852-7550 and the CDFW immediately after any spill occurs, and shall consult with the CDFW regarding clean-up procedures.

5) All fueling and maintenance of vehicles and other equipment and staging areas shall occur at least 65 feet from any riparian habitat or water body and place fuel absorbent mats under pump while fueling. The USACE and the CDFW will ensure contamination of habitat does not occur during such operations. Prior to the onset of work, the CDFW will ensure that the grantee has prepared a plan to allow a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

6) Location of staging/storage areas for equipment, materials, fuels, lubricants, and solvents, will be located outside of the stream's high water channel and associated riparian area. The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the restoration action. To avoid contamination of habitat during restoration activities, trash will be contained, removed, and disposed of throughout the project.

7) Petroleum products, fresh cement, and other deleterious materials shall not enter the stream channel.

8) Stationary equipment such as motors, pumps, generators, compressors, and welders, located within the dry portion of the stream channel or adjacent to the stream, will be positioned over drip-pans.

9) No debris, soil, silt, sand, bark, slash, spoils, sawdust, rubbish, cement, concrete or washings thereof, asphalt, paint, or other coating material; oil or petroleum products; or other organic or earthen material from any construction or associated activity of whatever nature shall be allowed to enter into, or placed where it may be washed by rainfall or runoff into, waters of the state. When operations are completed, any excess materials or debris shall be removed from the work area and disposed of in a lawful manner.

10) All internal combustion engines shall be fitted with spark arrestors.

11) The grantee shall have an appropriate fire extinguisher(s) and fire fighting tools (shovel and axe at a minimum) present at all times when there is a risk of fire.

12) Vehicles shall not be parked in tall grass or any other location where heat from the exhaust system could ignite a fire.

13) The grantee shall follow any additional rules the landowner has for fire prevention.

14) The potential for mercury contamination is largely predicted by the presence of historic hydraulic gold mines and mercury (cinnabar) mines (California's Abandoned Mines: A Report on the Magnitude and Scope of the Issue in the State, DOC 2000). Therefore, only a few limited areas within the geographic scope of this grant program have any potential for gravels contaminated with elemental mercury, they are: Middle Klamath River, Salmon River, Scott River, and the Lower Middle and Upper Trinity River. (Though studies by the USGS failed to find significant levels of methyl mercury near these mines.)

    a) Given the limited geographical potential for encountering mercury contamination (from historic mining) within the geographic scope, and the limited number of projects within these areas that will either disturb the channel bottom or import gravels for instream restoration; the following avoidance and mitigation measure will be adhered to: any gravel imported from offsite shall be from a source known to not contain historic hydraulic gold mine tailings, dredger tailings, or mercury mine waste or tailings.

IX. HYDROLOGY AND WATER QUALITY

1) Instream work shall be conducted during the period of lowest flow.

2) Before work is allowed to proceed at a site, CDFW shall inspect the site to assure that turbidity control measures are in place.

3) The waste water from construction area shall be discharged to an upland location where it will not drain sediment-laden water back to stream channel.

4) For projects within the USACE San Francisco District, if instream work liberates a sediment wedge, 80% of the wedge shall be removed before the sediment is liberated. The required amount can be modified if NOAA or CDFW hydrologists or hydraulic engineers agree that removing a smaller amount will better protect and enhance fish habitat in the area of the project (e.g., leaving some sediment to replenish areas downstream that lack suitable substrate volume or quality).

5) To control erosion during and after project implementation, CDFW shall implement best management practices, as identified by the appropriate Regional Water Quality Control Board.

6) Sediment-laden water caused by construction activity shall be filtered before it leaves the right-of-way or enters the stream network or an aquatic resource area. Silt fences or other detention methods shall be installed as close as possible to culvert outlets to reduce the amount of sediment entering aquatic systems.

7) If CDFW determines that turbidity/siltation levels resulting from an activity or activities constitute a threat to aquatic life, all activities associated with the turbidity/siltation shall cease until effective CDFW approved sediment control devices are installed and/or abatement procedures are implemented.

8) Poured concrete shall be excluded from the wetted channel for a period of two weeks after it is poured. During that time the poured concrete shall be kept moist, and runoff shall not be allowed to enter flowing stream. Commercial sealants shall be applied to the poured concrete surface where concrete cannot be excluded from the stream flow for two weeks. If sealant is used, water shall be excluded from the site until the sealant is dry.

9) If the CDFW determines that turbidity/siltation levels resulting from an activity or activities constitute a threat to aquatic life, all activities associated with the turbidity/siltation shall cease until effective CDFW approved sediment control devices are installed and/or abatement procedures are implemented.

10) Prior to use, all equipment shall be cleaned to remove external oil, grease, dirt, or mud. Wash sites shall be located in upland locations so that dirty wash water does not flow into the stream channel or adjacent wetlands.

