Print Form

Appendix C

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 # 2015122055

Project Title: Mitigated Negative Declaration for the 2016 Fisheries Restoration Grant Program, the Steelhead Report and Res

Lead Agency: Department of Fish and Wildlife — Contact Person: Karen Carpio

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: _____

Document Type:

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

NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI Other: ☐ Joint Document ☐ Final Document ☐ Other: _____

RECEIVED
DEC 22 2015
STATE CLEARINGHOUSE

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 Restoration

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.

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.

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 # 1245	____	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 December 22, 2015 Ending Date January 20, 2016

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: _____ **Date:** 12/21/2015

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

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: Karen Carpio
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): 2015122055

Project Title: Mitigated Negative Declaration for the 2016 Fisheries Restoration Grant Program, the Steelhead Repc

Project Applicant: California Department of Fish and Wildlife

Project Location (include county): Various coastal counties

Project Description:

This is to advise that the California Department of Fish and Wildlife (☒ Lead Agency or ☐ Responsible Agency) has approved the above described project on 1-21-2016 (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): Helen Birss Title: Branchief

Date: 1/21/16 Date Received for filing at OPR: Governor's Office of Planning & Research

JAN 21 2016

STATE CLEARINGHOUSE

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. 2015122055
Project title: Mitigated Negative Declaration for the 2016 Fisheries Restoration Grant Program, the Steelhead Report and Restoration Card Program, and the Forest Land Anadromous Restoration Projects

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.

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: Karen Carpio
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 of Non-physical and Action Items
    - State-wide Action Items Location Maps
- Appendix B. Mitigation Measures, Monitoring and Reporting Program For the 2016 Fisheries Restoration Grant Program, the Steelhead Report and Restoration Card Program, and the Forest Land Anadromous Restoration projects
- 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:

Helen Birss Date: 1/21/16

Helen Birss, Chief,
Watershed Restoration Grant Branch

STATE OF CALIFORNIA

THE RESOURCES AGENCY

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

MITIGATED NEGATIVE DECLARATION

FOR

THE 2016 FISHERIES RESTORATION GRANT PROGRAM, THE STEELHEAD REPORT AND RESTORATION CARD PROGRAM, AND THE FOREST LAND ANADROMOUS RESTORATION PROJECTS IN DEL NORTE, HUMBOLDT, MARIN, MENDOCINO, SAN MATEO, SANTA BARBARA, SISKIYOU, AND SONOMA COUNTIES AND REQUIRED AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

Prepared By:

Karen Carpio
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 2016 FISHERIES RESTORATION GRANT PROGRAM, THE STEELHEAD REPORT AND RESTORATION CARD PROGRAM, AND THE FOREST LAND ANADROMOUS RESTORATION PROJECTS
IN
DEL NORTE, HUMBOLDT, MARIN, MENDOCINO, SAN MATEO, SANTA BARBARA, SISKIYOU, AND SONOMA 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 eight-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 2016 Fisheries Restoration Grant Program, the Steelhead Report and Restoration Card Program, and the Forest Land Anadromous Restoration projects**
- **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 2016 FISHERIES RESTORATION GRANT PROGRAM, THE STEELHEAD REPORT AND RESTORATION CARD PROGRAM, AND THE FOREST LAND ANADROMOUS RESTORATION PROJECTS
IN
DEL NORTE, HUMBOLDT, MARIN, MENDOCINO, SAN MATEO, SANTA BARBARA, SISKIYOU, AND SONOMA COUNTIES
AND
REQUIRED AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

INTRODUCTION

The 2016 Fisheries Restoration Grant Program (FRGP), which also includes the FRGP drought projects, the Steelhead Report and Restoration Card Program projects, and the Forest Land Anadromous Restoration projects in Del Norte, Humboldt, Marin, Mendocino, San Mateo, Santa Barbara, Siskiyou, and Sonoma 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 87 habitat restoration items. These 87 restoration items are divided into 34 action items and 53 non-physical items.

The 34 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 53 non-physical activities are implemented within various counties of the CDFW FRGP region. These action items involve grants for projects such as watershed evaluation, assessment, project planning, technical training, monitoring, and public involvement. Each of these action items are identified in Appendix A, Non-Physical Items. If reviewed individually, these projects would likely 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 87 action items and non-physical items. These 87 items represent all funding 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 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., 2010), 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 2015 drought. These projects have a designated Proposal ID prefix of D (Attachment A).

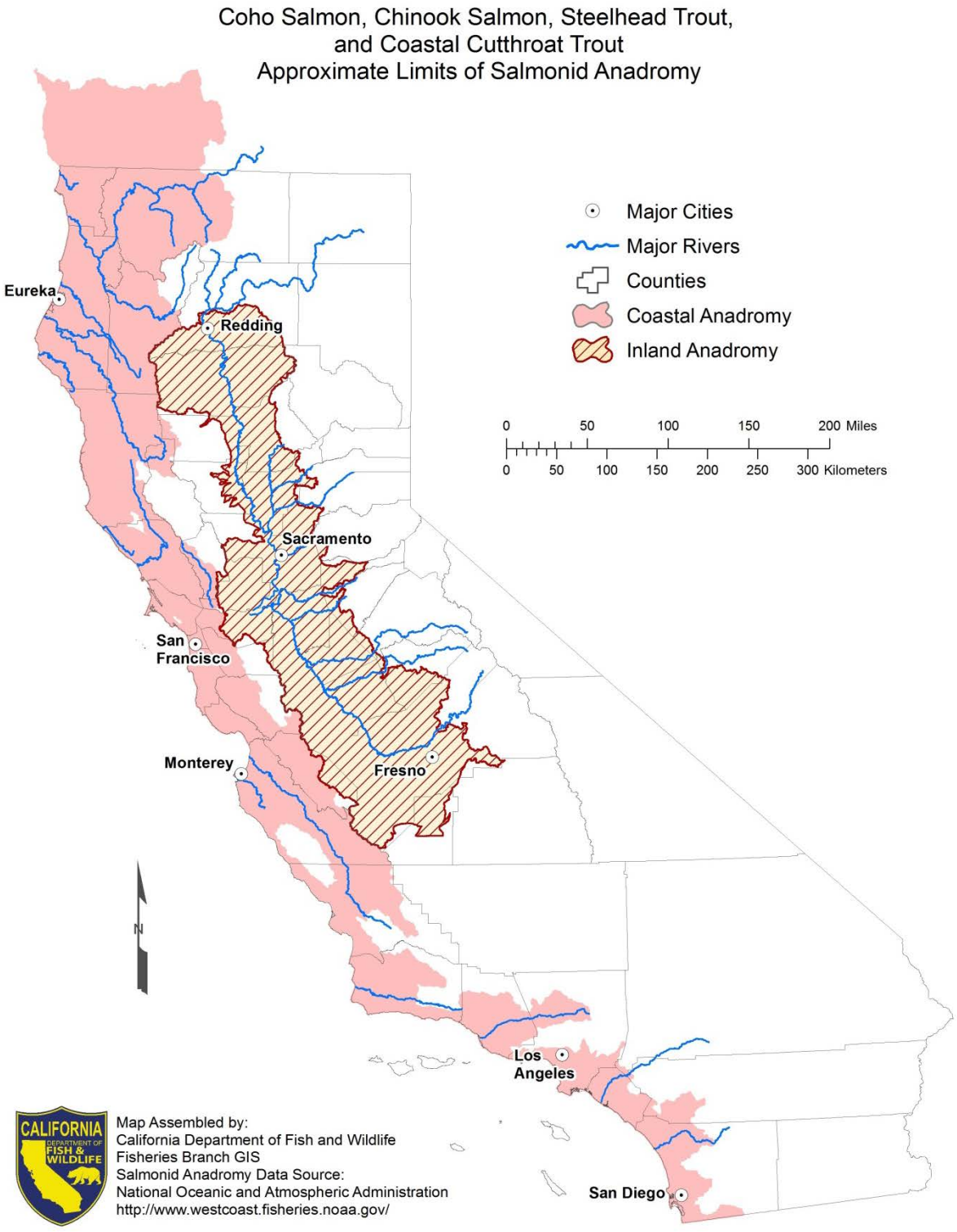
PROJECT LOCATION

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.

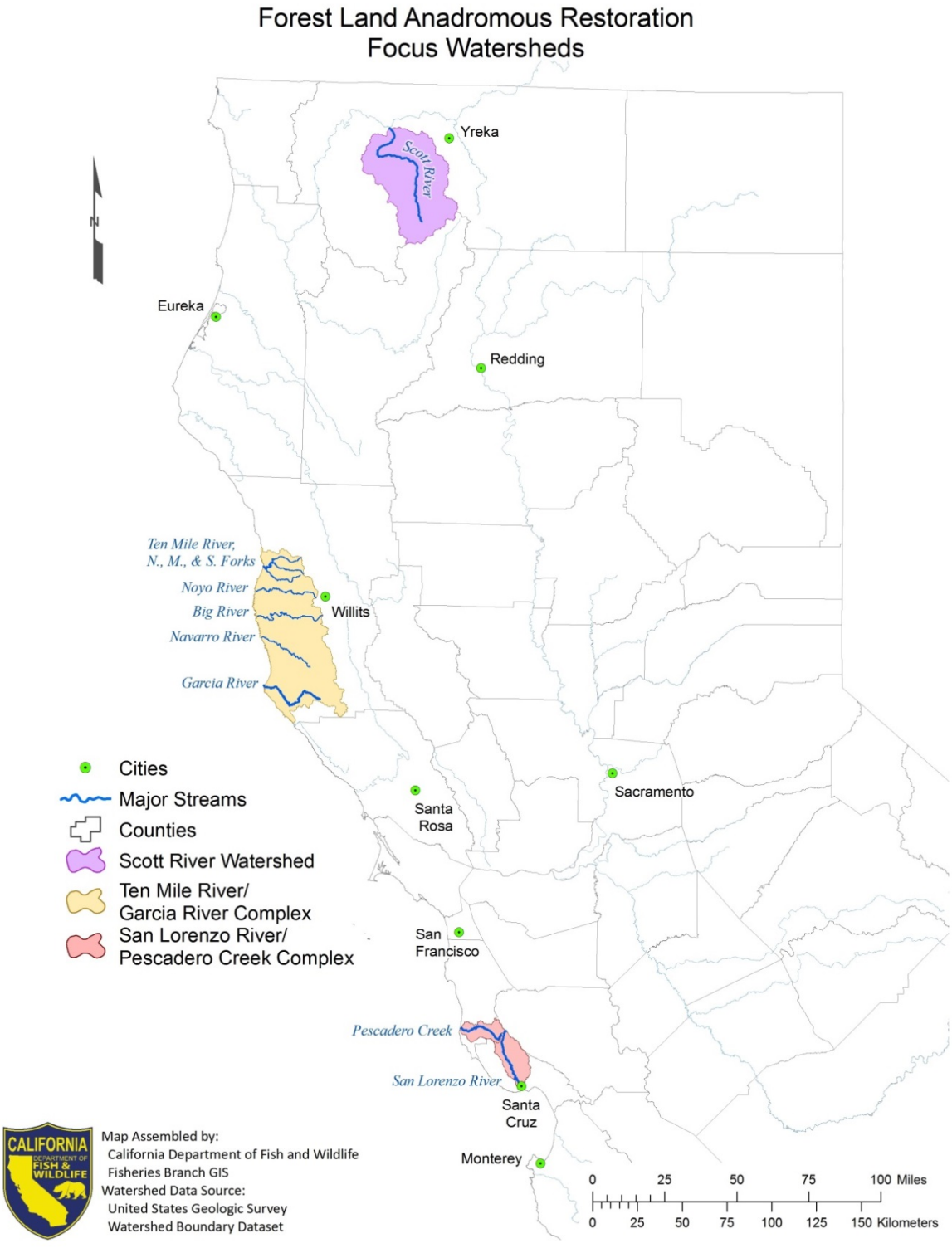
Coastal watersheds previously dominated by mature redwood and Douglas fir forests, contain extensive road and skid trail systems from tractor logging. These previous mature, forested areas can now be found in various seral stages of vegetative recovery and are predominate in the coastal FRGP region. 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 2015 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.



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



Map 2: Area covered by Forest Land Anadromous Restoration Focus

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 2015 Drought Solicitation Notice which solicited projects that focused on restoring anadromous salmonid habitat impacted by the 2015 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 action items.

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. RGP12 is currently in the process of being renewed and is expected to be in effect June 2016. 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 RGPs 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 2010) 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 RGPs. 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 https://www.wildlife.ca.gov/Conservation/LSA. 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 action items are considered to fall into two categories corresponding to similar activities and requirements for CEQA review. These two categories of action items are as follows.

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

Non-physical action items (non-physical items) in this category include watershed evaluation, assessment, planning, habitat acquisition, and monitoring projects. The names of 53 non-physical items in this category 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 types of non-physical action items will not be discussed further in this document.

Restoration Element - Major Action Items

There is a notable difference in the level of activity found under this category. The names of the 34 major action items (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 all 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 major 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 Senior Environmental Scientist, Trevor Tollefson at (707) 725-1072, 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, and San Luis Obispo 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.

Complete site plans and prescriptions for the non-physical item in Sacramento County are available for review at the California Department of Fish and Wildlife, Fisheries Restoration Grant Program headquarters, office of Permit/Regulatory Coordinator, Karen Carpio, 830 S St, Sacramento, California, 95811. Appointments may be made by telephoning (916) 327-8658, Monday through Friday, between the hours of 9 a.m. and 4 p.m.

Environmental Assessment of Each Major 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 - Major 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 major 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 eight-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 major 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 eight-county programmatic project area is attached to the statement of work for each major 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 major 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 eight-county programmatic project area will occur. Site specific detailed research shall be done for projects sites deemed likely to encounter cultural resources (Appendix C & D). 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 shall 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 2010) (http://www.dfg.ca.gov/fish/Resources/HabitatManual.asp). Additional details on monitoring and reporting requirements are presented in Appendix B.

REFERENCES

California Department of Fish and Game. Lake and Streambed Alteration Program (1600) webpage https://www.wildlife.ca.gov/Conservation/LSA

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, 2009, 2010. *California Salmonid Stream Habitat Restoration Manual*. Fourth 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, 2009, 2010. *California Salmonid Stream Habitat Restoration Manual*. Volume II, Fourth 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 2016 Fisheries Restoration Grant Program, the Steelhead Report and Restoration Card Program, and the Forest Land Anadromous projects in Del Norte, Humboldt, Marin, Mendocino, San Mateo, Santa Barbara, Siskiyou, and Sonoma Counties.**

2. Lead Agency Name and Address:

   California Department of Fish and Wildlife
   Watershed Restoration Grant Branch
   830 S Street
   Sacramento, CA 95811

3. Contact People and Phone Numbers:

   Karen Carpio
   (916) 327-8658
   Fisheries Restoration Grant Program
   830 S Street
   Sacramento, CA 95811

   Trevor Tollefson
   (707) 725-1072
   Northern Region
   1455 Sandy Prairie Ct.
   Suite J
   Fortuna, CA 95540

   Gail Seymour
   (707) 576-2813
   Bay Delta Region
   5355 B Skylane Dr.
   Santa Rosa, CA 95403

   Margaret Paul
   (831) 649-2882
   Central Region
   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, San Mateo, Santa Barbara, Siskiyou, and Sonoma Counties (Appendix A).

5. Project Sponsor's Name and Address:

   California Department of Fish and Wildlife
   Fisheries Restoration Grant Program Headquarters
   830 S Street
   Sacramento, CA 95811

6. General Plan Designation: Various

7. Zoning: Various

8. Description of Project: Implementation of 34 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 Resources	☐	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

Helen Birss

Helen Birss, Chief,
Watershed Restoration Grant Branch

12/16/15

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 revegetate 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 (CRLF) 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 CRLF 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. Chinook salmon (*Oncorhynchus tshawytscha*), Coho salmon (*Oncorhynchus kisutch*), steelhead trout (*Oncorhynchus mykiss*), 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 four other DPS of steelhead (south central, central, Central Valley, and northern) have been federally listed as threatened as early as 1997. Although, coastal cutthroat trout is not listed as threaten or endangered, it is listed as a species of special concern.

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 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 federally listed as threatened 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 and 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 is 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 was federally listed as endangered in 1967 and by the State in 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. Females bare live young from June to September. Typically found in densely vegetative ponds nears hills however, the San Francisco 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 parts per thousands, 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 2016 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, Mitigation Measures, Monitoring and Reporting Program and Appendix E, Procedure for the Programmatic Evaluation of Archaeological Resources 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, Mitigation Measures, Monitoring and Reporting Program 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, Mitigation Measures, Monitoring and Reporting Program and Appendix D, Procedure for the Programmatic Evaluation of Paleontological Resources 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, Mitigation Measures, Monitoring and Reporting Program 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, 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.

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, 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) 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

Non-Physical Items

Project ID	Project Type	Proposal Number	Project Title	Applicant	County	Region	Focus
724765	AC	169	Watershed Stewards Program - Year 23	California Conservation Corps-Watershed Stewards Program	All coastal counties	1, 3, 4, 5	FRGP
724711	PL	100	Passage Assessment Database (PAD) 2016-2018	Pacific States Marine Fisheries Commission	All counties	1, 2, 3, 4, 5	FRGP
725044	PL	267	Smith River Fisheries Management Plan	Northern CA Council International Fed. Of Fly Fishers	Del Norte	1	SHRRC
724700	MO	83	Monitoring and Evaluation of Salmonid Habitat Restoration 2015	Pacific States Marine Fisheries Commission	Del Norte, Humboldt, Marin, Mendocino, Napa, Siskiyou, Sonoma, Trinity	1, 3	FRGP
724707	PD	091	Fish Passage Improvement Project at 12th Street	City of Fortuna	Humboldt	1	FRGP
724719	PD	111	Cummings Creek Coho Salmon Barrier Removal Project	Trout Unlimited, Inc.	Humboldt	1	FRGP
724752	PL	155	Pine Creek Watershed Assessment and Erosion Prevention Planning Project	Hoopa Valley Tribe	Humboldt	1	FRGP
724758	PD	162	Strawberry Creek Wetland Coho Habitat Restoration Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association	Humboldt	1	FRGP
724763	PL	167	Marshall Ranch Action Plan for Coho Recovery in the South Fork Eel River	Eel River Watershed Improvement Group	Humboldt	1	FRGP

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Non-Physical Items

Project ID	Project Type	Proposal Number	Project Title	Applicant	County	Region	Focus
724788	PL	203	Canon Creek Watershed Assessment and Erosion Prevention Planning Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association	Humboldt	1	FRGP
724791	PD	206	Panther Creek Barrier Removal Design Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association	Humboldt	1	FRGP
724796	PD	211	Blue Lake Off Channel Coho Habitat Improvement Design Project	Blue Lake Rancheria	Humboldt	1	FRGP
725039	PD	259	North Mad River Fish Passage Project	Pac Coast Fish, Wildlife, and Wetlands Restoration Ass.	Humboldt	1	SHRRC
724678	MD	047	South Fork Eel River Adult Salmonid Abundance Monitoring Project	Pacific States Marine Fisheries Commission	Humboldt, Mendocino	1	FRGP
724715	MD	107	Mattole River Adult Coho Salmon Abundance Monitoring	Mattole Salmon Group	Humboldt, Mendocino	1	FRGP
724721	MD	113	Mattole River Juvenile Coho Salmon Summer Spatial Structure Monitoring	Mattole Salmon Group	Humboldt, Mendocino	1	FRGP
724808	ED	D231	The Klamath Youth Climate Change Mitigation Project	Mid Klamath Watershed Council	Humboldt, Siskiyou	1	Drought
725035	MD	266	Genetic Structure of Mad River Steelhead: Hatchery Genetic Monitoring and Evaluaiton of Summer Run Status	HSU Sponsored Programs Foundation	Humboldt, Trinity	1	SHRRC
724688	MD	061	Monitoring Steelhead in Topanga Creek	RCD of the Santa Monica Mountains	Los Angeles	5	FRGP
725043	PL	252	Millerton Creek Restoration Phase 1: Limiting Factors Analysis	North Bay Trout Unlimited	Marin	3	SHRRC

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Non-Physical Items

Project ID	Project Type	Proposal Number	Project Title	Applicant	County	Region	Focus
724770	MD	179	Lagunitas Creek CMP Salmon Lifecycle Monitoring – Phase II	Marin Municipal Water District	Marin, Sonoma	3	FRGP
724663	MD	020	Coastal Mendocino County Salmonid Life Cycle and Regional Monitoring	Pacific States Marine Fisheries Commission	Mendocino	1	FRGP
724669	PD	031	Neefus Gulch Coho Salmon Barrier Removal Project Design	Trout Unlimited	Mendocino	1	FRGP
724725	OR	117	Fish Habitat Assistant	California Conservation Corps	Mendocino	1	FRGP
724743	PD	144	Gulch C Coho Salmon Barrier Removal Project Design	Trout Unlimited, Inc.	Mendocino	1	FRGP
724778	PL	190	Upper North Indian Creek Watershed Coho Recovery Action Plan	Mattole Salmon Group	Mendocino	1	FRGP
725040	PD	260	Little Mill Creek Fish Barrier Removal	Mendocino RCD	Mendocino	1	SHRRC
725037	PD	254	Woodman Creek (Eel River) Railroad Crossing Barrier Removal Project - 100% Designs	CalTrout inc.	Mendocino	1	SHRRC
724648	MD	224	Steelhead Population Monitoring For the Gualala River Watershed	Gualala River Watershed Council (GRWC)	Mendocino, Sonoma	1,3	SHRRC
724722	PD	114	Cachuaga Creek Concrete Ford Alternative Design Project	Trout Unlimited, Inc.	Monterey	3	FRGP
724807	PD	D232	San Clemente Creek Concrete Ford Alternative Design Project	Trout Unlimited, Inc.	Monterey	4	Drought
724809	ED	D230	Salmon and Water Conservation in Sacramento Schools	South Yuba River Citizens League	Sacramento	2	Drought
724723	PD	115	Santa Margarita River Fish Passage Design - Sandia Creek	Trout Unlimited - South Coast Chapter	San Diego	5	FRGP

Appendix A

Non-Physical Items

Project ID	Project Type	Proposal Number	Project Title	Applicant	County	Region	Focus
724821	TE	D244	Upper San Luis Rey River Groundwater Recharge and Habitat Protection	San Luis Rey Watershed Council	San Diego	5	Drought
724822	PD	D243	Peters Creek Water Storage / Creek Diversion Forbearance Design Project – Portola Redwoods State Park	Trout Unlimited	San Mateo	3	Drought
724686	MD	059	Big Basin and Coastal San Mateo County Salmonid Monitoring Program	Pacific States Marine Fisheries Commission	San Mateo, Santa Cruz	3	FRGP
724768	MD	177	Southern California DIDSON and Spatial Distribution Monitoring	Pacific States Marine Fisheries Commission	Santa Barabara, Ventura	5	FRGP
724671	PD	038	Lower Uvas-Carnadero Creek Agricultural Ford Alternative Design Project	Trout Unlimited, Inc.	Santa Clara	3	FRGP
724661	MD	016	Scott Creek Life Cycle Monitoring Station	Regents of the University of California	Santa Cruz	3	FRGP
724652	PD	223	Little Springs Creek Culvert Project at Louie Road Project Design	Northwest CA Resource Conservation & Development Council: Five Counties	Siskiyou	1	FRGP
724667	PD	027	2015 Horse Creek Wood Loading & Floodplain Relief Project, Design Phase	Mid Klamath Watershed Council	Siskiyou	1	FRGP
724751	PL	154	Salmon River Floodplain Restoration and Mine-Tailing Remediation Plan	Salmon River Restoration Council	Siskiyou	1	FRGP
724802	PL	217	Mid-Klamath Floodplain Assessment and Mine Tailing Remediation Plan	Mid Klamath Watershed Council	Siskiyou	1	FRGP
725041	PD	262	Hotelling Gulch Fish Passage and Channel Restoration Design	Salmon River Restoration Council	Siskiyou	1	SHRRC

Non-Physical Items

Project ID	Project Type	Proposal Number	Project Title	Applicant	County	Region	Focus
724729	PL	122	Delineation of Potential Winter Rearing Habitat Using LiDAR	Pepperwood Foundation	Sonoma	3	FRGP
724806	PL	D233	Drought Mitigation Planning Project for the Buckeye Forest (BF)	The Conservation Fund	Sonoma	3	Drought
725036	PD	251	Atascadero Reserve Off Channel Habitat Design Project	Gold Ridge RCD	Sonoma	3	SHRRC
724818	PD	D235	Los Molinos Mutual Water Company Northside Water Use Efficiency Improvement Masterplan	Los Molinos Mutual Water Company	Tehama	1	Drought
724819	PL	D246	South Fork Battle Creek Erosion Prevention Planning Project	Resource Conservation District of Tehama County (RCDTC)	Tehama	1	Drought
725042	PD	265	Paynes Creek Fish Passage Assesement and Restoration Project, Bend Irrigation Diversion	Trout Unlimited	Tehama	1	SHRRC
724760	MD	164	Ventura River Basin Population Abundance Surveys and PIT Tag Program	Pacific States Marine Fisheries Commission	Ventura	5	FRGP
724804	PD	220	Sisar Creek Arizona Crossing Replacement Design Alternatives Analysis	Friends of the Santa Clara River	Ventura	5	FRGP
724811	PD	D228	Sisar Creek Arizona Crossing Replacement Design Alternatives Analysis	Friends of the Santa Clara River	Ventura	5	Drought

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

Action Items

Project ID	Project Type	Proposal Number	Project Title	Applicant	County	Region	Focus
724776	HI	186	Rowdy Creek Instream Habitat Enhancement Project Reach IV	Rural Human Services	Del Norte	1	FRGP
724735	WC	133	Mattole Flow Program - Tributary Water Storage and Forbearance	Sanctuary Forest	Humboldt	1	FRGP
724738	FP	136	Fish Passage Improvements at South Fortuna Boulevard	City of Fortuna	Humboldt	1	FRGP
724742	HI	143	McKee Creek Instream Habitat Restoration	Sanctuary Forest	Humboldt	1	FRGP
724766	HI	174	Morrison Gulch Coho Habitat Improvement Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association	Humboldt	1	FRGP
724784	HI	198	Redwood Creek Instream Habitat Improvement Project - Jakubal	Eel River Watershed Improvement Group (ERWIG)	Humboldt	1	FRGP
724785	HI	199	Lower Mill Creek Instream Restoration Project, Phase 2	Hoopa Valley Tribe	Humboldt	1	FRGP
724789	HI	204	Redwood Creek Instream Habitat Improvement Project-Schroeder	Eel River Watershed Improvement Group	Humboldt	1	FRGP
724794	HU	209	East Fork Ryan Creek Sediment Reduction and Habitat Enhancement Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association	Humboldt	1	FRGP
724782	HR	196	Greater Eel River Arundo Eradication Phase III	Eel River Watershed Improvement Group	Humboldt, Mendocino	1	FRGP
724702	HI	085	Lagunitas Creek Winter Habitat Enhancement Implementation – Phase II	Marin Municipal Water District	Marin	3	FRGP
724655	HI	004	South Fork Noyo River Instream Habitat Enhancement Project	Mendocino Land Trust	Mendocino	1	FRGP
724684	HI	055	East Branch Little North Fork LWD and Instream Barrier Modification	The Conservation Fund	Mendocino	1	FRGP

Action Items

Project ID	Project Type	Proposal Number	Project Title	Applicant	County	Region	Focus
724685	HR	057	Baechtel Creek Riparian and Coho Habitat Enhancement Project	Mendocino County Resource Conservation District	Mendocino	1	FRGP
724694	HI	070	Little North Fork Navarro River Coho Stream Habitat Enhancement Project	California Conservation Corps	Mendocino	1	FRGP
724696	HU	075	Grubb Creek Upslope Sediment Reduction Project	Mendocino County Resource Conservation District	Mendocino	1	FLAR
724697	HR	076	Big Rock Creek Riparian and Coho Habitat Enhancement Project	Mendocino County Resource Conservation District	Mendocino	1	FRGP
724705	HI	089	Noyo Headwaters Instream Habitat Enhancement Project	Mendocino Land Trust	Mendocino	1	FRGP
724706	HB	090	James Creek Fish Barrier Modification Project	Mendocino Land Trust	Mendocino	1	FRGP
724741	FP	139	Kenny Creek Fish Passage Improvement Project	Eel River Watershed Improvement Group	Mendocino	1	FRGP
724744	HU	145	Anderson Creek Sediment Reduction and Coho Recovery Project	Trout Unlimited	Mendocino	1	FLAR
724745	HI	146	Olds Creek Instream Coho Salmon Habitat Enhancement Project	Trout Unlimited, Inc.	Mendocino	1	FLAR
724764	HI	168	Anderson Creek Habitat Enhancement Project for Coho Recovery Phase II	Eel River Watershed Improvement Group	Mendocino	1	FRGP
724781	HI	195	Hollow Tree Tributary Complex Instream Restoration Project Phase II	Eel River Watershed Improvement Group	Mendocino	1	FRGP
724797	HU	212	Blue Waterhole Cr Sediment Reduction and Coho Habitat Enhancement	Mendocino County Resource Conservation District	Mendocino	1	FLAR

Appendix A

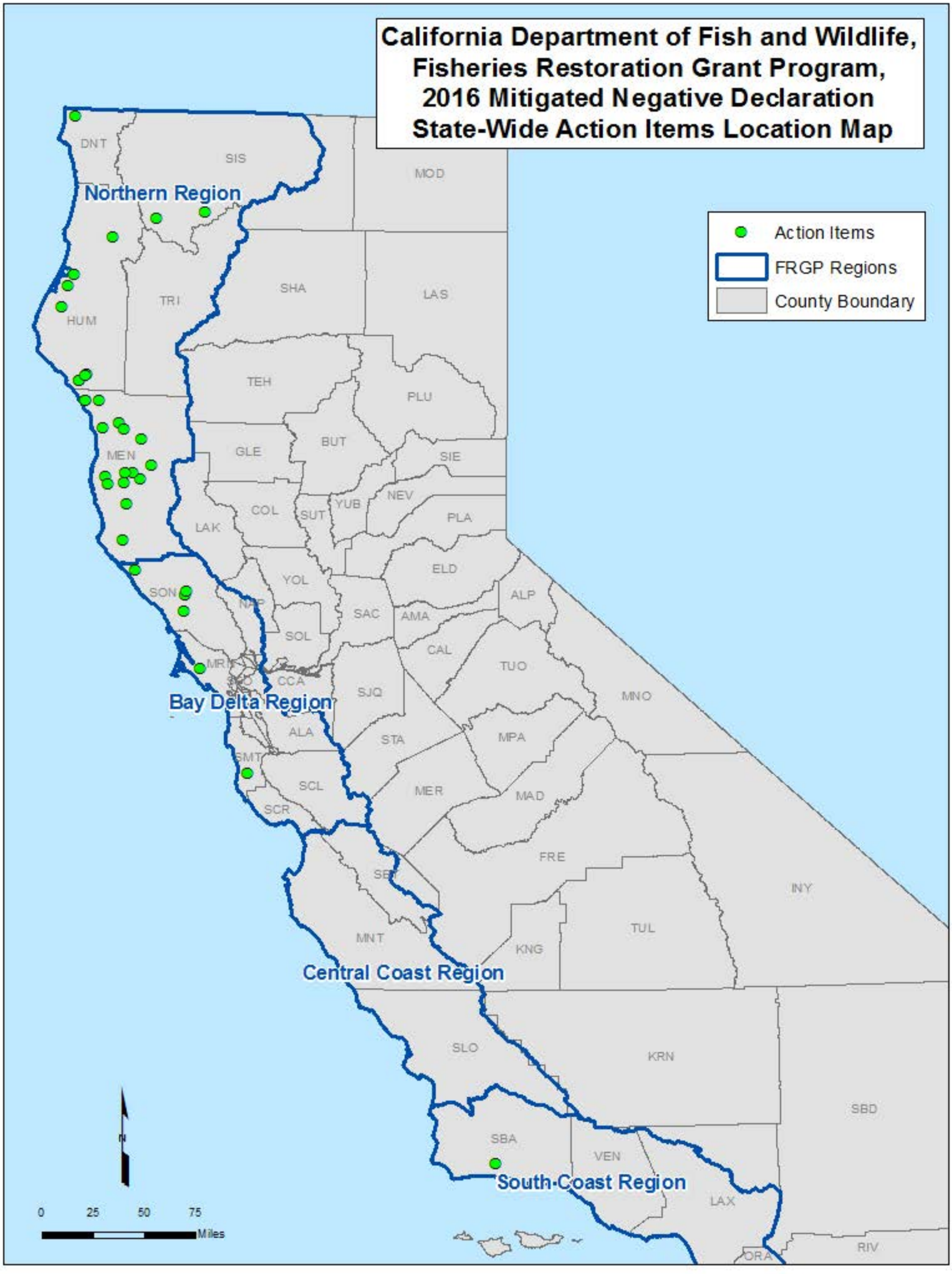
Action Items

Project ID	Project Type	Proposal Number	Project Title	Applicant	County	Region	Focus
725030	HI	253	String Creek Steelhead Instream Habitat Enhancement Project	Trout Unlimited	Mendocino	1	SHRRC
725029	HB	256	Horsethief Canyon Instream Barrier Modification	The Conservation Fund	Mendocino	1, 3	SHRRC
724673	HI	041	San Gregorio Creek Habitat Enhancement Project - Phase 2	San Mateo County Resource Conservation District	San Mateo	3	FRGP
724654	FP	001	Fish Passage Improvement at Crossing 4, Quiota Creek	Cachuma Operation and Maintenance Board	Santa Barbara	5	FRGP
724714	HI	106	South Fork Salmon River Tributary Salmonid Habitat Enhancement Project	Salmon River Restoration Council	Siskiyou	1	FRGP
724773	HI	182	Scott River Instream Habitat Restoration project	California Trout, Inc.	Siskiyou	1	FLAR
724656	FP	006	Upper Green Valley Creek Fish Passage Implementation Project	Gold Ridge Resource Conservation District	Sonoma	3	FRGP
724717	HI	109	Felta Creek Stream Habitat Enhancement Project	Sonoma Resource Conservation District	Sonoma	3	FRGP
724746	HB	148	Mill Creek Dam Fish Passage Project	Trout Unlimited, Inc.	Sonoma	3	FRGP

FP: Fish passage at stream crossings
HB: Instream barrier modification for fish passage
HI: Instream habitat restoration
HR: Riparian restoration
HU: Watershed restoration (upslope)
WC: Water conservation measures

Focus

FRGP: Fisheries Restoration Grant Program
Drought: FRGP drought focus
SHRRC: Steelhead Report and Restoration Card
FLAR: Forest Land Anadromous Restoration


California Department of Fish and Wildlife,
Fisheries Restoration Grant Program,
2016 Mitigated Negative Declaration
State-Wide Action Items Location Map
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Bay Delta Region
Central Coast Region
South Coast Region
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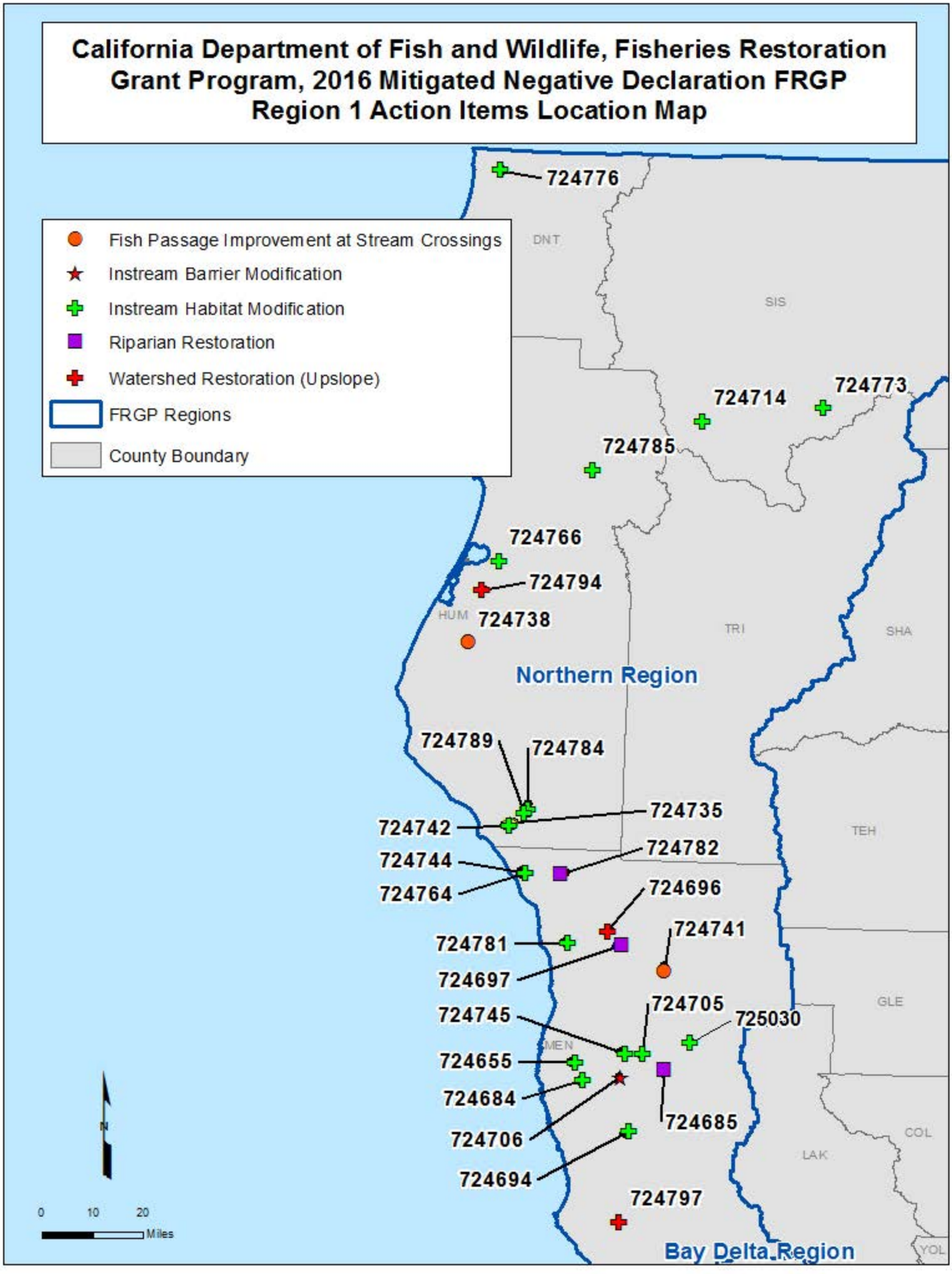
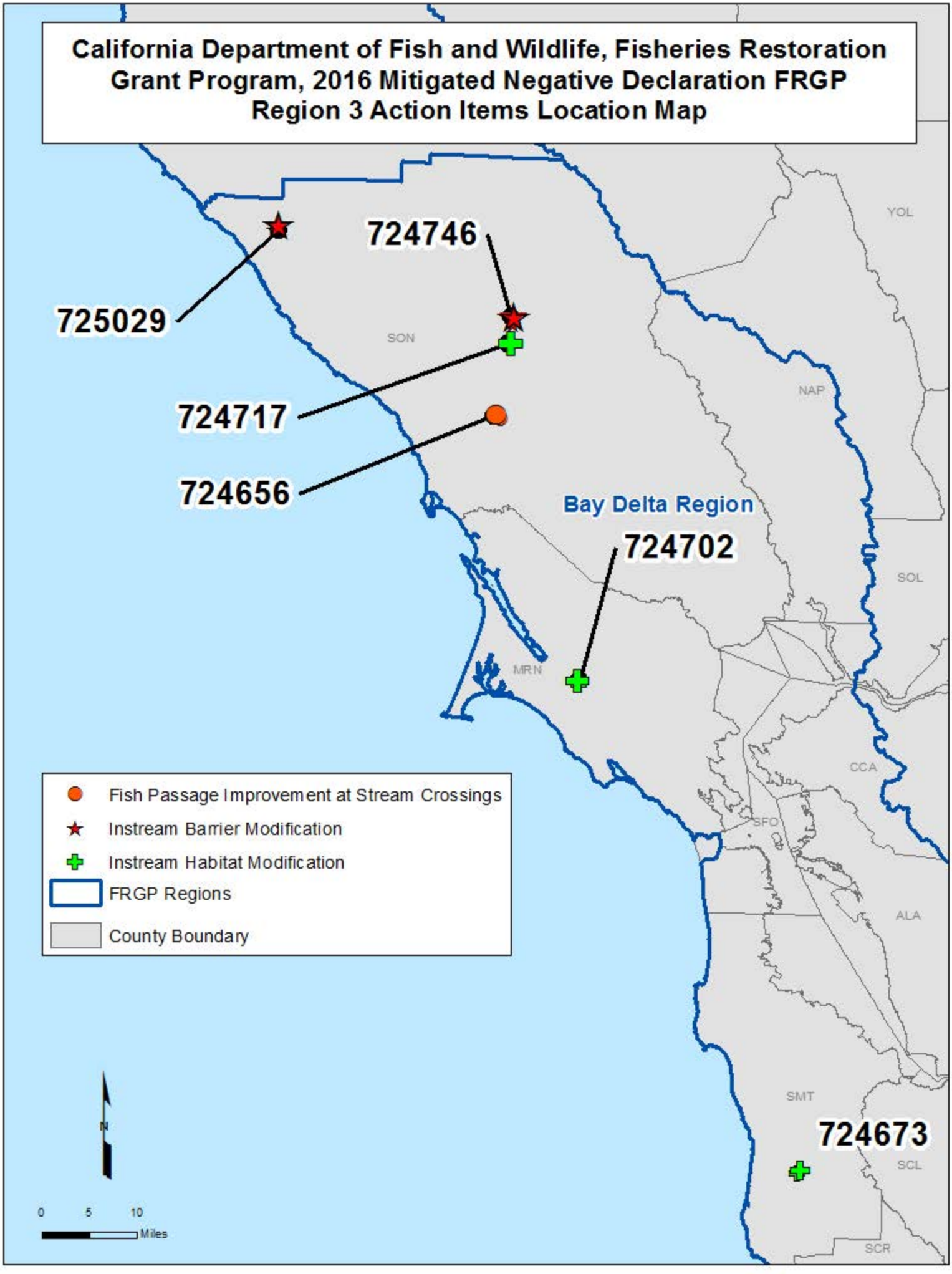
California Department of Fish and Wildlife, Fisheries Restoration Grant Program, 2016 Mitigated Negative Declaration FRGP Region 1 Action Items Location Map




California Department of Fish and Wildlife, Fisheries Restoration Grant Program, 2016 Mitigated Negative Declaration FRGP Region 3 Action Items Location Map
724746
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Bay Delta Region
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Fish Passage Improvement at Stream Crossings
Instream Barrier Modification
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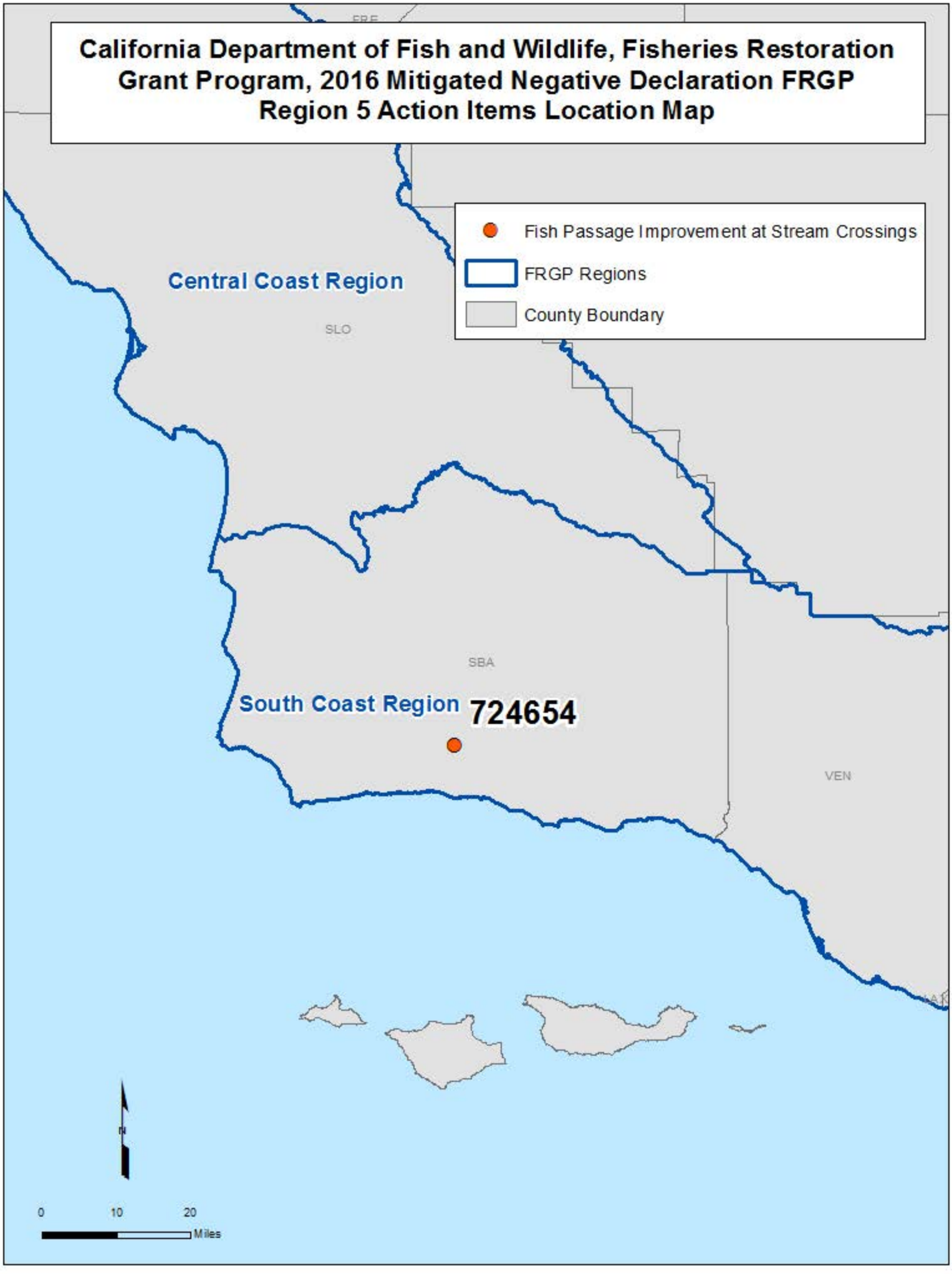
California Department of Fish and Wildlife, Fisheries Restoration Grant Program, 2016 Mitigated Negative Declaration FRGP Region 5 Action Items Location Map
Fish Passage Improvement at Stream Crossings
FRGP Regions
County Boundary
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Introduction:
Rural Human Services will implement the Rowdy Creek Instream Habitat Enhancement Project: Reach IV. The purpose of the project is to improve spawning habitat and rearing habitat for salmonids through pool retention, pool development and increased habitat complexity. This will be accomplished through installing 78 or more logs within 16 to 18 large woody debris structures along 1135 feet of Rowdy Creek. In addition, 500 native conifer trees will be planted to provide for future large wood recruitment.

The project is necessary because Rowdy Creek continues to transport large amounts of gravel resulting in loss of salmonid habitat. Specifically pool depth, pool complexity, and in-channel large woody debris is limiting to salmonids. The objective of this project is to continue the short-term plan to increase large wood by implementing large wood structures along a reach of Rowdy Creek where pool development is occurring and cover complexity is limited. Planting trees will implement the long term plan to increase large woody debris recruitment. Woody cover provides rearing fry with protection from predation, rest from water velocity, and divides territorial units to reduce density dependent competition.

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 VII and XI (Flosi et al 1998 and 2002).

Objective(s):
The goals of this project are to improve spawning habitat and rearing habitat for salmonids through pool retention, pool development, and increased habitat complexity in Rowdy Creek. An additional goal is to provide for future large wood recruitment in Rowdy Creek. These goals will be achieved by installing large woody debris structures in the creek and planting native conifer trees along the riparian zone.

Project Description:

Location: The Grantee will conduct work along a section of Rowdy Creek. The locations of the project boundaries are approximately 41.93615100 º north latitude, 124.10558000º west longitude at the downstream end; and 41.93922400 º north latitude, 124.09927800º west longitude at the upstream end.

Project Set Up: The project coordinator will conduct and oversee project tasks such as permitting, pre-project inspections, coordinating with landowners, subcontractors, and heavy equipment operators, manage project materials, plan exact structure locations, purchase materials, arrange for equipment decontamination, and provide education for CCC work crews.

The natural resources technician will provide support for log and boulder delivery, material staging activities, final site design, final photo documentation, and CCC support in anchoring placed structures.

The CCC will anchor the large woody debris structures and plant riparian trees. Qualified heavy equipment operators will be subcontracted to transport and stage materials and install the large woody debris and boulder structures in the creek. The logging subcontractor will log the whole tree materials and transport them to staging areas.

Materials: Materials that will be in this project include 500 conifer trees, 60 boulders, 28 whole tree materials, 10 straw bales, 2 chain saws, 2 heavy equipment hazmat supplies, 2 heavy equipment decontamination kits, and 2 safety kits.

Tasks: Habitat improvements will be accomplished by installing 78 or more logs within instream habitat structures at 16-18 sites on 1135 feet of stream. Additionally, 500 native conifer trees will be planted in the riparian zone. Tasks will consist of the following:

- Update landowner access permit to conduct work.
- The Grantee will finalize structure design and placement by field consultation between the grantee and the CDFW Grant Manager. Submit 1600 stream alteration permit and coordinate botanical and archeological field review.
- Import logs with root wads intact when possible to staging sites along the creek.
- Import 56 to 60 boulders for use as anchor points for placed LWD.
- Purchase personnel protective equipment.
- Conduct budgeting and tracking budget expenditures, developing and submitting invoices to funding agency.
- Use an excavator to place the logs and boulders near the stream then CCC hand crews will place the logs in the predetermined locations within the project reach.
- Hand crews will anchor the logs to the boulders using one inch threaded rebar, ¾ inch cable and polyester resin adhesive as needed.
- Mulching of disturbed surfaces will occur to maximize erosion control.
- Plant 500 mixed conifer trees to enhance the riparian zone.
- Final reporting preparation and submission.

Deliverables: Photo documentation of the project sites and a final report prepared for CDFW. Placement of a 16-18 instream structures made of logs and boulders. Planting of 500 conifers within the project reaches. Submission of final report containing required detail contained in agreement.

Timelines:
June 1, 2016 to October 30, 2016 and/or June 1, 2017 to October 31, 2017 – Project planning and implementation

December 15, 2016 to March 15, 2017 and/or December 15, 2017 to March 2018 – Conifer planting

November 2016 to March 2018 – Final project documentation and reporting

Additional Requirements: 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.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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:

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

b. 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*.
c. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.
d. 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.
e. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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.*

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 insure the best chance of survival of the seedlings.

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 IV. T18N, R01E, S19, High Divide, 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			G5T3T4	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	S3	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	G3	S3	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

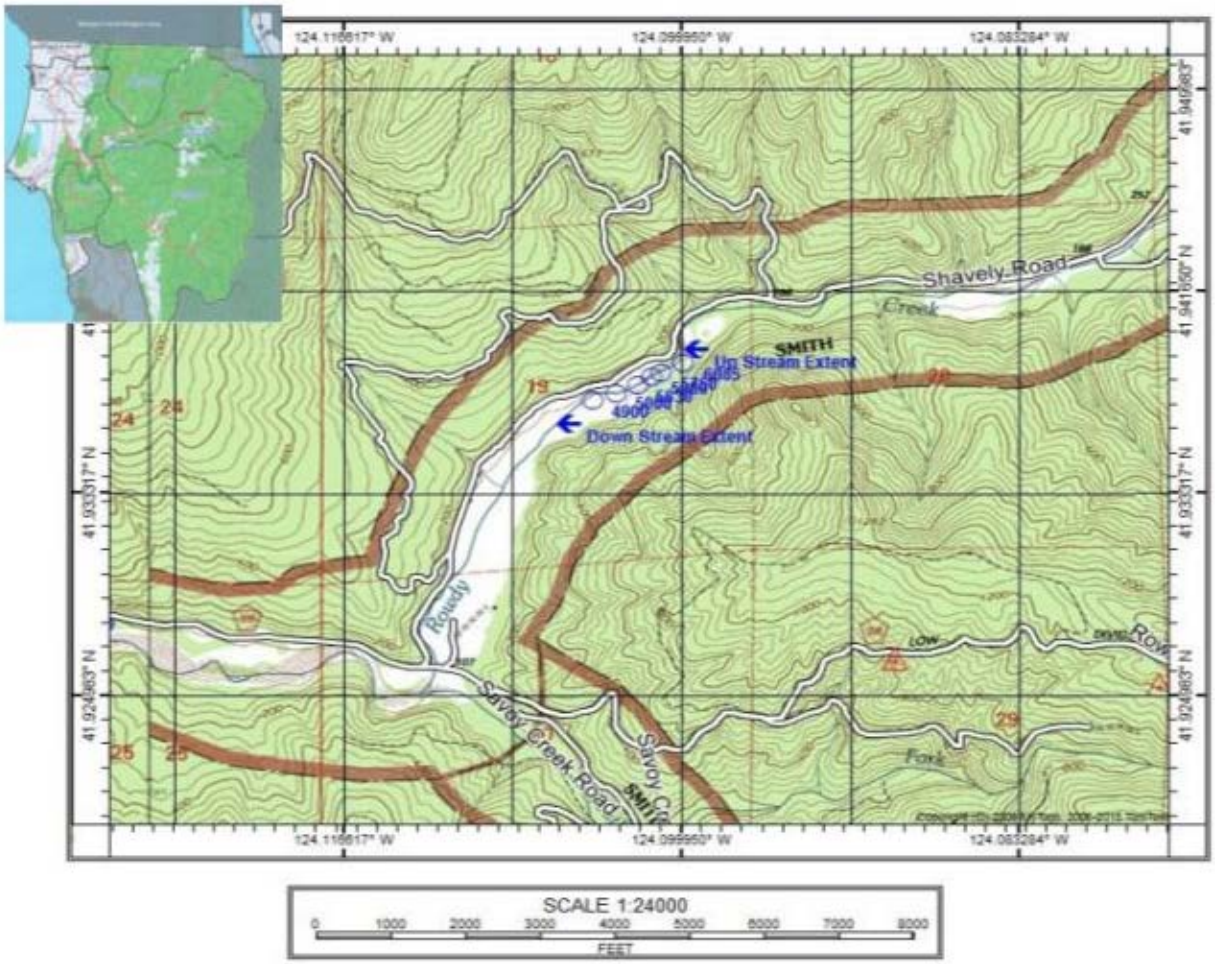
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
26	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
27	Oregon polemonium *Polemonium carneum*	PDPLM0E050			G3G4	S2	2B.2
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	S3S4	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			G2	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 *Lysimachia europaea*	PDPRI0A030			G5	S1	2B.2
46	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
47	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
48	black crowberry *Empetrum nigrum*	PDEMP03020			G5	S1?	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	S3	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	
58	fibrous pondweed *Potamogeton foliosus ssp. fibrillosus*	PMPOT030B1			G5T2T4	S1S2	2B.3
59	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	unknown code...	G5T2T3Q	S2S3	SC
60	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	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			G4	S2	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	mardon skipper *Polites mardon*	IILEP66030			G2G3	S1	
74	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2	2B.2
75	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S2	1B.2
76	nodding vanilla-grass *Anthoxanthum nitens ssp. nitens*	PMPOA0F041			G5	S2	2B.3
77	northern meadow sedge *Carex praticola*	PMCYP03B20			G5	S2	2B.2
78	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
79	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
80	opposite-leaved lewisia *Lewisia oppositifolia*	PDPOR040B0			G4	S2	2B.2
81	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
82	rhinoceros auklet *Cerorhinca monocerata*	ABNNN11010			G5	S3	
83	rocky coast Pacific sideband *Monadenia fidelis pronotis*	IMGASC7032			G4G5T1	S1	
84	sand dune phacelia *Phacelia argentea*	PDHYD0C070			G2	S1	1B.1
85	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
86	seaside pea *Lathyrus japonicus*	PDFAB250C0			G5	S2	2B.1
87	serpentine catchfly *Silene serpentinicola*	PDCAR0U2B0			G2	S2	1B.2
88	serpentine sedge *Carex serpenticola*	PMCYP03KM0			G4	S3	2B.3
89	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T3	S2	1B.2
90	silver-haired bat *Lasionycteris noctivagans*	AMACC02010			G5	S3S4	
91	small groundcone *Kopsiopsis hookeri*	PDORO01010			G4G5	S1S2	2B.3
92	snowy egret *Egretta thula*	ABNGA06030			G5	S4	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
93	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
94	spiral-spored gilded-head pin lichen *Calicium adspersum*	NLT0005640			G3G4	S1?	2B.2
95	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
96	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S3	SC
97	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S1S2	SC
98	twisted horsehair lichen *Bryoria spiralifera*	NLTEST5460			G3	S1S2	1B.1
99	western bumble bee *Bombus occidentalis*	IIHYM24250			G2G3	S1	
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	S3	1B.2
107	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3S4	
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 IV
Project Location Map
T18N, R01E, S19, High Divide Quad, Del Norte County



Introduction:

Grantee will implement the Mattole Flow Program – Tributary Water 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 250,000 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 and both McKee Creek and Ravashoni Creek are high priority tributaries in the headwaters. 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 250,000 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 village of Whitethorn, located approximately 10 miles due west of Highway 101 on the Mendocino and Humboldt County border. The four diversion sites adjoin McKee Creek and Ravashoni Creek. The McKee Creek sites are located approximately 2900 feet upstream of the confluence of McKee Creek with the Mattole River, at coordinates 40.06765° north latitude and -123.958171° west longitude and 40.068618° north latitude and -123.958801° west longitude. The Ravashoni Creek site is located approximately 2700 feet upstream of the confluence of Ravashoni Creek Creek with the Mattole River, coordinates are 40.03707° north latitude and -123.947816° west longitude, 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 manage the overall project including subcontracts, grant agreements, permits, and supervision of grantee supporting staff. The project manager will be responsible for successful implementation of the project including deliverables, permits and reports. 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, and procure all required permits and water rights. 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 assist with landowner specific forbearance agreements and consult on landowner issues and all water rights and permit requirement questions.

A subcontracted engineer will perform site evaluations and specifications for tank site grading; provide input and review on tank and water system design and assist with county permits if needed based on extent of grading and size of tanks. The engineer will review and approve construction drawings.

The Subcontracted Electrician and Plumber will provide input on system design and prepare construction drawings as well as implement all plumbing and electrical tasks needed to facilitate use of the stored water. Plumbing tasks include but are not limited to installation of piping from tank to house; installation of pressure pump and small pressure tank, tank manifold and valves, leak safety systems, meters, CDFW/NOAA compliant fish screen fabrication and installation; and filtration system installation. Electrical tasks include but are not limited to installation of operational controls and wiring to connect pumps to the controls.

The Subcontracted Heavy Equipment and Labor will provide input on system design and performs all installation tasks not performed by the electrician and plumber. Installation tasks include but are not limited to site and tank pad preparation; tank installation; trenching; assisting plumber with pipe laying; backfilling trenches; winterizing system and erosion control.

The Water delivery subcontractor will deliver water in the event of catastrophic loss to a forbearance participant during the forbearance season when no water can be pumped. Additionally delivered water will be used to partly fill and stabilize tanks if winter weather has started without sufficient rainfall and flow to divert water into the tanks for stabilization.

Materials: A total of three 50,000-gallon water storage systems including three source pumps, three 1300 gallon staging tanks, three source pump retrofits, three pressure pump and tanks, 6000 feet of plastic pipe, three leak safety and valves, three fish screens, five water clarity filters, three electrical controls and associated parts, three water meters, 65 yards of sand, 390 yards of gravel, and three mulch and erosion control.

Tasks: Install five 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.
- Prepare documentation of water system and conduct landowner education on system operation.
- Conduct post project photo documentation.
- Conduct landowner compliance monitoring and operation of seasonal forbearance.
- Perform landowner notifications for seasonal management of forbearance program.
- Perform landowner compliance monitoring annually. Assist with landowner emergency water loss and provide technical assistance for adaptive management as needed.

Deliverables:

- Copies of three executed forbearance agreements
- Three landowner Water Management Plans
- Installation of five 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

Timelines:
June 1, 2016 through June 31, 2017: finalize pumping restrictions and permit process. Develop and finalize water system and water management plan, execute forbearance agreement, obtain permits, water rights and 1602 notification

August 1, 2016 through December 30, 2018: Install water tanks, water system modifications and CDFW compliant fish screens at the diversion point

June 2016 – December 2018: Operate seasonal storage and forbearance program including new landowner participants from this proposal.

February 2019: Final Reports

Additional Requirements: 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.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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:

a. Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.
b. 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*.
c. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.
d. 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.
e. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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.*

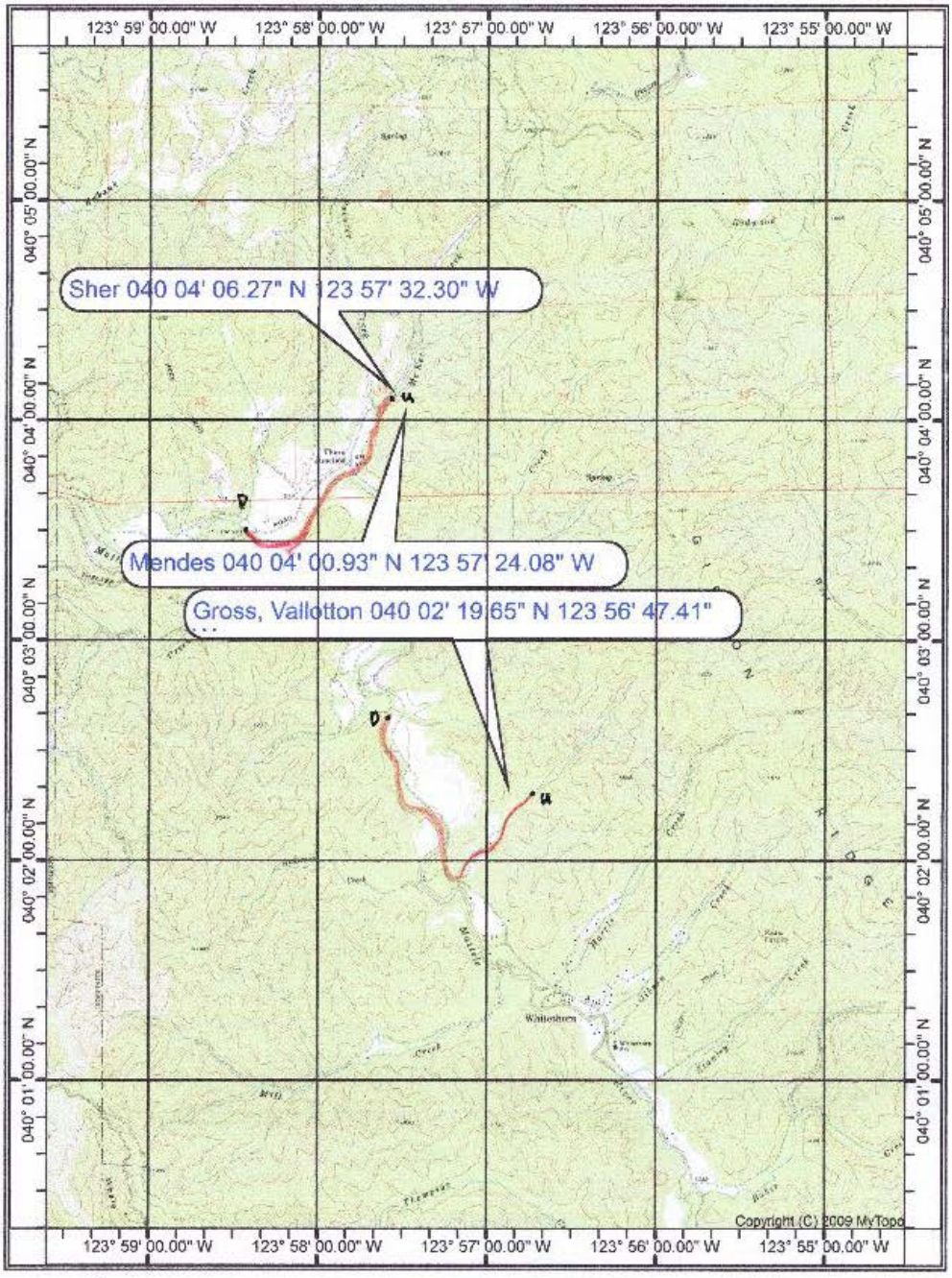
All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.* Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

California Department of Fish and Wildlife
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Briceland, Honeydew, Ettersburg, Miranda, Shelter Cove, Garberville, Bear Harbor, and Piercy for: Mattole Flow Program- Tributary Water Storage and Forbearance
T5S, R2E, Section 9 and 33, Briceland Quad, Humboldt County, USA.

	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	Cone Peak bedstraw *Galium californicum ssp. luciense*	PDRUB0N0E3			G5T3	S3	1B.3
3	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S4	
4	Davidson's bush-mallow *Malacothamnus davidsonii*	PDMAL0Q040			G2	S2	1B.2
5	Hardham's evening-primrose *Camissoniopsis hardhamiae*	PDONA030N0			G2	S2	1B.2
6	Hickman's checkerbloom *Sidalcea hickmanii ssp. hickmanii*	PDMAL110A2			G3T2	S2	1B.3
7	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
8	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
9	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
10	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
11	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
12	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
13	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S3S4	SC
14	San Antonio collinsia *Collinsia antonina*	PDSCR0H010			G1	S1	1B.2
15	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
16	Ten Mile shoulderband *Noyo intersessa*	IMGASC5070			G2	S2	
17	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2	SC
18	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
19	Valley Oak Woodland	CTT71130CA			G3	S2.1	
20	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
21	arroyo toad *Anaxyrus californicus*	AAABB01230	Endangered		G2G3	S2S3	SC
22	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S3	2B.2
23	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
	Oncorhynchus kisutch						
24	dwarf calycadenia *Calycadenia villosa*	PDAST1P0B0			G3	S3	1B.1
25	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
26	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
27	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
28	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2
29	little willow flycatcher *Empidonax traillii brewsteri*	ABPAE33041		Endangered	G5T3T4	S1S2	
30	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2	2B.2
31	mountain shoulderband *Helminthoglypta arrosa monticola*	IMGASC2035			G2G3T1	S1	
32	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
33	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
34	pale-yellow layia *Layia heterotricha*	PDAST5N070			G2	S2	1B.1
35	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
36	small groundcone *Kopsiopsis hookeri*	PDORO01010			G4G5	S1S2	2B.3
37	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
38	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
39	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2

Mattole Flow Program – Tributary Water Storage and Forbearance Project
Project Location Map
T5S, R2E, Section 9 and 33, Briceland Quad, Humboldt County



Mattole Flow Program - Tributary Water Storage and Forbearance
(Affected reaches marked in red in each watershed)

Briceland Quad

Fish Passage Improvements at South Fortuna Boulevard 2016

Introduction: The City of Fortuna Public Works Engineering Division will construct a 40-foot long roughened rock chute downstream of the South Fortuna Boulevard crossing to raise the channel bed 2.0 feet, and cut and refors a 2.5-foot deep, 185-foot long concrete notch through the culvert, including roughness elements to reduce velocities for juvenile fish passage. The raised crest of the propose rock chute will create a 2-foot deep pool at the downstream end of the crossing and will backwater the full length of the notch.

This project is necessary because historically and currently, coho salmon, steelhead and cutthroat trout have been found in Strongs Creek. Strongs Creek is identified as a target stream to establish populations of coho salmonids. California Department of Fish and Wildlife conducted a fish passage assessment of the Strongs Creek crossing at Fortuna Boulevard and used FishXing software to assess fish passage conditions over the range of fish passage flows. The results of the analyses indicate that the crossing is a complete barrier to adult anadromous and juvenile salmonids at both low and high fish passage flows due to the drop at the downstream end of the crossing and shallow, high velocity flows within the crossing. This crossing currently restricts access to approximately 10.95 miles of historical salmonid habitat upstream of the crossing.

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* Part IX and XII (Flosi et al 1998 and 2002).

Objectives: Objectives of this project include:

- Provide cold-water refugia from higher water temperatures in the main stem Eel River.
- Retrofit an existing culvert to provide fish passage at the South Fortuna Boulevard crossing to restore habitat connectivity.
- Provide access to 10.95 miles of historical habitat for coho salmon.

Project Description:

Location: The project site is located within a narrow riparian corridor between residential, commercial and light industrial parcels in western Fortuna on Strongs Creek. The work site spans two undeveloped parcels owned by the City of Fortuna and a private landowner. The project boundary begins upstream of the South Fortuna Boulevard crossing and extends approximately 200 feet downstream of the culvert and to the top of bank on either side of the channel. The culvert crossing is located approximately 1,500 feet upstream of the Highway 101 crossing and 1.2 miles upstream of the confluence with the Eel River. The upstream end of the culvert under South Fortuna Boulevard is located at 40.58030000 north latitude: 124.14700000 west longitude.

Project Set Up: The City of Fortuna will assist the Construction Subcontractor with interpretation of the construction documents and permit conditions during construction and provide general construction oversight and coordination as it relates to regulatory compliance. City of Fortuna personnel will provide management and administrative services, including attendance at applicable meetings.

The Engineering Subcontractor will serve as the engineer of record, project manager, perform coordination with the City of Fortuna and subcontractors, provide structural and civil engineering expertise, and lead the bid period services, construction management, on-site observation, biological clearance surveys, and project closeout tasks.

- Provide civil engineering and fish passage expertise.
- Serve as the project manager, project engineer, and on-site inspector, and perform coordination with the City of Fortuna and subcontractors.
- Provide the civil engineer and provide structural engineering expertise and on-site inspection.
- Provide quality assurance and quality control oversight, as needed.
- Provide a qualified biologist to conduct biological clearance surveys.

The Fish Passage Design Subcontractor will support the Engineering Subcontractor during the construction phase. The Fish Passage Design Subcontractor will serve as the fish passage engineers for the project. The Fish Passage Design Subcontractor will assist with preparing bid documents and selection of a Construction Subcontractor, oversight of rock chute and rock bank line construction and post implementation monitoring.

The Construction Subcontractor awarded the project will be responsible for complying with the California Environmental Quality Act (CEQA) /permit conditions.

Materials: Project materials include gravel, fabric, temporary shoring, signs, notification materials, water bags, piping, pumps, straw wattles, streambed material/rock, native backfill, structural backfill, structural concrete and reinforcement, concrete roughness blocks, 1/2 ton rock slope protection (RSP), 1 ton RSP, engineered streambed material, river run gravel (6" minus), biodegradable coir mat, seed (Brome, Rye, Wheatgrass, Fescue and Barley mix), mulch, container plants, willow staking, and straw mulch.

Tasks:

Task 1 - Pre-Bid and Bid Period Assistance. The City of Fortuna will provide the Advertisement of Bid and pay any associated fees for the placement of the

bid in any newspapers or other publications. The Engineering Subcontractor will provide the following services:

- Compile bid package including FRGP programmatic CEQA/permit conditions and subcontract provided by the City of Fortuna.
- Print and distribute plans to potential Construction Subcontractors (copies to Builder's exchange and the City of Fortuna).
- Issue Addenda during bidding to answer subcontractor questions
- Organize and conduct a pre-bid site meeting
- Organize and participate in bid opening
- Review potential Construction Subcontractor bids, summarize bid results and provide recommendation to City of Fortuna for award.
- Work with the selected Construction Subcontractor on obtaining and verifying bonds and insurance.
- Work with the City of Fortuna on preparing the subcontract documents for Fortuna City Council approval:
    - Notice of Award
    - Subcontract
    - Notice to Proceed Assumptions.

Task 2 - Construction Management. The Engineering Subcontractor will provide construction management assistance throughout the construction of the project. The Engineering Subcontractor will coordinate communication between the Construction Subcontractor, the City of Fortuna and other parties throughout the course of the project. The Engineering Subcontractor will assist the City of Fortuna to respond to landowner questions/comments.

Sub-Task 2.1 - Pre-Construction Review of Construction Subcontractor Documents

- Review Construction Subcontractor's initial construction schedule for completeness, adherence to project requirements and ease of monitoring progress.
- Review Construction Subcontractor's submittals.
- Review cost breakdowns requested for lump sum items to establish the basis for payment calculation for those items.

Sub-Task 2.2 - Pre-Construction Meeting

- Conduct pre-construction meeting.
- As a part of this effort, the Engineering Subcontractor will prepare and distribute the agenda, meeting minutes and a task list to project staff.
- Summarize work and expectations of City of Fortuna including subcontract requirements and coordination required for the completion of the work including roles and responsibilities, schedule of work, submittals, work hours, notifications, safety, coordination with utilities, materials testing, etc.

- Attend additional meetings and coordinate as necessary with the City of Fortuna and the Construction Subcontractor prior to the start of construction.

Sub-Task 2.3 - Environmental Compliance Coordination

- Compile permit and regulatory documents and distribute to subcontractors.
- Respond to environmental compliance and permitting related questions during the construction period.
- Oversee permit compliance requirements and assist Construction Subcontractor interpret permit conditions and construction windows.
- Conduct environmental awareness training to Construction Subcontractor
- Schedule and coordinate biological clearance surveys.

Sub-Task 2.4 - Construction Period Tasks

- Record working days, non- working days and weather related days and issue weekly statement of working days.
- Review Construction Subcontractor monthly payment requests, resolve differences in payment quantities, and prepare and submit monthly payment recommendations to City of Fortuna.
- Maintain project records and files.
- Attend project meetings and prepare agenda and document meeting minutes.
- Coordinate and manage Submittal and Shop Drawings reviews – include maintaining submittal log.
- Review and respond to Construction Subcontractor submittals, based upon the plans and specifications.
- Monitor the Construction Subcontractor's construction schedule and progress for adherence to project schedule, coordinate with the Construction Subcontractor on maintaining activities, notify Construction Subcontractor and City of Fortuna of any schedule concerns, review any schedule revisions and negotiate time extensions if necessary.
- Coordinate with the Construction Subcontractor so Construction Subcontractor can provide City of Fortuna staff with sufficient advance notice for any construction activities which may affect or require City of Fortuna resources or coordination.
- Request For Information (RFI) & Contract Change Orders (CCO)
    - Manage Construction Subcontractor correspondence including RFIs, Potential Change Orders (PCOs) and CCOs – include technical/engineering assistance and review, maintain logs, prepare and transmit responses and coordinate with other parties to develop responses.

    - Submit copy of CCO memorandum and CCOs to City of Fortuna.
- Attend on-site meetings to address construction issues, prepare agenda and meeting minutes.
- Coordinate and schedule Biologist, Construction Observer, and supporting City of Fortuna staff.

Task 3 - On-site Observation. The Engineering Subcontractor will provide the following onsite construction observation services as described below. An assumed 24-hours per week of onsite observation for an assumed 90-calendar day construction 14 period has been assumed as an initial allowance.

- Provide on-site construction observation to document Construction Subcontractor general conformance with the project plans and specifications. Prepare observation reports including digital photo logs of progress.
- Maintain routine communication with Construction Manager and City of Fortuna staff.
- Maintain a set of red line plans depicting changes noted by the construction observer.
- Conduct regulatory permitting monitoring and reporting.
- Collect and maintain material tags and testing tags/reports as required for Agreement compliance.
- Review traffic control, water management and monitor Construction Subcontractor activities.
- Reject or recommend deductions for materials not meeting the project requirements.
- Conduct spot elevation checks of grading and rock installation for conformance with plans and specifications.
- Observe seed/mulch application.
- Observe plant installation.

Task 4 - Biological Clearance Surveys. The Engineering Subcontractor will conduct biological clearance surveys for presence/absence of nesting birds prior to construction disturbance and provide as-needed avian surveys and biological monitoring during construction activities. An initial allowance of 40-hours has been allocated to this task.

Task 5 - Project Closeout and Post-Construction Fish Passage Monitoring. The Engineering Subcontractor will assist the City of Fortuna with the project closeout including final documentation, notice of completion and record drawings.

Sub-Task 5.1 - Final Documentation. Prepare final project closeout documents including the following:

- Complete project photo log in CD format
- Approved submittals
- Inspection/observation logs
- Notice of Termination
- Meeting notes
- Prepare Notice of Completion and other documents for approval by City of Fortuna and submit to County for Recording
- Prepare and transmit Record Drawings (As-builts) to City of Fortuna, incorporating any noted changes, change orders or other changes deemed necessary and provide hard copies as requested and electronic Computer Aided Design (CAD) files in AutoCAD format.

Sub-Task 5.2 - Final FRGP Progress Report - A Final Report containing the following information will be included:

- Number of restoration projects proposed as a result of this project;
- Name(s) of restoration project(s) proposed as a result of this project;
- Description(s) of restoration project(s) proposed as a result of this project;
- Type(s) of treatments applied, indicate the FRGP Proposal Project Type(s);
- Acres of salmonid habitat protected/restored;
- Number of watersheds protected/restored; and
- Dollar value of habitat treatments applied.

Sub-Task 5.3 - Post-Construction Fish Passage Monitoring. The Engineering Subcontractor will conduct post-construction monitoring at two different flows during the fall/winter following construction to evaluate fish passage in the rock chute and modified culvert. The monitoring will occur within the design flow ranges for two lifestages of coho salmonids. Thalweg elevation, water depths, velocities, and flow will be surveyed within the rock chute and baffled sections of the culvert using standard United States Geological Survey field methods. Measured flow depth and velocity values within the rock chute and baffled culvert will be compared with design values, and with CDFW and National Marine Fisheries Service fish passage criteria for the appropriate lifestage of salmonid. The Engineering Subcontractor will prepare a brief memorandum summarizing the methods and results of the post-construction fish passage monitoring.

Deliverables:

Task 1 – Bid package including FRGP programmatic CEQA/permit conditions, Addenda during bidding, bid results, Notice of Award, Subcontract, and Notice to Proceed.

Task 2

Subtask 2.2- agenda, meeting minutes and a task list.

Subtask 2.3- compiled permit and regulatory documents, biological surveys.

Subtask 2.4- weekly statement of working days, monthly payment recommendations, project and site meeting agendas and meeting minutes, subcontract change order memorandums.

Task 3 – Observation reports including digital photo logs, regulatory reporting, material tags and testing tags/reports.

Task 4 – Biological clearance survey logs

Task 5 – Complete project photo log in CD format, approved submittals, inspection/observation logs, notice of termination, meeting notes, notice of completion, record drawings (as-builts) to City of Fortuna, incorporating any noted changes, change orders or other changes deemed necessary and hard copies as requested and electronic CAD files in AutoCAD format, Final FRGP Progress Report, post-construction fish passage monitoring memorandum.

Timelines:

Task 1 - Pre-Bid and Bid Period Assistance (May-June 2017)
Task 2 - Construction Management (June-October 2017)
Task 3 - On-site Observation (July-October 2017)
Task 4 - Biological Clearance Surveys (May and June 2017)
Task 5 - Project Closeout and Post-Construction Fish Passage Monitoring (October 2017 through January 2018)

Additional Requirements:

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.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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:

a. Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.
b. 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*.
c. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.
d. 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.
e. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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.

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.

California Department of Fish and Wildlife
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Fortuna, Fields Landing, McWhinney Creek, Hydesville, Scotia, Taylor Peak, Capetown, Ferndale, and Cannibal Island Quads for Fish Passage Improvements at South Fortuna Boulevard, T 02N, R 01W, S 02, Fortuna, Humboldt County, United States

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Coastal Terrace Prairie	CTT41100CA			G2	S2.1	
2	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S4	
3	Hitchcock's blue-eyed grass *Sisyrinchium hitchcockii*	PMIRI0D0S0			G2	S1	1B.1
4	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
5	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
6	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
7	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
8	Menzies' wallflower *Erysimum menziesii*	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
9	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
10	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
11	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
12	Oregon polemonium *Polemonium carneum*	PDPLM0E050			G3G4	S2	2B.2
13	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
14	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S3S4	SC
15	Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3			G4?T2	S2	1B.2
16	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	S2	1B.2
17	Sitka Spruce Forest	CTT82110CA			G1	S1.1	
18	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
19	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2	SC
20	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
21	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G2	S1	1B.1
22	Yuma myotis *Myotis yumanensis*	AMACC01020			G5	S4	
23	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2	
25	beach layia *Layia carnosa*	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
26	black-crowned night heron *Nycticorax nycticorax*	ABNGA11010			G5	S4	
27	bristle-stalked sedge *Carex leptalea*	PMCYP037E0			G5	S1	2B.2
28	coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A			G4T4	S3	SC
29	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S3	2B.2
30	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
31	coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2			G2T2	S2	1B.2
32	dwarf alkali grass *Puccinellia pumila*	PMPOA531L0			G4?	SH	2B.2
33	eulachon *Thaleichthys pacificus*	AFCHB04010	Threatened		G5	S3	
34	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
35	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
36	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2
37	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
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	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4	
42	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
43	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
44	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2	2B.2
45	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S2	1B.2

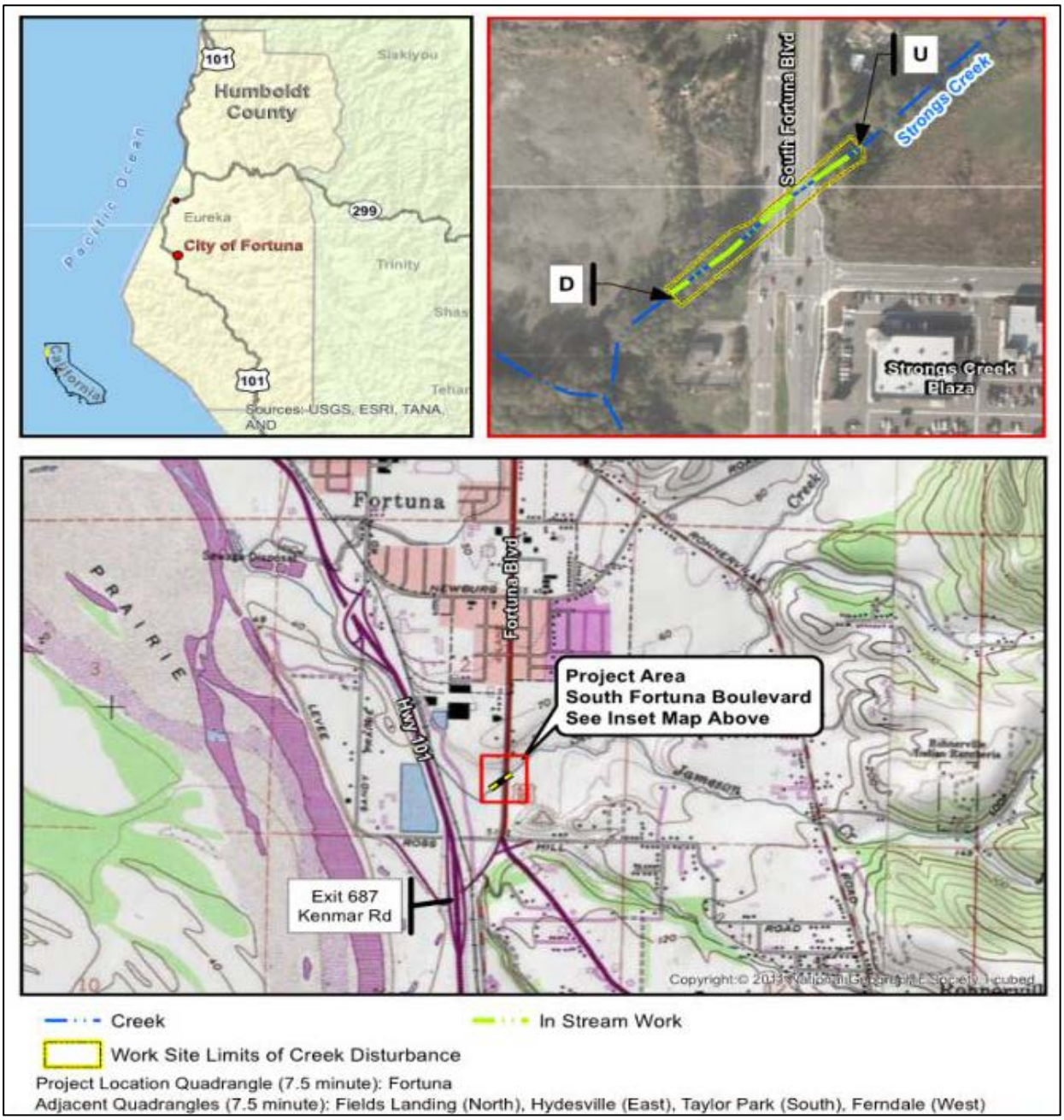
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
47	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
48	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
49	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
50	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
51	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
52	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
53	seaside bittercress *Cardamine angulata*	PDBRA0K010			G5	S1	2B.1
54	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S4	
55	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T3	S2	1B.2
56	slender silver moss *Anomobryum julaceum*	NBMUS80010			G4G5	S2	4.2
57	snowy egret *Egretta thula*	ABNGA06030			G5	S4	
58	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
59	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S3	SC
60	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
61	western lily *Lilium occidentale*	PMLIL1A0G0	Endangered	Endangered	G1	S1	1B.1
62	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
63	western sand-spurrey *Spergularia canadensis var. occidentalis*	PDCAR0W032			G5T4?	S1	2B.1
64	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
65	western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
66	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2
67	willow flycatcher *Empidonax traillii*	ABPAE33040		Endangered	G5	S1S2	

Fish Passage Improvements at South Fortuna Boulevard

Project Location Map

T 02N, R 01W, S 02

Fortuna Quad, Humboldt County



Introduction:

Sanctuary Forest will implement the McKee Creek Instream Habitat Restoration Project. The purpose of the project is to restore instream habitat through improving pool complexity, shelter, and drought resilience for summer and winter rearing of juvenile coho salmon and steelhead trout in McKee Creek. This will be accomplished through installing 18 instream structures at 13 sites in a 2100 foot long reach including 8 pool habitat and scour structures, 4 log weir structures, 3 boulder weir structures and 3 unanchored structures at accelerated recruitment sites.

The project is necessary because a 1996 CDFW stream inventory report for McKee Creek recommended adding instream wood. This work has not yet been implemented. Adding instream wood will improve channel structure, channel function, habitat complexity, and habitat diversity 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 Salmonid Stream Habitat Restoration Manual Parts VII and XI (Flosi et al 1998 and 2002).

Objective(s):

The goals of this project are to increase pool depth and area within McKee Creek, which will also provide greater resilience to drought. The project will also increase channel connectivity to inset floodplains, improving winter habitat for juvenile salmonids. The project will increase instream habitat complexity and shelter values by providing increased cover and shade habitat in existing pools. These goals will be achieved by strategic placement of instream wood.

Project Description:

Location: The Grantee will conduct work along a section of McKee Creek. The locations of the project boundaries are approximately 40.06116700 º north latitude, 123.96286100 º west longitude at the downstream end; and 40.06627800 º north latitude, 123.96069400 º west longitude at the upstream end.

Project Set Up: Sanctuary Forest is the project lead. The Mattole Salmon group will be the main subcontractor for project implementation and will also provide design input. Other subcontractors who will contribute engineering and surveying expertise include Conor Shea, USFWS and Keith Barnard, Greenway Partners.

Sanctuary Forest: Sanctuary Forest (SFI) will oversee and coordinate the project, manage all grants and cost share, purchase all materials and provide monitoring. All monitoring will be paid by cost share funds and Sanctuary Forest volunteer in-kind services.

SFI Project Manager: The SFI project manager will manage the overall project including subcontracts, grant agreements, permits, and supervision of SFI supporting staff.

SFI Project Assistant Manager and Field Staff: The SFI project assistant manager and 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.

SFI volunteers will assist with hand labor tasks.

SFI Bookkeeper and Grants Manager: The SFI bookkeeper and grants manager will manage the grant and subcontract budgets and perform all invoicing and payments.

Mattole Salmon Group: The Mattole Salmon Group (MSG) will be the implementation subcontractor of the project. MSG will be contribute to site assessment and project design and be responsible for 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 and Construction Supervisor: Responsibilities include management tasks such as subcontracts and budgets, as well as implementation and field supervision. Additional responsibilities include participation in project design and input on final plans; material specifications; and reporting documents including as built drawings.

MSG Bookkeeper: The MSG bookkeeper will create invoicing and track budgets.

MSG Equipment Operator: The MSG 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): The MSG laborer specialist 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.

Conor Shea Ph.D., P.E. (Civil Engineer/Fluvial Geomorphologist), USFWS will provide engineering design services on this project. His tasks will include developing HEC-RAS modeling of the entire project reach, two dimensional

hydraulic modeling of structures, preparing stability and buoyancy analyses for wood structures, 14 and preparing engineering analyses needed to ensure structures are in compliance with CDFW/NOAA fish passage requirements. Conor will prepare final design plans and work with the MSG construction supervisor to ensure that the structures are built in accordance with specifications.

Keith Barnard, Surveyor, Greenway Partners: Keith Barnard prepared the pre-project longitudinal profile survey and AutoCAD mapping for the project. Keith will survey and prepare the post-project longitudinal profile and assist with the surveying of cross-sections at all weir locations and pre- and post-project pool depth and area.

Materials: Materials that will be in this project include safety items, fuel, construction anchoring materials, logs, boulders, small rock and cobble, and miscellaneous tools and supplies.