11) Water conservation projects that include water storage tanks and a Forbearance Agreement, for the purpose of storing winter water for summer use, require registration of water use pursuant to the Water Code §1228.3, and require consultation with CDFW and compliance with all lawful conditions required by CDFW. Diversions to fill storage facilities during the winter and spring months shall be made pursuant to a Small Domestic Use Appropriation (SDU) filed with the State Water Resources Control Board (SWRCB). CDFW will review the appropriation of water to ensure fish and wildlife resources are protected. The following conditions shall then be applied:

a) Seasonal Restriction: No pumping is allowed when stream flow drops below 0.7 cubic feet per second (cfs) except as permitted by CDFW in the event of an emergency.

b) Bypass Flows: Pumping withdrawal rates shall not exceed 5% of stream flow. If CDFW determines that the streamflow monitoring data indicate that fisheries are not adequately protected, then the bypass flows are subject to revision by CDFW.

c) Cumulative Impacts: Pumping days shall be assigned to participating landowner(s) when streamflows drop below 1.0 cfs to prevent cumulative impacts from multiple pumps operating simultaneously.

d) Pump Intake Screens: Pump intake screens shall comply with the "2000 California Department of Fish and Game Screening Criteria"* for California streams that provide habitat for juvenile coho salmon, Chinook salmon and steelhead. The landowner shall be responsible for annual inspection and maintenance of screens. Additionally, the landowner shall be responsible for cleaning screens as needed to keep them free of debris and ensure that screen function complies with the criteria specifications.

e) These conditions do not authorize incidental take of any species, removal of riparian vegetation, or bed, bank, or channel alteration.

f) CDFW shall be granted access to inspect the pump system. Access is limited to the portion of the landowner's real property where the pump is located and those additional portions of the real property which must be traversed to gain access to the pump site. Landowners shall be given reasonable notice and any necessary arrangements will be made prior to requested access including a mutually-agreed-upon time and date. Notice may be given by mail or by telephone with the landowner or an authorized representative of the landowner. The landowner shall agree to cooperate in good faith to accommodate CDFW access.

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* Fish Screening Criteria are from "State of California Resources Agency Department of Fish and Game Fish Screening Criteria, June 19, 2000." The "approach velocity" shall be calculated according to Section 2C "Screens which are not Self Cleaning." These screening criteria are available at http://iep.water.ca.gov/cvffrt/DFGCriteria2.htm.

X. LAND USE AND PLANNING

No specific mitigation measures are required for land use and planning.

XI. MINERAL RESOURCES

No specific mitigation measures are required for mineral resources.

XII. NOISE

Personnel shall wear hearing protection while operating or working near noisy equipment (producing noise levels ≥85 db, including chain saws, excavators, and back hoes). No other specific mitigation measures are required for noise.

XIII. POPULATION AND HOUSING

No specific mitigation measures are required for population and housing.

XIV. PUBLIC SERVICES

No specific mitigation measures are required for public services.

XV. RECREATION

No specific mitigation measures are required for recreation.

XVI. TRANSPORTATION/TRAFFIC

The project will not affect transportation/traffic, because erosion control and culvert replacement projects will occur in wildland/rural sites with very little use. There is a potential that culvert replacement at some work sites could temporarily interfere with emergency access. This potential impact will be avoided through implementation of the following mitigation measure at any sites where emergency access might be necessary:

1) During excavation for culvert replacement, the grantee shall provide a route for traffic around or through the construction site.

XVII. UTILITIES AND SERVICE SYSTEMS

No specific mitigation measures are required for utilities and service systems.

SECTION 2: MONITORING AND REPORTING

CDFW shall implement the following measures to ensure that individual restoration projects authorized annually through the RGP (RGP12 and

RGP78) will minimize take of listed salmonids, monitor and report take of listed salmonids, and to obtain specific information to account for the effects and benefits of salmonid restoration projects authorized through the RGP.

1) CDFW shall provide USACE, NOAA, and USFWS notification of projects that are authorized through the RGP. The notification shall be submitted at least 90 days prior to project implementation and must contain specific project information including; name of project, type of project, location of project including hydrologic unit code (HUC), creek, watershed, city or town, and county.

2) CDFW Grant Manager shall inspect the work site before, during, and after completion of the action item, to ensure that all necessary mitigation measures to avoid impacts are properly implemented.

3) CDFW shall perform implementation monitoring immediately after the restoration activity is completed to ensure that projects are completed as designed.

4) CDFW shall perform effectiveness/validation monitoring on at least 10 percent of restoration projects funded annually. A random sample, stratified by project type and region, shall be chosen from the pool of new restoration projects approved for funding each year. Pre-treatment monitoring shall be performed for newly selected projects, and post-treatment monitoring will be performed within three years following project completion.

5) Current monitoring forms and instructions used by CDFW for the implementation monitoring and effectiveness monitoring are available online at: http://ftp.dfg.ca.gov/Public/FRGP/Qualitative_Monitoring_Forms/. CDFW shall submit a copy of the annual report, no later than March 1 annually to NOAA.