Tasks:

1. Grant Oversight Manage grant agreements, invoicing and payments, reporting and cost share pursuant to grant and regulatory guidelines. Upon final execution of the Grant and prior to receiving a Final Notice to Proceed, deliver the landowner access agreements, subcontracts, and assure all permits are finalized.
2. Permitting Acquire all necessary permits from regulatory agencies to proceed with project design and implementation.
3. Pre-Project Monitoring Conduct on-site monitoring prior to project implementation. Monitoring and evaluation guidelines from the California Salmonid Stream Habitat Restoration Manual will be followed and the Stream Habitat Enhancement Project Evaluation Individual Structure or Site Form will be used. Additionally streamflow monitoring will be conducted. All monitoring to be paid with cost share funds and volunteer in kind services.
4. Pre – Project Photo Documentation Conduct photo documentation of all sites, including representative points.
5. Final Project Planning and Design Work and consult with all project partners and funders to finalize project design. Surveyor will perform surveys of channel cross-sections at the 4 log weir and 3 boulder weir sites as well as mapping of pre-project pool depth and area. Licensed engineer will perform engineering analysis to ensure fish passage and structural stability, as well as prepare construction drawings. Obtain final design approval from landowners, partners and CDFW Project Manager.
6. Project Implementation Purchase materials and coordinate delivery. Install a total of 18 instream structures at 13 sites along a 2,100 foot reach of McKee Creek: 8 pool habitat and scour structures, 4 log weir structures, 3 boulder weir structures and 3 unanchored structures. Install all structures utilizing approved placing and anchoring methods in accordance with the CDFW restoration manual. Anchored structures will utilize standard cabling and

pinning techniques. The 4 log weir structures will be sealed on the upstream side using a compacted wedge of gravel, clay and coir. The boulder weirs will closely follow CDFW restoration manual guidelines. Logs for the accelerated recruitment sites will be provided by falling approximately 8 standing trees into the creek at 3 locations where thinning is needed. A total of 71 logs, 103 boulders and 16 loads (160 tons) of small rock and cobble is estimated for all 18 structures. Heavy equipment will be used for trenching and placing the boulders, gravel and logs, with the exception of the accelerated recruitment sites. Boulders, cobble and gravel will be delivered to the site with dump trucks, and logs will be hauled to the site on logging trucks. Hand crews will perform anchoring and sealing tasks.

7. Post-Project Site Mulching and Planting Following implementation, mulch sites with native materials or rice straw where appropriate. Plant vegetation in areas that were opened up for equipment access and within the riparian corridor. Native tree seedlings and shrubs will likely include: Oregon Ash, Big Leaf Maple, Alder and Thimbleberry.
8. Post – Project Surveys Surveyor will conduct survey of project to prepare post-implementation longitudinal profile and pool depth and area.
9. Post-Project Monitoring Evaluate all structures in accordance with the Stream Habitat Enhancement Project Evaluation Individual Structure or Site Form. Additionally streamflow monitoring will be conducted. All monitoring to be paid with cost share funds and volunteer in kind services.
10. Photo Documentation Conduct post-project photo documentation at all sites and in relation to pre-project photo documentation.
11. Adaptive Management and Structure Modification Ensure weir function and habitat complexity through adaptive management and structure modification, to be informed by monitoring outcomes and consultations with partners and CDFW Project Manager. Anticipated structure modifications include adjustments to weirs to re-direct low or high flows, augment sealing of weirs, and installation of secondary structures to improve fish passage. Installation of a secondary structures will require 15 additional logs and 5 tons of small rock and cobble, and will be placed with heavy equipment. Most other adaptive management tasks can be performed with hand labor.
12. Reporting Write and deliver progress reports for invoicing, Annual Progress Reports, and a Final Report to CDFW Project Manager. Include pre and post project longitudinal profile; pre and post project photos and monitoring results in the final report.

Deliverables:

1. Installation of 18 instream structures consisting of 65 logs with and without root wads.
2. Final Report, including pre and post project photo- documentation, as built drawings, preliminary monitoring results including a Stream Habitat Enhancement Project Evaluation Individual Structure or Site Form for all 18 structures, pre and post project longitudinal profiles and other required

reporting metrics. Adaptive management assessment and implementation outcomes will also be summarized in the report.

Timelines:

June 2016- June 2017: Complete pre project monitoring and surveys; complete project planning, final design and permitting

July - October 2017: Project implementation

September 2017 – October 2019: Post project monitoring and adaptive management

February 2020: Final Reporting

Additional Requirements:

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.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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:

a. Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.
b. 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*.
c. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.
d. 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.
e. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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.*

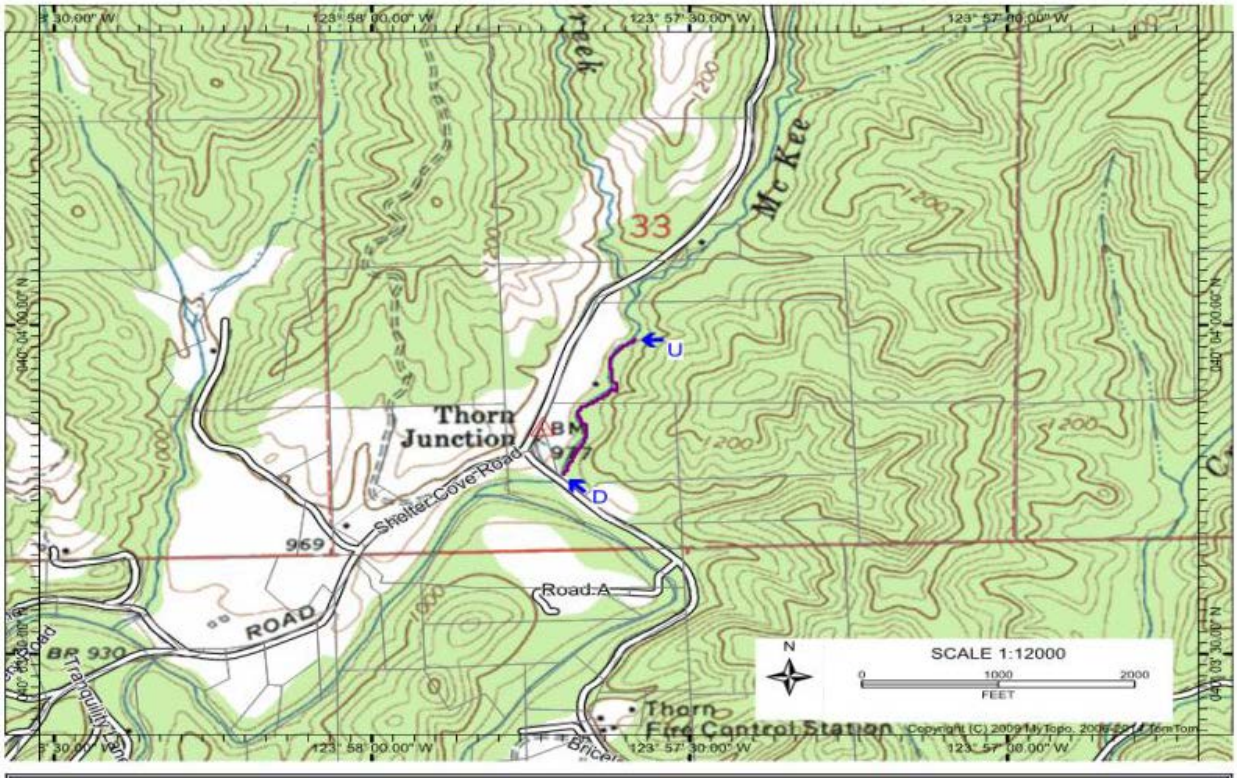
All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.* Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Briceland Quad and the Surrounding Quads for: McKee Creek Instream Habitat Restoration.
T04S, R02E, S33, Briceland, 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	unknown code...	G4T4	S3S4	
2	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S4	
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	S3S4	SC
11	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
12	Ten Mile shoulderband *Noyo intersessa*	IMGASC5070			G2	S2	
13	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		unknown code...	G3G4	S2	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	S3	2B.2
17	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	
18	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	unknown code...	G5T2T3Q	S2S3	SC
19	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
20	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
21	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2
22	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
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	S2	2B.2
26	mountain shoulderband *Helminthoglypta arrosa monticola*	IMGASC2035			G2G3T1	S1	
27	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	unknown code...	G3T3	S2S3	SC
28	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
29	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
30	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
31	small groundcone *Kopsiopsis hookeri*	PDORO01010			G4G5	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	S3	1B.2

McKee Creek Instream Habitat Restoration Project
Project Location Map
T04S, R02E, S33, Briceland Quad, Humboldt County



Introduction: The Pacific Coast Fish, Wildlife and Wetlands Restoration Association (PCFWWRA) will construct 11 large wood debris (LWD) features along approximately 0.5 miles of Morrison Gulch to enhance flatwater habitat types and shallow pools through increased logjam and woody debris complexity. Each feature will contain 3 to 5 key logs.

This project is necessary because Morrison Gulch supports coho salmon demonstrating resilience in spite of the fact that there have been a variety of land use impacts on fish habitat since the late 1800's. Deleterious activities included unrestricted logging and associated railroad, road and skid trail construction, stream clearing and residential development. This resulted in decreased pool frequency, depth and shelter values, significant stream bank erosion, locally dysfunctional or poorly functioning riparian habitat, high values of substrate embeddedness, and channel geomorphology simplification. This project will increase pool depth and cover providing shelter from predation. Bolstering the existing wood features and constructing new ones will also ensure continued geomorphic development and protection of the existing in-stream habitat, providing low velocity refuge for young of the year coho salmon during heavy runoff events, allowing for deeper summertime pools, increasing rearing potential and maintaining a complex geomorphic environment with increased edge 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 in the *California Salmonid Stream Habitat Restoration Manual* Parts VII and XI (Flosi et al 1998 and 2002).

Objectives: By constructing 11 log structures along a 0.5 mile stretch of Morrison Gulch this project will create complex pool habitat and increase channel complexity. The project will be constructed with the following objectives:

- Place wood within the stream reach placed such that its function is consistent with the existing geomorphic environment.
- Provide several habitat elements which are currently lacking or could use improvement within Morrison Gulch.
- Enhance pool depth at existing pools by fluvial scour adjacent to LWD installation sites.
- Enhance cover in existing pools by adding complex wood structures to the margins of the existing channel.
- Provide refuge for coho salmon from high velocity flows during large storm events.
- Create enhanced spawning habitat by substrate sorting adjacent to LWD structures.
- 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 Morrison Gulch rather than compete for the limited suitable existing locations.

Project Description:

Location: The Morrison Gulch Watershed is located approximately 5 miles southeast of Arcata in the Jacoby Creek Watershed in Humboldt County. The downstream location of the project is at 40.81739600 north latitude: 124.04233230 west longitude. The upstream location of the project is at 40.82157310 north latitude: 124.03762850 west longitude.

Project Set Up: The project administration will be completed by the Project Manager who shall provide all agreement and subcontracting oversight and administration including but not limited to obtaining permits, securing agreements and subcontracts (grantors, subcontractors, and landowner), scheduling, implementation oversight, invoicing, reporting and agency and landowner communications. This task will occur throughout the life of the project. The Assistant Manager (AM) drafts subcontracts, invoices, permit applications and reports, and works closely with the Project Manager. The AM assists in tracking project's budgets and progress. They conduct some of the documentation in the field, communicate with partners, and reviews/verifies sub-invoicing. The AM spends the majority of time in the office, but does attend meetings with agencies and occasionally works in the field too.

The implementation of the instream habitat structures will be completed by the Technical Oversight Subcontractor (TOS) and Heavy Equipment Subcontractor. The TOS will be on site to layout the proposed heavy equipment construction treatments in the project area. The TOS Senior Geologist (a professional geologist) will provide project and construction oversight and Quality Assurance /Quality Control of project products. The TOS Senior Geologist will manage project layout, construction oversight, monitoring, and reporting. The TOS Project Manager and TOS Physical Science Tech will conduct surveys, construction oversight, pre-, during, and post-construction monitoring, and data entry. The TOS Geographic Information Systems (GIS) Staff will provide field layout maps, digitize layout and as-built project data, and develop report maps. The TOS Clerical Staff will track and monitor hours and create invoices during the project. All TOS work elements will be supervised by a TOS Principal Geologist.

Revegetation will be conducted by a Revegetation Subcontractor.

The final reporting of the project will be done by the TOS Senior Geologist, TOS Project Manager, and reviewed by the TOS Principal Geologist most closely involved in the project.

Materials: Materials necessary for this project include logs and rootwads: Suitable live and down conifer trees, preferably with rootwad attached. Rebar, nuts and plates to anchor logs. Trees (planting): Native tree species will be used. Straw, tree mulch, and seed. Miscellaneous office supplies: Many small office

supplies will be used to complete the project including: photographic supplies, field maps, polyester film overlays for field maps, photo duplication for final reports, copying/binding for final reports, report maps, phone, fax, email and postage.

Tasks:

Task A: Project Administration. PCFWWRA personnel shall provide all agreement and subcontract oversight and administration including but not limited to obtaining permits, securing agreements and subcontracts (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: Implementation of the habitat enhancement structures. The TOS will be in charge of executing the implementation of the project. The TOS Clerical Staff will compile invoices and track budgets throughout the lifetime of the project.

Task B-1: Pre project layout and existing conditions characterization. The TOS will flag heavy equipment access routes and construction boundaries (layout), equipment exclusion areas for biologic or cultural resource protection and LWD staging areas. They will also document the existing conditions at the structure sites and setup photo point monitoring stations at the construction locations for final reporting.

Task B-2: Access opening and feature treatment. The TOS will work with the Heavy Equipment Subcontractor to open access points for equipment and construction of LWD features.

Task B-2-1: Low bed trucks will be used to move heavy equipment in and out of the project area at the beginning and end of the work season. These will require a pilot car to move through the freeway system.

Task B-2-2: An excavator and bull dozer will be used to open access points.

Task B-2-3: The excavator and dump truck will be used to move LWD material to site specific locations. The excavator will be used to construct the LWD features. Laborers will be used to spread seed and straw. The Revegetation Subcontractor will plant trees at completed construction sites.

Task C: Reporting. The TOS will conduct post habitat enhancement surveys of the constructed LWD features and reoccupy photopoints to document pre and post conditions at the feature locations. The TOS will develop a report based on CDFW requirements that documents the work completed and the total costs to implement the project.

Deliverables:

Task A: Progress reports, invoices, and annual report(s).

Task B: Construction of 11 coho habitat enhancement LWD features.

Task C: Upon completion of the project 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 log numbers, (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 the project area.

Timelines:

Task A: Project management and coordination will begin once the grant agreement is finalized and continue through the life of the project – June 2016, or upon grant agreement approval, through February 2018.

Task B: We anticipate beginning the on-the-ground implementation (habitat enhancement) work during the summer of 2016 through 2018 contingent on the implementation of the Morrison Gulch Sediment Reduction Project. It is expected that the full project will take one work season to complete. All heavy equipment work will be completed during low-flow periods when impacts to water quality can be minimized or avoided.

Task C: A final completion report will be submitted by January 2018, or sooner.

Additional Requirements:

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.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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:

a. Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.
b. 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*.
c. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.
d. 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.
e. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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.*

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 insure the best chance of survival of the seedlings.

California Department of Fish and Wildlife
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Arcata South, Arcata North, Blue Lake, Korbel, Iaqua Buttes, McWhinney Creek, Fields Landing, Eureka, Tyee City Quads for: HI 174 Morrison Gulch Coho Habitat Improvement Project, T 05N, R 01E, S14, Arcata South, Humboldt County, United States

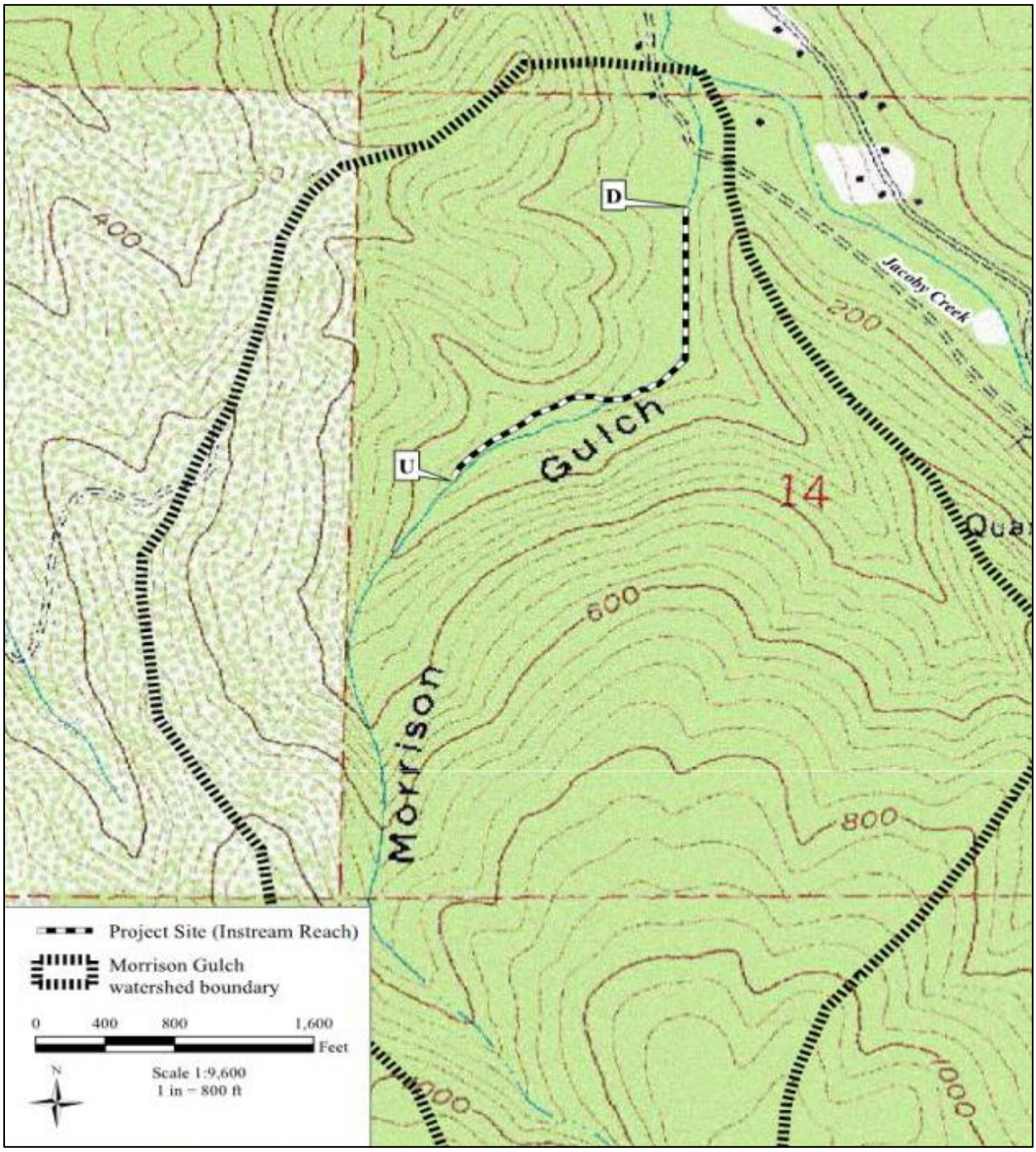
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	California clapper rail *Rallus longirostris obsoletus*	ABNME05016	Endangered	Endangered	G5T1	S1	
2	California globe mallow *Iliamna latibracteata*	PDMAL0K040			G2G3	S2	1B.2
3	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S4	
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	S3S4	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	S2	SC
22	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
23	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G2	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	S2	
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	S3	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?	
35	cylindrical trichodon *Trichodon cylindricus*	NBMUS7N020			G4	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	
39	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
40	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	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	
45	great egret *Ardea alba*	ABNGA04040			G5	S4	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
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	S3	
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	S2	2B.2
52	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S2	1B.2
53	northern clustered sedge *Carex arcta*	PMCYP030X0			G5	S2	2B.2
54	northern meadow sedge *Carex praticola*	PMCYP03B20			G5	S2	2B.2
55	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
56	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
57	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
58	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
59	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
60	sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101			G5T2	S1	
61	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
62	seaside bittercress *Cardamine angulata*	PDBRA0K010			G5	S1	2B.1
63	seaside pea *Lathyrus japonicus*	PDFAB250C0			G5	S2	2B.1
64	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S4	
65	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T3	S2	1B.2
66	snowy egret *Egretta thula*	ABNGA06030			G5	S4	
67	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
68	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
69	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S3	SC
70	twisted horsehair lichen *Bryoria spiralifera*	NLTEST5460			G3	S1S2	1B.1
71	western lily *Lilium occidentale*	PMLIL1A0G0	Endangered	Endangered	G1	S1	1B.1
72	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
73	western sand-spurrey *Spergularia canadensis var. occidentalis*	PDCAR0W032			G5T4?	S1	2B.1
74	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
75	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2
76	white-footed vole *Arborimus albipes*	AMAFF23010			G3G4	S2S3	SC

Morrison Gulch Coho Habitat Improvement Project
Project Location Map
T05N R01E S14
Arcata South Quad, Humboldt County



Introduction:

The Grantee will complete the Redwood Creek Instream Habitat Improvement Project – Jakubal by installing 8 LWD and boulder features along a 1300 foot section of Redwood Creek to provide increased habitat complexity, enhance pools, and increase gravel sorting. This project is necessary because the 2010 CDFW stream habitat inventory report for Redwood Creek found an insufficient amount of woody cover in pools and flatwater habitat units. This project will provide rearing fry with protection from predation, rest from water velocity, and divide territorial units to reduce density dependent competition.

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, Part VII and Part XI.

Objective(s):

The specific objective of this project is to create a total of 8 instream features within 1300 feet of Redwood Creek, consisting of 47 logs and 14 tons of boulders. Additionally 50 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 along a section of Redwood Creek. The locations of the project boundaries are approximately 40.11036000 º north latitude, 123.89569000 º west longitude at the downstream end; and 40.10807000 º north latitude, 123.89594000 º west longitude at the upstream end.

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.

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.

A log truck subcontractor will be responsible for transport and delivery of the LWD to the project site. A dump truck subcontractor will be responsible for transport and delivery of the rock/boulders to the project site. An excavator operator will be responsible for unloading and placing LWD and rock/boulders at appropriate features within the project site.

Materials: Materials to complete this project consist of:

1. 10' by 1" threaded rod (rebar): will be used to anchor LWD to rock, live trees, and LWD. The purpose of using this material is to increase longevity of structure and increase resistance to transposition from high flow events.
2. Steel nuts: are required to secure threaded rebar to LWD, live trees, and rock, increasing longevity of intended structural position.
3. Steel washers will be used to lock the steel nut into place once fastened to the threaded rebar.
4. Conifers: will be used as riparian cover to reduce erosion, increase riparian complexity, and increase future instream wood recruitment.
5. Drill bits & extensions: Drill the holes through the logs and anchor trees for anchoring the structures according to the California Salmonid Stream Habitat Restoration Manual
6. Tool & Materials (chain, bar oil, portaband blades, shear pins, GFIs, misc gear.): (do not survive the project). These miscellaneous materials are required to drill and anchor all materials to appropriate anchor points.
7. Rental/Repair equipment: Working outdoors in a remote environment can be a less than ideal place for power tools and equipment. This allows for quick resolution for equipment that breaks down on the job site to keep the project on time and on budget.
8. Logs & rootwads: This is the LWD that will make up features to improve the instream conditions for anadromous salmonids.
9. Drop forged cable clamps: will be used to secure cable when used for rock to LWD connections.
10. Injectable mortar: Necessary for rock to cable adhesion when anchoring LWD to rock anchor points.
11. 5/8" cable: Necessary for rock to LWD connection in areas where live trees are insufficient in number and/or size to be used as anchor points.
12. Rock/boulders: used for anchoring the LWD in areas with insufficient live tree anchors and to provide scour as well as added cover.

Tasks:

Task 1. Contract oversight Contract oversight will be conducted by ERWIG Project Manager. The ERWIG Project Manager will communicate and coordinate with the landowner to obtain entry permits, coordinate implementation schedules, obtain wood donation and purchase, and go over project implementation details. Upon receipt of notice to proceed, project manager will obtain 1600 permit, hire subcontractors and provide management and direction to subcontactors throughout the duration of the project. All reporting and billing will be pursuant to contract and regulatory guidelines.

Task 2. Subcontractor Prep and Training ERWIG will ensure that all subcontractors are trained on landowner concerns and protocols before they enter the property to begin project work. The training will include security issues and road protocols. ERWIG will ensure that all subcontractors understand that ONLY those designated crew member for the project are allowed on the property. ERWIG will work closely with subcontractors to ensure that no actions result in the delivery of sediment to the stream channel when delivering, staging, and placing large wood in the stream ERWIG and its subcontractors will be aware of the status of various roads within the project area, and will not enter any decommissioned roads with heavy equipment, or do anything that might cause significant impacts on the hydrology of decommissioned road segments.

Task 3. Final Feature Design & Site Preparation ERWIG Project Manager and CCC Fish Habitat Assistant will prepare site specific designs based on channel 9 morphology, equipment access, and LWD availability. They will submit designs for landowner and CDFW Project Manager approval. ERWIG Project Manager along with CCC Fish Habitat Assistant will flag sites for wood delivery and installation, Clear brush for equipment as needed, designate staging areas for equipment and wood along project reaches. Excavator will be delivered by lowboy to staging area. Wood will be delivered by log trucks, dump trucks or self-loader and staged along project reach or staging areas.

Task 4. Project Implementation Under the direction of the Project Manager and CCC Fish Habitat Assistant, site construction on 8 LWD structures will begin with wood and rock placement by excavator. When necessary, CCC corpsmembers will move LWD into position using a griphoist come along. This method is also used for placing and securing rootwads to logs while anchoring is taking place. Site construction, wood placement, and anchoring will be in accordance with DFG California Salmonid Stream Habitat Restoration Manual, Section VII (Flosi et al.1998). The project will utilize living riparian trees as anchors by wedging the logs between them where feasible. When live anchor trees 6” in diameter or greater are absent in project area, boulders or a log deadman will be used as an anchor point. California Conservation Corps (CCC) corpsmembers under supervision of the Conservationist 1 will anchor features according to design and

anchoring specifications. Corpsmembers will use one inch threaded rebar to anchor logs to mature riparian trees, rock, and each other. Holes will be drilled through the logs and their anchor trees, using a hole hawg drill, timber bit, and drill bit extensions when necessary. One inch rebar will be strung through the log and secured with nuts and washers. When administering rock connections, corpsmembers will drill holes into placed rock or bedrock utilizing a hole hawg drill and rock bit, clean out the holes, fill the hole with mortar, insert the cable into the hole, then clamp the cable to the threaded bar that has been inserted through the log, and lastly fasten the nut with washer to the cable and the log. Corpsmembers will be supervised by a Conservationist 1 (C1), Fish Habitat Assistant, and the ERWIG Project Manager. Structures will be complex, consisting of logs fastened together along with rootwads and large rock boulders. Habitat quality and quantity will be significantly improved for coho and other salmonids along .25 miles of stream. 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 the California Department of Fish and Wildlife Aquatic Invasive Species Decontamination Protocols 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.

Task 5. Riparian Planting To promote riparian vegetation, increase canopy cover above the creek, and to establish wood for future instream recruitment, CCC crews will return to the project site in the winter of 2017 to plant 50 conifer seedlings along the .25 miles of riparian zone, with a primary focus in areas of excavator ingress and egress.

Task 6. Post-Project Data and Photo Collection: Following implementation, post-implementation photos will be taken and metrics shall be collected which satisfy the Grant Agreement Annual Progress Report(s) and Final Report.

Task 7. Reporting Write and deliver progress reports for invoicing, Annual Progress report(s), and Final Report to CDFW Project Manager.

Deliverables: Eight complex LWD structures will be constructed and anchored using a total of 47 logs and rootwads and approximately 14 tons of boulders along 0.25 miles of Redwood Creek. These structures will enhance existing pools, increase gravel sorting, increase habitat complexity, and provide slow water refugia for salmonids. A final written report will be submitted after project completion. The report will include: (1) the grant agreement number, (2) location of work – project location will be shown using a USGS 7.5 minute topographical map, (3) specific project access using public and private roads and trails, with appropriate landowner contact information, (4) a description and analysis of the restoration and planning techniques used, (5) a description of project results (6)

dates of work and the number of person hours expended, (7) labeled photographs of all restoration activities and techniques pre and post project implementation, and (8) a financial overview of grant dollars spent and/or in kind services used to complete the project.

Timelines:

Task 1- Upon approval through December 31, 2017, oversee and coordinate project.

Task 2- Upon approval through December 31, 2017, oversee and ensure that subcontractors are trained and operate under landowner protocols.

Task 3 & 4- June 15, 2016 through October 31, 2016, June 15, 2017 through October 31, 2017, finalize design, label features, and install LWD features within the approved project reach. Erosion control will be installed as project features are completed.

Task 5- November 1, 2016 through February 28, 2017, November 1, 2017 through December 15, 2017, riparian plantings will occur.

Task 6 & 7-November 15, 2016, December 31, 2017, post-project description, photos and quantitative metrics will be delivered in an Annual Report, and a Final Report.

Additional Requirements: 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.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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:

a. Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.
b. 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*.
c. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.
d. 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.
e. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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.*

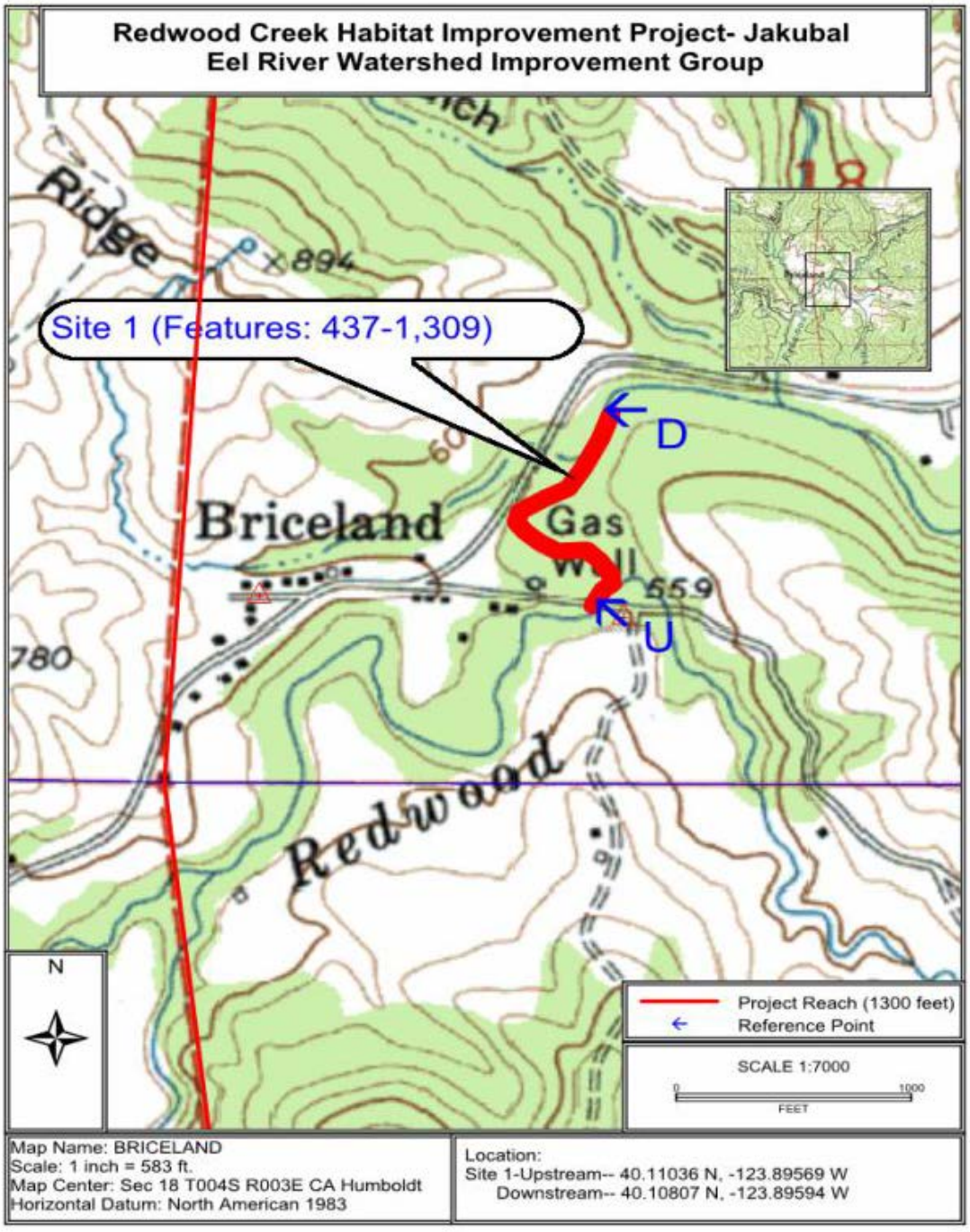
All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.* Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

California Department of Fish and Wildlife
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Briceland, Shelter Cove, Ettersburg, Miranda, Garberville, and Piercy quads for: Redwood Creek Instream Habitat Improvment Project- Jakubal
T04S, R03E, Section 18, Briceland Quad, Humboldt County, USA.

	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	Cone Peak bedstraw *Galium californicum ssp. luciense*	PDRUB0N0E3			G5T3	S3	1B.3
3	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S4	
4	Davidson's bush-mallow *Malacothamnus davidsonii*	PDMAL0Q040			G2	S2	1B.2
5	Hardham's evening-primrose *Camissoniopsis hardhamiae*	PDONA030N0			G2	S2	1B.2
6	Hickman's checkerbloom *Sidalcea hickmanii ssp. hickmanii*	PDMAL110A2			G3T2	S2	1B.3
7	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
8	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
9	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
10	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
11	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
12	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
13	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S3S4	SC
14	San Antonio collinsia *Collinsia antonina*	PDSCR0H010			G1	S1	1B.2
15	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
16	Ten Mile shoulderband *Noyo intersessa*	IMGASC5070			G2	S2	
17	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2	SC
18	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
19	Valley Oak Woodland	CTT71130CA			G3	S2.1	
20	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
21	arroyo toad *Anaxyrus californicus*	AAABB01230	Endangered		G2G3	S2S3	SC
22	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S3	2B.2
23	coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
	Oncorhynchus kisutch						
24	dwarf calycadenia *Calycadenia villosa*	PDAST1P0B0			G3	S3	1B.1
25	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
26	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
27	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
28	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2
29	little willow flycatcher *Empidonax traillii brewsteri*	ABPAE33041		Endangered	G5T3T4	S1S2	
30	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2	2B.2
31	mountain shoulderband *Helminthoglypta arrosa monticola*	IMGASC2035			G2G3T1	S1	
32	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
33	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
34	pale-yellow layia *Layia heterotricha*	PDAST5N070			G2	S2	1B.1
35	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
36	small groundcone *Kopsiopsis hookeri*	PDORO01010			G4G5	S1S2	2B.3
37	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
38	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
39	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2

Redwood Creek Instream Habitat Improvement Project – Jakubal
Project Location Map
T04S, R03E, S18 Briceland Quad, Humboldt County



Introduction: The Hoopa Valley Tribe's Habitat Division will increase and enhance rearing and high flow velocity refugia habitat for coho salmon through implementation of site specific instream restoration on levee confined lower Mill Creek. Due to the mountainous terrain, low-gradient floodplain reaches, favored by coho salmon, are rare in tributaries to the Trinity River, and the Hoopa Valley is one of the largest valleys in the Trinity River watershed. Mill Creek has the highest intrinsic potential per kilometer for coho salmon within the Hoopa Valley but is currently constrained by levees, which impairs the stream's ability to provide over-wintering habitat for coho and reduces the channels ability to store gravel and large wood critical for all life stages of salmonids. The paucity of off-channel habitat within the project area is likely having a significant population level effect within the creek and throughout the Trinity River Watershed, where coho from other natal streams redistribute in search of improved habitat. This project will address the poor existing conditions that severely limit coho recovery within this watershed, providing large quantities of high quality coho off-channel and floodplain habitat, addressing the factor identified as most limiting within this core population.

- 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 Salmonid Stream Habitat Restoration Manual* Parts VII, IX, and XI, XII (Flosi et al 1998 and 2002).

Objectives: The goal of this project is to remove levees and restore channel form and floodplain connectivity. The objectives of this project include:

- Create substantial habitat improvements on the south side of Mill Creek to compliment Phase 1, which focused on bringing flows back to the northern portion of the historic floodplain.
- Increase winter-off channel rearing habitats for coho salmon, as well as benefit other anadromous species (steelhead and Chinook salmon) at all life stages.
- Increase floodplain width commensurate to widths in upstream reaches, to reduce energy in the active channel during high flows and improve riparian habitat, large wood supply and storage, gravel storage (including improved spawning gravels), and wildlife habitat.
- Provide a process-based restoration approach for the mainstem Mill Creek channel that restores channel form, floodplain connectivity, habitat complexity, riparian function, and salmon habitat by encouraging the channel to restore itself over time.
- Provide access to and restore high quality habitat blocked by the 1964 levees and channel incision, allowing coho access to complex backwater, pool, and new floodplain habitat throughout the winter rearing season not currently available.
- Large wood additions will provide improved cover, gravel sorting, and increase channel complexity while riparian enhancements through floodplain lowering

and plantings will improve shading, food supply, and provide future large wood loading.

- Address the major limiting factor for this core population while improving conditions for all anadromous species and life stages by breaching the levee and restoring channel form and connectivity within the historic floodplain.

Project Description:

Location: This project is located on the lower half mile of Mill Creek within the Hoopa Valley Indian Reservation in Humboldt County, CA. The project area begins 0.1 miles upstream of the confluence of Mill Creek and the Trinity River at Trinity River mile 8.6. A bridge on SR 96 crosses Mill Creek just upstream of the confluence of Mill Creek and the Trinity River. The project reach is accessible from SR96 and Mill Creek (Dyke) Road at 41.08944400 north latitude: 123.70333000 west longitude (at downstream end of Mill Creek).

Project Set Up: This project will be overseen by the Hoopa Valley Tribal Fisheries Department, under the supervision of the Habitat Division Lead. The Habitat Division Lead will also oversee all fish protection aspects of the projects(e.g., removal of fish from the construction area prior to commencement if deemed necessary, pre- and post-project biological monitoring) as well as the as-built survey post-project with subcontractor assistance. All construction-related activities will be implemented by the Roads Department Director and Heavy Equipment Subcontractor with oversight by the Fisheries Department. During construction, the Hoopa Valley Fisheries will hire an Engineering Construction Subcontractor, Engineering Design Subcontractor for on-site construction support and inspection. The Fisheries Department will also hire a Biological Subcontractor during large wood placement to ensure all large wood habitat structures are optimally placed for salmonid habitat utilization. Riparian planting and three years of maintenance will be overseen by the Riparian Ecologist. Labor required for riparian planting and ongoing maintenance will be provided by the Heavy Equipment Subcontractor and Tribal Technician IIIs.

Materials: Materials necessary for this project include erosion control silt fencing, fir and oak large wood/logs (n=50) with rootwads, river rock (round large boulder and cobbles), straw, mulch, seed, irrigation supplies, construction signage, and riparian exclusion fencing.

Tasks: Create 3.5 acres of high quality winter coho rearing habitat by constructing 1) floodplain surfaces that restore the riparian corridor along the southern bank of Mill Creek 2) a perennial alcove, 3) a 1,700ft long winter base flow side channel, and 4) fourteen large wood structures. •

Cut through the new floodplain surface to provide off-channel coho rearing habitat. Construct the side channel to be fed by a 100 feet long infiltration gallery at the upstream end to support continual wetting of the alcove at the downstream end of the side channel, and maintain summer groundwater elevations to facilitate natural riparian regeneration. Construct he side channel 1,700 feet long and to be activated by winter flows beginning at 25 cfs. The side channel will contain at least 10 large wood elements (at least 40 individual logs) and at least 6 scour pools associated with those large wood elements.

Construct a backwater alcove at the downstream end of the side channel. The alcove will provide valuable rearing habitat in the summer and winter. The alcove will include 4 large wood elements (10 individual logs). The alcove will persist throughout summer and winter baseflow conditions.

Include large wood habitat structures in floodplain, side channel, and alcove design features, as noted above. Include at least 50 large wood pieces, including rootwoods, for a total of 14 large wood elements. Source all large wood from the Hoopa Valley Indian Reservation, in coordination with Hoopa Forest Industries and the Hoopa Valley Tribal Forestry Department. Wedge large wood habitat elements into existing vegetation, partially incorporated into the bank during excavation, and/or ballasted with other wood/boulders.

Revegetate with upland, riparian, and native grass planting. Plant Douglas Fir, Ponderosa Pine, oaks, and incense cedar over 1.4 acres. Plant riparian woody and herbaceous plant species including black cottonwood, alder, willows, sedges and rushes on 2.0 acres. Spread native grass seed and native grass straw mulch on 7.7 acres across the spoils and subcontractor use areas. Irrigate and maintain the entire site (11.1 acres) for three years after construction. Source plants grown at the adjacent Tsmeta Nursery.

Implement the project by completing the following tasks:

Task 1. Project Management. Project management and grant administration will be completed under applicable laws and grant requirements by Hoopa Valley Tribal Fisheries and the Roads Department Director. All reporting and billing will be timely and pursuant to agreement and regulatory guidelines. 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 to the CDFW Grant Manager.

Task 2. Environmental Compliance and Permitting. The Hoopa Valley Tribal Fisheries and Roads Department Director will apply for and complete all necessary federal, state, and tribal permits and associated environmental compliance. The Tribe will take all efforts to minimize human and environmental impacts.

Task 3. Project Implementation. Complete 100% designs to Fisheries Restoration Grants Program specifications (incorporating any additional recommendations from CDFW/NMFS). The construction aspects of the project will be implemented by the Heavy Equipment Subcontractor. This will include pre-project setup, more than 105,000 cubic yards (cy) of excavation and the construction and placement of numerous habitat and engineered features. All construction work will be conducted during the dry season in compliance with applicable FRGP and federal, state, and local standards. Large wood with rootwads will be sourced from Hoopa Valley Indian Reservation via the Heavy Equipment Subcontractor and the Hoopa Valley Tribal Forestry Department activities. Construction will be overseen by the Engineering Design Subcontractor, Engineering Construction Subcontractor, Biological Subcontractor, and the Habitat Division Lead. Work in the wetted channel is not planned and thus the need for fish removal is not expected; however, should it be deemed valuable or necessary, fish removal before construction and installation of fish barriers isolating work areas from the channel will be conducted according to the programmatic Biological Opinion No. 151422SWR2009AR00566 for habitat restoration projects in Northern California (NOAA 2012), or other standards recommended by CDFW, the Hoopa Fisheries Department Habitat Division Lead, Fisheries Biologists, and Field Technicians. Riparian planting and grass seeding will be performed by the Hoopa Valley Fisheries Department under the supervision of the Riparian Ecologist and Habitat Division Lead in compliance with all FRGP grant terms and applicable laws. Tribal Technicians IIs and possibly Tribal CCC volunteers (volunteer not included) that currently provide planting support for the Trinity River Restoration Program revegetation program will be utilized for this effort.

Task 4. Riparian Maintenance. Riparian maintenance will be performed by the Hoopa Valley Fisheries Department under the supervision of the Riparian Ecologist and Habitat Division Lead in compliance with all FRGP grant terms (e.g., replacement and survival criteria) and applicable laws. Tribal Technicians and possibly Tribal CCC volunteers that currently provide maintenance support for the Trinity River Restoration Program revegetation efforts will be utilized for this effort.

Task 5. Monitoring. Post-project monitoring by the Hoopa Valley Tribal Fisheries Department will include 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.

Deliverables:

Task 1: Progress invoices, quarterly/final reports as stipulated in grant agreement, final landowner agreement if necessary.

Task 2. USACE permit, CWA 401 Clean Water Certification, consultation documents as necessary, and other permits required.

Task 3. Project invoices, grant reports (semi-annual, annual, and final) inclusive of quantified deliverables, construction contract. 100% stamped design meeting FRGP requirements.

Task 4. Project invoices and reports.

Task 5. As-built survey. Final project monitoring report. Project specific reporting metrics.

Timelines:

Task 1. Project Management (June 1, 2016 to January 31, 2020).

Task 2. Environmental Compliance and Permitting (June 1, 2016 to October 1, 2018).

Task 3. Project Implementation (June 30, 2016 to September 1, 2017). Note: all effort will be taken to ensure construction occurs within one single construction season (2016). 100% Design will be finalized by June 15th. 2016.

Task 4. Riparian Maintenance (June 30, 2016 to October 1, 2019).

Task 5. Monitoring (June 1, 2016 to December 31, 2019).

Additional Requirements:

Determine the specific overflow channel design thalweg elevations and flood frequency in coordination with NMFS/CDFW engineering staff in the review period before the 90% designs. Provide a review period before finalizing the plans to the 100% level.

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.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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:

a. Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.
b. 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*.
c. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.
d. 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.
e. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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.*

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.

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.

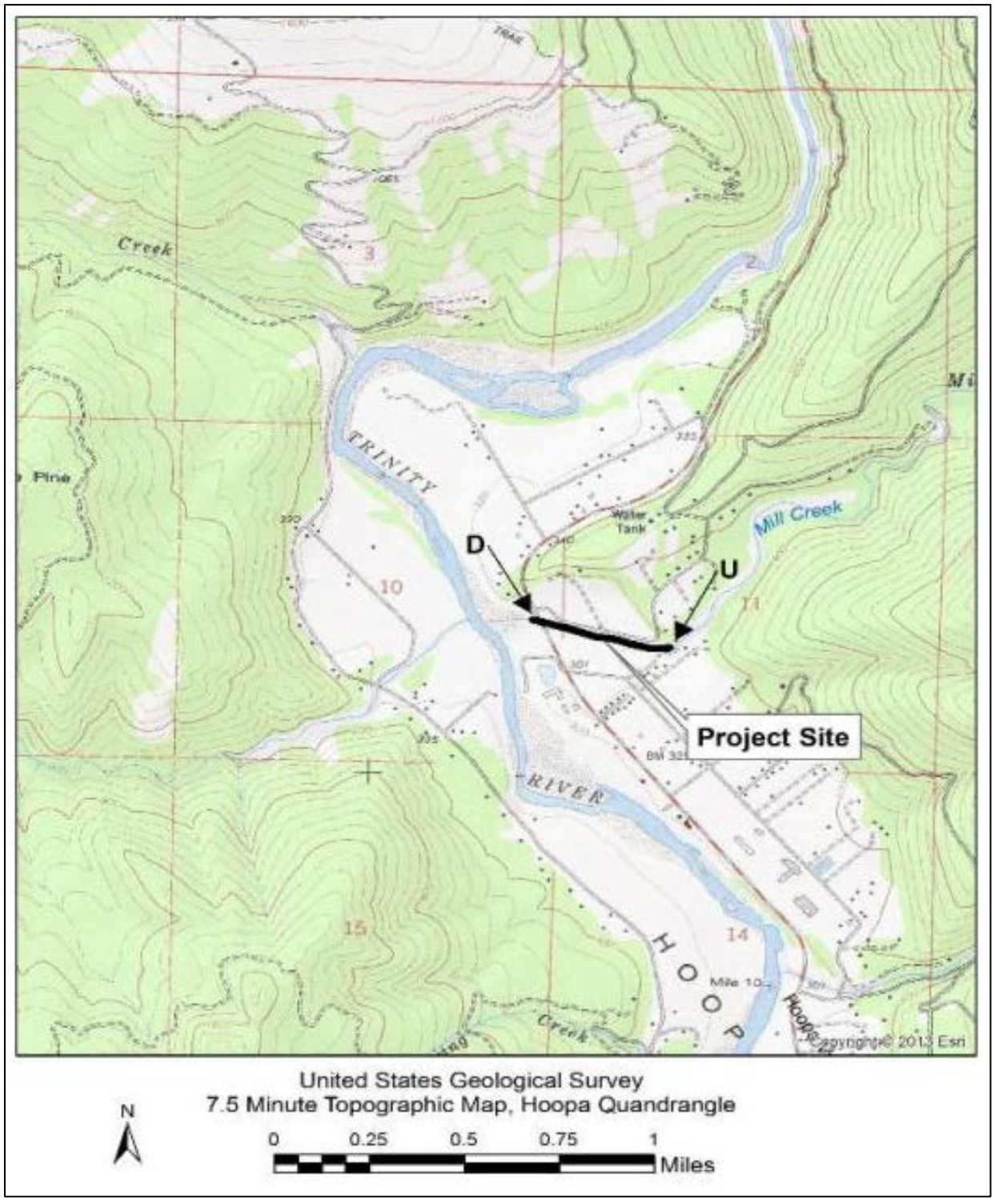
California Department of Fish and Wildlife
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Hoopa, Weitchpec, Hopkins Butte, Tish tang Point, Salyer, Willow Creek, Lord Ellis Summit, Hupa Mountain, and French Camp Ridge Quads for Lower Mill Creek Instream Restoration Project, Phase 2, T 08N, R 04E, S 10, Hoopa, Humboldt County, United States

	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			G5T3T4	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	S3S4	SC
16	Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9			G5T2	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	S2	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	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G2	S1	1B.1
23	Yuma myotis *Myotis yumanensis*	AMACC01020			G5	S4	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	bensoniella *Bensoniella oregona*	PDSAX02010		Rare	G3	S2	1B.1
25	bunchberry *Cornus canadensis*	PDCOR01040			G5	S2	2B.2
26	chinook salmon - upper Klamath and Trinity Rivers ESU. *Oncorhynchus tshawytscha*	AFCHA02056			G5	S1S2	SC
27	coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A			G4T4	S3	SC
28	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S3	2B.2
29	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
30	elongate copper moss *Mielichhoferia elongata*	NBMUS4Q022			G4	S3	2B.2
31	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
32	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
33	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2
34	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
35	hooded lancetooth *Ancotrema voyanum*	IMGAS36130			G1G2	S1S2	
36	long-legged myotis *Myotis volans*	AMACC01110			G5	S3	
37	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
38	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
39	northern meadow sedge *Carex praticola*	PMCYP03B20			G5	S2	2B.2
40	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
41	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
42	pale yellow stonecrop *Sedum laxum ssp. flavidum*	PDCRA0A0L2			G5T4Q	S4	4.3
43	pink-margined monkeyflower *Erythranthe trinitiensis*	PDPHR01070			G2	S2	1B.3
44	robust false lupine *Thermopsis robusta*	PDFAB3Z0D0			G2	S2	1B.2
45	ruffed grouse *Bonasa umbellus*	ABNLC11010			G5	S3S4	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46	silver-haired bat *Lasionycteris noctivagans*	AMACC02010			G5	S3S4	
47	slender silver moss *Anomobryum julaceum*	NBMUS80010			G4G5	S2	4.2
48	small groundcone *Kopsiopsis hookeri*	PDORO01010			G4G5	S1S2	2B.3
49	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
50	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
51	water bulrush *Schoenoplectus subterminalis*	PMCYP0Q1G0			G4G5	S3	2B.3
52	wayside aster *Eucephalus vialis*	PDASTEC0A0			G3	S1	1B.2
53	western pearlshell *Margaritifera falcata*	IMBIV27020			G4G5	S1S2	
54	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
55	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2
56	willow flycatcher *Empidonax traillii*	ABPAE33040		Endangered	G5	S1S2	

Lower Mill Creek Instream Restoration Project, Phase 2
Project Location Map
T 08N, R 04E, S 10
Hoopa Quad, Humboldt County



Introduction:

The Grantee will complete the Redwood Creek Instream Habitat Improvement Project – Schroeder by installing 6LWD and boulder features along a 1300 foot section of Redwood Creek to provide increased habitat complexity, enhance pools, and increase gravel sorting. This project is necessary because the 2010 CDFW stream habitat inventory report for Redwood Creek found an insufficient amount of woody cover in pools and flatwater habitat units. This project will provide rearing fry with protection from predation, rest from water velocity, and divide territorial units to reduce density dependent competition.

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, Part VII and Part XI.

Objective(s):

The specific objective of this project is to create a total of 6 instream features within 1300 feet of Redwood Creek, consisting of 37 logs and 60 tons of boulders. Additionally 50 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 along a section of Redwood Creek. The locations of the project boundaries are approximately 40.10002000 º north latitude, 123.90786700 º west longitude at the downstream end; and 40.00975220 º north latitude, 123.90939200 º west longitude at the upstream end.

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.

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.

A log truck subcontractor will be responsible for transport and delivery of the LWD to the project site. A dump truck subcontractor will be responsible for transport and delivery of the rock/boulders to the project site. An excavator operator will be responsible for unloading and placing LWD and rock/boulders at appropriate features within the project site.

Materials: Materials to complete this project consist of:

1. 10’ by 1” threaded rod (rebar): will be used to anchor LWD to rock, live trees, and LWD. The purpose of using this material is to increase longevity of structure and increase resistance to transposition from high flow events.
2. Steel nuts: are required to secure threaded rebar to LWD, live trees, and rock, increasing longevity of intended structural position.
3. Steel washers will be used to lock the steel nut into place once fastened to the threaded rebar.
4. Conifers: will be used as riparian cover to reduce erosion, increase riparian complexity, and increase future instream wood recruitment.
5. Drill bits & extensions: Drill the holes through the logs and anchor trees for anchoring the structures according to the California Salmonid Stream Habitat Restoration Manual
6. Tool & Materials (chain, bar oil, portaband blades, shear pins, GFIs, misc gear.): (do not survive the project). These miscellaneous materials are required to drill and anchor all materials to appropriate anchor points.
7. Rental/Repair equipment: Working outdoors in a remote environment can be a less than ideal place for power tools and equipment. This allows for quick resolution for equipment that breaks down on the job site to keep the project on time and on budget.
8. Logs & rootwads: This is the LWD that will make up features to improve the instream conditions for anadromous salmonids.
9. Drop forged cable clamps: will be used to secure cable when used for rock to LWD connections.
10. Injectable mortar: Necessary for rock to cable adhesion when anchoring LWD to rock anchor points.
11. 5/8” cable: Necessary for rock to LWD connection in areas where live trees are insufficient in number and/or size to be used as anchor points.
12. Boulders: used for anchoring the LWD in areas with insufficient live tree anchors and to provide scour as well as added cover.

Tasks:

Task 1. Contract oversight Contract oversight will be conducted by ERWIG Project Manager. The ERWIG Project Manager will communicate and coordinate with the landowner to obtain entry permits, coordinate implementation schedules, obtain wood donation and purchase, and go over project implementation details. Upon receipt of notice to proceed, project manager will obtain 1600 permit, hire subcontractors and provide management and direction to subcontactors throughout the duration of the project. All reporting and billing will be pursuant to contract and regulatory guidelines.

Task 2. Subcontractor Prep and Training ERWIG will ensure that all subcontractors are trained on landowner concerns and protocols before they enter the property to begin project work. The training will include security issues and road protocols. ERWIG will ensure that all subcontractors understand that ONLY those designated crew member for the project are allowed on the property. ERWIG will work closely with subcontractors to ensure that no actions result in the delivery of sediment to the stream channel when delivering, staging, and placing large wood in the stream ERWIG and its subcontractors will be aware of the status of various roads within the project area, and will not enter any decommissioned roads with heavy equipment, or do anything that might cause significant impacts on the hydrology of decommissioned road segments.

Task 3. Final Feature Design & Site Preparation ERWIG Project Manager and CCC Fish Habitat Assistant will prepare site specific designs based on channel 9 morphology, equipment access, and LWD availability. They will submit designs for landowner and CDFW Project Manager approval. ERWIG Project Manager along with CCC Fish Habitat Assistant will flag sites for wood delivery and installation, Clear brush for equipment as needed, designate staging areas for equipment and wood along project reaches. Excavator will be delivered by lowboy to staging area. Wood will be delivered by log trucks, dump trucks or self-loader and staged along project reach or staging areas.

Task 4. Project Implementation Under the direction of the Project Manager and CCC Fish Habitat Assistant, site construction on 6 LWD structures will begin with wood and rock placement by excavator. When necessary, CCC corpsmembers will move LWD into position using a griphoist come along. This method is also used for placing and securing rootwads to logs while anchoring is taking place. Site construction, wood placement, and anchoring will be in accordance with DFG California Salmonid Stream Habitat Restoration Manual, Section VII (Flosi et al.1998). The project will utilize living riparian trees as anchors by wedging the logs between them where feasible. When live anchor trees 6” in diameter or greater are absent in project area, boulders or a log deadman will be used as an anchor point. California Conservation Corps (CCC) corpsmembers under supervision of the Conservationist 1 will anchor features according to design and

anchoring specifications. Corpsmembers will use one inch threaded rebar to anchor logs to mature riparian trees, rock, and each other. Holes will be drilled through the logs and their anchor trees, using a hole hawg drill, timber bit, and drill bit extensions when necessary. One inch rebar will be strung through the log and secured with nuts and washers. When administering rock connections, corpsmembers will drill holes into placed rock or bedrock utilizing a hole hawg drill and rock bit, clean out the holes, fill the hole with mortar, insert the cable into the hole, then clamp the cable to the threaded bar that has been inserted through the log, and lastly fasten the nut with washer to the cable and the log. Corpsmembers will be supervised by a Conservationist 1 (C1), Fish Habitat Assistant, and the ERWIG Project Manager.

Structures will be complex, consisting of logs fastened together along with rootwads and large rock boulders. Habitat quality and quantity will be significantly improved for coho and other salmonids along .25 miles of stream.

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 the California Department of Fish and Wildlife Aquatic Invasive Species Decontamination Protocols 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.

Task 5. Riparian Planting To promote riparian vegetation, increase canopy cover above the creek, and to establish wood for future instream recruitment, CCC crews will return to the project site in the winter of 2017 to plant 50 conifer seedlings along the .25 miles of riparian zone, with a primary focus in areas of excavator ingress and egress.

Task 6. Post-Project Data and Photo Collection: Following implementation, post-implementation photos will be taken and metrics shall be collected which satisfy the Grant Agreement Annual Progress Report(s) and Final Report.

Task 7. Reporting Write and deliver progress reports for invoicing, Annual Progress report(s), and Final Report to CDFW Project Manager.

Deliverables: Six complex LWD structures will be constructed and anchored using a total of 37 logs and rootwads and approximately 60 tons of boulders along 0.25 miles of Redwood Creek. These structures will enhance existing pools, increase gravel sorting, increase habitat complexity, and provide slow water refugia for salmonids. A final written report will be submitted after project completion. The report will include: (1) the grant agreement number, (2) location of work – project location will be shown using a USGS 7.5 minute topographical

map, (3) specific project access using public and private roads and trails, with appropriate landowner contact information, (4) a description and analysis of the restoration and planning techniques used, (5) a description of project results (6) dates of work and the number of person hours expended, (7) labeled photographs of all restoration activities and techniques pre and post project implementation, and (8) a financial overview of grant dollars spent and/or in kind services used to complete the project.

Timelines:

Task 1- Upon approval through December 31, 2017, oversee and coordinate project.

Task 2- Upon approval through December 31, 2017, oversee and ensure that subcontractors are trained and operate under landowner protocols.

Task 3 & 4- June 15, 2016 through October 31, 2016, June 15, 2017 through October 31, 2017, finalize design, label features, and install LWD features within the approved project reach. Erosion control will be installed as project features are completed.

Task 5- November 1, 2016 through February 28, 2017, November 1, 2017 through December 15, 2017, riparian plantings will occur.

Task 6 & 7-November 15, 2016, December 31, 2017, post-project description, photos and quantitative metrics will be delivered in an Annual Report, and a Final Report.

Additional Requirements: 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.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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:

a. Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.
b. 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*.
c. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.
d. 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.
e. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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.*

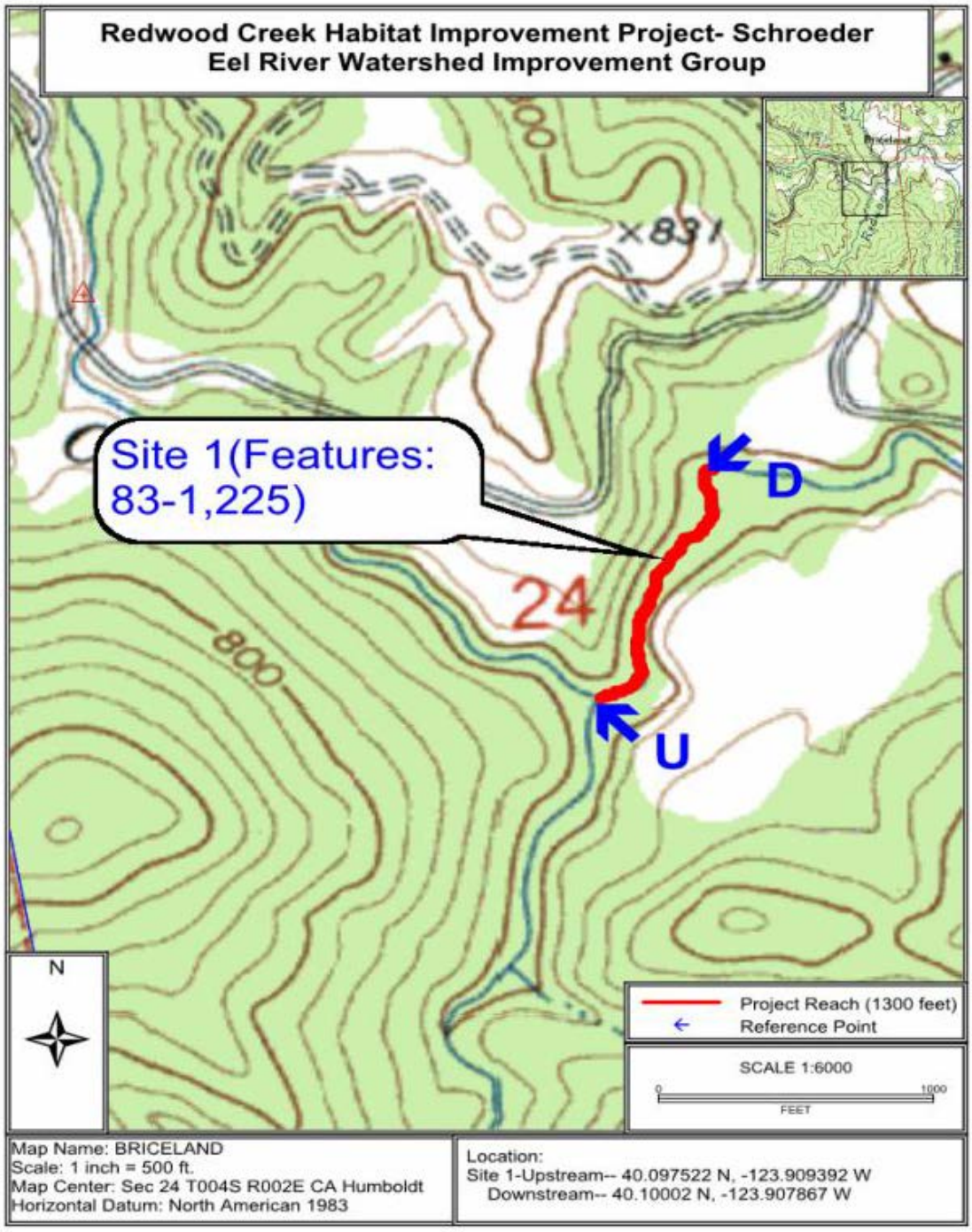
All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.* Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

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: Redwood Creek Instream Habitat Improvement Project- Schroeder. T04S, R02E, S24, Briceland, 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	unknown code...	G4T4	S3S4	
2	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S4	
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	S3S4	SC
11	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
12	Ten Mile shoulderband *Noyo intersessa*	IMGASC5070			G2	S2	
13	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		unknown code...	G3G4	S2	SC
14	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
15	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S3	2B.2
16	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	
17	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	unknown code...	G5T2T3Q	S2S3	SC
18	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	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
22	little willow flycatcher *Empidonax traillii brewsteri*	ABPAE33041		Endangered	G5T3T4	S1S2	

	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	mountain shoulderband *Helminthoglypta arrosa monticola*	IMGASC2035			G2G3T1	S1	
25	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
26	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
27	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
28	small groundcone *Kopsiopsis hookeri*	PDORO01010			G4G5	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	S3	1B.2

Redwood Creek Instream Habitat Improvement Project – Schroeder
Project Location Map
T04S, R02E, S24, Briceland Quad, Humboldt County



Introduction:

The grantee will implement the East Fork Ryan Creek Sediment Reduction and Habitat Enhancement Project. The purpose of the project is to prevent 8,161 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 East 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 East Fork Ryan Creek watershed. 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 East Fork Ryan Creek watershed will be reduced.

Project Description:

Location: The Grantee will conduct work in the Ryan Creek Watershed. The project is located at 40.73118490 North latitude, 124.10342480 (middle of project).

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 Assistant Manager 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.

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 one culvert and flex pipe, mulch and seed, straw bales, riparian nursery trees and plants, silt fence, geofabric, sand bags, rock-gravel, water pump rental, office supplies, field supplies (such as flagging, tape measures, marking pens, and clipboards) and silt fence construction supplies (such as metal t-stakes, rebar, filter fabric, wire rolls, wire cutters, and shovels).

Tasks: Habitat improvements will be accomplished by decommissioning 0.9 mile of road thereby saving 8,161 cubic yards of sediment from delivery to East Fork Ryan Creek.

Task 1: 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 2: Implementation. Decommission 0.9 miles of high priority abandoned logging road in the East Fork 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
- Re-open the road for equipment access and decommissioning treatments. This will include installing temporary crossings at streams.
- Treat 19 stream crossings to save approximately 7110 cubic yards of road-related sediment from delivery to local streams.
- Treat 7 potential or existing fillslope landslide features saving approximately 1051 cubic yards of future sediment delivery. Treat by direct excavation, sediment removal, and proper spoils disposal.
- 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 20,000 cubic yards of sediment at 26 different work features. Haul spoil materials to stable disposal areas.
- Construct up to 40 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.
- 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: Applicable permits, signed landowner access agreements, road logs for proposed restoration activities, annual reports and a 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 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:

- Summer 2016 – Fall 2017; Heavy equipment implementation
  Implementation of the proposed project is scheduled to begin summer of 2016. All heavy equipment work will be completed during low-flow periods when impacts to water quality can be minimized or avoided. It is estimated that heavy equipment work (once initiated) will require approximately 543 work hours for the excavator, or about 14 work weeks. Heavy equipment work is anticipated to start in July 2016. On-the-ground implementation (road decommissioning) work will begin by opening the road and developing access for dump trucks. Any large woody debris that is suitable for in-stream placement will be staged in accessible locations.
- Fall/winter 2016 and Fall/winter 2017; Post-construction
  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 – March 2018, Reporting
  Data collection synthesis, data analysis, and report writing. The implementation report will be completed and submitted in March 2018, or based on the deliverable due dates set forth in the grant contract.

Additional Requirements: 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.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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:

a. Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.
b. 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*.
c. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.
d. 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.
e. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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.*

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 insure the best chance of survival of the seedlings.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the McWhinney CreekQuad and Surrounding Quads for: East Fork Ryan Creek Sediment Reduction and Habitat Enhancement Project.
T04N, R01E, S18, McWhinney Creek, Humboldt County

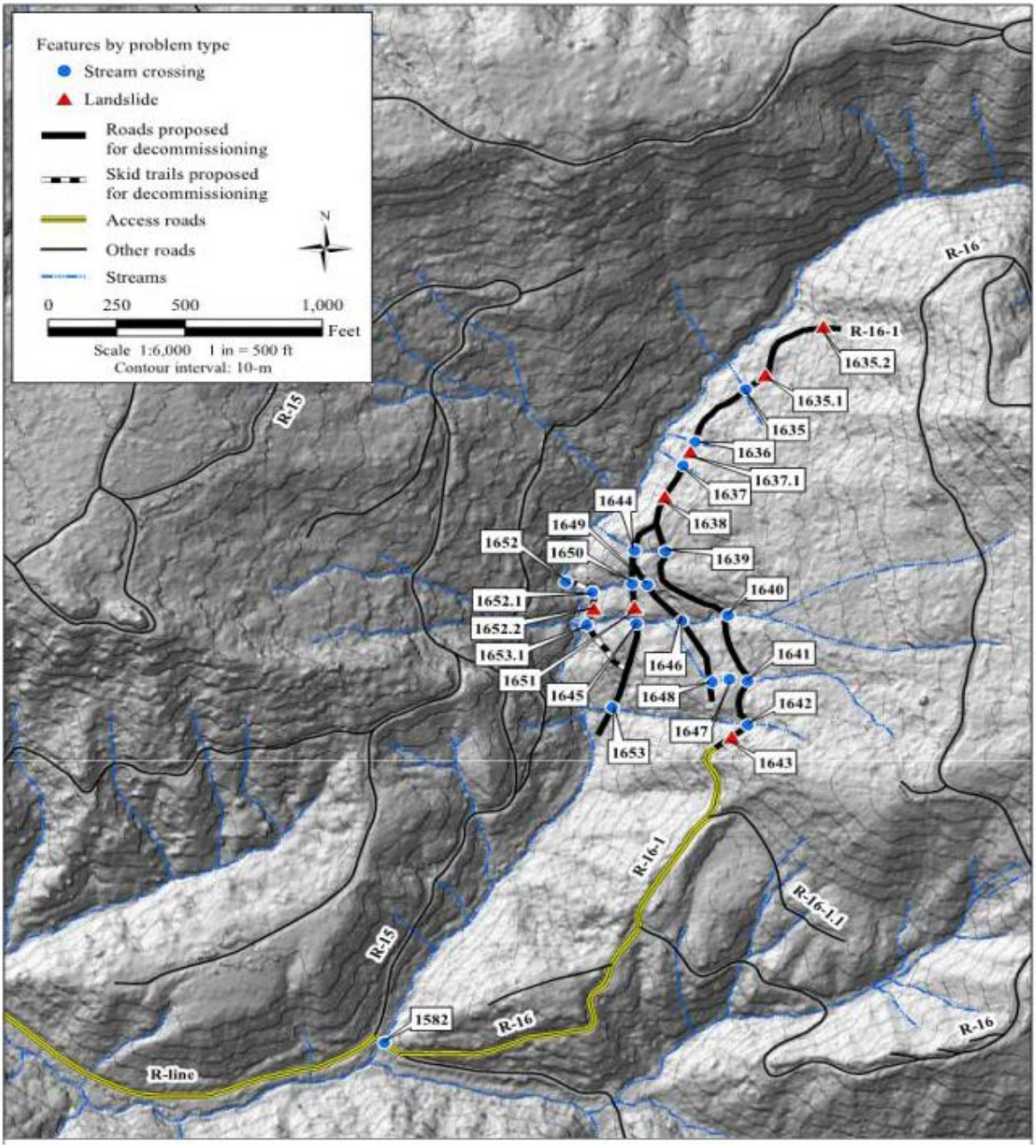
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	California clapper rail *Rallus longirostris obsoletus*	ABNME05016	Endangered	Endangered	G5T1	S1	
2	California globe mallow *Iliamna latibracteata*	PDMAL0K040			G2G3	S2	1B.2
3	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S4	
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	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			G3G4	S2	2B.2
16	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
17	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S3S4	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		unknown code...	G3G4	S2	SC
22	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
23	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G2	S1	1B.1
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	S2	
28	beach layia *Layia carnosa*	PDAST5N010	Endangered	Endangered	G2	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	chinook salmon - California coastal ESU *Oncorhynchus tshawytscha*	AFCHA0205S	Threatened		G5	S1	
32	coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A			G4T4	S3	SC
33	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S3	2B.2
34	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
35	coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2			G2T2	S2	1B.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	
39	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	unknown code...	G5T2T3Q	S2S3	SC
40	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	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	
45	great egret *Ardea alba*	ABNGA04040			G5	S4	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46	green sturgeon *Acipenser medirostris*	AFCAA01030	Threatened		G3	S1S2	SC
47	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4	
48	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
49	long-eared myotis *Myotis evotis*	AMACC01070			G5	S3	
50	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
51	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
52	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2	2B.2
53	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S2	1B.2
54	northern clustered sedge *Carex arcta*	PMCYP030X0			G5	S2	2B.2
55	northern meadow sedge *Carex praticola*	PMCYP03B20			G5	S2	2B.2
56	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
57	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	unknown code...	G3T3	S2S3	SC
58	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
59	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
60	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
61	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
62	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
63	sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101			G5T2	S1	
64	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
65	seaside bittercress *Cardamine angulata*	PDBRA0K010			G5	S1	2B.1
66	seaside pea *Lathyrus japonicus*	PDFAB250C0			G5	S2	2B.1
67	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S4	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
68	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T3	S2	1B.2
69	snowy egret *Egretta thula*	ABNGA06030			G5	S4	
70	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
71	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
72	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S3	SC
73	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
74	twisted horsehair lichen *Bryoria spiralifera*	NLTEST5460			G3	S1S2	1B.1
75	western lily *Lilium occidentale*	PMLIL1A0G0	Endangered	Endangered	G1	S1	1B.1
76	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
77	western sand-spurrey *Spergularia canadensis var. occidentalis*	PDCAR0W032			G5T4?	S1	2B.1
78	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
79	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2
80	white-footed vole *Arborimus albipes*	AMAFF23010			G3G4	S2S3	SC

East Fork Ryan Creek Sediment Reduction and Habitat Enhancement Project
Project Location Map
T04N, R01E, S18, McWhinney Creek Quad, Humboldt County



Introduction: The Eel River Watershed Improvement Group will treat 6 new infestations of *Arundo donax* and continue to survey and retreat as needed, the infestations treated in 2 previous phases of *Arundo donax* eradication. The purpose of this project is to continue the ongoing effort to eradicate *Arundo donax* in the Eel River system. It is necessary to eliminate this invasive plant to treat and prevent riparian dysfunction including increased water draw from the system, displacement of native vegetation and increased sedimentation. This project is necessary because *Arundo donax* propagates vegetatively and aggressively invades banks along rivers and streams, creating impenetrable thickets that outcompete native plants and disrupt the function of riparian habitats. The wide leaf and rapid growth of *Arundo donax* consume large amounts of water that can reduce already low summer flows.

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* Part XI (Flosi et al 1998 and 2002).

Objectives: The goal of this project is to provide short-term and long-term benefits to coho salmon by restoring LWD and shade through improvement of existing riparian zones through management of plant competitors. Objectives of this project include:

- Continue to monitor and treat the *Arundo donax*.
- Reclaim areas previously void of native riparian vegetation.
- Continue to eliminate *Arundo donax* root systems causing stream bank erosion replacing them with bank stabilizing native root systems.
- Restore shade provided by riparian tree canopies by replacing *Arundo donax* with native vegetation.

Project Description:

Location: The project is located on the Lower Eel River and South Fork Eel River, tributary to the Pacific Ocean, in the counties of Humboldt and Mendocino. Project sites are located on the Cannibal Island, Ferndale, Fields Landing, Fortuna, Hydesville, Scotia, Redcrest, Weott, Myers Flat, Miranda, Garberville, and Piercy, 7.5 minute U.S. Geological Survey (USGS) maps, Township 03 North, Range 02 West, and Section 16 in Humboldt County to Township 21 North, Range 16 West, Section 26 in Mendocino County. The upstream extent of the project is located at 39.92830000 north latitude, 123.76310000 west longitude, and the downstream extent is at 40.64340000 north latitude and 123.30380000 west longitude.

Project Set Up: Agreement and subcontract oversight will be conducted by the Project Manager. The Project Manager will communicate and coordinate with the landowners to obtain entry permits or access. The Project Manager will also contact the subcontractors to inform them of the funded proposal. Upon receipt of notice to proceed, the Project Manager will obtain all permits including 1600

permit and hire California Conservation Corps Subcontractor (CCC), Licensed Herbicide Applicator Subcontractor (Applicator), and River Guide Subcontractor. The Project Manager will provide management and direction to subcontractors throughout the duration of the project. All reporting and billing will be pursuant to agreement and regulatory guidelines. The Project Manager will coordinate with the CDFW Grant Manager and CCC to conduct pre-implementation site visit.

The CCC will

- Survey individual *Arundo donax* infestations to obtain current dimensions
- Provide site information to Project Manager and herbicide applicator
- Set up photo points
- Prepare sites for specific treatments as needed
- Flag sites and crew access trails as needed
- Flag sites for willow borrowing as needed.
- Cut and remove biomass as needed, and
- Tarp sites.

The Applicator will:

- Treat designated new sites with foliar herbicide
- Treat designated new sites with cut-stump method
- Retreat designated sites with foliar herbicide
- Retreat designated sites with cut-stump method, and
- Direct and inform CCC and Project Manager in the pretreatment requirement of each treatment method.

The River Guide Subcontractor will take the Project Manager and CCC on survey trips up the Eel and South Fork Eel River to scout for un-mapped *Arundo donax* infestations.

Materials: Materials used as part of this project include light exclusion tarp, sand bags, straw, riparian plants (*Salix sp*, *Sequoia sempervirens*, *Alnus rubra*), and approved herbicide.

Tasks:

Task 1. Agreement and Subcontract Oversight. Agreement and Subcontract oversight will be conducted by the Project Manager. The Project Manager will communicate and coordinate with the landowners to obtain entry permits or access. The Project Manager will also contact the subcontractors to inform them of the funded proposal. Upon receipt of notice to proceed, the Project Manager will obtain 1600 permit and hire CCC, River Guide Subcontractor, and Applicator. The Project Manager will provide management and direction to subcontractors throughout the duration of the project. All reporting and billing will be pursuant to agreement and regulatory guidelines.

Task 2. Pre-project assessment. The Project Manager will coordinate with the CCC and CDFW Grant Manager to schedule and conduct pre-project implementation assessments. Photo points will be installed to document project effectiveness.

Task 3. Project implementation. The CCC and Applicator will prepare sites and implement designated treatments to include:

- Foliar application - native riparian vegetation will be cut back by CCC and/or protected with tarps to prevent damage and allow clear access for Applicator; Applicator will apply herbicide according to professional standards and guidelines. Ground cleared around site will be mulched with straw or native mulch gleaned from adjacent area.
- Cut stump treatment - the CCC will prep sites by cutting stalks to the ground, herbicide will be applied directly to stalks by Applicator according to guidelines, cut canes will be removed from site or left on site to dry if feasible.
- Tarping treatment - the CCC will conduct treatment in which all *Arundo donax* biomass will be cut flush to the ground and chipped on site or removed. Heavy light occluding tarps will be applied over the patch. Edges of the tarp will be buried in to the ground and secured with sand bags to hold securely in place and withstand trampling by wildlife. Sites receiving this treatment will be checked frequently to adjust tarp and dig out any resprouts along tarp margins.
- Digging up resprouts - the CCC will dig out small resprouts by digging out the whole plant being extra careful to get all root pieces. Disturbed ground will be mulched with straw or appropriate gleaned mulch.
- Surveying sites for resprouts - sites treated in previous years will be surveyed and treated for resprouts. New sites receiving initial treatment during this project period will be surveyed for resprouts over 3 seasons post treatment.

Surveying for new sites will be conducted by boat with a hired River Guide Subcontractor and along the banks with the CCC under the direction of the Project Manager. The CCC will conduct field surveys through Humboldt Redwoods State Park and along accessible river banks to scout for *Arundo donax* presence. New sites will be mapped with a Global Positioning System waypoint, photo and directions to site. Project Manager will notify CDFW Project Manager of new sites.

The CCC will conduct erosion control activities and planting at treated sites as needed, methods include: mulching, willow fascine installation, willow sprigging.

The CCC will replant sites as needed with willow gleaned from adjacent sites and container plants.

Task 4. Project documentation- Following implementation, post project photos will be taken and metrics shall be collected which satisfy the Grant Agreement Annual Progress Report(s) and final report.

Task 5. Reporting: The Project Manager will write and deliver progress reports for invoicing, Annual Progress Reports and a final report to CDFW Project Manager.

Deliverables: Upon completion of the project, the Project Manager will deliver a written report which will contain: (1) the grant agreement number, (2) location of work – project location will be shown using a USGS 7.5 minute topographical map, (3)specific project access using public and private roads and trails, and landowner name and addresses, (4) a description and analysis of the restoration and planning techniques used, (5) a description of the results of the project including project metrics, (6) dates of work and the number of person hours expended, (7) labeled, before and after photographs (digital) of all restoration activities and techniques, and (8) grant dollars spent and contributed and/or in kind services used to complete the project.

Timelines:

Task 1. Upon Approval through February 2020 oversee and coordinate the project.

Tasks 2 and 3.-June 15, 2016 through February 2020, treat features, survey for resprouts and new sites. Erosion control mulching will be installed as project features are treated. Plantings will occur between December and March of year following treatment.

Task 4. November 15 of 2016, 2017, 2018, 2019, post project description, photos, and quantitative metrics will be delivered in an Annual Report.

Task 5. February 28, 2020 a Final Report will be delivered.

Additional Requirements:

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.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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 insure the best chance of survival of the seedlings.

California Department of Fish and Wildlife

Natural Diversity Database

Selected Elements by Common Name - Portrait

Possible Species within the Big Bar, Del Loma, Helena, Hayfork Bally, Hayfork, Halfway Ridge, Hyampom, Hyampom Mt, Ironside Mt, Piercy, Garberville, Harris, Noble Butte, Leggett, Hales Grove, Mistake Point, Bear Harbor, and Briceland Quads for Greater Eel River Arundo Eradication Phase III, "Upstream Extent" T 24N, R 17W, S 17, Piercy, Mendocino County; "Downstream Extent" T 03N, R 08E, S 17, Big Bar, Trinity County, United States

	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	Big Bar hesperian *Vespericola pressleyi*	IMGASA4170			G1	S1	
3	Briggs' leptonetid spider *Calileptoneta briggsi*	ILARAU6010			G1	S1	
4	California floater *Anodonta californiensis*	IMBIV04020			G3Q	S2?	
5	California wolverine *Gulo gulo*	AMAJF03010		Threatened	G4	S1	
6	Canyon Creek stonecrop *Sedum obtusatum ssp. paradisum*	PDCRA0A0U3			G4G5T2	S2	1B.3
7	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S4	
8	Heckner's lewisia *Lewisia cotyledon var. heckneri*	PDPOR04052			G4T3	S3	1B.2
9	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
10	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
11	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
12	Kellogg's buckwheat *Eriogonum kelloggii*	PDPGN083A0	Candidate	Endangered	G2	S2	1B.2
13	Mcdonald's rockcress *Arabis mcdonaldiana*	PDBRA06150	Endangered	Endangered	G3	S3	1B.1
14	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
15	Mendocino gentian *Gentiana setigera*	PDGEN060S0			G2	S1	1B.2
16	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
17	Niles' harmonia *Harmonia doris-nilesiae*	PDAST650L0			G2	S2	1B.1
18	Northern Interior Cypress Forest	CTT83220CA			G2	S2.2	
19	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
20	Oregon fireweed *Epilobium oreganum*	PDONA060P0			G2	S2	1B.2
21	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
22	Oregon snowshoe hare *Lepus americanus klamathensis*	AMAEB03011			G5T3T4Q	S2?	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
23	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
24	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S3S4	SC
25	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
26	Raiche's manzanita *Arctostaphylos stanfordiana ssp. raichei*	PDERI041G2			G3T1	S1	1B.1
27	Red Mountain catchfly *Silene campanulata ssp. campanulata*	PDCAR0U0A2		Endangered	G5T3Q	S3	4.2
28	Red Mountain stonecrop *Sedum laxum ssp. eastwoodiae*	PDCRA0A0L1	Candidate		G5T2	S2	1B.2
29	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
30	South Fork Mtn. lupine *Lupinus elmeri*	PDFAB2B1G0			G2	S2	1B.2
31	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2	SC
32	Tracy's eriastrum *Eriastrum tracyi*	PDPLM030C0		Rare	G3Q	S3	3.2
33	Trinity River jewelflower *Streptanthus oblanceolatus*	PDBRA2G500			G1	S1	1B.2
34	Trinity bristle snail *Monadenia infumata setosa*	IMGASC7080		Threatened	G2T2	S2	
35	Trinity shoulderband *Helminthoglypta talmadgei*	IMGASC2630			G2	S2	
36	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
37	Vine Hill ceanothus *Ceanothus foliosus var. vineatus*	PDRHA040D6			G3T1	S1	1B.1
38	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
39	Yolla Bolly Mtns. bird's-foot trefoil *Hosackia yollabolliensis*	PDFAB2A1F0			G2	S2	1B.2
40	buttercup-leaf suksdorfia *Hemieva ranunculifolia*	PDSAX0W010			G5	S2	2B.2
41	buxbaumia moss *Buxbaumia viridis*	NBMUS1B040			G4G5	S1	2B.2
42	chinook salmon - upper Klamath and Trinity Rivers ESU. *Oncorhynchus tshawytscha*	AFCHA02056			G5	S1S2	SC
43	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S3	2B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
44	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
45	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	
46	elongate copper moss *Mielichhoferia elongata*	NBMUS4Q022			G4	S3	2B.2
47	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
48	flagella-like atractylocarpus *Campylopodiella stenocarpa*	NBMUS84010			G5	S1?	2B.2
49	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
50	golden eagle *Aquila chrysaetos*	ABNKC22010			G5	S3	
51	hooded lancetooth *Ancotrema voyanum*	IMGAS36130			G1G2	S1S2	
52	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2
53	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
54	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
55	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
56	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
57	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
58	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
59	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G4G5	S3?	2B.3
60	pale yellow stonecrop *Sedum laxum ssp. flavidum*	PDCRA0A0L2			G5T4Q	S4	4.3
61	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
62	pink-margined monkeyflower *Erythranthe trinitiensis*	PDPHR01070			G2	S2	1B.3
63	small groundcone *Kopsiopsis hookeri*	PDORO01010			G4G5	S1S2	2B.3
64	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
65	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
66	western pearlshell *Margaritifera falcata*	IMBIV27020			G4G5	S1S2	
67	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
68	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2
69	woolly meadowfoam *Limnanthes floccosa ssp. floccosa*	PDLIM02043			G4T4	S3	4.2

Greater Eel River Arundo Eradication Phase III
Project Location Map
“Upstream Extent" T 24N, R 17W, S 17/"Downstream Extent" T 03N, R 08E, S 17
Piercy Quad, Mendocino County/Big Bar Quad, Trinity County

Introduction:

Marin Municipal Water District (Grantee) 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 features will be installed along the reconnected floodplain channels. The goal of this work is to increase the winter habitat carrying capacity for coho and steelhead in Lagunitas Creek.

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 the remaining five sites identified in recently completed (2013) assessment and design reports.

Project Description:

Location:

The project sites are between Shafter Bridge (at the confluence of Lagunitas Creek and San Geronimo Creek) and Highway 1 Bridge (in Point Reyes Station) and 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 and California Department of Parks and Recreation. The approximate center of the project area is at coordinate point: 38.04980000° N lat: 122.75940000° 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.

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 (Grantee) will construct winter habitat enhancement projects at five (5) sites within the Lagunitas Creek watershed. The project sites are referred to as:

- Site #1 – Big Bend Log Deflector Vanes (4 vanes installed);
- Site #2 – Big Bend Bar Apex Jam (1 apex jam installed);
- Site #7 – Fern Rock Log Debris Tetention Jams (4 retention jams installed);
- Site #8 – 449 Creek Log Debris Retention Jam and Bar Apex Jam (1 retention, 1 apex jam installed); and
- Site #9 – Olema Creek Log Cross-vane and Log Debris Retention Jams (1 cross-vane, 6 retention jams installed).

Implementation will entail construction of the enhancement sites to the engineered design plans and specifications provided in the following design documents previously reviewed and approved by CDFW/FRGP Engineering staff:

- Basis of Design Report for the Lagunitas Creek Salmonid Winter Habitat Enhancement Project (Kamman Hydrology & Engineering, Inc. 2014)

Materials:

- Logs with rootwads (weir logs and anchor logs; referred to as Caltrans rootwads);
- Logs;
- Pinning logs;
- Plants;
- Creek diversion materials (cofferdams constructed of sand bags, gravel bags, or similar, visqueen, flexible hose, PVC pipe, and/or sheet piling).

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

Grantee will consult with a licensed professional to provide engineering, hydrology, and design services, as needed, through the completion of environmental compliance and project construction. Grantee 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 licensed engineer, and these costs are included in the budget under Personnel Services and Engineering Consultant Services.

Task 2 – Environmental Compliance and Landowner Approval
Grantee expects the California Department of Fish and Wildlife (CDFW) will be the lead CEQA agency for this project. Grantee will collaborate with CDFW through the CEQA review, since the Grantee has obtained considerable information on the sensitive resources of Lagunitas Creek.

Grantee will obtain a CDFW 1600 Streambed Alteration Agreement and project approval from the landowners: National Park Service and State Parks. National Park Service approval will necessitate compliance with the National Environmental Policy Act (NEPA). Grantee will conduct the environmental review needed to complete the 1600 application and NEPA review, which the Grantee anticipates including botanical and wildlife surveys (specifically shrimp, bird, and bat surveys). State Parks approval will be completed through a Right of Entry agreement, which is not expected to necessitate any additional environmental review.

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 Grantee's Aquatic Ecologist. In the unlikely event of encountering red-legged frogs, frogs will be relocated to suitable habitat downstream, as authorized by US Fish and Wildlife Service.

Coho salmon, steelhead, and California freshwater shrimp occur in the Tocaloma reach of Lagunitas Creek and have been well documented by annual surveys, sponsored by the Grantee. Project site dewatering will likely be a construction impact salmonids and shrimp and their habitat. Mitigation measures for impacts and avoidance of salmonids and freshwater shrimp will need to be developed for the project.