6) The CDFW annual report to NOAA shall include a summary of all restoration action items completed during the previous year. The annual report shall include a summary of the specific type and location of each project, stratified by individual project, 5th field HUC and affected species and evolutionary significant unit (ESU)/Distinct Population Segment (DPS). The report shall include the following project-specific summaries, stratified at the individual project, 5th field HUC, and ESU level:

   a) A summary detailing fish relocation activities; including the number and species of fish relocated and the number and species injured or killed. Any capture, injury, or mortality of adult salmonids or half-pounder steelhead shall be noted in the monitoring data and report. Any injuries or mortality from a fish relocation site that exceeds 3.0% of the affected listed species shall have an explanation describing why.

b) The number and type of instream structures implemented within the stream channel.

c) The length of stream bank (feet) stabilized or planted with riparian species.

d) The number of culverts replaced or repaired, including the number of miles of restored access to unoccupied salmonid habitat.

e) The distance (miles) of road decommissioned.

f) The distance (feet) of aquatic habitat disturbed at each project site.

7) CDFW shall incorporate project data into a format compatible with the CDFW/NOAA/Pacific Fisheries Management Council Geographic Information System (GIS) database, allowing scanned project-specific reports and documents to be linked graphically within the GIS database.

8) For Marin, Monterey, Napa, San Mateo, Santa Clara, Santa Cruz, and Sonoma Counties, CDFW shall submit an annual report due by January 31 (RGP12) of each year of implemented projects to the U.S. Fish and Wildlife Service Office, 2800 Cottage Way, Sacramento, California 95825. The report must include:

   a) A table documenting the number of California freshwater shrimp or California red-legged frogs killed, injured, and handled during each FRGP project that utilizes the USACE authorization.

   b) A summary of how the terms and conditions of the biological opinions (file no. 81420-2009-I-0748-1 and 1-103-F-273) and the protective measures by the USACE and CDFW worked.

   c) Any suggestions of how the protective measures could be revised to improve conservation of this species while facilitating compliance with the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

9) For Los Angeles, Santa Barbara, San Luis Obispo, and Ventura Counties, CDFW shall submit an annual report due by January 31 (RGP12) and February 28 (RGP78) of each year of implemented projects to the U.S. Fish and Wildlife Service Office, 2493 Portola Road, Suite B, Ventura, California 93003. The report must include:

   a) A table documenting the number of red-legged frogs killed, injured, and handled during each FRGP project that utilizes the USACE authorization.

   b) A summary of how the terms and conditions of the biological opinions (file no. 81440-2009-F-0387 and 2008-F-0441) and the protective measures by the USACE and CDFW worked.

c) Any suggestions of how these protective measures could be revised to improve conservation of this species while facilitating compliance with the Act.

10) CDFW shall submit annual reports on July 1 of each year to the 401 Program Managers of the State Water Resources Control Board and the appropriate Regional Water Quality Control Boards documenting work undertaken during the preceding year and identifying for all such work:

a) Project name and grant number;

b) Project purpose and summary work description;

c) Name(s) of affected water body(ies);

d) Latitude/longitude in decimal degrees to at least four decimals;

e) For projects completed during the year:

i. The type(s) of receiving (affected) water body(ies) (e.g. at minimum: river/streambed, lake/reservoir, ocean/estuary/bay, riparian area, or wetland type); and

ii. The total quantity in acres of each type of receiving water body temporarily impacted, and permanently impacted;

f) For each water body type affected, the quantity of waters of the U.S. temporarily and permanently impacted. Fill/excavation discharges shall be reported in acres and fill/excavations discharges for channels, shorelines, riparian corridors, and other linear habitat shall also be reported in linear feet;

g) Actual construction start and end-dates;

h) Whether the project is on-going or completed.

i) Copies of reports documenting the following monitoring activities:

i. Post-project monitoring immediately after the activity is completed to ensure that projects are completed as designed; and

ii. Effectiveness monitoring on a random subset of 10% of the projects, within one to three years after project completion.

11) CDFW shall report any previously unknown historic archeological and paleontological remains discovered at a site to the USACE as required in the RGP. This information will also be provided to the Native American Heritage Commission, 915 Capitol Mall, Sacramento, CA 95814.

12) Pursuant to RGP78, CDFW shall monitor and maintain the structures or work conducted at a given site for at least three years after construction to

ensure the integrity of the structure and successful growth of the planted vegetation.

13) CDFW shall allow representatives of USACE to inspect the authorized activities at any time deemed necessary to ensure that they are being or have been accomplished with the terms and conditions of the RGP.

14) Pursuant to RGP78, CDFW shall notify the USACE annually of the year's projects. If the USACE has not issued a Notice to Proceed (NTP) or identified any issues (verbal or written) within 60 days of receive the notifications, CDFW can proceed with project. The NTP may include site specific special conditions to avoid and minimize adverse impacts to waters of the U.S and shall be valid for the duration of the RGP78 unless there is a change in the project's scope of work.