Northern spotted owls are also known to breed near the project area and construction activities will be limited to the owl non-breeding season, August 1 to October 31. In addition, the State Parks portion of the project area (i.e., Sites #1 and #2) is within designated critical habitat for marbled murrelet but prior surveys through Lagunitas Creek have not identified any marbled murrelet breeding. Other species and sensitive biological resources that will need to be addressed include: California red-legged frog, marbled murrelet, western pond turtle, foothill yellow-legged frog, raptors, nesting birds, and bats. Cultural resource issues will also be addressed.

Task 3 – Construction Contracting
Grantee 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. Grantee 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, for five sites identified as Site #'s 1, 2, 7, 8, and 9. The site specific construction activities are listed below for each site.

Site #1 – Big Bend Log Deflector Vanes (aka Log Diversion Vanes) Construction elements will include:

- Mobilization/Demobilization
- Materials Delivery
- Clear Vegetation
- Equipment Access Route
- Creek Diversion
- Log Deflector Vane (aka Diversion Vane and Rootwad Revetment) Installation
- Revegetation

Winter habitat enhancement work at this site will include construction of four Log Deflector Vanes (aka Log Diversion Vanes). This work will require creek diversion and there will be site revegetation. These elements are described below.

Deflector Vanes are based on a "bendway weir" design that consists of a core two log pinned by two smaller logs structure (see attached project site plans, Sheets C1 and C11). The structure is designed to invoke channel migration. A total of four Deflector Vanes will installed from either bank, depending on how the channel is to be directed. Deflector vanes are space at 80-foot intervals – equal to approximately 5-times the bankfull channel width to mimic natural riffle-pool spacing. As a secondary benefit, where possible, Deflector Vane installations will be strategically placed just upstream and on the opposite bank from existing large trees in order to direct flow and increase scour and pool depth at the base of the trees. Each Deflector Vane consists of a bottom "weir" log and an upper "anchor" log. The weir log is placed in the creek and aligned pointing upstream at an angle of 60-degrees from the host bank. The upstream end of the log is also angled slightly downward and buried into the channel bed. The rootwad end is keyed into the channel bank. The exposed (non-buried) portion of the weir log

spans from ½ to ¾ of the bankfull channel width. The weir log acts to deflect the bankfull flow. The anchor log acts to pin or secure the weir log. The rootwad end of the anchor log is keyed into the same host bank, protruding into the creek (at a 90-degree angle from bank) and lying across the top of the weir log. The exposed portion of the anchor log spans roughly 1/3 the bankfull channel width and also acts to obstruct flow. The logs cross each other at a 30-degree angle. Two smaller diameter pinning logs (posts driven vertically) were added to the core deflector structure to increase stability and provide additional scour protection.

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.

Site #2 – Big Bend Bar Apex Jam

Construction elements will include:

- Mobilization/Demobilization
- Materials Delivery
- Clear Vegetation
- Equipment Access Route
- Creek Diversion
- Construction Dewatering
- Bar Apex Jam Construction
- High Flow Channel Improvements
- Revegetation

Winter habitat enhancement work at this site includes construction of one Bar Apex Jam and High Flow Channel improvements. This work will require creek diversion and construction dewatering and there will be site revegetation. The Bar Apex Jam, High Flow Channel Improvements, and construction dewatering

are described below, and the creek diversion will be as described for Site #1, above.

The general theory and design of Log Bar Apex Jams (BAJ) comes from efforts to restore forested islands and create floodplain side channels (McHenry et al., 2007; Abbe and Montgomery, 1996) in the Pacific Northwest. The design of the BAJ is 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 #2 (and at Site #8 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 these features 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.

Dewatering is anticipated for the construction of the BAJ at Site #2 (and Site #8 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 #7 – Fern Rock Log Debris Retention Jams
Construction elements will include:

- Mobilization/Demobilization
- Materials Delivery
- Clear Vegetation

- Equipment Access Route
- Creek Diversion
- Log Debris Retention Jam Construction
- High Flow Channel Improvements
- Revegetation

Winter habitat enhancement work at this site includes construction of four log retention jams and high flow channel improvements. This work requires creek diversion and construction dewatering and there will be site revegetation. The log retention jams are described below, the creek diversion will be as described for Site #1, above, and the high flow channel improvements are as described for Site #2, 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, the Grantee 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. Log Debris Retention Jams (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 #8 – 449 Creek Log Debris Retention Jam and Bar Apex Jam

Construction elements will include:

- Mobilization/Demobilization
- Materials Delivery 20
- Clear Vegetation
- Equipment Access Route
- Creek Diversion
- Construction Dewatering
- Bar Apex Jam Construction
- Log Debris Retention Jam Construction
- High Flow Channel Improvements
- Revegetation

Winter habitat enhancement work at this site will include construction of a log debris retention jam, 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 Sites #1 and #2, above.

Site #9 – Olema Creek Log Cross-Vane and Creek Log Debris Retention Jams

Construction elements will include:

- Mobilization/Demobilization
- Materials Delivery
- Clear Vegetation
- Equipment Access Route
- Creek Diversion
- Construction Dewatering
- Log Debris Retention Jam Construction
- Log Cross-Vane Construction
- Revegetation

Winter habitat enhancement work at this site will include construction of a log cross-vane as described below, and six creek log debris retention jams, as described for Sites #7 and #8. This work will require creek diversion and construction dewatering and there will be site revegetation; these elements will be as described for Sites #1 and #2 above.

A single log cross-vane will be installed at the upstream end of the Olema Creek reach to act as a bed grade control structure upstream of an existing knick-point. This structure is intended to provide a hardpoint to resist erosion. It will be used in combination with a LDRJ installed downstream of the knickpoint as a grade control structure that will act as a hydraulic control, creating backwater conditions to reduce energy gradients, reduce erosion and act to trap debris and sediment.

Construction oversight and inspections will be performed daily during any construction activities. The Construction Inspector will ensure that the construction is following the project plans and specification. As part of the inspections, project site photographs will be taken from established photo points.

Task 5 – Post Longitudinal Profile

The intent and an outcome of the project will be to alter and create variability in the channel grades of the stream bed, in the vicinity of the installed LWD structures. Therefore, post-construction longitudinal profile surveys are warranted and will be conducted. The long profiles will span the entire length of project reaches, as follows:

- Sites1-2 (Big Bend) = 800’;
- Site 7 (Fern Rock) = 1000’;
- Site 8 (449 Creek) = 500’; and
- Site 9 (Olema Creek) = 900’.

The longitudinal profiles will be submitted with the Final Report of the grant agreement.

The post-construction longitudinal profile will be compared against the project site topographic surveys that were conducted for the project site plans. The post-construction longitudinal profile, through the mainstem Lagunitas Creek sites (Site #1, #2, #7, and #8), will also be compared against a 2009 longitudinal profile survey of Lagunitas Creek, that ran through the entire project area reach.

Task 6 – Project Management and Administration
This task includes all activities associated with managing and administering the grant-funded project, providing annual project status reports and invoicing for grant reimbursements, and writing and submitting a Final Report at the conclusion of the project.

Deliverables:
Lagunitas Creek Watershed Winter Habitat Enhancement Implementation – Phase I, will produce the following deliverables listed below.

Task 2 – Environmental Compliance and Landowner Approval
Deliverables for this task include:
- CDFW 1600 Streambed Alteration Agreement;
- National Park Service Project Approval
- State Parks Right of Entry Agreement
- Botanical survey report
- Wildlife survey report

Task 3 – Construction Contracting
Deliverables for this task include:
- Contractor qualifications and bid package
- Construction contract

Task 4
- Site #1 – Big Bend Log Deflector Vanes
- Site #2 – Big Bend Bar Apex Jam
- Site #7 – Fern Rock Log Debris Retention Jams
- Site #8 – 449 Creek Log Debris Retention Jam and Bar Apex Jam
- Site #9 – Olema Creek Log Cross-Vane and Creek Log Debris Retention Jam

Additional Task 4 deliverables:
- Construction Management contract
- Project site construction photographs – photos from all five sites

Task 5 – Post Longitudinal Profile
Deliverables for this task include:

- Post-construction longitudinal survey data
- Post-construction longitudinal profile plots

Task 6 – Project Management and Administration
Deliverables for this task include:

- Periodic status report as requested
-

A. Final grant completion report.

Timelines:

Project activities will begin in the summer of 2016 and will continue for three years, until the summer of 2019. The proposed work will occur according to the following schedule:

- July 2016 – July 2017: Task 1 – Engineering Consultation
- July 2016 – July 2017: Task 2 – Environmental Compliance & National Park Service Approval
- May 2017 – August 2017: Task 3 – Construction Contracting
- August 2017 – November 2018: Task 4 – Project Construction Implementation
- June 2019 – Nov. 2019: Task 5 – Post Longitudinal Profile
- July 2016 – March 2020: Task 6 – Project Management and Administration

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.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
724702 Lagunitas Creek Winter Habitat Enhancement Implementation - Phase II
M 02N 08W Section 05
Marin 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 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	G3G4T1	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 giant salamander *Dicamptodon ensatus*	AAAAH01020			G3	S2S3	
11	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
12	California tiger salamander *Ambystoma californiense*	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SC
13	Central Dune Scrub	CTT21320CA			G2	S2.2	
14	Coastal Terrace Prairie	CTT41100CA			G2	S2.1	
15	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
16	Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1			G5T1	S1	1B.2
17	Franciscan thistle *Cirsium andrewsii*	PDAST2E050			G3	S3	1B.2
18	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
19	Kellogg's horkelia *Horkelia cuneata var. sericea*	PDROS0W043			G4T2	S2?	1B.1
20	Koch's cord moss *Entosthodon kochii*	NBMUS2P050			G2	S2	1B.3
21	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
22	Marin County navarretia *Navarretia rosulata*	PDPLM0C0Z0			G2	S2	1B.2
23	Marin checker lily *Fritillaria lanceolata var. tristulis*	PMLIL0V0P1			G5T2	S2	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Marin checkerbloom *Sidalcea hickmanii ssp. viridis*	PDMAL110A4			G3T1T2	S1S2	1B.3
25	Marin elfin butterfly *Callophrys mossii marinensis*	IILEPE2207			G4T1	S1	
26	Marin hesperian *Vespericola marinensis*	IMGASA4140			G2	S2	
27	Marin knotweed *Polygonum marinense*	PDPGN0L1C0			G2Q	S2	3.1
28	Marin manzanita *Arctostaphylos virgata*	PDERI041K0			G2	S2	1B.2
29	Marin western flax *Hesperolinon congestum*	PDLIN01060	Threatened	Threatened	G2	S2	1B.1
30	Mason's ceanothus *Ceanothus masonii*	PDRHA04200		Rare	G1	S1	1B.2
31	Mason's lilaeopsis *Lilaeopsis masonii*	PDAPI19030		Rare	G2	S2	1B.1
32	Mt. Tamalpais bristly jewelflower *Streptanthus glandulosus ssp. pulchellus*	PDBRA2G0J2			G4T2	S2	1B.2
33	Mt. Tamalpais manzanita *Arctostaphylos montana ssp. montana*	PDERI040J5			G3T3	S3	1B.3
34	Mt. Tamalpais thistle *Cirsium hydrophilum var. vaseyi*	PDAST2E1G2			G2T2	S2	1B.2
35	Mt. Vision ceanothus *Ceanothus gloriosus var. porrectus*	PDRHA040F7			G4T2	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			G2T2	S2	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 Maritime Chaparral	CTT37C10CA			G1	S1.2	
42	Northern Vernal Pool	CTT44100CA			G2	S2.1	
43	Opler's longhorn moth *Adela oplerella*	IILEE0G040			G2	S2	
44	Peninsula coast range shoulderband *Helminthoglypta nickliniana awania*	IMGASC2361			G3T1	S1	
45	Petaluma popcornflower *Plagiobothrys mollis var. vestitus*	PDBOR0V0Q2			G4?TX	SX	1A
46	Pitkin Marsh lily *Lilium pardalinum ssp. pitkinense*	PMLIL1A0H3	Endangered	Endangered	G5T1	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
47	Point Reyes blennosperma *Blennosperma nanum var. robustum*	PDAST1A022		Rare	G4T2	S2	1B.2
48	Point Reyes blue butterfly *Plebejus icarioides parapheres*	IILEPG801D			G5T1T2	S1S2	
49	Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012			G5T2	S2	1B.2
50	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
51	Point Reyes jumping mouse *Zapus trinotatus orarius*	AMAFH01031			G5T1T3Q	S1S3	SC
52	Point Reyes meadowfoam *Limnanthes douglasii ssp. sulphurea*	PDLIM02038		Endangered	G4T2	S2	1B.2
53	Point Reyes mountain beaver *Aplodontia rufa phaea*	AMAFA01012			G5T2	S2	SC
54	Point Reyes paintbrush *Castilleja leschkeana*	PDSCR0D1R0			GH	SH	1A
55	Point Reyes rein orchid *Piperia elegans ssp. decurtata*	PMORC1X011			G4T1	S1	1B.1
56	Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3			G4?T2	S2	1B.2
57	Raiche's red ribbons *Clarkia concinna ssp. raichei*	PDONA050A2			G5?T1	S1	1B.1
58	Ricksecker's water scavenger beetle *Hydrochara ricksecker*i	IICOL5V010			G2?	S2?	
59	Sacramento splittail *Pogonichthys macrolepidotus*	AFCJB34020			GNR	S3	SC
60	San Bruno elfin butterfly *Callophrys mossii bayensis*	IILEPE2202	Endangered		G4T1	S1	
61	San Francisco Bay Area leaf-cutter bee *Trachusa gummifera*	IIHYM80010			G1	S1	
62	San Francisco Bay spineflower *Chorizanthe cuspidata var. cuspidata*	PDPGN04081			G2T1	S1	1B.2
63	San Francisco forktail damselfly *Ischnura gemina*	IIODO72010			G2	S2	
64	San Francisco owl's-clover *Triphysaria floribunda*	PDSCR2T010			G2	S2	1B.2
65	San Pablo song sparrow *Melospiza melodia samuelis*	ABPBXA301W			G5T2?	S2?	SC
66	Serpentine Bunchgrass	CTT42130CA			G2	S2.2	
67	Sonoma alopecurus *Alopecurus aequalis var. sonomensis*	PMPOA07012	Endangered		G5T1Q	S1	1B.1
68	Sonoma spineflower *Chorizanthe valida*	PDPGN040V0	Endangered	Endangered	G1	S1	1B.1
69	Swainson's hawk *Buteo swainsoni*	ABNKC19070		Threatened	G5	S3	

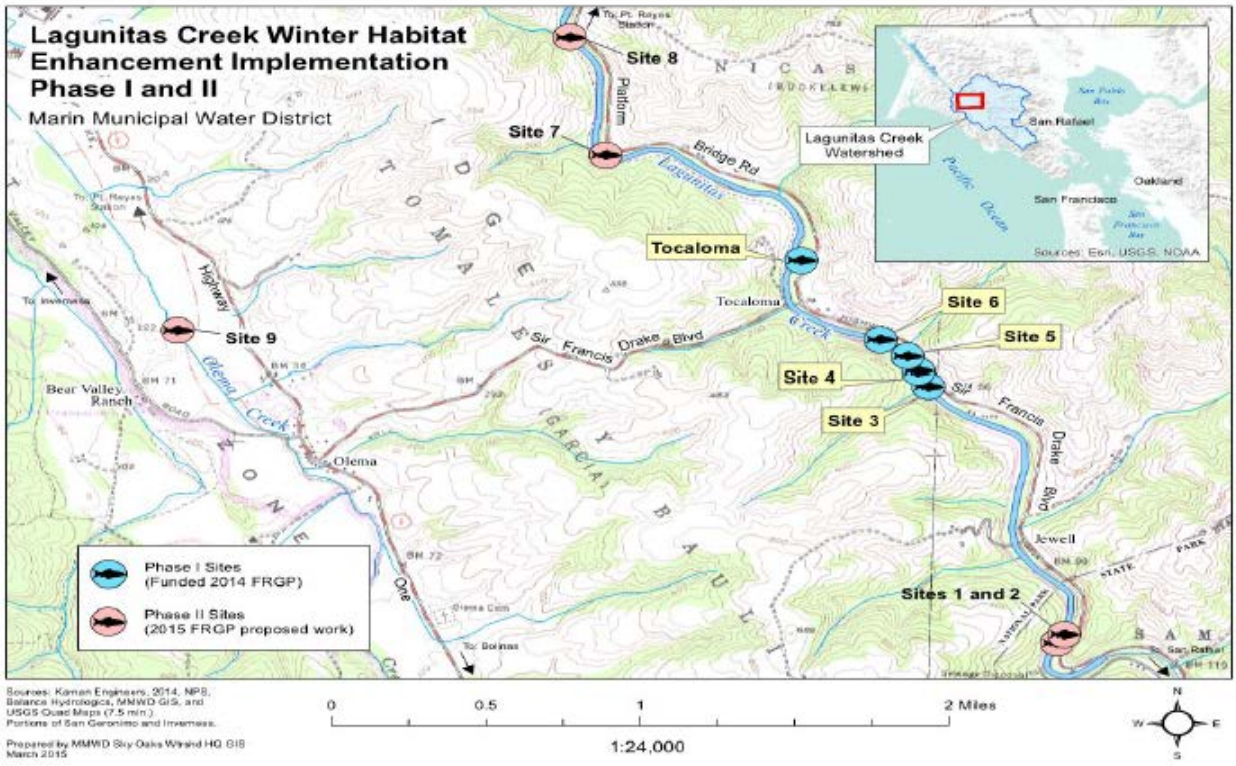
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
70	Tamalpais jewelflower *Streptanthus batrachopus*	PDBRA2G050			G1	S1	1B.3
71	Tamalpais lessingia *Lessingia micradenia var. micradenia*	PDAST5S063			G2T1T2	S1S2	1B.2
72	Tamalpais oak *Quercus parvula var. tamalpaisensis*	PDFAG051Q3			G4T2	S2	1B.3
73	Thurber's reed grass *Calamagrostis crassiglumis*	PMPOA17070			G3Q	S2?	2B.1
74	Tiburon buckwheat *Eriogonum luteolum var. caninum*	PDPGN083S1			G5T2	S2	1B.2
75	Tiburon paintbrush *Castilleja affinis var. neglecta*	PDSCR0D013	Endangered	Threatened	G4G5T1	S1	1B.2
76	Tidestrom's lupine *Lupinus tidestromii*	PDFAB2B3Y0	Endangered	Endangered	G1	S1	1B.1
77	Tomales isopod *Caecidotea tomalensis*	ICMAL01220			G2	S2	
78	Tomales roach *Lavinia symmetricus ssp. 2*	AFCJB19022			G4T2T3	S2S3	SC
79	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2	SC
80	Williams' bronze shoulderband *Helminthoglypta stiversiana williamsi*	IMGASC2034			G2G3T1	S1	
81	alkali milk-vetch *Astragalus tener var. tener*	PDFAB0F8R1			G2T2	S2	1B.2
82	ashy storm-petrel *Oceanodroma homochroa*	ABNDC04030			G2	S2	SC
83	beach layia *Layia carnosa*	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
84	bent-flowered fiddleneck *Amsinckia lunaris*	PDBOR01070			G2?	S2?	1B.2
85	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
86	blue coast gilia *Gilia capitata ssp. chamissonis*	PDPLM040B3			G5T2	S2	1B.1
87	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
88	bristle-stalked sedge *Carex leptalea*	PMCYP037E0			G5	S1	2B.2
89	bumblebee scarab beetle *Lichnanthe ursina*	IICOL67020			G2	S2	
90	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S3	SC
91	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
92	coast yellow leptosiphon *Leptosiphon croceus*	PDPLM09170			G1	S1	1B.1
93	coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2			G4T2T3	S2S3	1B.2
94	coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2			G2T2	S2	1B.2
95	coastal triquetrella *Triquetrella californica*	NBMUS7S010			G2	S2	1B.2
96	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
97	congested-headed hayfield tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T1T2	S1S2	1B.2
98	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
99	elongate copper moss *Mielichhoferia elongata*	NBMUS4Q022			G4	S3	2B.2
100	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
101	fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0			G2	S2	1B.2
102	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	
103	golden larkspur *Delphinium luteum*	PDRAN0B0Z0	Endangered	Rare	G1	S1	1B.1
104	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
105	great egret *Ardea alba*	ABNGA04040			G5	S4	
106	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4	
107	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
108	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
109	marsh microseris *Microseris paludosa*	PDAST6E0D0			G2	S2	1B.2
110	monarch - California overwintering population *Danaus plexippus pop. 1*	IILEPP2012			G4T2T3	S2S3	
111	northern curly-leaved monardella *Monardella sinuata ssp. nigrescens*	PDLAM18162			G3T2	S2	1B.2
112	northern harrier *Circus cyaneus*	ABNKC11010			G5	S3	SC
113	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
114	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
115	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
116	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
117	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
118	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
119	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T1	S1	1B.2
120	robust walker *Pomatiopsis binneyi*	IMGASJ9010			G1	S1	
121	rose leptosiphon *Leptosiphon rosaceus*	PDPLM09180			G1	S1	1B.1
122	round-leaved filaree *California macrophylla*	PDGER01070			G3?	S3?	1B.2
123	saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A			G5T3	S3	SC
124	sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101			G5T2	S1	
125	seaside bittercress *Cardamine angulata*	PDBRA0K010			G5	S1	2B.1
126	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T3	S2	1B.2
127	silver-haired bat *Lasionycteris noctivagans*	AMACC02010			G5	S3S4	
128	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2T3Q	S2S3	
129	supple daisy *Erigeron supplex*	PDAST3M3Z0			G2	S2	1B.2
130	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
131	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
132	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S3	SC
133	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
134	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S1S2	SC
135	two-fork clover *Trifolium amoenum*	PDFAB40040	Endangered		G1	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
136	water star-grass *Heteranthera dubia*	PMPON03010			G5	S1	2B.2
137	western leatherwood *Dirca occidentalis*	PDTHY03010			G2	S2	1B.2
138	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
139	western red bat *Lasiurus blossevillii*	AMACC05060			G5	S3	SC
140	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
141	whiteworm lichen *Thamnolia vermicularis*	NLTES43860			G3G5	S1	2B.1
142	woolly-headed gilia *Gilia capitata ssp. tomentosa*	PDPLM040B9			G5T2	S2	1B.1
143	woolly-headed spineflower *Chorizanthe cuspidata var. villosa*	PDPGN04082			G2T2	S2	1B.2
144	yellow warbler *Setophaga petechia*	ABPBX03010			G5	S3S4	SC

Lagunitas Creek Winter Habitat Enhancement Implementation
Phase II
M 02N 08W Section 05
Marin County



Introduction:
Mendocino Land Trust (Grantee) will implement the South Fork Noyo River Instream Habitat Enhancement Project. South Fork Noyo River supports populations of coho salmon and steelhead trout. The purpose of the project is to improve habitat in Little North Fork Navarro River and Bottom Creek. Salmonid recovery plans recommend increasing stream habitat complexity by installing large woody debris (LWD). Adding LWD to South Fork Noyo River will enhance pools, increase gravel sorting, and provide increased habitat complexity.

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 70 instream features consisting of 160 pieces of LWD within an 11,198-foot section of South Fork Noyo River. 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 project is located on South Fork Noyo River, tributary to Noyo River, tributary to the Pacific Ocean, in the County of Mendocino, State of California; 39.3890 north latitude, -123.6828 west longitude at the downstream end; and 39.3695 north latitude, -123.6593 west longitude at the upstream end; Township 18 North, Range 16 West, and Sections 29, 30, 32, and 33 of the Noyo Hill 7.5 Minute U.S. Geological Survey (USGS) Quadrangle map as depicted in the Project Location Map.

Project Set Up:
Subcontractors for Heavy Equipment and Hand Labor will construct instream log structures according to the site specific plans to be provided, using locally available logs or logs from other locations. Logs will be moved into location by hand crews, or by using heavy equipment where necessary.

Materials:
A total of 65 pieces of LWD will be used to construct 33 structures. Other materials purchased and used during the project include the following:

Spike Meals (food): To feed hand labor crews while on spike. Spike Supplies (briquettes, propane, etc.): For preparing meals while on spike. Porta-Potty Rental: For environmental protection, health & safety services for crews on spike. Generator: For operating power equipment used during in-stream structure anchoring process. Rebar, nuts, washers, cable clamps, epoxy glue, and 5/8" Galvanized Cable: Used for anchoring in-stream structures. Wood Drill and Rock Drill Bits: Used for drilling logs/root-wads/trees during in-stream structure anchoring process. Hand Tools (gloves, hard hats, safety glasses, hacksaws, bit extensions, shear-pins): safety equipment, tools and tool supplies used during project implementation. Office Supplies (paper, printer supplies, etc.): used for creating designs, work-plans, all pertinent documents relating to the project, reporting. Straw mulch, metal tags, chainsaw files, personal protection equipment, measuring tapes.

Tasks:

Install Instream Habitat Features:

Install instream habitat features at 70 locations including 160 pieces of LWD within an 11,198 foot section of South Fork Noyo River. Final structure design and placement will be determined by field consultation between the Grantee and the CDFW Grantor Project Manager. Work will consist of the following:

- Heavy equipment and hand labor crew members will construct instream log structures according to the site specific plans to be provided, using locally available logs or logs from other locations.
- Approximately 46 logs will be created through the felling of 23 nearby trees using a chainsaw. Approximately 114 logs will be salvaged from nearby areas and placed in the creek with a rubber-tired tractor (equipment) or CCC crews. Trees will be felled directly into the stream channel or away from the channel and delivered and placed with a rubber-tired tractor. CCC crews will provide assistance at some sites to relocate and/or reposition logs to optimize placement in areas where equipment cannot access the stream. Salvage logs may be transported to the site from cull piles 3.25 miles distant.
- 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 and bedrock. Anchoring materials will consist of 1" threaded rebar, cable, nuts and washers, and waterproof epoxy.
- The minimum length used for unanchored large woody debris is 1.5 times bankfull width.

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:
The specific objective of this project is to create 70 instream features consisting of 160 pieces of LWD within an 11,198-foot section of South Fork Noyo River.

Timelines:
June 15, 2016 through October 31, 2016, June 15, 2017 through October 31, 2017, June 15, 2018 through October 31, 2018, June 15, 2019 through October 31, 2019, install LWD features within approved project reach. Erosion control will be installed as project features are completed.

After completion of all LWD features and following one winter, post project monitoring will take place which includes a longitudinal profile will be repeated along the reach where a pre-project longitudinal profile was conducted.

Additional Requirements:
The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured and a "notice to proceed" letter has been received from the Grantor Project Manager. 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.

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 when there is a threat of heavy rains which will cause flooding.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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 Noyo Hill Quad and surrounding quads for South Fork Noyo River Instream Habitat Enhancement Project, T18N R16W S30, S29, S28, S33 and T17N R16W S04, Mendocino County

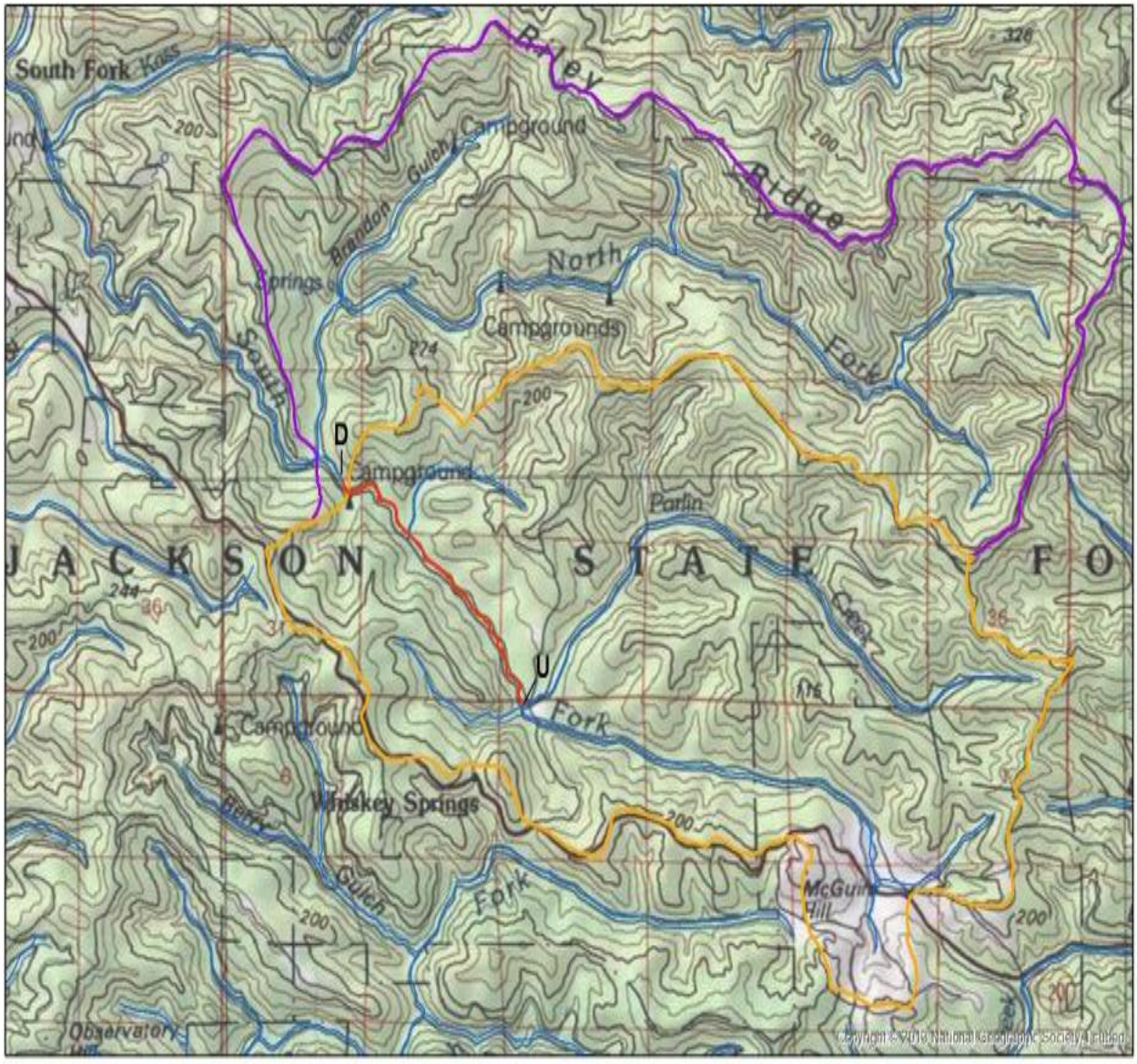
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S3	SC
2	Baker's goldfields *Lasthenia californica ssp. bakeri*	PDAST5L0C4			G3TH	SH	1B.2
3	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
4	Behren's silverspot butterfly *Speyeria zerene behrensii*	IILEPJ6088	Endangered		G5T1	S1	
5	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 red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
8	California sedge *Carex californica*	PMCYP032D0			G5	S2	2B.3
9	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
10	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
11	Fen	CTT51200CA			G2	S1.2	
12	Grand Fir Forest	CTT82120CA			G1	S1.1	
13	Howell's spineflower *Chorizanthe howellii*	PDPGN040C0	Endangered	Threatened	G1	S1	1B.2
14	Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402			G4T2	S2	1B.2
15	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
16	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
17	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
18	Mendocino Pygmy Cypress Forest	CTT83161CA			G2	S2.1	
19	Mendocino dodder *Cuscuta pacifica var. papillata*	PDCUS011A2			G5T1	S1	1B.2
20	Mendocino leptonetid spider *Calileptoneta wapiti*	ILARAU6040			G1	S1	
21	Menzies' wallflower *Erysimum menziesii*	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
22	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
23	Monterey clover *Trifolium trichocalyx*	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
24	North Coast phacelia *Phacelia insularis var. continentis*	PDHYD0C2B1			G2T2	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
26	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
27	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
28	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
29	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
30	Pacific lamprey *Entosphenus tridentatus*	AFBAA02100			G4	S4	SC
31	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S3S4	SC
32	Point Reyes blennosperma *Blennosperma nanum var. robustum*	PDAST1A022		Rare	G4T2	S2	1B.2
33	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	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	Thurber's reed grass *Calamagrostis crassiglumis*	PMPOA17070			G3Q	S2?	2B.1
38	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
39	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G2	S1	1B.1
40	alpine marsh violet *Viola palustris*	PDVIO041G0			G5	S1S2	2B.2
41	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
42	ashy storm-petrel *Oceanodroma homochroa*	ABNDC04030			G2	S2	SC
43	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
44	bunchberry *Cornus canadensis*	PDCOR01040			G5	S2	2B.2
45	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S3	2B.2
46	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
47	coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2			G4T2T3	S2S3	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
48	coastal triquetrella *Triquetrella californica*	NBMUS7S010			G2	S2	1B.2
49	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
50	congested-headed hayfield tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T1T2	S1S2	1B.2
51	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
52	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
53	dwarf alkali grass *Puccinellia pumila*	PMPOA531L0			G4?	SH	2B.2
54	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
55	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	
56	great burnet *Sanguisorba officinalis*	PDROS1L060			G5?	S2	2B.2
57	green yellow sedge *Carex viridula ssp. viridula*	PMCYP03EM5			G5T5	S2	2B.3
58	hair-leaved rush *Juncus supiniformis*	PMJUN012R0			G5	S1	2B.2
59	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4	
60	lagoon sedge *Carex lenticularis var. limnophila*	PMCYP037A7			G5T5	S1	2B.2
61	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
62	livid sedge *Carex livida*	PMCYP037L0			G5	SH	2A
63	lotis blue butterfly *Plebejus idas lotis*	IILEPG5013	Endangered		G5TH	SH	
64	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
65	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
66	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
67	northern microseris *Microseris borealis*	PDAST6E030			G5	S1	2B.1
68	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
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	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
71	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
72	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
73	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
74	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
75	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T1	S1	1B.2
76	pygmy cypress *Hesperocyparis pygmaea*	PGCUP04032			G1	S1	1B.2
77	pygmy manzanita *Arctostaphylos nummularia ssp. mendocinoensis*	PDERI04280			G3?THQ	SH	1B.2
78	round-headed Chinese-houses *Collinsia corymbosa*	PDSCR0H060			G1	S1	1B.2
79	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
80	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
81	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T3	S2	1B.2
82	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
83	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	
84	supple daisy *Erigeron supplex*	PDAST3M3Z0			G2	S2	1B.2
85	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
86	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S3	SC
87	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
88	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S1S2	SC
89	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
90	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
91	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
92	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2

South Fork Noyo River Instream Habitat Enhancement Project
Project Location Map
T18N, R16W, Sections 29, 30, 32, 33
Noyo Hill Quad
Mendocino County



East Branch Little North Fork LWD and Instream Barrier Modification | 2016

Introduction:
The Conservation Fund (Grantee) will implement the East Branch Little North Fork LWD and Instream Barrier Modification. East Branch Little North Fork supports populations of endangered coho salmon. The purpose of the project is to improve habitat in East Branch Little North Fork by adding instream habitat features and by removing a fish passage barrier. Salmonid recovery plans recommend increasing stream habitat complexity in East Branch Little North Fork by installing large woody debris (LWD). Adding LWD to East Branch Little North Fork will enhance pools, increase gravel sorting, and provide increased habitat complexity.

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 25 instream features consisting of 65 pieces of LWD within a 1.3-mile section of East Branch Little North Fork. 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. A second objective of this project is to improve fish passage and stabilize an estimated 650 cubic yards of landslide debris by excavating a landslide which is blocking East Branch Little North Fork. The removal of the blockage will increase access to 0.79 miles of instream habitat and prevent approximately 250 cubic yards of sediment from entering the stream channel.

Project Description:

Location:
The project is located on East Branch Little North Fork beginning at the confluence with Little North Fork and continuing upstream for 1.3 miles, in the County of Mendocino, State of California. The locations of the project boundaries are approximately 39.3427º north latitude, -123.6714º west longitude at the downstream end; and 39.3395º north latitude, -123.6505º west longitude at the upstream end; Township 17 North, Range 16 West, and Section 8, 16 and 17 of the Mathison Peak 7.5 Minute U.S. Geological Survey (USGS) Quadrangle map as depicted in the Project Location Map.

Project Set Up:
Subcontractors for Heavy Equipment (LWD), will operate all equipment during implementation and construct instream LWD features.

Materials:
Approximately 50 streamside trees will be direct felled as large woody debris to be placed in the East Branch Little North Fork and approximately 15 logs will be salvaged from the slide debris for LWD features construction. One hundred bales of straw mulch will be used for erosion control purposes.

Tasks:

Task 1. Install Instream Habitat Features:
Install instream habitat features at 25 locations including 65 pieces of LWD along 1.3 miles of East Branch Little North Fork. Final structure design and placement will be determined by field consultation between the Grantee and the CDFW Grant Manager. Work will consist of the following:

- Trees for LWD structures will be procured through felling riparian trees with a chainsaw and by salvaging from nearby areas.
- Fifty trees will be felled directly into the stream channel and 15 salvaged pieces of LWD will be placed with equipment.
- Location of all project LWD will be documented.
- The minimum length used for unanchored large woody debris is 1.5 times bankfull width.

Task 2. Instream Barrier Modification for Fish Passage:

- Task 2a. Build equipment access route with 321 D Excavator placing temporary crib logs retaining fill on mapped alignment.
- Task 2b. Use heavy equipment and hand laborers to remove LWD from the landslide. If necessary, the stream will be diverted. It is expected that most of the logs on the surface of the slide can be salvaged for use as instream LWD and/or staged for future LWD projects.
- Task 2c. Heavy equipment will be used to reshape the channel following the *Proposed Channel Design* (Attachment 1). Equipment operators will excavate the channel grade down approximately 2 feet to the design grade of 4%. Due to the variable substrate, including numerous large logs, some steps may exceed 6 inches. The stream channel will be excavated to approximately 8 feet wide with the stream banks inclined no steeper than 1:1 (100%). LWD will be installed along the stream banks for scour protection.
- Task 2d. Stabilize excavated sediment by trackwalking with heavy equipment. The compacted area will be no greater than 3 foot thick, with a maximum 6-12 inch lifts. Soils will be blended into surrounding slopes and shaped to disperse runoff. Logs entrenched in the slide as well as some excavated LWD will be placed and used to protect the toe of the remaining landslide debris from lateral scour. Retain upstream pond as additional aquatic habitat.
- Task 2e. Efforts will be made to retain the existing instream pool upstream of the landslide.

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:
Install instream habitat features at 25 locations including 65 pieces of LWD along 1.3 miles of East Branch Little North Fork.

Timelines:
July 1, 2016 through October 31, 2016, and July 1, 2017 through October 31, 2017, move heavy equipment in and remediate passage problem at landslide and install large wood features. Move equipment out and conduct erosion control.

Additional Requirements:
The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured and a "notice to proceed" letter has been received from the Grantor Project Manager. 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.

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 when there is a threat of heavy rains which will cause flooding.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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 native aquatic species from the project area. If the project requires dewatering of the site and the relocation of listed aquatic species, the Grantee will implement the following

measures to minimize harm and mortality to listed species as well as other native aquatic species:

- 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 as approved by the Grantor Project Manager and pursuant to conditions in the USACE Regional General Permit, NMFS Biological Opinion, and project's Lake and Streambed Alteration Agreement (1600 permit).
- 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*.
- Only qualified fisheries biologist that are approved by USFWS and permitted by CDFW under a California Endangered Species Act (CESA) Memorandum of Understanding (MOU) shall handle and relocate CESA listed species.
- All electrofishing shall be performed by a qualified fisheries biologist under the supervision of CDFW and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
- USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the Grantor Project Manager on a form provided by Grantor.

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.*

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.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible species within the Mathison Peak Quad and surrouding quads for East Branch Little North Fork LWD and Instream Barrier Modification, T17N R16W S08, S17, and S16, Mendocino County

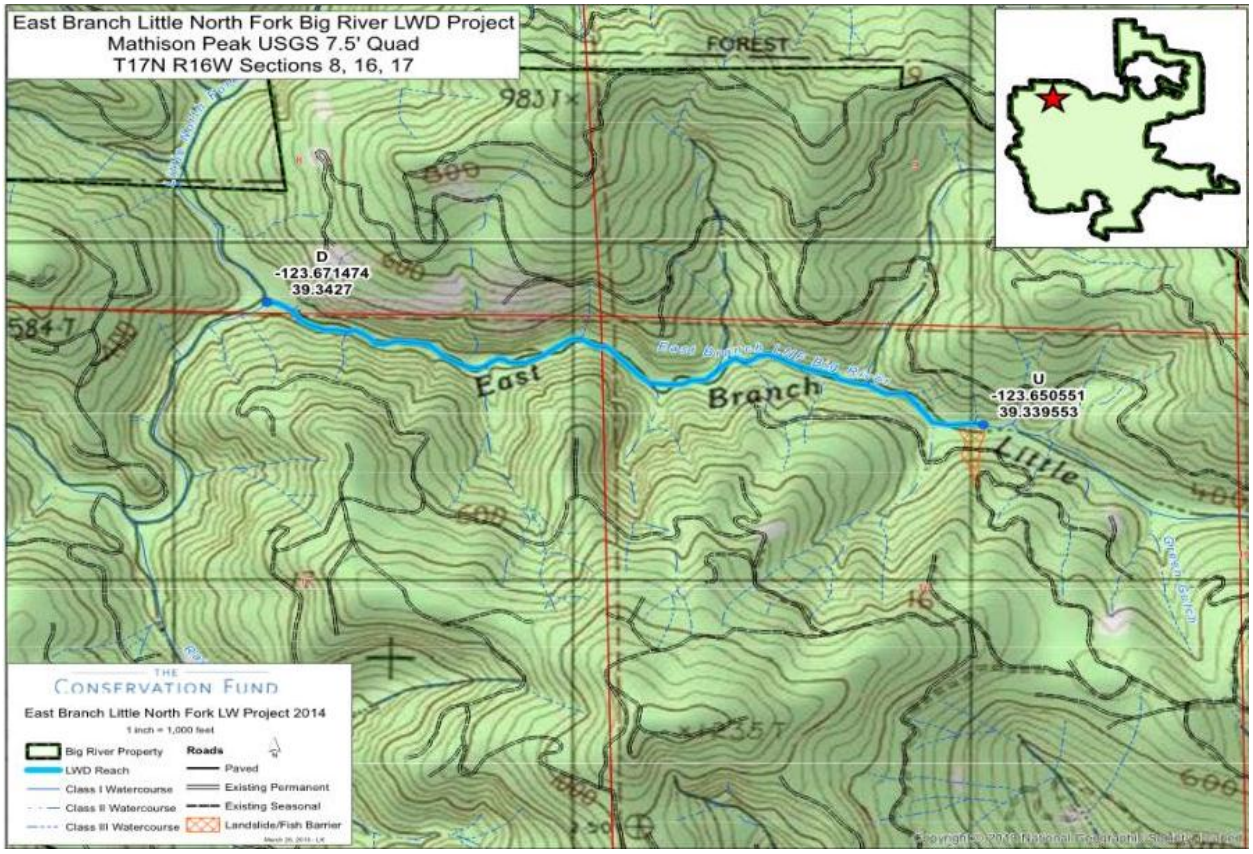
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Baker's goldfields *Lasthenia californica ssp. bakeri*	PDAST5L0C4			G3TH	SH	1B.2
2	Behren's silverspot butterfly *Speyeria zerene behrensii*	IILEPJ6088	Endangered		G5T1	S1	
3	Blasdale's bent grass *Agrostis 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			G2T2	S2	1B.2
23	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
24	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	

	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	S3S4	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	S2	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	S3	2B.2
45	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
46	coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2			G4T2T3	S2S3	1B.2
47	coastal triquetrella *Triquetrella californica*	NBMUS7S010			G2	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
48	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
49	congested-headed hayfield tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T1T2	S1S2	1B.2
50	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
51	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
52	dwarf alkali grass *Puccinellia pumila*	PMPOA531L0			G4?	SH	2B.2
53	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
54	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	
55	great burnet *Sanguisorba officinalis*	PDROS1L060			G5?	S2	2B.2
56	hair-leaved rush *Juncus supiniformis*	PMJUN012R0			G5	S1	2B.2
57	lagoon sedge *Carex lenticularis var. limnophila*	PMCYP037A7			G5T5	S1	2B.2
58	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
59	livid sedge *Carex livida*	PMCYP037L0			G5	SH	2A
60	lotis blue butterfly *Plebejus idas lotis*	IILEPG5013	Endangered		G5TH	SH	
61	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
62	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
63	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
64	northern microseris *Microseris borealis*	PDAST6E030			G5	S1	2B.1
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	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
68	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
69	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
70	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
71	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
72	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T1	S1	1B.2
73	pygmy cypress *Hesperocyparis pygmaea*	PGCUP04032			G1	S1	1B.2
74	pygmy manzanita *Arctostaphylos nummularia ssp. mendocinoensis*	PDERI04280			G3?THQ	SH	1B.2
75	round-headed Chinese-houses *Collinsia corymbosa*	PDSCR0H060			G1	S1	1B.2
76	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
77	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
78	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T3	S2	1B.2
79	small groundcone *Kopsiopsis hookeri*	PDORO01010			G4G5	S1S2	2B.3
80	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
81	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	
82	supple daisy *Erigeron supplex*	PDAST3M3Z0			G2	S2	1B.2
83	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
84	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S3	SC
85	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
86	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S1S2	SC
87	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
88	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
89	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2
90	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3S4	

East Branch Little North Fork LWD and Instream Barrier Modification
Project Location Map
T17N, R16W Section 8, 16, 17
Mathison Peak Quad
Mendocino County



Introduction:

Mendocino Land Trust (Grantee) will implement the Baechtel Creek Riparian and Coho Habitat Enhancement Project. Aquatic habitat in Baechtel Creek has declined significantly over the last 25 years due to excessive sediment input, riparian degradation, and unpermitted summer water diversions. The project will improve complete cattle exclusion riparian fencing along 220 feet of Baechtel Creek, create alternate water sources to address livestock needs, and install native trees and shrubs at four sites where shade is lacking. The purpose of the project is to improve habitat along one half-mile of Baechtel Creek by supplementing on-going efforts to provide short-term and long-term benefits to coho salmon by restoring shade through riparian plating, excluding cattle through fencing and providing alternate water sources for cattle. Baechtel Creek supports populations of coho salmon, Chinook salmon, and steelhead trout.