Appendix C

Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities

State of California
CALIFORNIA NATURAL RESOURCES AGENCY
California Department of Fish and Wildlife
November 24, 2009[1]

INTRODUCTION AND PURPOSE

The conservation of special status native plants and their habitats, as well as natural communities, is integral to maintaining biological diversity. The purpose of these protocols is to facilitate a consistent and systematic approach to the survey and assessment of special status native plants and natural communities so that reliable information is produced and the potential of locating a special status plant species or natural community is maximized. They may also help those who prepare and review environmental documents determine when a botanical survey is needed, how field surveys may be conducted, what information to include in a survey report, and what qualifications to consider for surveyors. The protocols may help avoid delays caused when inadequate biological information is provided during the environmental review process; assist lead, trustee and responsible reviewing agencies to make an informed decision regarding the direct, indirect, and cumulative effects of a proposed development, activity, or action on special status native plants and natural communities; meet California Environmental Quality Act (CEQA)[2] requirements for adequate disclosure of potential impacts; and conserve public trust resources.

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE TRUSTEE AND RESPONSIBLE AGENCY MISSION

The mission of the California Department of Fish and Wildlife (CDFW) is to manage California's diverse wildlife and native plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. CDFW has jurisdiction over the conservation, protection, and management of wildlife, native plants, and habitat necessary to maintain biologically sustainable populations (Fish and Game Code §1802). CDFW, as trustee agency under CEQA §15386, provides expertise in reviewing and commenting on environmental documents and makes protocols regarding

[1] This document replaces the CDFW document entitled "Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened and Endangered Plants and Natural Communities."
[2] http://ceres.ca.gov/ceqa/

potential negative impacts to those resources held in trust for the people of California.

Certain species are in danger of extinction because their habitats have been severely reduced in acreage, are threatened with destruction or adverse modification, or because of a combination of these and other factors. The California Endangered Species Act (CESA) provides additional protections for such species, including take prohibitions (Fish and Game Code §2050 *et seq.*). As a responsible agency, CDFW has the authority to issue permits for the take of species listed under CESA if the take is incidental to an otherwise lawful activity; CDFW has determined that the impacts of the take have been minimized and fully mitigated; and, the take would not jeopardize the continued existence of the species (Fish and Game Code §2081). Surveys are one of the preliminary steps to detect a listed or special status plant species or natural community that may be impacted significantly by a project.

DEFINITIONS

Botanical surveys provide information used to determine the potential environmental effects of proposed projects on all special status plants and natural communities as required by law (i.e., CEQA, CESA, and Federal Endangered Species Act (ESA)). Some key terms in this document appear in **bold font** for assistance in use of the document.

For the purposes of this document, **special status plants** include all plant species that meet one or more of the following criteria[3]:

- Listed or proposed for listing as threatened or endangered under ESA or candidates for possible future listing as threatened or endangered under the ESA (50 CFR §17.12).

- Listed[4] or candidates for listing by the State of California as threatened or endangered under CESA (Fish and Game Code §2050 *et seq.*). A species, subspecies, or variety of plant is **endangered** when the prospects of its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, disease, or other factors (Fish and Game Code §2062). A plant is **threatened** when it is likely to become endangered in the foreseeable future in the absence of special protection and management measures (Fish and Game Code §2067).

[3] Adapted from the East Alameda County Conservation Strategy available at http://www.fws.gov/sacramento/EACCS/Documents/080228_Species_Evaluation_EACCS.pdf

[4] Refer to current online published lists available at: http://www.dfg.ca.gov/biogeodata.

- Listed as rare under the California Native Plant Protection Act (Fish and Game Code §1900 *et seq*.). A plant is **rare** when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens (Fish and Game Code §1901).

- Meet the definition of rare or endangered under CEQA §15380(b) and (d). Species that may meet the definition of rare or endangered include the following:

  - Species considered by the California Native Plant Society (CNPS) to be "rare, threatened or endangered in California" (Lists 1A, 1B and 2);

  - Species that may warrant consideration on the basis of local significance or recent biological information[5];

  - Some species included on the California Natural Diversity Database's (CNDDB) *Special Plants, Bryophytes, and Lichens List* (California Department of Fish and Game 2008)[6].

- Considered a **locally significant species,** that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA §15125 (c)) or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G). Examples include a species at the outer limits of its known range or a species occurring on an uncommon soil type.

Special status natural communities are communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. These communities may or may not contain special status species or their habitat. The most current version of the Department's *List of California Terrestrial Natural Communities*[7] indicates which natural communities are of special status given the current state of the California classification.

Most types of wetlands and riparian communities are considered special status natural communities due to their limited distribution in California. These natural

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[5] In general, CNPS List 3 plants (plants about which more information is needed) and List 4 plants (plants of limited distribution) may not warrant consideration under CEQA §15380. These plants may be included on special status plant lists such as those developed by counties where they would be addressed under CEQA §15380. List 3 plants may be analyzed under CEQA §15380 if sufficient information is available to assess potential impacts to such plants. Factors such as regional rarity vs. statewide rarity should be considered in determining whether cumulative impacts to a List 4 plant are significant even if individual project impacts are not. List 3 and 4 plants are also included in the California Natural Diversity Database's (CNDDB) *Special Plants, Bryophytes, and Lichens List.* [Refer to the current online published list available at: http://www.dfg.ca.gov/biogeodata.] Data on Lists 3 and 4 plants should be submitted to CNDDB. Such data aids in determining or revising priority ranking.

[6] Refer to current online published lists available at: http://www.dfg.ca.gov/biogeodata.

[7] http://www.dfg.ca.gov/biogeodata/vegcamp/pdfs/natcomlist.pdf. The rare natural communities are asterisked on this list.

communities often contain special status plants such as those described above. These protocols may be used in conjunction with protocols formulated by other agencies, for example, those developed by the U.S. Army Corps of Engineers to delineate jurisdictional wetlands[8] or by the U.S. Fish and Wildlife Service to survey for the presence of special status plants[9].

BOTANICAL SURVEYS

Conduct botanical surveys prior to the commencement of any activities that may modify vegetation, such as clearing, mowing, or ground-breaking activities. It is appropriate to conduct a botanical field survey when:

- Natural (or naturalized) vegetation occurs on the site, and it is unknown if special status plant species or natural communities occur on the site, and the project has the potential for direct or indirect effects on vegetation; or

- Special status plants or natural communities have historically been identified on the project site; or

- Special status plants or natural communities occur on sites with similar physical and biological properties as the project site.

SURVEY OBJECTIVES

Conduct field surveys in a manner which maximizes the likelihood of locating special status plant species or special status natural communities that may be present. Surveys should be **floristic in nature**, meaning that every plant taxon that occurs on site is identified to the taxonomic level necessary to determine rarity and listing status. “Focused surveys” that are limited to habitats known to support special status species or are restricted to lists of likely potential species are not considered floristic in nature and are not adequate to identify all plant taxa on site to the level necessary to determine rarity and listing status. Include a list of plants and natural communities detected on the site for each botanical survey conducted. More than one field visit may be necessary to adequately capture the floristic diversity of a site. An indication of the prevalence (estimated total numbers, percent cover, density, etc.) of the species and communities on the site is also useful to assess the significance of a particular population.

[8] http://www.wetlands.com/regs/tlpge02e.htm

[9] U.S. Fish and Wildlife Service Survey Guidelines available at http://www.fws.gov/sacramento/es/survey-protocols-guidelines/es_survey.htm

SURVEY PREPARATION

Before field surveys are conducted, compile relevant botanical information in the general project area to provide a regional context for the investigators. Consult the CNDDB[10] and BIOS[11] for known occurrences of special status plants and natural communities in the project area prior to field surveys. Generally, identify vegetation and habitat types potentially occurring in the project area based on biological and physical properties of the site and surrounding ecoregion[12], unless a larger assessment area is appropriate. Then, develop a list of special status plants with the potential to occur within these vegetation types. This list can serve as a tool for the investigators and facilitate the use of reference sites; however, special status plants on site might not be limited to those on the list. Field surveys and subsequent reporting should be comprehensive and floristic in nature and not restricted to or focused only on this list. Include in the survey report the list of potential special status species and natural communities, and the list of references used to compile the background botanical information for the site.

SURVEY EXTENT

Surveys should be comprehensive over the entire site, including areas that will be directly or indirectly impacted by the project. Adjoining properties should also be surveyed where direct or indirect project effects, such as those from fuel modification or herbicide application, could potentially extend offsite. Pre-project surveys restricted to known CNDDB rare plant locations may not identify all special status plants and communities present and do not provide a sufficient level of information to determine potential impacts.

FIELD SURVEY METHOD

Conduct surveys using **systematic field techniques** in all habitats of the site to ensure thorough coverage of potential impact areas. The level of effort required per given area and habitat is dependent upon the vegetation and its overall diversity and structural complexity, which determines the distance at which plants can be identified. Conduct surveys by walking over the entire site to ensure thorough coverage, noting all plant taxa observed. The level of effort should be sufficient to provide comprehensive reporting. For example, one person-hour per eight acres per survey date is needed for a comprehensive field survey in grassland with medium diversity and moderate terrain[13], with additional time allocated for species identification.

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[10] Available at http://www.dfg.ca.gov/biogeodata/cnddb

[11] http://www.bios.dfg.ca.gov/

[12] Ecological Subregions of California, available at http://www.fs.fed.us/r5/projects/ecoregions/toc.htm

[13] Adapted from U.S. Fish and Wildlife Service kit fox survey guidelines available at http://www.fws.gov/sacramento/es/survey-protocols-guidelines/es_survey.htm

TIMING AND NUMBER OF VISITS

Conduct surveys in the field at the time of year when species are both evident and identifiable. Usually this is during flowering or fruiting. Space visits throughout the growing season to accurately determine what plants exist on site. Many times this may involve multiple visits to the same site (e.g. in early, mid, and late-season for flowering plants) to capture the floristic diversity at a level necessary to determine if special status plants are present[14]. The timing and number of visits are determined by geographic location, the natural communities present, and the weather patterns of the year(s) in which the surveys are conducted.

REFERENCE SITES

When special status plants are known to occur in the type(s) of habitat present in the project area, observe reference sites (nearby accessible occurrences of the plants) to determine whether those species are identifiable at the time of the survey and to obtain a visual image of the target species, associated habitat, and associated natural community.