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 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 exclude cattle from a one half-mile section of Baechtel Creek, plant riparian trees and shrubs, and provide an alternate water source for cattle. The goal of this project is to improve coho habitat by reducing livestock impacts on 0.5 mile of stream, thus increasing riparian canopy cover, resulting in lower summer water temperatures.

Project Description:

Location:

The project is located on Baechtel Creek, tributary to Outlet Creek, tributary to Eel River, in the County of Mendocino, State of California. The project boundaries are located at approximately 39.3794 north latitude, -123.3548 west longitude at the upstream end; and 39.3842 north latitude, -123.3526 west longitude at the downstream end; Township 18 North, Range 14 West, and Section 25 and Township 18 North, Range 13 West and Section 30 of the Willits 7.5 Minute U.S. Geological Survey (USGS) Quadrangle map as depicted in the Project Location Map.

Project Set Up:

The Subcontractor for Fencing and Water System will perform the tasks of installing the fence, water gaps, water line, troughs, and storage tank.

The Subcontractor Agroecologist and the Grantee will participate in plant and browse protector installation. They will monitor the plantings for the duration of this project during spring and summer months, and will install Dri-Water quarts to the plants as needed.

The Subcontractor Ranch Hands will perform all monitoring and maintenance of the water system and fence line for the life of this contract, and at least ten years thereafter. This work includes checking the fence line for breaks from tree fall, and to check the water system regularly from May to October to ensure it is functioning properly. They will also monitor and maintain both water gaps, and will raise/lower them according to the season as appropriate.

Materials:

Fencing components include: 4-point barbed wire, 2-strand smooth wire, 6' T-posts, Prefabricated H-Braces, Prefabricated Corners, and a ranch gate. Water gap fencing components include: Prefabricated H-Brace, 4"x4"x8' steel post (20 gage), 2-strand smooth wire (9 gage), 4-point barbed wire (12.5 gage), Post-crete, 5/16" galvanized cable with hook & loops prefabricated, 2x6x8' redwood boards, clips, Staples, and H-brace components Water system components include: 2" poly line with intake screen, 1,500 gallon tank, 2 water troughs (300 gal), miscellaneous plumbing connectors, float valve, 2 float switches, 2 wildlife escape ramps, gravel for trough foundations.

Tasks:

Task 1. Exclusion Fencing:

Riparian fencing already exists on the north bank, except for a 220-foot section where the cattle cross the northern range land. This section of fencing will be completed and a ranch gate will be installed to allow cattle to be moved from one range to the other. The new section of fence will follow wildlife friendly guidelines (CDFW & NRCS) of smooth wire on bottom and top strands, set at the appropriate height based upon hillslope. The upper water gap has fallen to dis-repair due to high flow events, and no longer excludes livestock from walking upstream. The lower water gap is composed of hog wire panels that catch debris and could impede passage of adult salmonids. A water gap design in use and recently approved (2014) by CDFW exists on Outlet Creek associated with the Caltrans - Willits Bypass Project. This design will be applied to the upper and lower water gap sites on Baechtel Creek. It is fish friendly, with smooth wires on the bottom two strands. The water gap can be lowered into the channel when livestock are present, and can be raised in preparation of high flow events. Fence corners and H-braces will be prefabricated units set with Post-crete.

Task 2. Alternate Water Source Installation:

The ranch will provide water troughs, water tank, and the ranch gate for this project. The ranch hand will monitor and maintain the water system, fencing, and raise/lower the water gaps as appropriate. The water system will take a portion of water from a nearby

spring, which does not have a channel or visible hydrologic connection to the stream system. Water will be piped downhill to the storage tank near the upper water gap. A 2" water line will be used to minimize damage from wildlife (bears especially) in areas where it cannot be buried. The 1,500 gallon storage tank will be equipped with a float valve that will shut off the input when full. Both water troughs will have floating shutoff switches to only activate delivery when there is a draw on the system. Both troughs will have wildlife escape ramps, and the troughs will be set upon gravel foundations, as recommended by the Natural Resources Conservation Service.

Task 3. Riparian Planting:

Planting white alder and native willows at three sites will promote re-establishment of the riparian canopy in areas where high survival can be achieved. Installing coyote brush on the upslope site will begin the plant succession process and aid in stabilizing the bank. Dri-Water will be needed for the first two years to ensure at least 80% survival. Each Dri-Water quart can supply water to a plant for up to three months, depending upon weather conditions. Monitoring and replacing the Dri-Water quarts will occur twice each summer to ensure plant survival. Agroecologist and the Grantee will participate in plant and browse protector installation. Agroecologist will monitor the plantings for the duration of this project during spring and summer months, and will install Dri-Water quarts to the plants as needed.

Deliverables:

Approximately 220 feet of wildlife friendly riparian fencing, one new gate and two water gaps that can be raised/lowered according to season (Upper - 80ft, Lower - 40 ft). One hundred native riparian plantings, protected, and watered. One water system from spring to tank to trough including: 1,500 gallon tank, two 300 gallon troughs with wildlife escape ramps. Twenty monthly reports of project and fiscal status, two annual reports which include: accomplishments, fiscal status, photo monitoring, implementation checklists. One final report which includes: accomplishments, fiscal status, photo monitoring, implementation checklists Monthly progress reports throughout life of contract.

Timelines:

September 1, 2016 through October 31, 2016, the Subcontractor for Fencing and Water System will implement project as designed: fencing, water gaps, water system installation. Subcontractor Ranch Hand will monitor the fence, water gap, and water system from spring to trough to ensure proper function and no water wasting, and will perform repairs as needed.

January 1, 2017 through March 31, 2017, Subcontractor Agroecologist and Grantee will install plants and browse protectors. Subcontractor Agroecologist will monitor plantings and will install Dri-Water quarts as needed. Subcontractor Ranch Hand will monitor fence line and repair breaks prior to introduction of livestock to landscape. They will also lower/raise the water gaps as appropriate to the season and livestock presence.

April 1, 2017 through October 31, 2017, Subcontractor Agroecologist will monitor plantings and will install Dri-Water quarts as needed.

January 1, 2018 through March 31, 2018, Subcontractor Agroecologist will monitor plantings and will install Dri-Water quarts as needed.

Additional Requirements:

The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured and a "notice to proceed" letter has been received from the Grantor Project Manager. 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.

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 when there is a threat of heavy rains which will cause flooding.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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.

Supply an agreement detailing that the landowner or proponent 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.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible species within the Willits Quad and surrounding quads for Baechtel Creek Riparian and Coho Habitat Enhancement Project, T18N R14W S25 and T18N R13W S30, 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	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
5	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
6	Mayacamas popcornflower *Plagiobothrys lithocaryus*	PDBOR0V0P0			GH	SH	1A
7	Milo Baker's lupine *Lupinus milo-bakeri*	PDFAB2B4E0		Threatened	G1Q	S1	1B.1
8	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
9	Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080			G5	S2S3	2B.2
10	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
11	Roderick's fritillary *Fritillaria roderickii*	PMLIL0V0M0		Endangered	G1Q	S1	1B.1
12	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
13	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2	SC
14	Valley Oak Woodland	CTT71130CA			G3	S2.1	
15	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
16	coast range bindweed *Calystegia collina ssp. tridactylosa*	PDCON04036			G4T1	S1	1B.2
17	deep-scarred cryptantha *Cryptantha excavata*	PDBOR0A0W0			G1	S1	1B.3
18	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
19	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
20	glandular western flax *Hesperolinon adenophyllum*	PDLIN01010			G3	S3	1B.2
21	grass alisma *Alisma gramineum*	PMALI01010			G5	S3?	2B.2
22	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible species within the Willits Quad and surrounding quads for Baechtel Creek Riparian and Coho Habitat Enhancement Project, T18N R14W S25 and T18N R13W S30, Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
23	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
24	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
25	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
26	scabrid alpine tarplant *Anisocarpus scabridus*	PDASTDU020			G3	S3	1B.3
27	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S4	
28	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
29	watershield *Brasenia schreberi*	PDCAB01010			G5	S3	2B.3
30	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
31	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2
32	yellow warbler *Setophaga petechia*	ABPBX03010			G5	S3S4	SC
33	yellow-breasted chat *Icteria virens*	ABPBX24010			G5	S3	SC

Baechtel Creek Riparian and Coho Habitat Enhancement Project
Project Location Map
T18N, R14W, Section 25; T18N, R13W, Section 30
Willits Quad
Mendocino County

Introduction:

The California Conservation Corps (Grantee) will implement the Little North Fork Navarro River Coho Stream Habitat Enhancement Project. Little North Fork Navarro River and Bottom Creek, the two creeks included in this project, support populations of coho salmon and steelhead trout. The purpose of the project is to improve habitat in Little North Fork Navarro River and Bottom Creek. Salmonid recovery plans recommend increasing stream habitat complexity by installing large woody debris (LWD). Adding LWD to Little North Fork Navarro and Bottom Creek will enhance pools, increase gravel sorting, and provide increased habitat complexity.

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 33 instream features consisting of 65 pieces of LWD within a 1,210-foot section of Little North Fork Navarro River and a 2,400-foot section of Bottom 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:

Grantee will perform work on foot section of Little North Fork River, beginning 4.4 miles upstream of the confluence with the North Branch North Fork Navarro River and continuing upstream for 1,210 feet. The locations of the project boundaries are approximately 39.19802º north latitude, -123.47549º west longitude at the downstream end; and 39.19736º north latitude, -123.47149º west longitude at the upstream end; Township 16 North, Range 14 West, Section 31. Grantee will also perform work on a section of Bottom Creek, beginning at the confluence with Little North Fork Navarro River and continuing upstream 2,400 feet. The locations of the project boundaries are approximately 39.19860º north latitude, -123.47949º west longitude at the downstream end; and 39.20431º north latitude, -123.47818º west longitude at the upstream end; Township 16 North, Range 15 West, Section 36. This project is located on the Bailey Ridge 7.5 Minute U.S. Geological Survey (USGS) Quadrangle map as depicted in the Project Location Map.

Project Set Up:
Grantee Laborers will provide the hand labor for the instream LWD structures. Mendocino Redwood Company staff will move logs to staging area(s) using heavy equipment as needed for structure construction.

Materials:
Sixty-five pieces of LWD will be used to construct 33 structures. Other materials purchased and used during the project include the following:
Laborer Meals (food): To feed Corps Member crews while on spike. Spike Supplies (briquettes, propane, etc.): For preparing Corps Member meals while on spike. Porta-Potty Rental: For environmental protection, health & safety services for crews on spike. Heavy Equipment: For transporting/staging of logs/root-wads for construction of in-stream structures. Generator: For operating power equipment used during in-stream structure anchoring process. Rebar, nuts, washers, cable clamps, epoxy glue, and 5/8" Galvanized Cable: Used for anchoring in-stream structures. Wood Drill Bits: Used for drilling logs/root-wads/trees during in-stream structure anchoring process Rock Drill Bits: Used for drilling boulders/bedrock during in-stream structure anchoring process. Hand Tools (gloves, hard hats, safety glasses, hacksaws, bit extensions, shear-pins, etc.). Safety equipment, tools and tool supplies used during project implementation. Office Supplies (paper, printer supplies, etc.): Used for creating designs, work-plans, all pertinent documents relating to the project, reporting.

Tasks:

Task 1. Install Instream Habitat Features:
Install instream habitat features at 33 locations including 65 pieces of large wood/root wads along 1,210 feet of Little North Fork Navarro River and 2,400 feet of Bottom Creek. Final structure design and placement will be determined by field consultation between the Grantee and the CDFW Grantor Project Manager. Work will consist of the following:

- Heavy equipment operators will deliver logs to an approved staging area as needed.
- 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 and bedrock. Anchoring materials will consist of 1" threaded rebar, cable, nuts and washers, and waterproof epoxy.
- The minimum length used for unanchored large woody debris is 1.5 times bankfull width.

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:
The specific objective of this project is to create 33 instream features consisting of 65 pieces of LWD within a 1,210-foot section of Little North Fork Navarro River and a 2,400-foot section of Bottom Creek.

Timelines:
June 15, 2016 through October 31, 2016, June 15, 2017 through October 31, 2017, June 15, 2018 through October 31, 2018, June 15, 2019 through October 31, 2019, install LWD features within approved project reach. Erosion control will be installed as project features are completed.

Additional Requirements:
The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured and a "notice to proceed" letter has been received from the Grantor Project Manager. 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.

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 when there is a threat of heavy rains which will cause flooding.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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.*

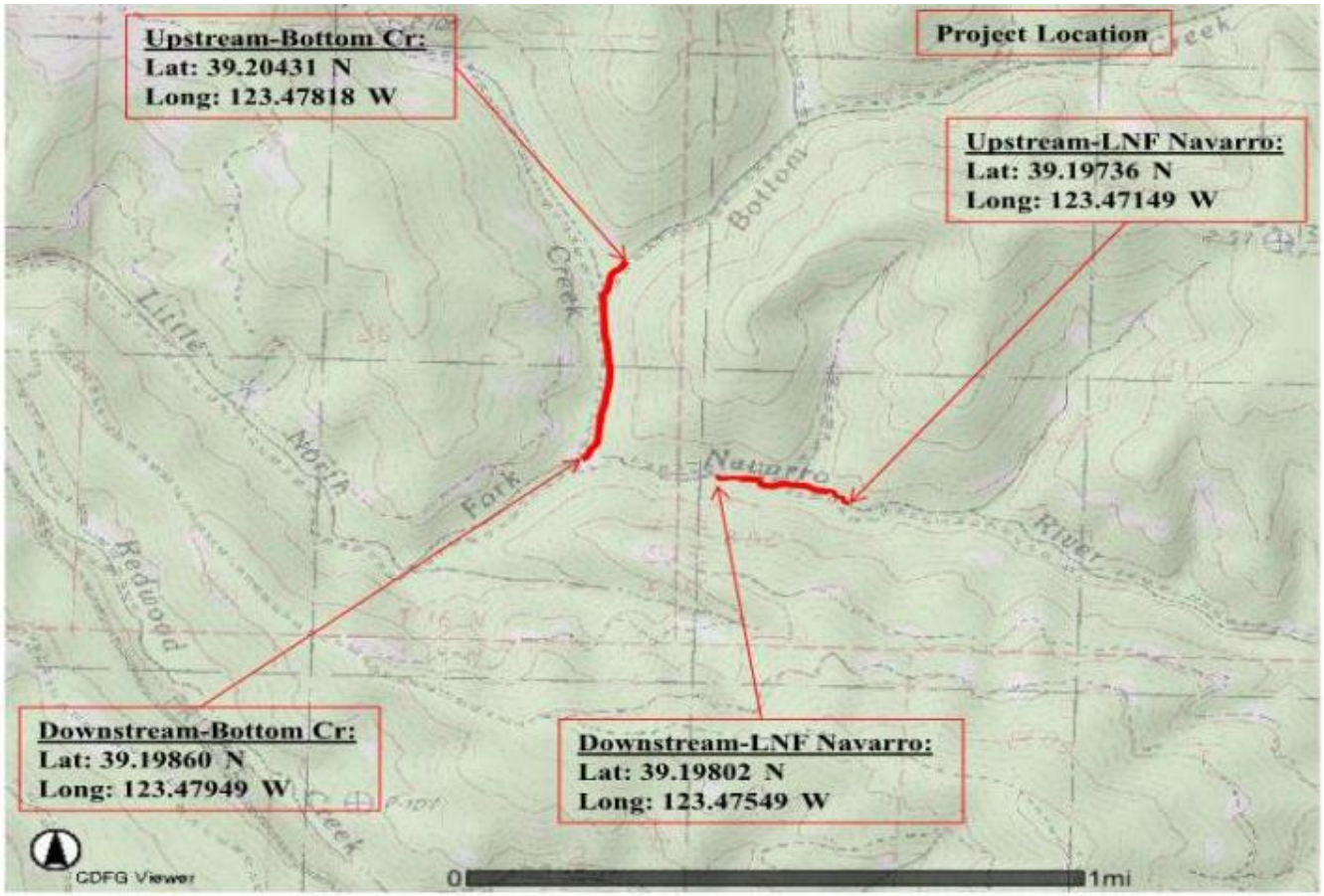
California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible species within the Bailey Ridge Quad and surrounding quads for Little North Fork Navarro River Coho Stream Habitat Enhancement Project, T16N R15W S36 and T16N R14W S31, Mendocino County

	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	S3S4	SC
11	Pomo bronze shoulderband *Helminthoglypta arrosa pomoensis*	IMGASC2033			G2G3T1	S1	
12	Raiche's manzanita *Arctostaphylos stanfordiana ssp. raichei*	PDERI041G2			G3T1	S1	1B.1
13	Roderick's fritillary *Fritillaria roderickii*	PMLIL0V0M0		Endangered	G1Q	S1	1B.1
14	Santa Cruz clover *Trifolium buckwestiorum*	PDFAB402W0			G2	S2	1B.1
15	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
16	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S3	2B.2
17	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
18	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
19	glandular western flax *Hesperolinon adenophyllum*	PDLIN01010			G3	S3	1B.2
20	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
21	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
22	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S2	1B.2
23	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC

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 Little North Fork Navarro River Coho Stream Habitat Enhancement Project, T16N R15W S36 and T16N R14W S31, Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
25	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
26	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	
27	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
28	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
29	watershield *Brasenia schreberi*	PDCAB01010			G5	S3	2B.3
30	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
31	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2

Little North Fork Navarro River Coho Stream Habitat Enhancement Project
Project Location Map
T16N, R14W Section 31, and T16N, R15W, Section 36
Bailey Ridge Quad
Mendocino County



= Project Reach

Introduction: The Mendocino County Resource Conservation District (MCRCD) will treat six sites along the west bank riparian road of Grubb Creek to reduce chronic delivery and the potential for catastrophic sediment delivery by installing four properly sized culverts, constructing drainage improvements at two existing properly sized culverts, spreading native grass seed and rice straw on disturbed soils, and monitoring features. This project is necessary as the riparian road along Grubb Creek has been a direct contributor of sediment to the channel for decades, and reducing that volume will benefit salmonid spawning and rearing habitat. Grubb Creek maintains ample cool water for summer rearing, yet is limited by the amount of complex pool habitat and riffles needed to support a robust population of juvenile steelhead. Also, Grubb Creek is a significant contributor of cool water in summer to Tenmile 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 Salmonid Stream Habitat Restoration Manual* Part X Flosi et al 2002.

Objective: The objective of this project is to improve natural drainage and install properly sized culverts on a riparian road to reduce sediment input and potential for catastrophic road failure into Grubb Creek, tributary to Tenmile Creek, tributary to South Fork Eel River. .

Project Description:

Location: Grubb Creek is a tributary to Tenmile Creek approximately four miles upstream from where Tenmile Creek flows into the South Fork Eel River. project includes six features on the west side of Grubb Creek over 1/2 mile of road, approximately 1/4 mile upstream from its confluence with Tenmile Creek. The downstream extent of work (feature 1) is at 39.76956000 north latitude: 123.57953000 west longitude, and the upstream extent of work (feature 6) is at 39.77495000: -123.58210000 west longitude.

Project Set Up: The MCRCD will administer this project to ensure completion according to agreement specifications. The Executive Director will review and approve subcontracts, monthly/annual/final reports, and permit applications. The Business Manager will set up the filing and account system for the project, perform the bookkeeping tasks of invoicing and tracking, and compile fiscal information required for the annual and final reports. The Conservation Director will assist with permit applications, monitoring protocol, and annual/final report completion. The Project Director will coordinate all the project details, secure the subcontractors and materials, serve as communications liaison with the landowner and agency representatives, and complete monthly/annual/final reports. The Professional Geologist Subcontractor will oversee construction. The General Engineering Subcontractor will implement construction activities.

Materials: Corrugated metal culverts (48", 60", 72"), a double-walled plastic culvert (24"), 1/4 ton rip rap and quarry cobble, quarry supplied and pit run road base, native grass seed, rice straw, and burlap wrapped straw wattles.

Tasks:

Task 1: Review, approve, and secure agreements and subcontracts associated with this project.

Task 2: Complete monthly reporting including associated bookkeeping tasks and record keeping, project status update and monitoring reports.

Task 3: Submit a Notification of Lake or Streambed Alteration to CDFW.

Task 4: The Project Director will schedule site visits and serve as guide for rare plant and archaeological surveys as required for California Environmental Quality Act compliance.

Task 5: The Project Director will solicit bids for construction. The Project Director and Professional Geologist Subcontractor will rank the bids and provide a recommendation to the Executive Director for subcontracting with the General Engineering Subcontractor. Ensure the tires, tracks, and chassis on vehicles and equipment brought to the project are free of mud to prevent the spread of seeds from exotic invasive plant species.

Task 6: The Project Director will order materials for the project.

Task 7: The MCRCD will send the Notice to Proceed to subcontractors once approved by CDFW.

Task 8: The Professional Geologist Subcontractor will complete the pre-implementation and implementation checklists and establish photo-monitoring points as described in CDFG protocols.

Task 9: With oversight provided by the Professional Geologist Subcontractor, the General Engineering Subcontractor will treat the sites according to design. All culvert installations will occur when the channels are dry.

Task 10: During construction at work sites, the landowner will operate excavator to load pit run road base into the General Engineering Subcontractor's dump truck for use.

Task 11: Once site construction is completed, native grass seed and rice straw will be spread on disturbed soils to promote root growth and prevent mobilization of sediment to the channel. The Landowner and assistant will spread native grass seed and rice straw at completed work sites. If straw wattles are needed at the inlet slopes of sites 5 and 6, the General Engineering Subcontractor will perform that task.

Task 12: The Professional Geologist Subcontractor will complete the implementation checklists during construction according to CDFG protocol.

Task 13: The Professional Geologist Subcontractor will complete the post-implementation checklist and photo-monitoring after construction is complete.

Task 14: Project Director, Executive Director and Conservation Director complete and submit annual report to CDFW.

Task 15: Project Director conduct post-project photo monitoring the spring following implementation to document project performance after a season of rainfall has occurred.

Task 16: Project Director write and submit a draft annual report to CDFW for review, incorporate any changes/suggestions, and submit the annual report. Executive Director and Conservation Director review and edit the draft before submittal.

Task 17: Project Director write and submit a draft final report to CDFW for review, incorporate any changes/suggestions, and then submit the final report. Executive Director and Conservation Director review and edit the draft before submittal.

Deliverables: Project deliverables include:

- At least 45 feet of improved, rock-lined inboard ditch, and slope stabilization at feature 1. 2.
- One armored inlet, one armored dip, and one critical dip at feature 2. 3.
- Replace one crossing with 24" x 40' double walled plastic culvert and one critical dip at feature 3. 4.
- Replace one crossing with a 72" x 40' metal culvert, with two rolling dips at feature 4.
- Replace one crossing with a 60" x 60' metal culvert at feature 5. 6.
- Replace one crossing with a 48" x 40' culvert, excavate 60 cubic yards perched fill, and armor inlet/outlet at feature 6.
- Monthly status reports during life of agreement.
- Two annual reports, and
- One final report.

Timelines:

2016

July – August

Task 1: Establish agreement with CDFW; Set up filing and accounting for project; Subcontract with Professional Geologist Subcontractor for services; Communicate with Landowner about project status during entire project.

Task 2: Submit monthly reports.

Task 3: Submit Notification of Lake or Streambed Alteration to CDFW.

Task 4: Schedule site visit for rare plant and archaeological surveys.

Task 5: Solicit bids for construction, and rank and select General Engineering Subcontractor.

Task 6: Order materials and schedule delivery for project.

Task 7: Send Notice to Proceed to Subcontractors.

Task 8: Complete pre-implementation and implementation checklists and initial photo monitoring.

September – October
Task 9: Implement project as designed.
Task 10: Landowner will assist project with use of excavator to provide pit run road base.
Task 11: Landowner and assistant will spread native grass seed and rice straw at sites with exposed soil.
Task 12: Professional Geologist Subcontractor will complete the implementation checklist.
Task 13: Professional Geologist Subcontractor will complete the post-implementation checklist and photo monitoring after construction.

November - December
Task 14: Complete and submit draft and final annual report to CDFW.

2017
January – March
Task 15: Conduct photo monitoring after several rainfall events have occurred.
Task 16: Complete and submit draft final report to CDFW.
Task17: Incorporate recommended changes and submit final report to CDFW.

Additional Requirements:

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.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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:

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

b. 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*.

c. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.

d. 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.

e. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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.

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*.

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.

Sites that 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.

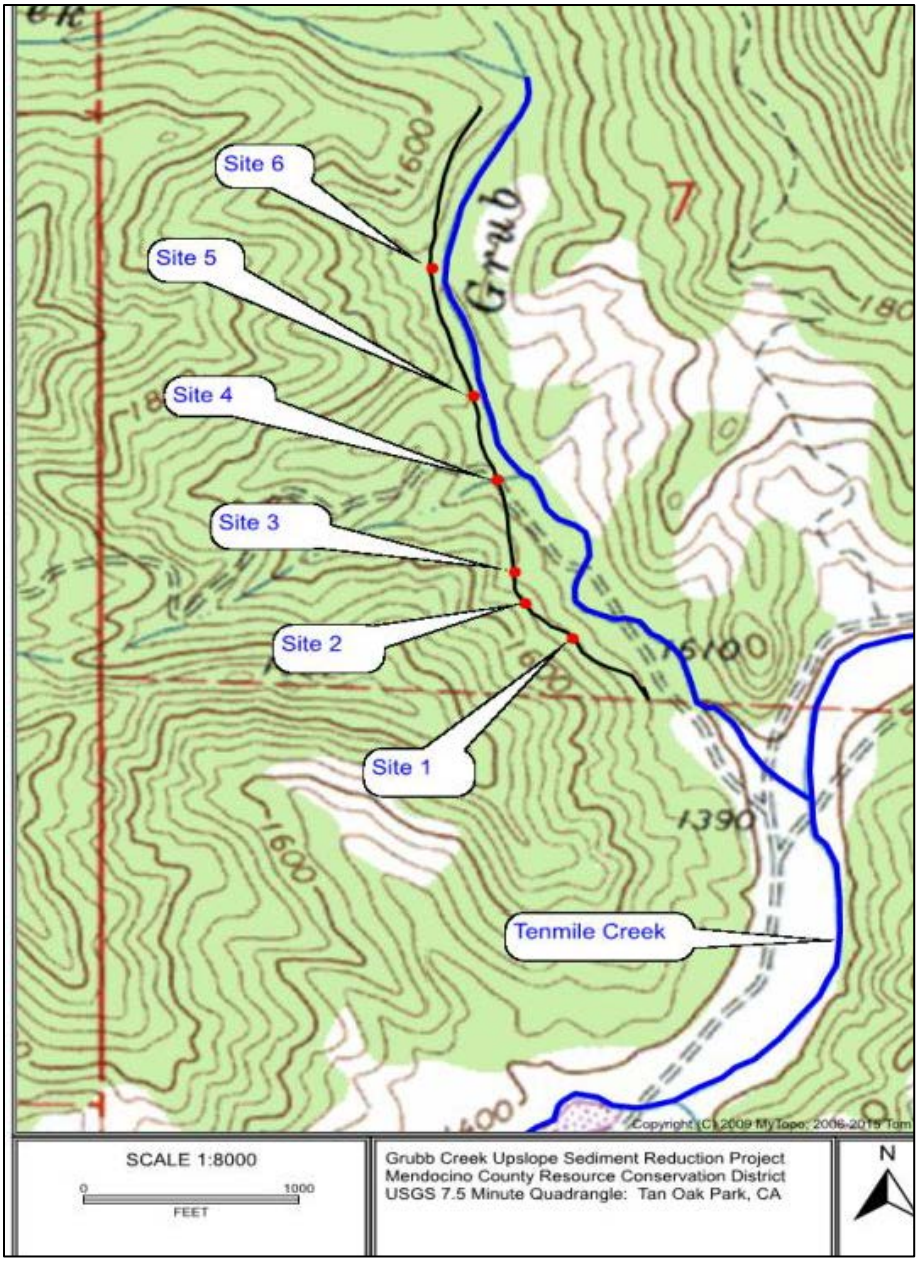
The landowner or responsible party must sign an access agreement stating they agree to maintain the erosion control project for a period of not less than 10 years. Maintenance will consist of repair to the road or stream crossing to a level that will effectively reduce sediment from entering the stream. 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.

California Department of Fish and Wildlife
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Tan Oak Park, Bell Springs, Updegraff Ridge, Iron Peak, Laytonville, Cahto Peak, Lincoln Ridge, Leggett, and Noble Butte Quads for Grubb Creek Upslope Sediment Reduction Project, T 22N, R 15W, S07, Tan Oak Park Quad, Mendocino County, United States

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Baker's meadowfoam *Limnanthes bakeri*	PDLIM02020		Rare	G1	S1	1B.1
2	Butte County morning-glory *Calystegia atriplicifolia ssp. buttensis*	PDCON04012			G5T3	S3	4.2
3	California floater *Anodonta californiensis*	IMBIV04020			G3Q	S2?	
4	Crotch bumble bee *Bombus crotchii*	IIHYM24480			G3G4	S1S2	
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	Konocti manzanita *Arctostaphylos manzanita ssp. elegans*	PDERI04271			G5T3	S3	1B.3
8	Mcdonald's rockcress *Arabis mcdonaldiana*	PDBRA06150	Endangered	Endangered	G3	S3	1B.1
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 goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
16	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S3S4	SC
17	Raiche's manzanita *Arctostaphylos stanfordiana ssp. raichei*	PDERI041G2			G3T1	S1	1B.1
18	Red Mountain catchfly *Silene campanulata ssp. campanulata*	PDCAR0U0A2		Endangered	G5T3Q	S3	4.2
19	Red Mountain stonecrop *Sedum laxum ssp. eastwoodiae*	PDCRA0A0L1	Candidate		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	S2	SC
22	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
23	Vine Hill ceanothus *Ceanothus foliosus var. vineatus*	PDRHA040D6			G3T1	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S3	2B.2
25	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
26	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
27	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
28	grass alisma *Alisma gramineum*	PMALI01010			G5	S3?	2B.2
29	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
30	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
31	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G4G5	S3?	2B.3
32	robust false lupine *Thermopsis robusta*	PDFAB3Z0D0			G2	S2	1B.2
33	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
34	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	
35	watershield *Brasenia schreberi*	PDCAB01010			G5	S3	2B.3
36	western pearlshell *Margaritifera falcata*	IMBIV27020			G4G5	S1S2	
37	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
38	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2

Grubb Creek Upslope Sediment Reduction Project
Project Location Map
T 22N, R 15W S 07
Tan Oak Park Quad
Mendocino County



Introduction: The Mendocino Resource Conservation District (MCRCD) will install riparian fencing along both banks of 1.25 miles of Big Rock Creek, create an alternate water source to address livestock needs, and install native trees at eight sites where shade is lacking. The project is necessary to protect and enhance aquatic habitat along a stream reach of moderate to good quality that is providing long term refugia for spawning and rearing of coho salmon. This project provides a unique opportunity to work with a cooperative, supportive landowner to create high quality salmonid habitat in a headwater stream.

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 VII and XI (Flosi et al 1998 and 2002)

Objectives: The goal of this project is to eliminate livestock access and impacts to the entire stream reach as it flows through the property. The objectives of this project include:

- To achieve 100% canopy cover in future years along the entire length of the stream as it flows through the ranch, resulting in lower summer water temperatures beneficial to juvenile coho salmon and steelhead trout.
- Promote natural recovery of the riparian and aquatic community along 1.25 miles of coho bearing Big Rock Creek by installing riparian fencing and alternative stock water for livestock, and revegetating targeted areas along the riparian corridor.
- Prevent livestock from accessing the channel for stock water and browse. Through removal of livestock from the riparian corridor, increase plant productivity, height and density, and canopy cover, leading to lower stream temperature. By eliminating livestock access to riparian areas, also reduce sediment inputs to the channel and minimize filling of pool habitats.
- Install 50 Douglas fir and 50 alder saplings at four sites to increase canopy cover over time and improving riparian habitat.

Project Description:

Location: Big Rock Creek flows into Tenmile Creek from the west, approximately four miles north of Laytonville, Mendocino County. The downstream extent of the project is approximately one mile upstream of the confluence of Big Rock Creek with Tenmile Creek. The mouth of Big Rock Creek is approximately 9.5 miles upstream from the confluence of Tenmile Creek with the South Fork Eel River. The downstream extent of the fencing project on Big Rock Creek is at 39.72970000 north latitude: 123.52720000 west longitude. The upstream extent of the fencing project on Big Rock Creek is located at 39.71270000 north latitude: 123.53375600 west longitude.

Project Set Up: The MCRCD will administer this project to ensure completion according to Agreement specifications. The Executive Director will review and approve the Agreement and subcontracts, monthly/annual/final reports, and permit applications. The Business Manager will set up the filing and account system for the project, perform bookkeeping tasks of invoicing and tracking, and compile fiscal information required for the annual and final reports. The Conservation Program Director will assist with permit applications, development of the monitoring protocol, and annual/final report completion. The Project Manager will coordinate all the project details, secure the Subcontractors and materials, serve as communications liaison with the landowner and agency representatives, and complete monthly/annual/final reports. The Solar Subcontractor will order and secure the parts and install the solar powered system to deliver water to the storage tank. The Fencing Subcontractor will install the fence, water gaps, and gates. The General Engineering Subcontractor will dig the ditch, install the water line and troughs, connect the system to the storage tank, install gravel for bases of the water troughs, and armor the cattle crossing site.

Materials: Riparian fencing components include 4-point barbed wire (12.5 gage), 2-strand smooth wire (9 gage), 6' T-posts, 1 7/8" x 10' steel posts, prefabricated H-Braces, prefabricated corners, ranch gates, and associated clips and fasteners. Water gap fencing components include prefabricated H-Brace, 4"x4"x8' steel post (20 gage), 2-strand smooth wire (9 gage), 4-point barbed wire (12.5 gage), Post-crete, 5/16" galvanized cable with hook & loops prefabricated, 2x6x8' redwood boards, clips, staples, and H-brace components. Water system components include solar panels, cables for panels, pump, pump control box, ground cable, miscellaneous components, float switch, 2,500 gallon tank, 1.5" poly line, 1.5" T connectors and other plumbing components, solar foundation and mounting, galvanized pipe, concrete, brackets, water troughs (300 gal structural foam), float valves, wildlife escape ramps, gravel for troughs. The cattle crossing will require approximately 20 cubic yards of clean cobble/gravel. The ranch will provide two gates for the cattle crossing site.

Tasks:

Task 1: Review, approve, and secure the Agreement and Subcontracts associated with this project.

Task 2: Monthly reporting will include associated bookkeeping tasks and record keeping, project status update and monitoring reports.

Task 3: Submit a Notification of Lake or Streambed Alteration to CDFW.

Task 4: The Project Manager will schedule site visits and serve as guide for rare plant and archaeological surveys as required for California Environmental Quality Act (CEQA) compliance.

Task 5: The Project Manager will solicit bids for the General Engineering Subcontractor. The Project Manager and the Conservation Program

Director will rank the bids and provide a recommendation to the Executive Director. Ensure the tires, tracks, and chassis on vehicles and equipment brought to the project are free of mud to prevent the spread of seeds from exotic invasive plant species.

Task 6: The Solar Subcontractor will order and secure the parts and install the solar powered system to deliver water to the storage tank.

Task 7: Draft and finalize subcontracts with Solar Subcontractor, Fencing Subcontractor and General Engineering Subcontractor.

Task 8: Send the Notice to Proceed to the Solar Subcontractor, the Fencing Subcontractor and the General Engineering Subcontractor once approved by CDFW.

Task 9: The Fencing Subcontractor will install the fence, water gaps, and gates on both sides of Big Rock Creek. Riparian fencing will be installed according to specifications published by the Natural Resources Conservation Service (NRCS) and CDFW which include set back of at least 35 feet from stream bank, and wildlife friendly top/bottom wires at defined heights to allow for safe passage. Fence corners and H-braces will be prefabricated units set in the ground with Post-crete. A pneumatic driver is necessary to install the 10-foot posts. Water gaps, where the fence crosses the creek, at the upstream and downstream ends of the treatment reach will follow a design approved by CDFW.

The General Engineering Subcontractor will dig the ditch, install the water line and troughs, and connect the system to the storage tank. One stream crossing will be created to provide livestock access to the northern rangeland. Each side of the riparian fence will be gated at this crossing so cattle can be driven through when necessary. The gates will be closed when cattle are not being moved between pastures. The General Engineering Subcontractor will also place gravel for bases of the water troughs and armor at the cattle crossing site. The ranch will provide pit run, clean cobble and gravel to armor the approaches and crossing to minimize soil disturbance when livestock are moved between pastures.

The water system will utilize a solar powered pump to draw water from a nearby reservoir to a 2,500 gallon storage tank. The storage tank will supply water to eight water troughs. An automatic shutoff valve will deactivate the pump when the tank is full. Each trough will have a shutoff float so water is only delivered when there is demand. Each trough will be equipped with a wildlife escape ramp as defined by the NRCS. The troughs will all be placed on a pad of pit run gravel supplied by the landowner. A water line will be run from the water tank to the troughs. Lateral lines will be connected to the main line to provide troughs with water on the north side of Big Rock Creek. The Solar Subcontractor will install the solar powered pump and the water tank. The Solar

Subcontractor will introduce the water system to the Alder Springs Vineyard Ranch Hands (Ranch Hands) so they know how to operate, maintain, and trouble-shoot the system to ensure proper operations.

Task 10: The Project Manager, Executive Director and Conservation Program Director complete and submit draft and annual report to CDFW.

Task 11: The Project Manager will install the trees and browse protectors.

Task 12: The Project Manager will conduct post-project photo monitoring the spring following implementation to document project performance and plant status.

Task 13: The Project Manager will monitor plantings and replace time-released irrigation gel quarts, as needed.

Task 14: The Project Manager will write and submit a draft annual report to CDFW for review, incorporate any changes/suggestions and then submit the annual report. The Executive Director and Conservation Program Director will review and edit the draft before submittal.

Task 15: The Project Manager will monitor plantings and replace time-released irrigation gel quarts as needed.

Task 16: The Project Manager will write and submit the second draft annual report to CDFW for review.

Task 17: The Project Manager will write and submit a draft final report to CDFW for review, incorporate any changes/suggestions and then submit the final report. The Executive Director and Conservation Program Director will review and edit the draft before submittal.

Deliverables: The project will include the following deliverables:

- 1.25 miles of wildlife friendly riparian fencing on each side of Big Rock Creek
- 1 armored cattle crossing with two gates
- 2 water gaps that can be raised/lowered according to season
- 7 water troughs with wildlife escape ramps
- 1 solar powered water system
- 1 2,500 gallon storage tank
- 100 native trees planted, protected, and watered.
- 2 annual reports
- 1 final report including specific reporting metrics.

Timelines: The project will be completed according to the following timeline:

2016

July - August

Task 1: Review, approve, and secure Agreements and subcontracts associated with this project, and communicate with Ranch Manager about project status throughout life of project.

Task 2: Monthly reporting will include associated bookkeeping tasks and record keeping, project status update and monitoring reports.

Task 3: Submit a Notification of Lake or Streambed Alteration to CDFW.
Task 4: The Project Manager will schedule site visits and serve as guide for rare plant and archaeological surveys as required for CEQA compliance.
Task 5: The Project Manager will solicit bids for the General Engineering Subcontractor. The Project Manager and Conservation Program Director will rank the bids and provide a recommendation to the Executive Director.
Task 6: The Solar Subcontractor will order and secure the parts and install the solar powered system to deliver water to the storage tank.
Task 7: Draft and finalize subcontracts with the Solar Subcontractor, Fencing Subcontractor and General Engineering Subcontractor.

October - December
Task 9: The Fencing Subcontractor will install the fence, water gaps, and gates on both sides of Big Rock Creek. The General Engineering Subcontractor will dig the ditch, install the water line and troughs, and connect the system to the storage tank. The General Engineering Subcontractor will also place gravel for bases of the water troughs and armor at the cattle crossing site. The Solar Subcontractor will install the solar powered pump and the water tank. The Solar Subcontractor will introduce the water system to the Alder Springs Vineyard Ranch Hands.
Task 10: Complete and submit draft annual and annual report to CDFW.

2017
January - October
Task 11: Install the trees and browse protectors.
Task 12: Conduct post-project photo monitoring in spring to document project performance and plant status.
Task 13: Monitor plantings and replace time-released irrigation gel quarts, as needed.

November - December
Task 14: Write and submit a draft and annual report to CDFW for review and approval.

2018
January - April
Task 15: Monitor plantings and replace time-released irrigation gel quarts, as needed. Contact Ranch Manager to ensure fence line has been checked and water system is functioning. Perform photo-monitoring according to CDFG protocol.

May - October
Task 15: Monitor plants and install time-released irrigation gel quarts, as needed. Perform photo-monitoring.

November - December
Task 16: Write and submit draft annual and annual report to CDFW for review.

2019
January - March
Task 16: Write and submit a draft final report to CDFW for review, incorporate any changes/suggestions and then submit the final report.

Additional Requirements:

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.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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 insure the best chance of survival of the seedlings.

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.