USE OF EXISTING SURVEYS

For some sites, floristic inventories or special status plant surveys may already exist. Additional surveys may be necessary for the following reasons:

- Surveys are not current[15]; or
- Surveys were conducted in natural systems that commonly experience year to year fluctuations such as periods of drought or flooding (e.g. vernal pool habitats or riverine systems); or
- Surveys are not comprehensive in nature; or fire history, land use, physical conditions of the site, or climatic conditions have changed since the last survey was conducted[16]; or
- Surveys were conducted in natural systems where special status plants may not be observed if an annual above ground phase is not visible (e.g. flowers from a bulb); or

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[14] U.S. Fish and Wildlife Service Survey Guidelines available at http://www.fws.gov/sacramento/es/survey-protocols-guidelines/es_survey.htm

[15] Habitats, such as grasslands or desert plant communities that have annual and short-lived perennial plants as major floristic components may require yearly surveys to accurately document baseline conditions for purposes of impact assessment. In forested areas, however, surveys at intervals of five years may adequately represent current conditions. For forested areas, refer to "Guidelines for Conservation of Sensitive Plant Resources Within the Timber Harvest Review Process and During Timber Harvesting Operations", available at https://r1.dfg.ca.gov/Portal/LinkClick.aspx?fileticket=iPKkfYqe5i0=&tabid=949

[16] U.S. Fish and Wildlife Service Survey Guidelines available at http://www.fws.gov/sacramento/es/survey-protocols-guidelines/es_survey.htm

- Changes in vegetation or species distribution may have occurred since the last survey was conducted, due to habitat alteration, fluctuations in species abundance and/or seed bank dynamics.

NEGATIVE SURVEYS

Adverse conditions may prevent investigators from determining the presence of, or accurately identifying, some species in potential habitat of target species. Disease, drought, predation, or herbivory may preclude the presence or identification of target species in any given year. Discuss such conditions in the report.

The failure to locate a known special status plant occurrence during one field season does not constitute evidence that this plant occurrence no longer exists at this location, particularly if adverse conditions are present. For example, surveys over a number of years may be necessary if the species is an annual plant having a persistent, long-lived seed bank and is known not to germinate every year. Visits to the site in more than one year increase the likelihood of detection of a special status plant especially if conditions change. To further substantiate negative findings for a known occurrence, a visit to a nearby reference site may ensure that the timing of the survey was appropriate.

REPORTING AND DATA COLLECTION

Adequate information about special status plants and natural communities present in a project area will enable reviewing agencies and the public to effectively assess potential impacts to special status plants or natural communities[17] and will guide the development of minimization and mitigation measures. The next section describes necessary information to assess impacts. For comprehensive, systematic surveys where no special status species or natural communities were found, reporting and data collection responsibilities for investigators remain as described below, excluding specific occurrence information.

SPECIAL STATUS PLANT OR NATURAL COMMUNITY OBSERVATIONS

Record the following information for locations of each special status plant or natural community detected during a field survey of a project site.

[17] Refer to current online published lists available at: http://www.dfg.ca.gov/biogeodata. For Timber Harvest Plans (THPs) please refer to the "Guidelines for Conservation of Sensitive Plant Resources Within the Timber Harvest Review Process and During Timber Harvesting Operations", available at https://r1.dfg.ca.gov/Portal/LinkClick.aspx?fileticket=iPKkfYqe5i0=&tabid=949

- A detailed map (1:24,000 or larger) showing locations and boundaries of each special status species occurrence or natural community found as related to the proposed project. Mark occurrences and boundaries as accurately as possible. Locations documented by use of global positioning system (GPS) coordinates must include the datum[18] in which they were collected;

- The site-specific characteristics of occurrences, such as associated species, habitat and microhabitat, structure of vegetation, topographic features, soil type, texture, and soil parent material. If the species is associated with a wetland, provide a description of the direction of flow and integrity of surface or subsurface hydrology and adjacent off-site hydrological influences as appropriate;

- The number of individuals in each special status plant population as counted (if population is small) or estimated (if population is large);

- If applicable, information about the percentage of individuals in each life stage such as seedlings vs. reproductive individuals;

- The number of individuals of the species per unit area, identifying areas of relatively high, medium and low density of the species over the project site; and

- Digital images of the target species and representative habitats to support information and descriptions.

FIELD SURVEY FORMS

When a special status plant or natural community is located, complete and submit to the CNDDB a California Native Species (or Community) Field Survey Form[19] or equivalent written report, accompanied by a copy of the relevant portion of a 7.5 minute topographic map with the occurrence mapped. Present locations documented by use of GPS coordinates in map and digital form. Data submitted in digital form must include the datum[20] in which it was collected. If a potentially undescribed special status natural community is found on the site, document it with a Rapid Assessment or Relevé form[21] and submit it with the CNDDB form.

[18] NAD83, NAD27 or WGS84
[19] http://www.dfg.ca.gov/biogeodata
[20] NAD83, NAD27 or WGS84
[21] http://www.dfg.ca.gov/biogeodata/vegcamp/veg_publications_protocols.asp

VOUCHER COLLECTION

Voucher specimens provide verifiable documentation of species presence and identification as well as a public record of conditions. This information is vital to all conservation efforts. Collection of voucher specimens should be conducted in a manner that is consistent with conservation ethics, and is in accordance with applicable state and federal permit requirements (e.g. incidental take permit, scientific collection permit). Voucher collections of special status species (or suspected special status species) should be made only when such actions would not jeopardize the continued existence of the population or species.

Deposit voucher specimens with an indexed regional herbarium[22] no later than 60 days after the collections have been made. Digital imagery can be used to supplement plant identification and document habitat. Record all relevant permittee names and permit numbers on specimen labels. A collecting permit is required prior to the collection of State-listed plant species[23].

BOTANICAL SURVEY REPORTS

Include reports of botanical field surveys containing the following information with project environmental documents:

- **Project and site description**
  - o A description of the proposed project;
  - o A detailed map of the project location and study area that identifies topographic and landscape features and includes a north arrow and bar scale; and,
  - o A written description of the biological setting, including vegetation[24] and structure of the vegetation; geological and hydrological characteristics; and land use or management history.

[22] For a complete list of indexed herbaria, see: Holmgren, P., N. Holmgren and L. Barnett. 1990. Index Herbariorum, Part 1: Herbaria of the World. New York Botanic Garden, Bronx, New York. 693 pp. Or: http://www.nybg.org/bsci/ih/ih.html

[23] Refer to current online published lists available at: http://www.dfg.ca.gov/biogeodata.

[24] A vegetation map that uses the National Vegetation Classification System (http://biology.usgs.gov/npsveg/nvcs.html), for example *A Manual of California Vegetation*, and highlights any special status natural communities. If another vegetation classification system is used, the report should reference the system, provide the reason for its use, and provide a crosswalk to the National Vegetation Classification System.

- **Detailed description of survey methodology and results**

  - Dates of field surveys (indicating which areas were surveyed on which dates), name of field investigator(s), and total person-hours spent on field surveys;

  - A discussion of how the timing of the surveys affects the comprehensiveness of the survey;

  - A list of potential special status species or natural communities;

  - A description of the area surveyed relative to the project area;

  - References cited, persons contacted, and herbaria visited;

  - Description of reference site(s), if visited, and phenological development of special status plant(s);

  - A list of all taxa occurring on the project site. Identify plants to the taxonomic level necessary to determine whether or not they are a special status species;

  - Any use of existing surveys and a discussion of applicability to this project;

  - A discussion of the potential for a false negative survey;

  - Provide detailed data and maps for all special plants detected. Information specified above under the headings “Special Status Plant or Natural Community Observations,” and “Field Survey Forms,” should be provided for locations of each special status plant detected;

  - Copies of all California Native Species Field Survey Forms or Natural Community Field Survey Forms should be sent to the CNDDB and included in the environmental document as an Appendix. It is not necessary to submit entire environmental documents to the CNDDB; and,

  - The location of voucher specimens, if collected.

- **Assessment of potential impacts**

  - A discussion of the significance of special status plant populations in the project area considering nearby populations and total species distribution;

  - A discussion of the significance of special status natural communities in the project area considering nearby occurrences and natural community distribution;

- A discussion of direct, indirect, and cumulative impacts to the plants and natural communities;
- A discussion of threats, including those from invasive species, to the plants and natural communities;
- A discussion of the degree of impact, if any, of the proposed project on unoccupied, potential habitat of the species;
- A discussion of the immediacy of potential impacts; and,
- Recommended measures to avoid, minimize, or mitigate impacts.

QUALIFICATIONS

Botanical consultants should possess the following qualifications:

- Knowledge of plant taxonomy and natural community ecology;
- Familiarity with the plants of the area, including special status species;
- Familiarity with natural communities of the area, including special status natural communities;
- Experience conducting floristic field surveys or experience with floristic surveys conducted under the direction of an experienced surveyor;
- Familiarity with the appropriate state and federal statutes related to plants and plant collecting; and,
- Experience with analyzing impacts of development on native plant species and natural communities.

SUGGESTED REFERENCES

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APPENDIX D

Procedure for the Programmatic Evaluation of Paleontological Resources for the Fisheries Restoration Grant Program

There shall be three phases to the process of investigating paleontological resources: 1) project initiation where basic data will be compiled, reviewed and sorted to determine the next steps that need to be taken on any given project; 2) evaluation of individual projects that may encounter paleontological resources; and 3) mitigation planning to develop mitigation strategies for projects that have identified paleontological resources. The three phases are summarized below.

Project Initiation

The logistics and time needs for conducting paleontological evaluations shall be assessed in the project initiation phase. The guidelines outlined below will facilitate rapid evaluation of individual projects and ensure cooperation among evaluators, pertinent agencies, and landowners. Landowner cooperation is through property access and local area information. The evaluation procedure generally follows standards implemented by other agencies conducting ground disturbance activities such as CalTrans.