California Department of Fish and Wildlife

Natural Diversity Database

Selected Elements by Common Name - Portrait

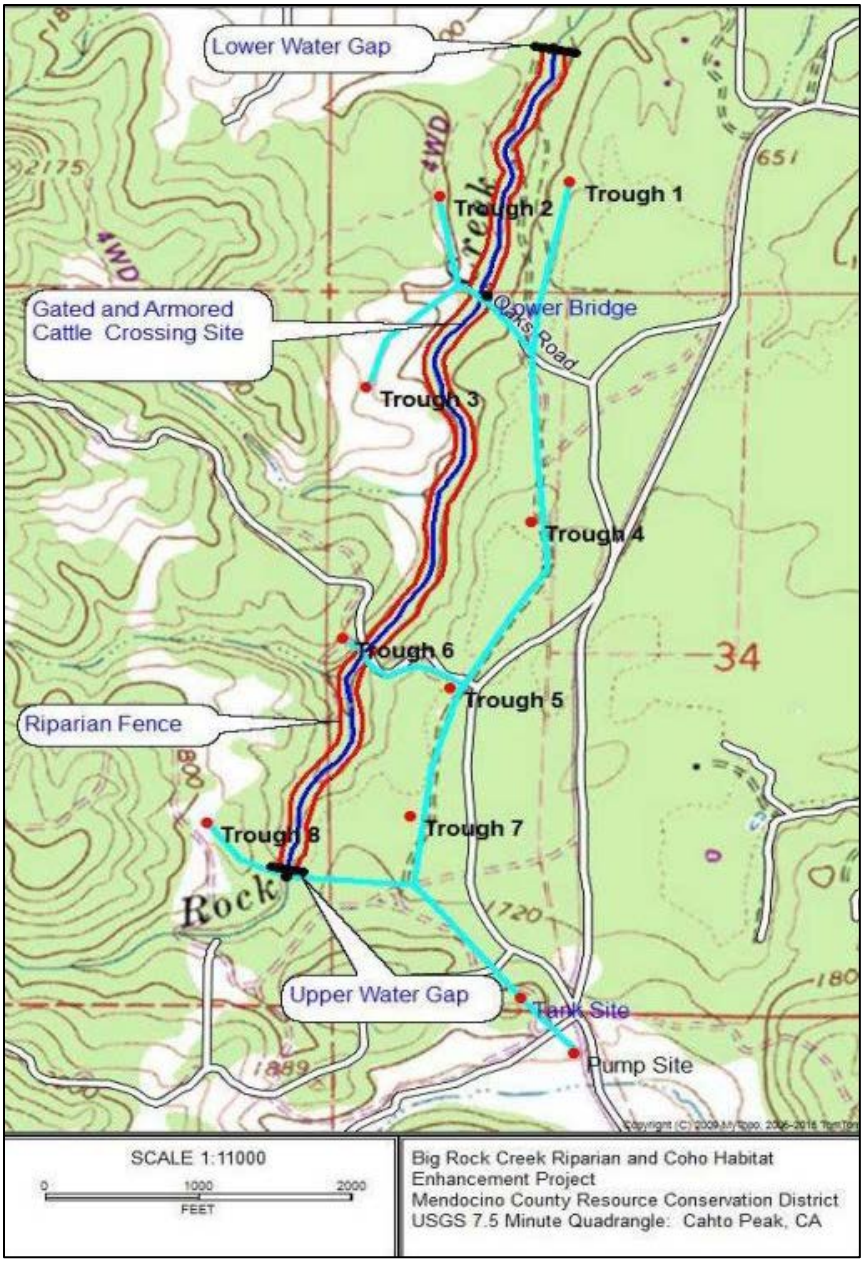
Possible Species within the Cahto Peak, Tan Oak Park, Iron Peak, Laytonville, Longvale, Sherwood Peaks, Dutchmans Knoll, Lincoln Ridge, and Leggett Quads for Big Rock Creek Riparian and Coho Habitat Enhancement Project, T 22N, R 15 W, S 27 (downstream) & S 33 (upstream), Cahto Peak, Mendocino County, United States

	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	California floater *Anodonta californiensis*	IMBIV04020			G3Q	S2?	
5	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
6	Crotch bumble bee *Bombus crotchii*	IIHYM24480			G3G4	S1S2	
7	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
8	Kellogg's buckwheat *Eriogonum kelloggii*	PDPGN083A0	Candidate	Endangered	G2	S2	1B.2
9	Konocti manzanita *Arctostaphylos manzanita ssp. elegans*	PDERI04271			G5T3	S3	1B.3
10	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
11	Milo Baker's lupine *Lupinus milo-bakeri*	PDFAB2B4E0		Threatened	G1Q	S1	1B.1
12	North Central Coast Fall-Run Steelhead Stream	CARA2631CA			GNR	SNR	
13	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
14	Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080			G5	S2S3	2B.2
15	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
16	Pacific lamprey *Entosphenus tridentatus*	AFBAA02100			G4	S4	SC
17	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S3S4	SC
18	Raiche's manzanita *Arctostaphylos stanfordiana ssp. raichei*	PDERI041G2			G3T1	S1	1B.1
19	Red Mountain catchfly *Silene campanulata ssp. campanulata*	PDCAR0U0A2		Endangered	G5T3Q	S3	4.2
20	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
21	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2	SC
22	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
23	Vine Hill ceanothus *Ceanothus foliosus var. vineatus*	PDRHA040D6			G3T1	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
25	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S3	2B.2
26	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
27	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
28	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
29	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
30	grass alisma *Alisma gramineum*	PMALI01010			G5	S3?	2B.2
31	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4	
32	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
33	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
34	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
35	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
36	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G4G5	S3?	2B.3
37	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
38	robust false lupine *Thermopsis robusta*	PDFAB3Z0D0			G2	S2	1B.2
39	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
40	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	
41	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
42	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S3	SC
43	watershield *Brasenia schreberi*	PDCAB01010			G5	S3	2B.3
44	western pearlshell *Margaritifera falcata*	IMBIV27020			G4G5	S1S2	
45	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2

Big Rock Creek Riparian and Coho Habitat Enhancement Project
Project Location Map
T 22N, R 15W, S 27 & 33
Cahto Peak Quad
Mendocino County



Introduction:
Mendocino Land Trust (Grantee) will implement the Noyo Headwaters Instream Habitat Enhancement Project. Noyo River and Burbeck Creek support populations of endangered coho salmon. The purpose of the project is to improve habitat in Noyo River and Burbeck Creek. Salmonid recovery plans recommend increasing stream habitat complexity in these streams by installing large woody debris (LWD). Adding LWD to Noyo River and Burbeck Creek will enhance pools, increase gravel sorting, and provide increased habitat complexity.

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 30 instream features consisting of 70 pieces of LWD within a 3,389-foot section of Noyo River and a 491-foot section of Burbeck 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 project is located on Noyo River beginning 32.6 miles upstream of the confluence with the Pacific Ocean and continuing upstream for 3,389 feet, in the County of Mendocino, State of California. The locations of the Noyo River project boundaries are approximately 39.4283º north latitude, -123.4411º west longitude at the downstream end; and 39.4212º north latitude, -123.4342º west longitude at the upstream end. Grantee will also perform work on a foot section of Burbeck Creek beginning at the confluence with Noyo River and continuing upstream 491 feet. The locations of the project boundaries are approximately 39.4283º north latitude, -123.4411º west longitude at the downstream end; and 39.4290º north latitude, -123.4396º west longitude at the upstream end; Township 18 North, Range 14 West, and Section 8 of the Burbeck 7.5 Minute U.S. Geological Survey (USGS) Quadrangle map as depicted in the Project Location Map.

Project Set Up:
Subcontractors for Heavy Equipment and Hand Labor will construct instream log structures according to the site specific plans to be provided, using locally available logs

or logs from other locations. Logs will be moved into location by hand crews, or by using heavy equipment where necessary.

Materials:

Seventy pieces of LWD will be used to construct 30 structures. Other materials purchased and used during the project include the following:
Spike Meals (food): To feed crews while on spike. Spike Supplies (briquettes, propane, etc.): For preparing meals while on spike. Porta-Potty Rental: For environmental protection, health & safety services for crews on spike. Generator: For operating power equipment used during in-stream structure anchoring process. Rebar, nuts, washers, cable clamps, epoxy glue, and 5/8" Galvanized Cable: Used for anchoring in-stream structures. Wood Drill and Rock Drill Bits: Used for drilling logs/root-wads/trees during in-stream structure anchoring process. Hand Tools (gloves, hard hats, safety glasses, hacksaws, bit extensions, shear-pins): safety equipment, tools and tool supplies used during project implementation. Office Supplies (paper, printer supplies, etc.): used for creating designs, work-plans, all pertinent documents relating to the project, reporting. Straw mulch, metal tags, chainsaw files, personal protection equipment, measuring tapes.

Tasks:

Task 1. Install Instream Habitat Features:

Install instream habitat features at 30 locations including 70 pieces of LWD along 3,389 feet of Noyo River and 491 feet of Burbeck Creek. Final structure design and placement will be determined by field consultation between the Grantee and the CDFW Grantor Project Manager. Work will consist of the following:

- Approximately 30 logs will be created through the felling of 15 nearby trees using a chainsaw. Approximately 40 logs will be salvaged from nearby areas and placed in the creek with a rubber-tired tractor (equipment) or CCC crews. Trees will be felled directly into the stream channel or away from the channel and delivered and placed with a rubber-tired tractor. CCC crews will provide assistance at some sites to relocate and/or reposition logs to optimize placement in areas where equipment cannot access the stream. Salvage logs may be transported to the site from cull piles 3.25 miles distant.
- Heavy equipment and hand labor crewmembers 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 and bedrock. Anchoring

materials will consist of 1" threaded rebar, cable, nuts and washers, and waterproof epoxy.
- The minimum length used for unanchored large woody debris is 1.5 times bankfull width.

Task 2. Erosion Control:
Mulching will take place as sites are completed on all exposed soils that may deliver sediment to a stream in order to avoid unforeseen erosion.

Deliverables:
Install instream habitat features at 30 locations including 70 pieces of LWD along 3,389 feet of Noyo River and 491 feet of Burbeck Creek.

Timelines:
June 15, 2016 through October 31, 2016, June 15, 2017 through October 31, 2017, June 15, 2018 through October 31, 2018, June 15, 2019 through October 31, 2019, install LWD features within approved project reach. Erosion control will be installed as project features are completed.

After completion of all LWD features and following one winter, post project monitoring will take place which includes a longitudinal profile will be repeated along the reach where a pre-project longitudinal profile was conducted.

Additional Requirements:
The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured and a "notice to proceed" letter has been received from the Grantor Project Manager. 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.

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 when there is a threat of heavy rains which will cause flooding.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

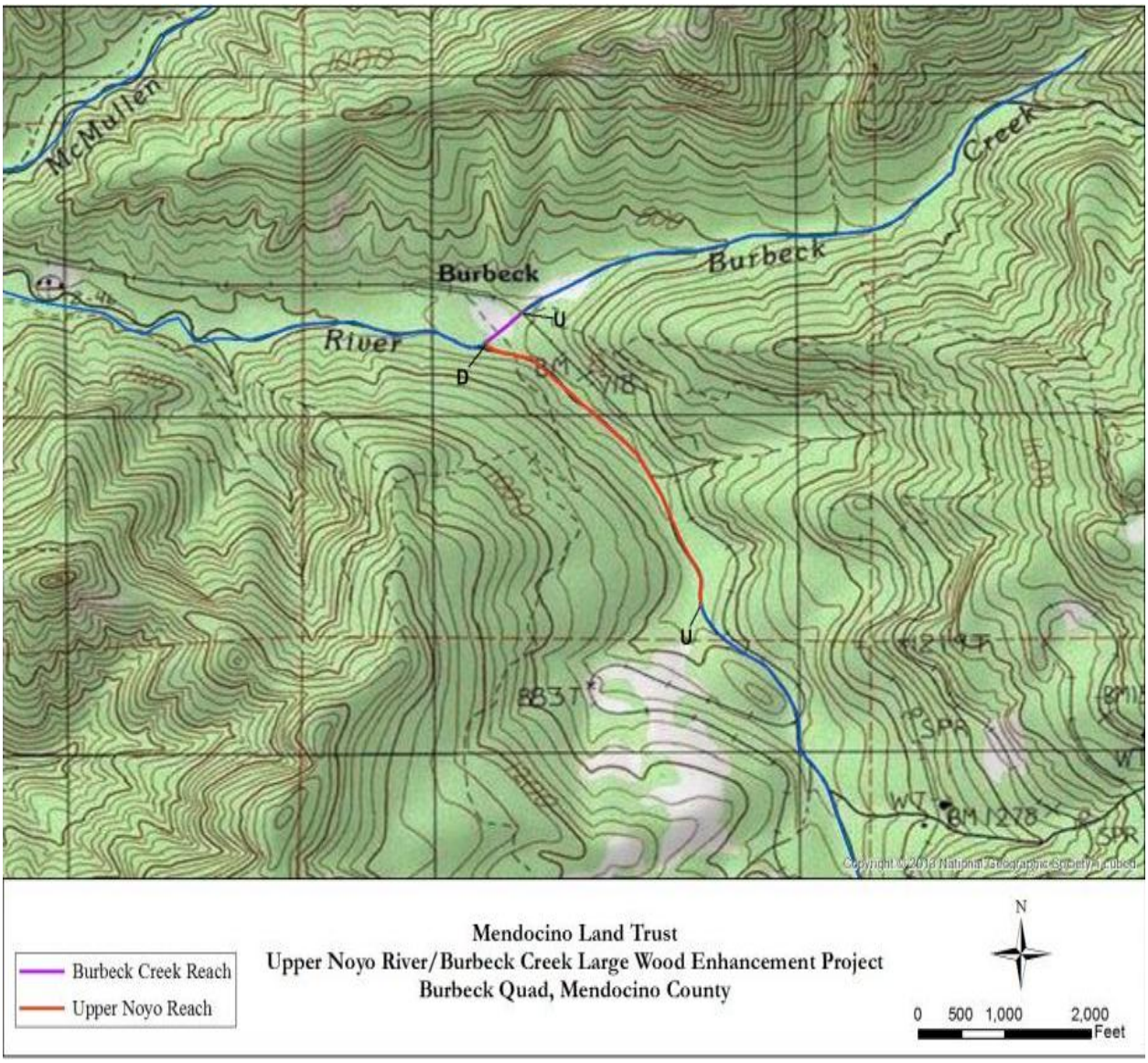
Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible species within the Burbeck Quad and surrounding quads for Noyo Headwaters Instream Habitat Enhancement Project, T18N R14W S17, 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	S3S4	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	S3	2B.2
17	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
18	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
19	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
20	glandular western flax *Hesperolinon adenophyllum*	PDLIN01010			G3	S3	1B.2
21	grass alisma *Alisma gramineum*	PMALI01010			G5	S3?	2B.2
22	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4	
23	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
24	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
25	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
26	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
27	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
28	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
29	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S4	
30	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
31	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	
32	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
33	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
34	watershield *Brasenia schreberi*	PDCAB01010			G5	S3	2B.3
35	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
36	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2
37	yellow warbler *Setophaga petechia*	ABPBX03010			G5	S3S4	SC
38	yellow-breasted chat *Icteria virens*	ABPBX24010			G5	S3	SC

Noyo Headwaters Instream Habitat Enhancement Project
Project Location Map
T18N, R14W, Section 8
Burbeck Quad
Mendocino County



Introduction:

Mendocino Land Trust (Grantee) will implement the James Creek Fish Barrier Modification Project. In the 1960's, a bedrock cascade falls on James Creek was modified with the addition of boulders and concrete slurry in order to protect the hillside slope below State Highway 20. It is likely that fill material placed in this disposal area impinged on the stream channel, narrowing the channel width by at least 50%, and altering the hydraulic geometry above and below the current location of the waterfall. James Creek supports populations of endangered coho salmon and the purpose of the project is to improve access to approximately 3.4 miles of spawning and rearing habitat by modifying a bedrock cascade barrier and by reducing the jump height by building multiple rock band weir structures over a length of 250 feet of stream channel. Salmonid recovery plans recommend modifying the barrier on James Creek for coho salmon. Modifying the bedrock cascade barrier will improve upstream and downstream migration for all life stages of salmonids by decreasing the jump height and by removing non-native materials from the cascade which constrict the channel.

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 improve passage to 3.4 miles of spawning and rearing habitat in James Creek. The installation of a series of rock bands weirs will increase the streambed height, which will decrease the jump height at the falls from nine feet to 1.5 feet or less. The removal of a portion of the boulders and concrete slurry at the falls will widen the channel and improve the natural hydrology. Currently coho salmon are limited to using the 2,300 feet of stream below the falls for spawning and rearing. Habitat conditions upstream of the falls are good for spawning and rearing with year round flow and cool water temperatures. Improving passage at the bedrock falls will increase the quantity of instream habitat for spawning and rearing coho salmon.

Project Description:

Location:

The project is located on James Creek beginning approximately 2,300 feet upstream from the confluence with North Fork Big River and continuing upstream for 250 feet, in the County of Mendocino, State of California. The location of the bedrock falls is approximately 39.3524º north latitude, -123.5105º west longitude; Township 17 North, Range 15 West, and Section 2 of the Comptche 7.5 Minute U.S. Geological Survey (USGS) Quadrangle map as depicted in the Project Location Map.

Project Set Up:
The Subcontractor for Heavy Equipment and Construction will perform all duties associated with the installation of the rock band weirs and the modification of the bedrock cascade.

Materials:
Quarry stone – to line existing channel; ESM-Alluvium – to serve as suitable stream substrate; Class II base rock – to surface beyond large rock bands; Sand – for temporary diversion dam; Sandbags – for temporary diversion dam; Cable 3/4" – to tie large rocks together; Epoxy – to tie large rocks together; Stream diversion pipe – for temporary diversion dam; Grout; Gasoline; Wattles – for erosion control; Straw Bales – for erosion control; Seed – for erosion control; Riparian plants – for stream restoration; Permit fees – for temporary diversion dam; Visqueen – for temporary diversion dam; Field supplies (stakes, PK nails, flagging, batteries, etc.); Office supplies – for reports.

Tasks:

Task 1. Accessing Project Site and Material Salvaging:

- Clearing and grubbing the old access road from the Highway 20 gravel turnout area down to the creek channel.
- Minor grading on the access road for personnel and heavy equipment access and materials delivery.
- Installation of sandbag/bulkbag coffer dams and a temporary flow bypass pipe. The work area will be isolated from fish access by the coffer dams and/or fence screens as needed.
- Pumping and piping for diverting streamflow around the construction site. It is anticipated that the streamflow will be diverted around the construction area by gravity flow. Screening of the gravity line inlet may be needed and appropriate fish protections will be determined as part of the permit conditions. Water pumps will be located within the construction site to manage seepage in the working area. Fish and aquatic species removal from the dewatered and channel construction areas.
- One or more “dirty water” sumps will be constructed with sandbags and visqueen immediately downstream of the construction zone. Construction water will be drafted primarily from the dirty water sumps. Construction water is necessary to assure proper compaction of granular fill and hydraulically transport fines into void spaces in the ESM and quarried stone.
- Installation of a temporary access ramp from the end of the access road down into the stream channel.
- Salvage and stockpiling of cleared trees and LWD pieces from the stream channel below the waterfall within the channel construction footprint.
- Native streambed material excavation and stockpiling in the stream channel within the channel construction footprint.

Task 2. Bedrock Cascade Modification:

- Demolition, removal, and proper recycling of selectively demolished grouted rock areas as indicated on the plans.

Task 3. Construction of Rock Bank Weirs:

- Preparation of subgrade and existing grouted rock interfaces.
- Placement of engineered fill and subsurface drainage for the channel foundation. The streambed fill will consist of approximately 2,500 CY of large rock and engineered streambed material.
- Placement of rock bands and Engineered Streambed Material (ESM) in conformance with the lines and grades indicated on the plans and as directed by the engineer in the field, as necessary. This includes flow testing of each structure during and following construction. The design approach will be to provide stepped rock bands with individual drop heights of 1.0 to 1.5 feet starting downstream at an appropriate conform to the natural stream grade and extend upstream until a suitable drop is obtained for adult fish passage at the falls. The design identifies 8 large rock bands within the 253 foot longitudinal project reach. This is based on a spacing of about 30 feet between rock weirs. The quarried stone and ESM will be used to provide the fill material under and between the rock bands. Habitat enhancement features such as large woody debris and pools with cover complexity will be integrated with the streambed buildup.
- Placement of LWD pieces in selected areas of the channel construction. The LWD pieces will be integrated with the pools between the rock bands and anchored to the largest rock of the rock bands or bedrock at the discretion of the engineer and construction contractor. The LWD pieces will be installed to both minimize post channel construction adjustments and to enhance pool habitat. If necessary, and with the approval of Grantor Project Manager, additional LWD pieces may be imported to the site.

Task 4. Erosion Control and Decommission Access Road and Staging Area:

- Permanent erosion control and riparian plantings.
- Removal of the temporary access ramp.
- Permanent erosion control of the access road and any staging areas. Standard erosion control and erosion prevention treatments within project area and for the access road will be implemented. Treatment prescriptions for the access road will use standard access road storm-proofing measures.

Deliverables:

Installation of at least eight rock band weirs over a length of 250 feet of James Creek and the modification of a bedrock cascade barrier following final designs approved by CDFW Engineer.

Timelines:

Pending grant award notification by May, 2016, implementation on the proposed project would be scheduled to begin in the summer of 2016. Unless the value engineering

component of this project determines that construction should be phased, heavy equipment work and erosion control would be completed by fall of 2016. This will allow two years of effectiveness monitoring and the opportunity to perform adaptive management adjustments to the structures if necessary. The implementation report would be completed and submitted in the spring of 2019.

Additional Requirements:

The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured and a "notice to proceed" letter has been received from the Grantor Project Manager. 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.

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 when there is a threat of heavy rains which will cause flooding.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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 native aquatic species from the project area. If the project requires dewatering of the site and the relocation of listed aquatic species, the Grantee will implement the following measures to minimize harm and mortality to listed species as well as other native aquatic species:

- 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 as approved by the Grantor Project Manager and pursuant to conditions in the USACE Regional General Permit, NMFS Biological Opinion, and project's Lake and Streambed Alteration Agreement (1600 permit).

- 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*.
- Only qualified fisheries biologist that are approved by USFWS and permitted by CDFW under a California Endangered Species Act (CESA) Memorandum of Understanding (MOU) shall handle and relocate CESA listed species.
- All electrofishing shall be performed by a qualified fisheries biologist under the supervision of CDFW and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
- USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the Grantor Project Manager on a form provided by Grantor.

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.*

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.

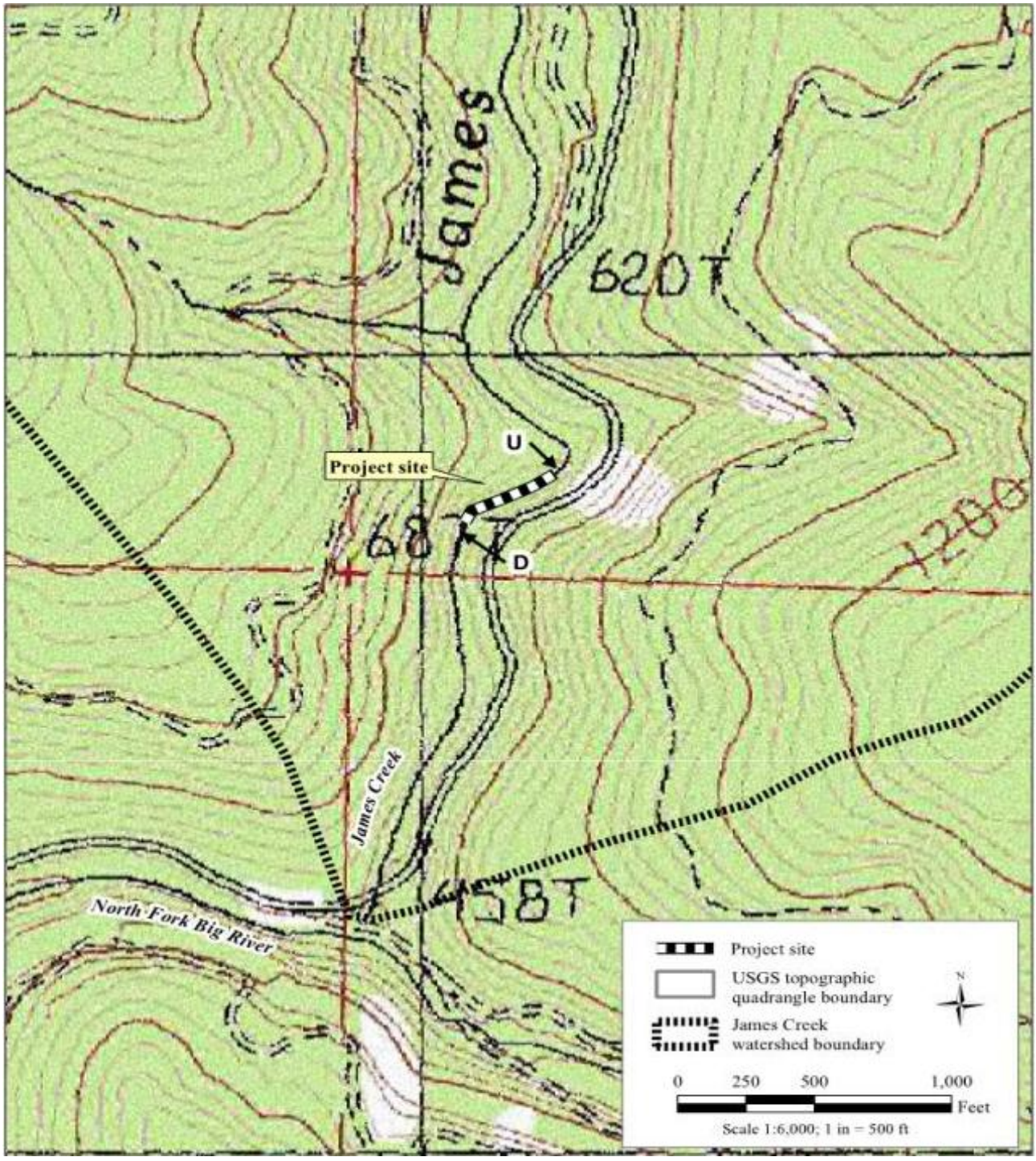
California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible species within the Comptche Quad and surrounding quads for James Creek Fish Barrier Modification Project, T17N R15W S02, Mendocino County

	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	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
12	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
13	Mendocino Pygmy Cypress Forest	CTT83161CA			G2	S2.1	
14	Mendocino leptonetid spider *Calileptoneta wapiti*	ILARAU6040			G1	S1	
15	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
16	Monterey clover *Trifolium trichocalyx*	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
17	Navarro roach *Lavinia symmetricus navarroensis*	AFCJB19023			G4T1T2	S1S2	SC
18	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
19	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
20	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
21	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
22	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S3S4	SC
23	Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012			G5T2	S2	1B.2
24	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Pomo bronze shoulderband *Helminthoglypta arrosa pomoensis*	IMGASC2033			G2G3T1	S1	
26	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
27	Sphagnum Bog	CTT51110CA			G3	S1.2	
28	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2	SC
29	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
30	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
31	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S3	2B.2
32	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
33	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
34	congested-headed hayfield tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T1T2	S1S2	1B.2
35	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
36	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
37	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
38	glandular western flax *Hesperolinon adenophyllum*	PDLIN01010			G3	S3	1B.2
39	grass alisma *Alisma gramineum*	PMALI01010			G5	S3?	2B.2
40	great burnet *Sanguisorba officinalis*	PDROS1L060			G5?	S2	2B.2
41	lagoon sedge *Carex lenticularis var. limnophila*	PMCYP037A7			G5T5	S1	2B.2
42	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
43	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
44	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
45	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S2	1B.2
46	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
47	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
48	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
49	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
50	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
51	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
52	pygmy cypress *Hesperocyparis pygmaea*	PGCUP04032			G1	S1	1B.2
53	pygmy manzanita *Arctostaphylos nummularia ssp. mendocinoensis*	PDERI04280			G3?THQ	SH	1B.2
54	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
55	seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1			G4T4	S2S3	2B.2
56	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S4	
57	small groundcone *Kopsiopsis hookeri*	PDORO01010			G4G5	S1S2	2B.3
58	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
59	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	
60	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
61	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
62	watershield *Brasenia schreberi*	PDCAB01010			G5	S3	2B.3
63	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
64	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
65	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2
66	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3S4	

James Creek Barrier Modification Project
Project Location Map
T17N, R15W, Section 2
Comptche Quad
Mendocino County



Introduction:
Eel River Watershed Improvement Group (Grantee) will implement the Kenny Creek Fish Passage Improvement Project. This project will replace a privately-owned stream crossing that is considered a complete fish passage barrier to upstream migration of adult and juvenile coho salmonids. Removal of the barrier will provide unimpeded access to 2.6 miles of perennial, cool water habit in Kenny Creek for spawning adults and summer thermal refugia for juveniles. Salmonid recovery plans recommend coho salmon barriers on private property. Modifying the bedrock cascade barrier will improve upstream and downstream migration for all life stages of salmonids.

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, 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 replace an undersized culvert which is a complete barrier. Upgrading the crossing to a bridge will improve passage to 2.6 miles of spawning and rearing habitat in Kenny Creek. Improving passage at the crossing will increase the quantity of instream habitat for spawning and rearing coho salmon.

Project Description:

Location:
The project is located on Kenny Creek beginning approximately 3,100 feet upstream from the confluence with South Fork Eel River, in the County of Mendocino, State of California. The location of the culvert is approximately 39.6603º north latitude, -123.3670º west longitude; Township 21 North, Range 16 West, and Section 22 of the Lincoln Ridge 7.5 Minute U.S. Geological Survey (USGS) Quadrangle map as depicted in the Project Location Map.

Project Set Up:
The subcontractor for heavy equipment and construction will perform clearing and grubbing, installation of erosion and sediment control, stream diversion and dewatering, demolition, excavation, installation and resetting of rock, installation of structural concrete, structural backfill, and the installation of the bridge. They will control traffic, and install erosion and sediment materials. They will conduct water management and dewatering.

Materials:
A 65-foot long x 20 foot wide pre-manufactured steel bridge with guardrails on concrete foundations (100 cubic yard (cy) structural excavation, 84 cy of structural concrete, and 90 cy of structural backfill). The constructed stream channel will include a 41-foot long riffle constructed with 64 tons of imported streambed material, a new boulder weir (115

tons), and a 52-foot long pool stabilized with 87 tons of rock bankline. Approximately 190 feet of metal beam guardrail with 4 end treatments will also be installed. Exposed stream banks will be revegetated with 50 native plants. One-half an acre of seed and straw mulch will be installed for erosion and sediment control.

Tasks:

Bridge Installation:
Following final construction plans, the existing 46-foot long perched 10-foot diameter metal pipe that is creating a fish passage barrier will be removed and replaced with a 65-foot long, 20-foot wide pre-manufactured steel bridge with guardrails on concrete foundations (100 cy structural excavation, 84 cy of structural concrete, and 90 cy of structural backfill). Per CDFW requirements, 92-feet of natural streambed will be re-constructed where the culvert once was by excavating approximately 1,300 cy of road fill material and spoiling it onsite. The stream simulation channel will be of the same size as the channel in the adjacent reference reach, with a 14-foot wide active channel width and 5-foot floodplains on both sides. The stream simulation channel will include a 41 foot long riffle constructed with 64 tons of imported streambed material, a new boulder weir (115 tons), and a 52-foot long pool stabilized with 87 tons of rock bankline. The project will also include removal of the top boulders from one or more existing boulder weirs to accommodate expected channel adjustments after the undersized culvert is removed. To minimize disturbance to traffic during construction, the new bridge will be constructed upstream of the existing culvert, necessitating reconstruction of approximately 300 feet of new asphalt concrete roadway and aggregate base (230 tons Class 2 aggregate base and 120 tons of asphalt concrete). Approximately 190 feet of metal beam guardrail with four end treatments will also be installed.

Erosion Control:
Following completion of the project, exposed stream banks will be revegetated with 50 native plants. One-half an acre of seed and straw mulch will be installed for erosion and sediment control.

Deliverables:
Installation of a 65-foot long, 20-foot wide pre-manufactured steel bridge which will pass the 100-year flood event and which follows final designs approved by CDFW Engineer. The bridge will have guardrails on concrete foundations. The stream simulation channel will be of the same size as the channel in the adjacent reference reach, with a 14-foot wide active channel width and 5-foot floodplains on both sides. The stream simulation channel will include a 41-foot long riffle constructed with 64 tons of imported streambed material, a new boulder weir (115 tons), and a 52-foot long pool stabilized with 87 tons of rock bankline. Following completion of the project, exposed stream banks will be revegetated with 50 native plants. One-half an acre of seed and straw mulch will be installed for erosion and sediment control.

Timelines:
July 1, 2017 through October 31, 2017 and July 1, 2018 through October 31, 2018, construction of the bridge and stream channel will occur.

Additional Requirements:
The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured and a "notice to proceed" letter has been received from the Grantor Project Manager. 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.

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 when there is a threat of heavy rains which will cause flooding.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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 native aquatic species from the project area. If the project requires dewatering of the site and the relocation of listed aquatic species, the Grantee will implement the following measures to minimize harm and mortality to listed species as well as other native aquatic species:

- 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 as approved by the Grantor Project Manager and pursuant to conditions in the USACE Regional General Permit, NMFS Biological Opinion, and project's Lake and Streambed Alteration Agreement (1600 permit).

- 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*.
- Only qualified fisheries biologist that are approved by USFWS and permitted by CDFW under a California Endangered Species Act (CESA) Memorandum of Understanding (MOU) shall handle and relocate CESA listed species.
- All electrofishing shall be performed by a qualified fisheries biologist under the supervision of CDFW and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
- USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the Grantor Project Manager on a form provided by Grantor.

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 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 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 Grantor engineers prior to commencement of work.

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.

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.*

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.

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 Kenny Creek Fish Passage Improvement Project, T21N R16W S22, Mendocino County

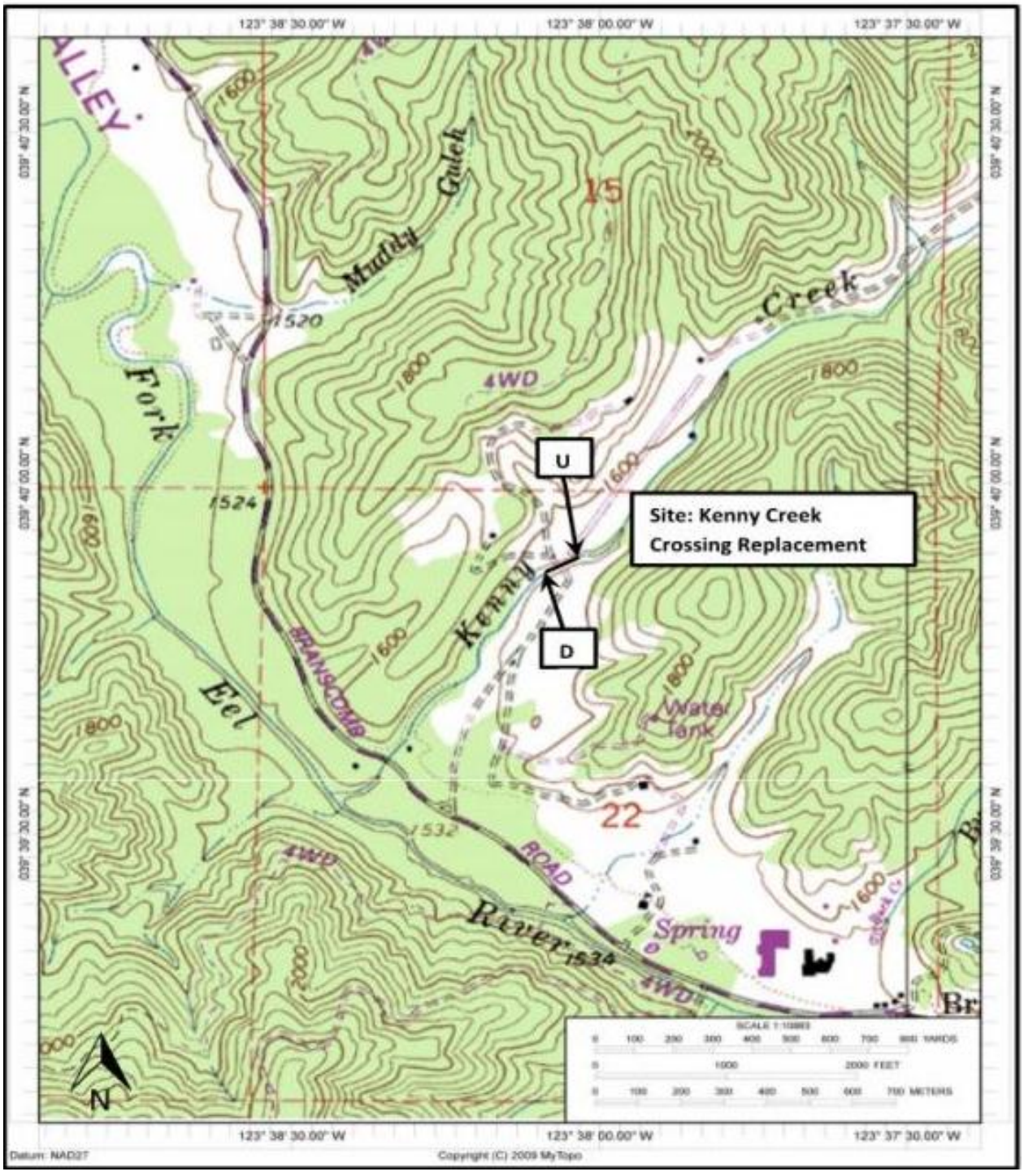
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S3	SC
2	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
3	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
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	Crotch bumble bee *Bombus crotchii*	IIHYM24480			G3G4	S1S2	
8	Fen	CTT51200CA			G2	S1.2	
9	Grand Fir Forest	CTT82120CA			G1	S1.1	
10	Howell's spineflower *Chorizanthe howellii*	PDPGN040C0	Endangered	Threatened	G1	S1	1B.2
11	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
12	Kellogg's buckwheat *Eriogonum kelloggii*	PDPGN083A0	Candidate	Endangered	G2	S2	1B.2
13	Konocti manzanita *Arctostaphylos manzanita ssp. elegans*	PDERI04271			G5T3	S3	1B.3
14	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
15	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
16	Menzies' wallflower *Erysimum menziesii*	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
17	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
18	North Central Coast Fall-Run Steelhead Stream	CARA2631CA			GNR	SNR	
19	North Coast phacelia *Phacelia insularis var. continentis*	PDHYD0C2B1			G2T2	S2	1B.2
20	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
21	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
22	Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080			G5	S2S3	2B.2
23	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
24	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
25	Pacific lamprey *Entosphenus tridentatus*	AFBAA02100			G4	S4	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
26	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S3S4	SC
27	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
28	Raiche's manzanita *Arctostaphylos stanfordiana ssp. raichei*	PDERI041G2			G3T1	S1	1B.1
29	Red Mountain catchfly *Silene campanulata ssp. campanulata*	PDCAR0U0A2		Endangered	G5T3Q	S3	4.2
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	S2	SC
34	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
35	Vine Hill ceanothus *Ceanothus foliosus var. vineatus*	PDRHA040D6			G3T1	S1	1B.1
36	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
37	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G2	S1	1B.1
38	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
39	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S3	2B.2
40	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
41	coastal triquetrella *Triquetrella californica*	NBMUS7S010			G2	S2	1B.2
42	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
43	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
44	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
45	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
46	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
47	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
48	grass alisma *Alisma gramineum*	PMALI01010			G5	S3?	2B.2
49	green yellow sedge *Carex viridula ssp. viridula*	PMCYP03EM5			G5T5	S2	2B.3
50	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4	
51	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2
52	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
53	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
54	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
55	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
56	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
57	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
58	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
59	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G4G5	S3?	2B.3
60	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
61	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
62	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T1	S1	1B.2
63	robust false lupine *Thermopsis robusta*	PDFAB3Z0D0			G2	S2	1B.2
64	round-headed Chinese-houses *Collinsia corymbosa*	PDSCR0H060			G1	S1	1B.2
65	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T3	S2	1B.2
66	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
67	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	
68	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
69	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S3	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
70	watershield *Brasenia schreberi*	PDCAB01010			G5	S3	2B.3
71	western pearlshell *Margaritifera falcata*	IMBIV27020			G4G5	S1S2	
72	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
73	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
74	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
75	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2

Kenny Creek Fish Passage Improvement Project
Project Location Map
T21N, R16W, Section 22
Lincoln Ridge Quad
Mendocino County



Introduction:

Trout Unlimited (Grantee), through its North Coast Coho Project program, will implement the Anderson Creek Sediment Reduction and Coho Recovery Project. The purpose of the project is to decommission roads and treat sediment sources in the Anderson Creek watershed. The project is necessary because salmonid habitat conditions in Anderson 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 17 site specific road treatments for road decommissioning along 1.49 miles of road, which will prevent sediment from entering Anderson Creek.

Project Description:

Location: Anderson Creek is a tributary of the South Fork Eel River in Mendocino County. The mouth of Anderson Creek is near the town of Piercy. Project coordinates are: 39.92807600 and -123.89489900 (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 Associate Geologist will provide project and construction oversight and QA/QC of project products.
- The project manager will manage project layout, construction oversight, monitoring, and reporting.
- Technical staff will conduct surveys, construction oversight, pre-, during, and post-construction monitoring and data entry.
- GIS staff will provide field layout maps, digitize layout and as-built project data, and develop report maps.
- Clerical staff will track and monitor hours and create invoices during the project.
- The Principal will supervise all geologic work elements.

Materials: Materials for this project include mulch and seed, 20 cubic yards of rock armor, riparian plants, pumps, and hoses.

Tasks: Decommission 1.49 miles of roads in the Anderson 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.

Task B: Implementation. Decommission 1.49 miles of roads in the Anderson 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 10 stream crossings to save approximately 4,855 cubic yards of road-related sediment from delivery to local streams.
- Treat 3 potential or existing fillslope landslide features saving approximately 1,636 cubic yards of future sediment delivery. Treat by direct excavation, sediment removal, and proper spoils disposal.
- Treat 2 road discharge points and 2 bank erosion sites saving approximately 1,770 cubic yards of sediment from delivery to stream channels.

- Permanently decommission 1.49 miles of road and prevent or minimize accelerated sediment delivery to stream channels during future large storms. Hydrologically disconnect the road from the stream system by permanently removing the road, thus lowering overall road density in the watershed and mostly eliminating the roads from the potentially unstable inner gorge setting of the mainstem. These prescriptions will include treatments such as road outsloping, ripping (decompacting), and cross road drain construction.
- As part of the proposed erosion control and erosion prevention treatments we intend, replant redwood (*Sequoia sempervirens*) within the riparian corridor along disturbed work areas, primarily at stream crossing excavations.

Deliverables: Deliverable 1: Any progress reports, invoices, or other documents that are necessary according to CDFW guidelines. Deliverable 2: Permanent road decommissioning of 1.49 miles of inner gorge and streamside road in Anderson Creek; direct treatment of 17 site specific erosional features along the decommission road alignment; prevention of 8,270 yd3 of sediment from entering the Anderson Creek stream system; Deliverable 3: Upon completion of the project, 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 the project area, and (11) monitoring checklists and summaries consistent with CDFW guidelines and as required by the FLAR focus..

Timelines:

Project will be completed according to the following timeline:

- Administer and manage the project throughout the entirety of the agreement term June 2016 to March 31, 2019.
- June 1, 2016 Pre-construction project permitting, pre-construction layout, and pre-project monitoring tasks are planned to occur.
- June 2016 - October 20178 Heavy equipment implementation
- Fall 2016, 2017, 2018 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 2018 – February 28, 2019 Reporting. Data collection synthesis, data analysis, and report writing. The implementation report will be completed and submitted no later than February 28, 2019.

Additional Requirements: 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.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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:

a. Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.
b. 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*.
c. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.

d. 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.
e. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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.*

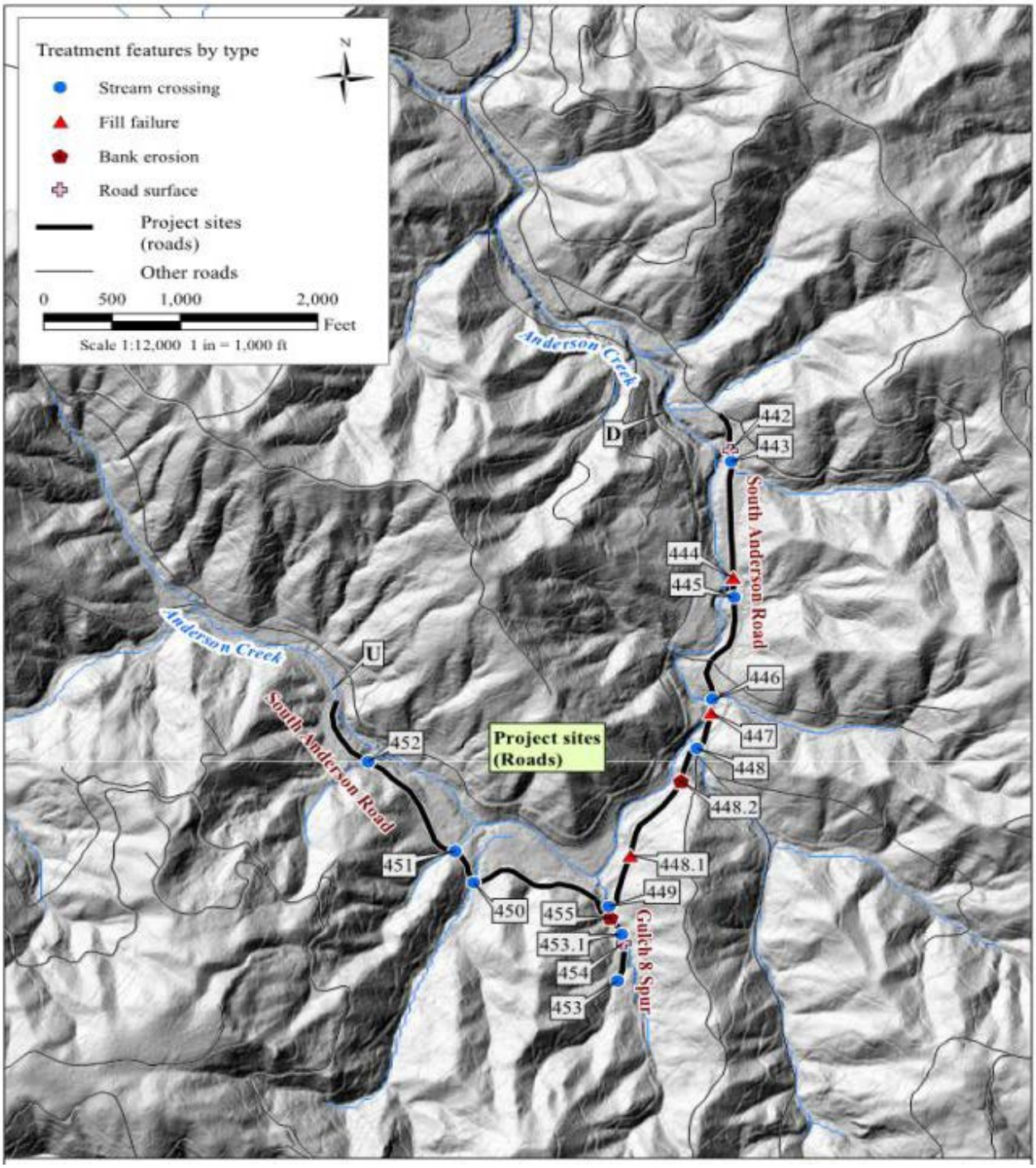
All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.* Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

California Department of Fish and Wildlife
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Briceland, Shelter Cove, Bear Harbor, Garberville, Mistake Point, Hales Grove, and Piercy quads for: Anderson Creek Sediment Reduction and Coho Recovery Project.
T24N, R18W, Section 19, Bear Harbor Quad, Mendocino County, USA.