Evaluation of the likelihood of encountering paleontological resources and land management issues shall be assessed by adhering to the following guidelines and the corresponding actions:

1. If the project does not involve ground disturbing work, then a negative declaration report shall be prepared.

2. If the project involves ground disturbing work and there is no likelihood of encountering paleontological resources, then a negative declaration report shall be prepared. However, if there is a likelihood of encountering paleontological resources at the project site, then the evaluator schedules a field investigation by contacting the CDFW grant manager and having them arrange landowner access for the paleontological resource field staff; and if necessary, arrange a meeting with the landowners and the paleontological resources investigation field staff.

3. If the project involves land administered by the US Forest Service, the Bureau of Land Management, the National Park Service, the US Army Corps of Engineers, the Native American tribal lands, or the California Department of Parks and Recreation, then the paleontology report containing site forms, site significance, and mitigation measures shall be coordinated with the involved entities. However, if those agencies are not involved, then the paleontology report with all pertinent information (site forms, site significance, mitigation measures or negative declarations) will be provided to the CDFW and to the CDFW grant manager

Individual Project Evaluation
The appropriate regional archaeological information center shall be contacted for a record search and the Native American Heritage Commission shall also be contacted for a Sacred Lands File Check. If paleontological resources are likely to be present, then qualified staff shall evaluate the paleontological resources in coordination with any affected agencies including any affected Native American tribe. If paleontological resources are present, then the evaluator will (1) delineate the extent and type of resources present, (2) discuss any issues with pertinent agencies, Native American tribes, project managers, and local experts with regards to potential mitigation planning, and (3) develop a mitigation plan designed to protect sensitive paleontological resources. However, if no resources are present, then a negative declaration report shall be prepared.

Mitigation Planning
Mitigation plans shall be developed to avoid or lessen impacts to the resource if paleontological resources are discovered at any project site. These mitigation plans shall be consistent with current mitigation strategies employed by other entities conducting CEQA investigations. The initial investigation report, along with mitigation recommendations, shall be compiled and delivered to the appropriate CDFW grant/contract manager and the project manager of the proposed project in question. Minimum report elements shall include:

1) Project description and location.
2) Results of the investigation.
3) Mitigation recommendations and plans.
4) Maps depicting project location and paleontological resource locations.

APPENDIX E

Procedure for the Programmatic Evaluation of
Archeological Resources for the Fisheries Restoration Grant Program

Cultural resource investigations are used to identify archaeological resources in the California Department of Fish and Wildlife (CDFW) Fisheries Restoration Grant Program (FRGP) funded project areas. When archaeological resources are found, measures are implemented to protect these resources. The purpose of the investigations described below are to: 1) locate and record cultural resources within the project area; 2) evaluate the significance of cultural resources in the study area; 3) assess potential impacts to cultural resources resulting from implementation of the project and; 4) recommend appropriate mitigation measures when necessary.

Investigative Methods

Background research for each project shall include an examination of historical maps, aerial photographs, archaeological site records and a survey at the appropriate regional information center of the Historical Resources Information System. The background research shall also include a review of pertinent ethnographic literature. For all projects an intensive archaeological field survey that covers the entire project area will be completed.

The California Office of Historical Preservation has established regional information centers as local repositories for all archaeological reports that are prepared under cultural resource management regulations. For each of the projects funded by the FRGP a background literature search shall be conduced at the appropriate regional information center as required by state guidelines and current professional standards. Following completion of the archeological studies a report shall be prepared summarizing the findings of the research. A copy of the report shall be deposited with the California Office of Historical Preservation. The literature review will determine if there are any previously recorded archeological resources or historic structures within the project area, and whether the area has been included within any previous archaeological research or reconnaissance project.

Project notification letters shall be sent to the Native American Heritage Commission along with a request for a Sacred Lands File search of the project areas and appropriate Native American contacts for the projects as soon as funding and contracts are fully routed. In addition, letters shall be sent to local Native American tribes stating that archaeological surveys are being conducted in areas that may be of interest to them. The letters shall request any additional information and shall ask specifically if the tribe(s) have any concerns regarding the project.

In addition to a records search at the Northwest Information Center, pertinent published ethnographic literature and various inventories shall be reviewed including but not limited to: 1) California Athabascan Groups (Baumhoff 1958); 2) California Inventory of Historic Resources; 3) California Historic Property Inventory and; 4) Government Land Office Land Plot Map.

Intensive surveys are conducted instream and along the bank of the areas included in the project area. All locations of exposed soil along road cuts, skid trails and creek banks are

inspected. In areas where mineral soil is visibly obscured, a geology pick shall be used to scrape the surface vegetation and expose the mineral soil to inspect for cultural resources.

1) Any archaeological sites identified during an investigation shall be recorded in a manner consistent with the Office of Historic Preservations Manual titled Instructions for Recording Historic Resources 1955. The CDFW shall report any previously unknown historic, archeological and paleontological remains discovered at a site to the US Army Corps of Engineers as required in the Regional General Permit (RGP). This information will also be provided to the Native American Heritage Commission, 915 Capitol Mall, Sacramento, CA 95814.

2) An accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the process stated in Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 shall be followed.

In the event of a discovery of archeological or historic resource within the jurisdiction of the California State Lands Commission (CSLC), grantees will be responsible for reporting and submitting any required information to the CSLC.