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S4	
2	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
3	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
4	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
5	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
6	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
7	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
8	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
9	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S3S4	SC
10	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
11	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
12	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
13	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S3	2B.2
14	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	
15	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
16	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2
17	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
18	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
19	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2	2B.2
20	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
21	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
22	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
23	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
24	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
25	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
26	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
27	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2

Anderson Creek Sediment Reduction and Coho Recovery Project
Project Location Map
T24N, R18W, S19, Bear Harbor Quad, Mendocino County



Introduction:
Trout Unlimited (Grantee) will implement the Olds Creek Instream Coho Salmon Habitat Enhancement Project. Olds Creek supports populations of endangered coho salmon. The purpose of the project is to improve habitat in Olds Creek. Salmonid recovery plans recommend increasing stream habitat complexity in Olds Creek by installing large woody debris (LWD). Adding LWD to Olds Creek will enhance pools, increase gravel sorting, and provide increased habitat complexity.

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 65 instream features consisting of 105 pieces of LWD within a 5,951-foot section of Olds 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 project is located on Olds Creek beginning approximately 1,100 feet upstream of the confluence with Noyo River and continuing upstream for 5,951feet, in the County of Mendocino, State of California. The locations of the Noyo River project boundaries are approximately 39.4202º north latitude, -123.4998º west longitude at the downstream end; and 39.4155º north latitude, -123.4797º west longitude at the upstream end; Township 18 North, Range 15 West, and Section 13 and 14 of the Burbeck 7.5 Minute U.S. Geological Survey (USGS) Quadrangle map as depicted in the Project Location Map.

Project Set Up:
Subcontractors for heavy equipment and hand labor will construct instream log structures according to the site specific plans to be provided, using locally available logs or logs from other locations. Logs will be moved into location by hand crews, or by using heavy equipment where necessary.

Materials:
One hundred and five pieces of LWD will be used to construct 65 structures. Other materials purchased and used during the project include the following:

Metal tags: Tags are affixed to all project LWD to facilitate future monitoring of structures. Four aluminum tags displaying the same identify number are nailed to each log. One tag is nailed to the small end, one tag on the large end and two tags on opposite cardinal directions in the middle of the log. - Chainsaw files: Files are used to keep the chainsaw running safely and effectively when cutting LWD associated project material. Chainsaw chains are filed daily and often more frequently depending on field conditions. - Personal protection equipment (PPE): Includes gloves, earplugs, safety glasses, chainsaw caps, etc. PPE is necessary to insure the proper protection and safety of all personnel during the construction process. PPE is considered highly replaceable equipment. - Measuring field tapes: Used implementation monitoring including measuring project LWD and for a longitudinal profile. Total Station: A total station is required for pre- and post-longitudinal profile data collection.

Spike Meals (food): To feed crews while on spike. Spike Supplies (briquettes, propane, etc.): For preparing meals while on spike. Porta-Potty Rental: For environmental protection, health & safety services for crews on spike. Generator: For operating power equipment used during in-stream structure anchoring process. Rebar, nuts, washers, cable clamps, epoxy glue, and 5/8" Galvanized Cable: Used for anchoring in-stream structures. Wood Drill and Rock Drill Bits: Used for drilling logs/root-wads/trees during in-stream structure anchoring process. Hand Tools (gloves, hard hats, safety glasses, hacksaws, bit extensions, shear-pins): safety equipment, tools and tool supplies used during project implementation. Office Supplies (paper, printer supplies, etc.): used for creating designs, work-plans, all pertinent documents relating to the project, reporting.

Tasks:

Task 1. Install Instream Habitat Features:

Install instream habitat features at 65 locations including 105 pieces of LWD along 5,951 feet of Olds Creek. Final structure design and placement will be determined by field consultation between the Grantee and the CDFW Grant Manager. Work will consist of the following:

- Heavy equipment and hand labor crew members will construct instream log structures according to the site specific plans to be provided, using locally available logs or logs from other locations.
- Trees for LWD structures will be procured through felling riparian trees with a chainsaw and by salvaging from nearby areas.
- Trees will be felled directly into the stream channel as well as placed with equipment. Additionally, CCC crews will provide assistance at some sites to relocate and/or reposition logs to optimize placement in areas where equipment cannot access the stream. CCC will be responsible for bolting logs where necessary.
- 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 and bedrock. Anchoring materials will consist of 1" threaded rebar, cable, nuts and washers, and waterproof epoxy.

- The minimum length used for unanchored large woody debris is 1.5 times bankfull width.

Task 2. Erosion Control:

Mulching will take place as sites are completed on all exposed soils that may deliver sediment to a stream in order to avoid unforeseen erosion.

Deliverables:

Install instream habitat features at 65 locations including 105 pieces of LWD along 5,951 feet of Olds Creek.

Timelines:

June 15, 2016 through October 31, 2016, June 15, 2017 through October 31, 2017, June 15, 2018 through October 31, 2018, June 15, 2019 through October 31, 2019, install LWD features within approved project reach. Erosion control will be installed as project features are completed.

After completion of all LWD features and following one winter, post project monitoring will take place which includes a longitudinal profile will be repeated along the reach where a pre-project longitudinal profile was conducted.

Additional Requirements:

The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured and a "notice to proceed" letter has been received from the Grantor Project Manager. 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.

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 when there is a threat of heavy rains which will cause flooding.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the

California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

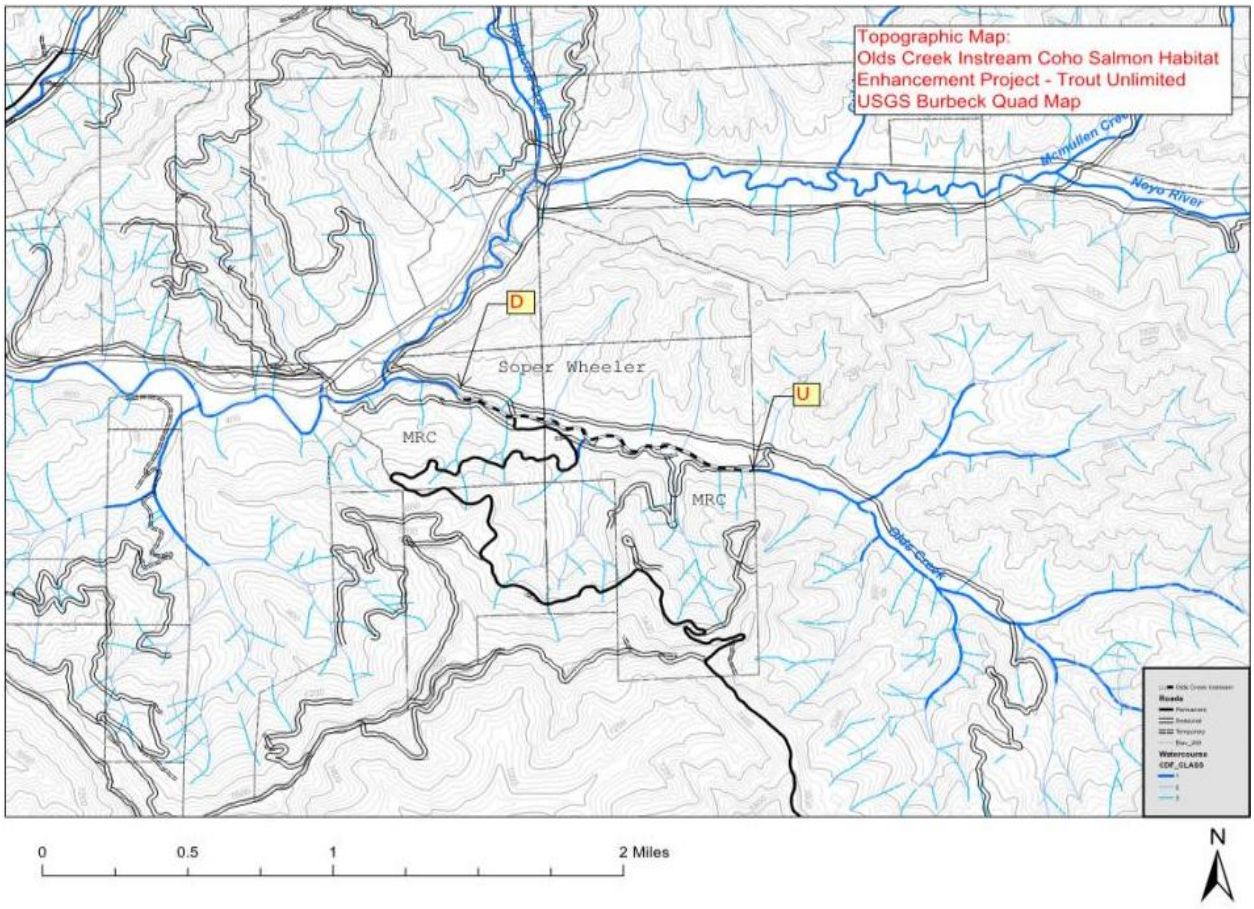
Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within Burbeck Quad and surrounding quads for Olds Creek Instream Coho Salmon Habitat Enhancement Project
T18N R15W Section 13 and 15, 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	S3S4	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	S3	2B.2
17	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
18	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
19	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
20	glandular western flax *Hesperolinon adenophyllum*	PDLIN01010			G3	S3	1B.2
21	grass alisma *Alisma gramineum*	PMALI01010			G5	S3?	2B.2
22	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4	
23	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
24	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
25	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
26	northern red-legged frog *Rana aurora*	AAABH01021			G4	S2?	SC
27	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
28	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
29	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S4	
30	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
31	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
32	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
33	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
34	watershield *Brasenia schreberi*	PDCAB01010			G5	S3	2B.3
35	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
36	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2
37	yellow warbler *Setophaga petechia*	ABPBX03010			G5	S3S4	SC
38	yellow-breasted chat *Icteria virens*	ABPBX24010			G5	S3	SC

Olds Creek Instream Coho Salmon Habitat Enhancement Project
Project Location Map
T18N, R15W, Section 13, and 14
Burbeck Quad
Mendocino County



Introduction:
Eel River Watershed Improvement Group (Grantee) will implement the Anderson Creek Habitat Enhancement Project for Coho Recovery Phase II. Anderson Creek supports populations of endangered coho salmon. The purpose of the project is to improve habitat in Anderson Creek. Salmonid recovery plans recommend increasing stream habitat complexity in these streams by installing large woody debris (LWD). Adding LWD to Anderson Creek will enhance pools, increase gravel sorting, and provide increased habitat complexity.

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 30 instream features consisting of 145 pieces of LWD within a 1.4-mile section of Anderson 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 project is located on Anderson Creek beginning 0.9 miles upstream of the confluence with Indian Creek and continuing upstream for 1.4 miles, in the County of Mendocino, State of California. The project center point is located at approximately 39.9280º north latitude, -123.8948º west longitude; Township 24 North, Range 18 West, and Sections 18 and 19 of the Bear Harbor 7.5 Minute U.S. Geological Survey (USGS) Quadrangle map as depicted in the Project Location Map.

Project Set Up:
Subcontractors for Heavy Equipment and Hand Labor will construct instream log structures according to the site specific plans to be provided, using locally available logs or logs from other locations. Logs will be moved into location by hand crews, or by using heavy equipment where necessary. A subcontracted revegetation planting crew will plant a mix of redwood and fir trees in the disturbed area and mulch any remaining bare soil areas with straw.

Materials:

A total of 145 pieces of LWD will be used to construct 30 structures. Other materials purchased and used during the project include the following:

LWD: Conifer logs and rootwads will be used to build proposed in-stream LWD features to enhance salmonid habitat complexity. Tree tops and other small tree material will be used for rack material, mulch and erosion control on disturbed areas. Tree seedlings (planting): Native and appropriate saplings (redwood and fir) will be used to plant on the riparian and at skid access points to stream reaches that have been disturbed by heavy equipment. This is to improve existing riparian zones disturbed by restoration activities, and also to manage alders, blackberries, and other competitors. Power tools, drill bits and extensions, threaded bar and anchoring supplies (rebar, nuts, plates): These materials will be used to build proposed in-stream LWD features to enhance salmonid habitat complexity. Anchoring LWD components together is necessary for the stability and longevity of some proposed features. Straw: Straw mulch is used to protect and promote growth of native seedlings used in re-planting that have been disturbed from restoration activities. Straw is also used for erosion control. Spike Camp food and supplies. Chain saws, bar oil, blades, shear pins, GFIs and other miscellaneous gear are required for brushing, trimming, and winching LWD materials into proper position.

Tasks:

Task 1. Install Instream Habitat Features:

Install instream habitat features at 30 locations including 145 pieces of LWD along 1.4 miles of Anderson Creek. Final structure design and placement will be determined by field consultation between the Grantee and the CDFW Grant Manager. Work will consist of the following:

- Heavy equipment and hand labor crew members 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 CDFW 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.
- The minimum length used for unanchored large woody debris is 1.5 times bankfull width.
- Once the primary structural elements of the wood jams are in place and fastened together, crew members and heavy equipment will be used to pre-rack each feature with medium and small woody debris and brush, thereby providing additional cover and habitat complexity for salmonids.

Task 2. Erosion Control:
After all of the LWD jams have been placed, and the access routes mulched with tree slash, a revegetation planting crew will plant a mix of redwood and fir trees in the disturbed area and mulch any remaining bare soil areas with straw.

Deliverables:
Install instream habitat features at 30 locations including 145 pieces of LWD along 1.4 miles of Anderson Creek.

Timelines:
June 15, 2016 through October 31, 2016 and June 15, 2017 through October 31, 2017, install LWD features within approved project reach. Erosion control will be installed as project features are completed.

Additional Requirements:
The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured and a "notice to proceed" letter has been received from the Grantor Project Manager. 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.

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 when there is a threat of heavy rains which will cause flooding.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

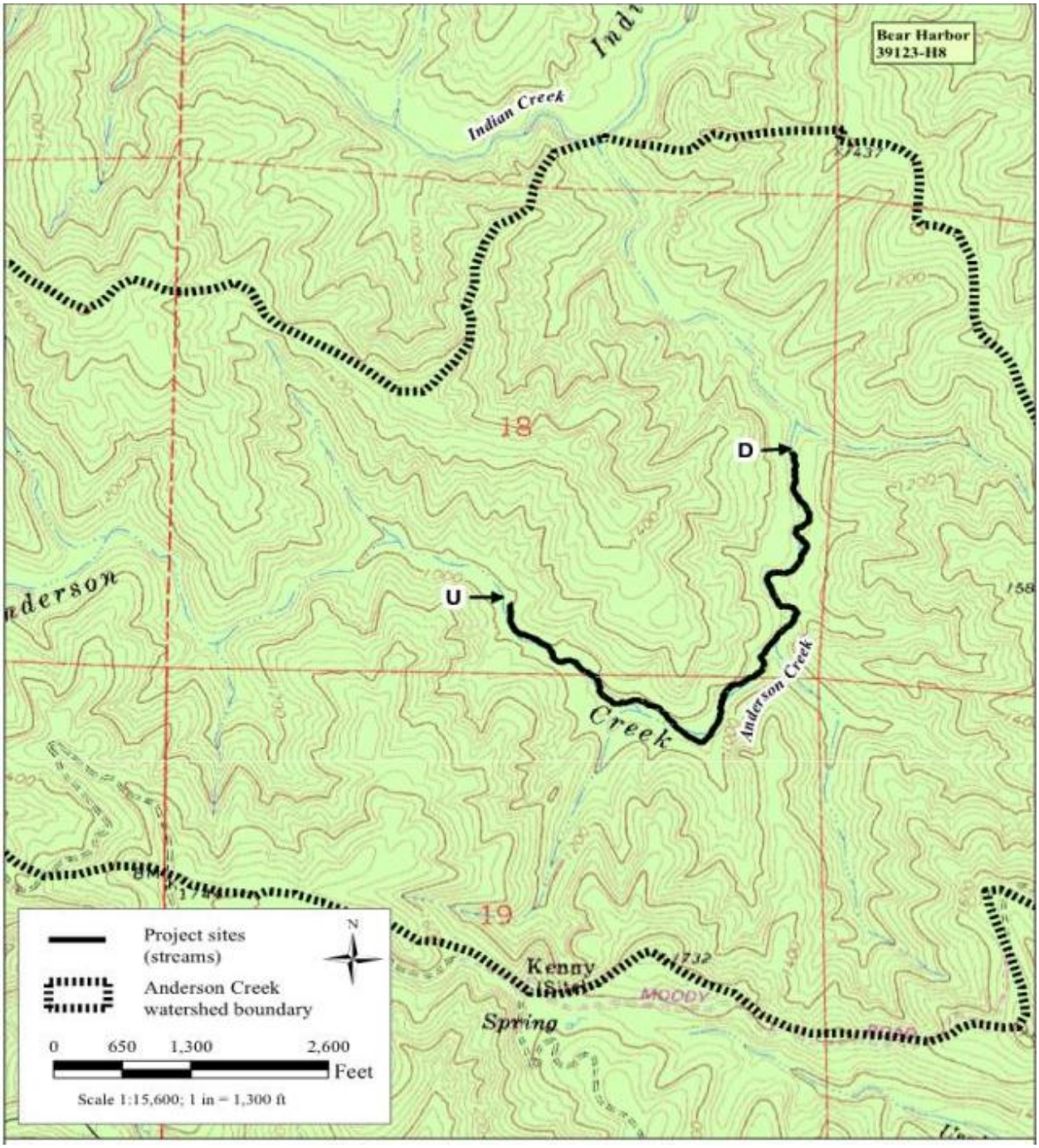
Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species with the Bear Harbor Quad and surrounding quads for Anderson Creek Habitat Enhancement Project for Coho Recovery Phase II, T24N R18W S18 and S19, Mendocino County

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S4	
2	Howell's montia *Montia howellii*	PDPOR05070			G3G4	S3	2B.2
3	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
4	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
5	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
6	Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012			G4G5T4	S3	2B.2
7	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
8	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
9	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S3S4	SC
10	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
11	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
12	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
13	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S3	2B.2
14	coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	
15	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
16	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2
17	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
18	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
19	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
20	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2	2B.2
21	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
22	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
23	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
24	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
25	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
26	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
27	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
28	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2

Anderson Creek Habitat Enhancement Project for Coho Recovery Phase II
Project Location Map
T24N, R18W, Sections 18, 19
Bear Harbor Quad
Mendocino County



Introduction:

Eel River Watershed Improvement Group (ERWIG, Grantee) will implement the Hollow Tree Creek Complex 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 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 Huckleberry Creek and Bear Wallow 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 1000 conifers will ensure a continuous source of shade and contribute to the instream LWD of the future.

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 VII and XI (Flosi et al 1998 and 2002).

Objective(s):

The specific objective of this project is to create a total of 23 instream features within a total of 0.8 miles of Huckleberry Creek and Bear Wallow Creek, consisting of 96 logs and root wads. Additionally 1000 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 two tributaries to Hollow Tree Creek.

The Huckleberry Creek project reach contains multiple sites starting at the confluence of an unnamed tributary on the left bank 3000 feet up from the confluence of Huckleberry Creek and Hollow Tree Creek. The locations of the project boundaries are approximately 39.73332500º north latitude, 23.72366400º west longitude at the downstream end; and 39.73011900º north latitude, 123.72486100º west longitude at the upstream end.

The Bear Wallow Creek project reach contains multiple sites starting at the mouth of the confluence of Bear Wallow and Huckleberry Creek. The locations of the project boundaries are approximately 39.73146100º north latitude,

123.72415300º west longitude at the downstream end; and 39.72839200º north latitude, 123.71463300º west longitude at the upstream end.

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. An excavator operator will be responsible for unloading and placing LWD at the features. Excavator will be used to push over and place whole trees with roots in the stream. A faller will cut down trees in the riparian to add LWD to the creeks.

Materials: Materials to complete this project consist of:

1. 10’ by 1” threaded rod (rebar) will be used to anchor LWD to rock, live trees, and LWD. The purpose of using this material is to increase longevity of structure and increase resistance to transposition from high flow events.
2. Steel nuts are required to secure threaded rebar to LWD, live trees, and rock, increasing longevity of intended structural position.
3. Steel washers will be used to lock the steel nut into place once fastened to the threaded rebar.
4. Conifers will be used as riparian cover to reduce erosion, increase riparian complexity, and increase future instream wood recruitment.
5. Drill bits & extensions to drill the holes through the logs and anchor trees for anchoring the structures according to the California Salmonid Stream Habitat Restoration Manual

6. Tool & Materials (chain, bar oil, portaband blades, shear pins, GFIs, misc gear.) (do not survive the project). These miscellaneous materials are required to drill and anchor all materials to appropriate anchor points.
7. Rental/Repair equipment because working outdoors in a remote environment can be a less than ideal place for power tools and equipment. This allows for quick resolution for equipment that breaks down on the job site to keep the project on time and on budget.
8. Logs & rootwads or the LWD that will make up features to improve the instream conditions for anadromous salmonids.

Tasks:

Task 1. Contract oversight Contract oversight will be conducted by ERWIG Project Manager. The ERWIG Project Manager will communicate and coordinate with the landowner to obtain entry permits, coordinate implementation schedules, obtain wood donation and purchase, and go over project implementation details. Upon receipt of notice to proceed, project manager will obtain 1600 permit, hire subcontractors and provide management and direction to subcontactors throughout the duration of the project. All reporting and billing will be pursuant to contract and regulatory guidelines.

Task 2. Subcontractor Prep and Training ERWIG will ensure that all subcontractors are trained on landowner concerns and protocols before they enter the property to begin project work. The training will include security issues and road protocols. ERWIG will ensure that all subcontractors understand that ONLY those designated crew member for the project are allowed on the property. ERWIG will work closely with subcontractors to ensure that no actions result in the delivery of sediment to the stream channel when delivering, staging, and placing large wood in the stream ERWIG and its subcontractors will be aware of the status of various roads within the project area, and will not enter any decommissioned roads with heavy equipment, or do anything that might cause significant impacts on the hydrology of decommissioned road segments.

Task 3. Final Feature Design & Site Preparation ERWIG Project Manager and CCC Fish Habitat Assistant will prepare site specific designs based on channel 9 morphology, equipment access, and LWD availability. They will submit designs for landowner and CDFW Project Manager approval. ERWIG Project Manager along with CCC Fish Habitat Assistant will flag sites for wood delivery and installation, Clear brush for equipment as needed, designate staging areas for equipment and wood along project reaches. Excavator will be delivered by lowboy to staging area. Wood will be delivered by log trucks, dump trucks or self-loader and staged along project reach or staging areas.

Task 4. Project Implementation Under the direction of the ERWIG Project Manager and CCC Fish Habitat Assistant, site construction on 23 LWD structures will begin with wood placement by excavator. When necessary, CCC corpsmembers will move LWD into position using a grip hoist come along. This method is also used for placing and securing rootwads to logs while anchoring is taking place. Site construction, wood placement, and anchoring will be in accordance with DFG California Salmonid Stream Habitat Restoration Manual, Section VII (Flosi et al.1998). The project will utilize living riparian trees as anchors by wedging the logs between them where feasible. If a decent live anchor is not available, a log dead man will be used for an anchor point. California Conservation Corps (CCC) corpsmembers under supervision of the Conservationist 1 will then anchor the sites according to design and anchoring specifications. Corpsmembers will use one inch threaded rebar to anchor logs to riparian trees, and each other. Holes will be drilled through the logs and their anchor trees, and 1" rebar will be strung through and secured with nuts and washers. Corpsmembers will be supervised by a Conservationist 1 (C1), fish habitat assistant, and the project manager. Features will be complex consisting of logs fastened together along with stumps with root wads attached. Habitat quality and quantity will be greatly improved for coho and other salmonids along .8 miles of stream. Some features will either involve knocking over whole tree with an excavator or bulldozer and placing them in the stream, or cutting down trees in the riparian area to fall into the creek with tree faller (chop and drop). Sites that do not have suitable wood will have purchased wood trucked in with a log truck. Corpsmembers with the grip hoist will be used to move the whole trees if initial placement using either the knocked over whole tree or "chop and drop" miss their desired location in the creeks. 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 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. Implementation will be phased to allow for wood development and to accommodate decontamination protocols.

Task 5. Riparian Planting CCC crews will return to the project reach in the winters of 2017 & 2018 and plant 1000 conifer seedlings along the .8 miles of riparian zone, primarily in areas of excavator ingress and egress, to promote riparian vegetation, provide additional shade for the creek, and establish wood for future recruitment into the creek. Habitat quality and quantity will be significantly improved for coho and other salmonids along .8 miles of stream. 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 and U.S. Department of the Interior-Bureau of Reclamation 2012 Inspection and 10 Cleaning Manual for Equipment and Vehicles to prevent the spread of invasive species.

Task 6. Post-Project Data and Photo Collection: Following implementation, post-implementation photos will be taken and metrics shall be collected which satisfy the Grant Agreement Annual Progress Report(s) and Final Report.

Task 7. Reporting Write and deliver progress reports for invoicing, Annual Progress report(s), and Final Report to CDFW Project Manager

Deliverables: Twenty-three complex LWD structures will be constructed and anchored in place. A total of 96 logs and rootwads will enhance and create pools along 0.8 miles of stream. A final written report will be submitted after the project has been completed. The report will include: (1) the grant agreement number, (2) location of work – project location will be shown using a USGS 7.5 minute topographical map, (3) specific project access using public and private roads and trails, and landowner name and address will be included, (4) a description and analysis of the restoration and planning techniques used, (5) a description of the results of the project, (6) dates of work and the number of person hours expended, (7) labeled before and after photographs of all restoration activities and techniques, and (8) grant dollars spent and contributed and/or in kind services used to complete the project..

Timelines:

Task 1- Upon approval through December 31, 2018, oversee and coordinate project.

Task 2- Upon approval through December 31, 2018, oversee and ensure that subcontractors are trained and operate under landowner protocols.

Task 3 & 4- June 15, 2016 through October 31, 2016, June 15, 2017 through October 31, 2017, finalize design, label features, and install LWD features within the approved project reach. Erosion control will be installed as project features are completed.

Task 5- November 1, 2016 through February 28, 2017, November 1, 2017 through February 28, 2018, riparian plantings will occur.

Task 6 & 7-November 15, 2016, 2017, December 31, 2018, post-project description, photos and quantitative metrics will be delivered in an Annual Report, and a Final Report.

Additional Requirements:

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.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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:

a. Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.
b. 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*.
c. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.

d. 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.
e. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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.

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 insure the best chance of survival of the seedlings.

California Department of Fish and Wildlife
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible Species within the Lincoln Ridge, Leggett, Tan Oak Park, Cahto Peak, Sherwood Peaks, Dutchmans Knoll, Inglenook, Westport, Hales Grove Quads for: HI 195 Hollow Tree Tributary Complex Instream Restoration Project Phase II, T 22N, R 17W, S26, Lincoln Ridge, Mendocino County, United States

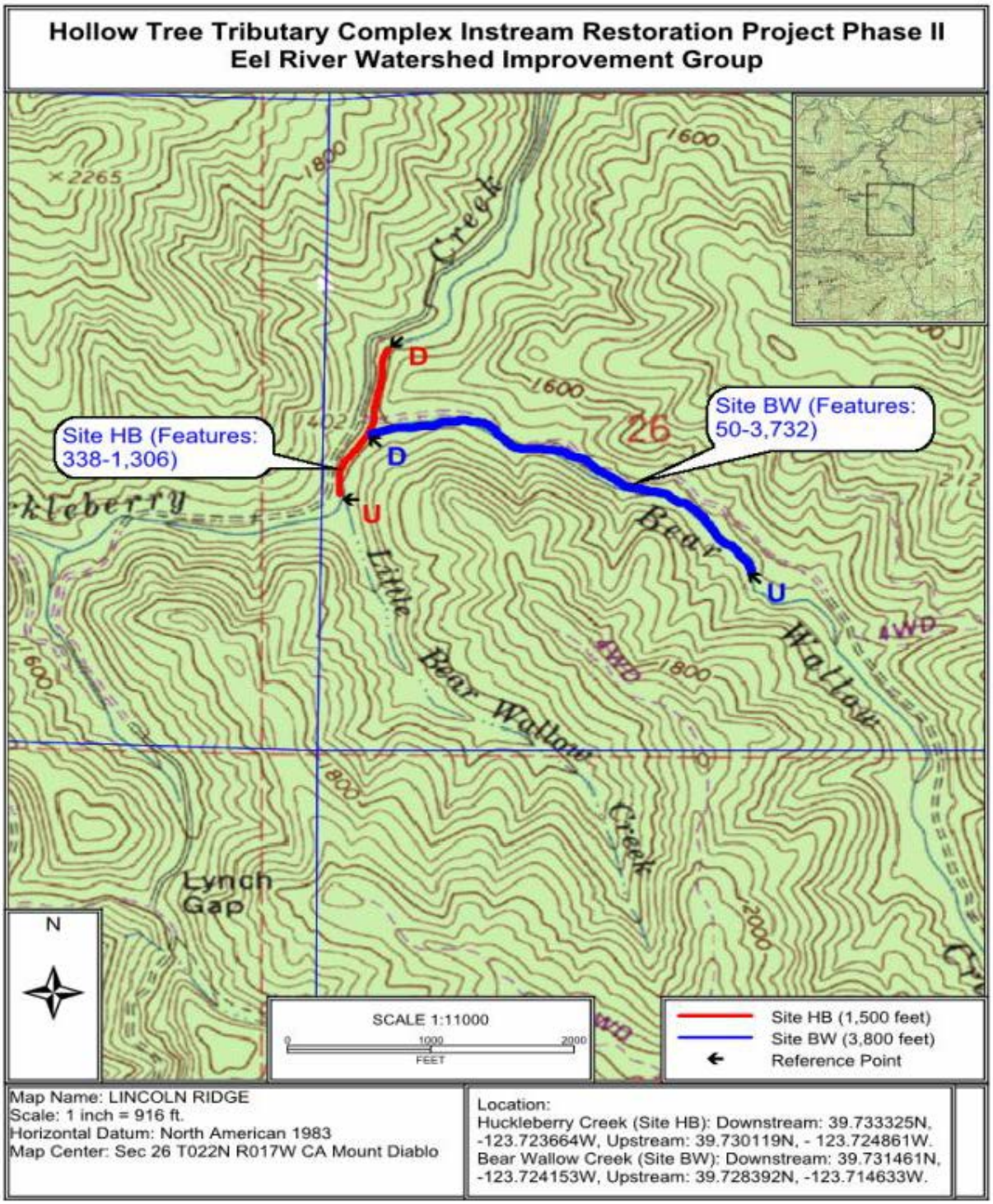
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American badger *Taxidea taxus*	AMAJF04010			G5	S3	SC
2	Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1			G4T2	S2	1B.1
3	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
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	Crotch bumble bee *Bombus crotchii*	IIHYM24480			G3G4	S1S2	
8	Fen	CTT51200CA			G2	S1.2	
9	Grand Fir Forest	CTT82120CA			G1	S1.1	
10	Howell's spineflower *Chorizanthe howellii*	PDPGN040C0	Endangered	Threatened	G1	S1	1B.2
11	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
12	Kellogg's buckwheat *Eriogonum kelloggii*	PDPGN083A0	Candidate	Endangered	G2	S2	1B.2
13	Konocti manzanita *Arctostaphylos manzanita ssp. elegans*	PDERI04271			G5T3	S3	1B.3
14	Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0			G5	S2	2B.2
15	Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0			G2	S2	1B.2
16	Menzies' wallflower *Erysimum menziesii*	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
17	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
18	North Central Coast Fall-Run Steelhead Stream	CARA2631CA			GNR	SNR	
19	North Coast phacelia *Phacelia insularis var. continentis*	PDHYD0C2B1			G2T2	S2	1B.2
20	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
21	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
22	Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080			G5	S2S3	2B.2
23	Oregon goldthread *Coptis laciniata*	PDRAN0A020			G4	S3	4.2
24	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
25	Pacific lamprey *Entosphenus tridentatus*	AFBAA02100			G4	S4	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
26	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S3S4	SC
27	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
28	Raiche's manzanita *Arctostaphylos stanfordiana ssp. raichei*	PDERI041G2			G3T1	S1	1B.1
29	Red Mountain catchfly *Silene campanulata ssp. campanulata*	PDCAR0U0A2		Endangered	G5T3Q	S3	4.2
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	S2	SC
34	Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
35	Vine Hill ceanothus *Ceanothus foliosus var. vineatus*	PDRHA040D6			G3T1	S1	1B.1
36	Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025			G5T1	S1	1B.1
37	Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0			G2	S1	1B.1
38	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
39	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S3	2B.2
40	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
41	coastal triquetrella *Triquetrella californica*	NBMUS7S010			G2	S2	1B.2
42	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
43	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
44	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
45	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
46	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
47	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
48	grass alisma *Alisma gramineum*	PMALI01010			G5	S3?	2B.2
49	green yellow sedge *Carex viridula ssp. viridula*	PMCYP03EM5			G5T5	S2	2B.3
50	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4	
51	leafy reed grass *Calamagrostis foliosa*	PMPOA170C0		Rare	G3	S3	4.2
52	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
53	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
54	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
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	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
58	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G4G5	S3?	2B.3
59	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
60	purple martin *Progne subis*	ABPAU01010			G5	S3	SC
61	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T1	S1	1B.2
62	robust false lupine *Thermopsis robusta*	PDFAB3Z0D0			G2	S2	1B.2
63	round-headed Chinese-houses *Collinsia corymbosa*	PDSCR0H060			G1	S1	1B.2
64	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T3	S2	1B.2
65	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
66	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	
67	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
68	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S3	SC
69	watershield *Brasenia schreberi*	PDCAB01010			G5	S3	2B.3

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
70	western pearlshell *Margaritifera falcata*	IMBIV27020			G4G5	S1S2	
71	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
72	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
73	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
74	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2

Hollow Tree Creek Complex Habitat Enhancement Project Phase II
Project Location Map
T 22N, R 17W, S26, Lincoln Ridge Quad, Mendocino County



Blue Waterhole Cr Sediment Reduction and Coho Habitat Enhancement | 2016

Introduction: The Mendocino County Resource Conservation District (MCRCD) will prevent the delivery of 9,910 cubic yards of sediment from legacy road erosion features to Blue Waterhole Creek and Mainstem Garcia River by decommissioning 3.8 miles and upgrading 1.3 miles of road. The MCRCD will also improve coho habitat by installing 10 large woody debris (LWD) structures in Blue Waterhole Creek. This project is necessary because the Garcia River and its tributaries have experienced a reduction in the quality and amount of instream habitats that are capable of fully supporting the beneficial uses of a cold-water fishery, due to increased sedimentation. This has resulted in a reduction in the stocks of coho salmon, Chinook salmon, and steelhead.

- 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 Salmonid Stream Habitat Restoration Manual* Parts VII, IX, and XI, XII (Flosi et al 1998 and 2002).

Objectives: The objectives of this project include:

- Be part of a larger, coordinated and comprehensive watershed effort to improve watershed health and ultimately, the beneficial uses of water in the Garcia River through the prioritized storm-proofing of in-use and legacy timberland road-related sediment sources.
- Be a component of the comprehensive effort by decommissioning several legacy inner gorge and riparian roads and installation of LWD structures in Class I Blue Waterhole Creek to the existing body of work to be performed between 2016 and 2018 on the Mountain View Ranch, in the coho salmon bearing Blue Waterhole Creek Watershed and Mainstem Garcia River.
- The road decommissioning and in-stream habitat enhancement will make the restoration efforts within the Blue Waterhole Creek Subbasin comprehensive, addressing approximately 85% of the legacy impacts from timber and ranch road related legacy sediment sources within the 7.4 square mile subbasin.

Project Description:

Location: Blue Waterhole Creek is a tributary to the Garcia River and is within the Middle Garcia River Watershed. The Blue Waterhole Creek and Garcia River confluence is located approximately 25 miles upstream of the mouth of the mainstem Garcia River and approximately 0.75 miles upstream of the Inman Creek and Garcia River confluence. The project is located on a 4,800-acre private ranch at 38.93965800 north latitude, 123.49549700 west longitude.

Project Set Up: Agreement and subcontractor oversight will be conducted by MCRCD with assistance from the Technical Oversight Subcontractor (TOS) throughout the life of the project. The Project Manager and Contract Admin/Bookkeeper will obtain permits, secure agreements (grantor,

subcontractos, landowner, etc.), schedule, oversee implementation, invoicing, reporting, and agency and landowner communications. The Project Manager will perform periodic reviews of project progress. The TOS will process invoices from the Heavy Equipment Subcontractor and submit those expenses with TOS invoices to MCRCD. The Project Manager and TOS will coordinate budget management and expense tracking in accordance with grant agreement requirements. The TOS will administer all aspects of the project to ensure timeliness, completion, and conformance with restoration and land management goals of MCRCD, the landowners, and the project as well as project performance. Treatment construction will be provided by a Heavy Equipment Subcontractor acceptable to MCRCD, TOS, and the landowner. TOS professional geologist Project Manager under supervision of the TOS Principal Earth Scientist (Principal) will provide technical oversight of construction and Quality Assurance/Quality Control (QA/QC) of project products. The TOS Project Manager will manage project layout, construction oversight, monitoring, and reporting, providing QA/QC of project products. The TOS Technical Staff will conduct surveys, construction oversight, pre-, during, and post-construction monitoring, and data entry. The TOS Geographic Information Systems (GIS) Staff will provide field layout maps, digitize layout and as-built project data, and develop report maps. All TOS work elements will be supervised by a TOS Principal. The Project Manager, and TOS Principal, TOS Project Manager, and TOS Technical Staff will develop a final summary report detailing project accomplishments including the final project budget, photographic monitoring, as-built road logs, and other project information required by the grant agreement. Final summary report maps will be prepared by TOS GIS Staff.

Materials: Materials to be utilized for this project include native conifer saplings (*Sequoia sempervirens*), weed-free straw, seed, steel culverts, steel couplers, LWD (30+ foot-long logs, rootwads, and logs with attached rootwads), rock riprap (approximately 585 cubic yards), road rock (approximately 247 cubic yards) and miscellaneous field and office supplies (photographic supplies, field maps, polyester film overlays, photos, copying/binding for final reports, report maps, postage, etc.).

Tasks: The project will be implemented by completing the following tasks:

Task A: Grant Agreement and Subcontractor Oversight (MCRCD); The Executive Director and Project Manager and personnel will provide all grant agreement and subcontract oversight and administration pursuant to grant and regulatory guidelines. This includes but is not limited to obtaining permits, securing agreements (grantor, subcontractor, landowner), scheduling, implementation oversight, invoicing, reporting and agency and landowner communications. Upon final execution of the grant agreeement and prior to receiving a Final Notice to Proceed, deliver the landowner

access agreements, subcontracts, and assure all permits are finalized. This task will occur throughout the life of the project.

Task B: Implementation of the road upgrading and decommissioning (TOS); The TOS will be in charge of executing the implementation of the project. The team will stay at local hotels as the remote location of this project requires long travel distances. The TOS Clerical Staff will compile invoices and track budgets throughout the lifetime of the project.

Task B-1: Pre project layout and existing conditions characterization- The TOS will flag heavy equipment access routes and construction boundaries (layout), spoils disposal sites, local rock quarry sites, and equipment exclusion areas for biologic or cultural resource protection. They will also document the existing conditions on all sites to be treated and setup photo point monitoring stations at the construction locations for final reporting. Pre- construction monitoring will be performed by TOS consistent with CDFW guidelines and as required by the FLAR Focus. Red-legged frog surveys will be conducted by the MCRCD Biologist.

Task B-2: Road opening, feature treatment, and erosion control- TOS will work with the Heavy Equipment Subcontractor to clear project roads for equipment access and storm-proofing treatments. Personal field gear and heavy equipment working in or near a stream will be decontaminated according to CDFW Aquatic Invasive Species Decontamination Protocol.

Task B-2-1- Low bed trucks will be used to move heavy equipment in and out of the project area at the beginning and end of the work season, these will require a pilot car to move through the freeway and county road system.

Task B-2-2- An excavator and bulldozer will be used to open project roads proposed for treatment by removing the vegetation to achieve adequate access for heavy equipment.

Task B-2-3- The excavator, bulldozer and dump truck will be used to remove the anthropogenic fill material from the proposed stream crossings and other site specific features. Similarly, they will be used to treat all of the road surface drainage as they work their way from the end of the proposed decommission road back out. Gasoline water pumps will be used by laborers to protect water quality during storm-proofing of live stream crossings. Concurrently working with the excavator and bulldozer, the dump truck will deliver rock to specific areas for placement by the excavator and endhaul spoil where required to stockpile locations. The water truck will be used for dust abatement to protect water quality and riparian vegetation, and utilized to moisture condition fills for

proper compaction, and laborers will be used to couple culverts, spread seed and straw, and plant trees in the winter at completed construction sites.

Task B-2-4- Instream enhancement work will be accomplished through a combination of heavy equipment and hand labor. At least ten LWD structures composed of 18" to 24" diameter and 30' – 40' long logs will be installed utilizing techniques outlined in the *California Salmonid Stream Habitat Restoration Manual*, Part 7 and will include trenching or directly pushing the LWD into the streambank. At sites that are inaccessible by the excavator, we will use the excavator to position the LWD as close to the stream as possible and use hand labor using a manual hoist to move the wood into position. Most of the LWD placed in this manner will be anchored by weaving/wedging the LWD into existing riparian trees or, conversely, it will be unanchored with a minimum standard size of 12" diameter at breast height and 1.5 times bankfull width in length. Exact locations of the LWD placement will be determined prior to implementation and will be based on wood availability, proximity of the road to the stream, slope stability, hillside and stream channel geomorphic conditions, heavy equipment accessibility, and identified limiting factors to fisheries production. Technical design sketches will be developed prior to implementation and will be field reviewed for approval with Fisheries Restoration Grants Program Grant Manager, consistent with attached sketches. Finally, above and beyond the LWD installed in the Class 1 stream reaches, install woody debris within the channel reaches of decommissioned Class II stream crossings. This goal of this type of wood placement is it provide roughness, channel complexity, and cover, to create natural channel geomorphology and provide habitat for terrestrial and aquatic organisms.

Task B-2-5- Post- construction monitoring, including photographic monitoring and channel surveys, will be performed by TOS.

Task C- Reporting- The TOS will develop a report based on the grant agreement requirements that documents project accomplishments and the total costs to implement the project. The summary report will include among other things, as-built road logs and maps, pre- and post-construction photographic monitoring, and actual as-built budgets.

Deliverables: The following deliverables will be delivered as part of this project:

Deliverable 1 (Task A): Progress reports with accompanying invoices, and annual reports.

Deliverable 2 (Task B): Storm-proofing via upgrading treatments along 4.9 miles of inner gorge and streamside road and stormproofing via decommissioning treatments along 3.9 miles of inner gorge and streamside road in the Blue Waterhole Creek and Garcia River watersheds; direct treatment of 118 site specific erosional features along the road alignments; prevention of 9,910 cubic yards of sediment from entering the Garcia River stream system; installation of approximately 10 instream habitat structures within Blue Waterhole Creek and riparian planting at selected areas.

Deliverable 3 (Task C): Upon completion of the project, TOS shall prepare and MCRCD shall submit a written completion report by task 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 and wood logs, (7) dates of work and the number of person hours and heavy equipment expended, (8) labeled before and after photos of selected restoration activities and techniques, Forest Land Anadromous Restoration monitoring forms, (9) grant dollars and cost share dollars spent and contributed and/or in-kind services used to complete the project, and (10) GIS generated maps of project achievements, all in both hard copy and electronic forms.

Timelines: The project will be completed following the timeline below:

Task A: Project management and coordination will begin once award grant is finalized and continue through the life of the project - June 2016 or upon grant approval through Spring 2019.

Task B: Implementation on the proposed project would be scheduled to begin in the summer of 2016, and may extend over the course of three field seasons. All heavy equipment work and erosion control would be completed by fall of 2018. All heavy equipment work will be completed during low-flow periods when impacts to water quality can be minimized or avoided. Erosion control measures will occur following construction work. Post-implementation monitoring will occur periodically through the end of 2018.

Task C: The implementation report will be completed and submitted by Spring 2019.

Additional Requirements:

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.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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:

a. Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.
b. 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*.
c. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.
d. 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.

e. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

Final instream 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.*

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.

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*.

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.

Sites that 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.

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.

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.

California Department of Fish and Wildlife

Natural Diversity Database

Selected Elements by Common Name - Portrait

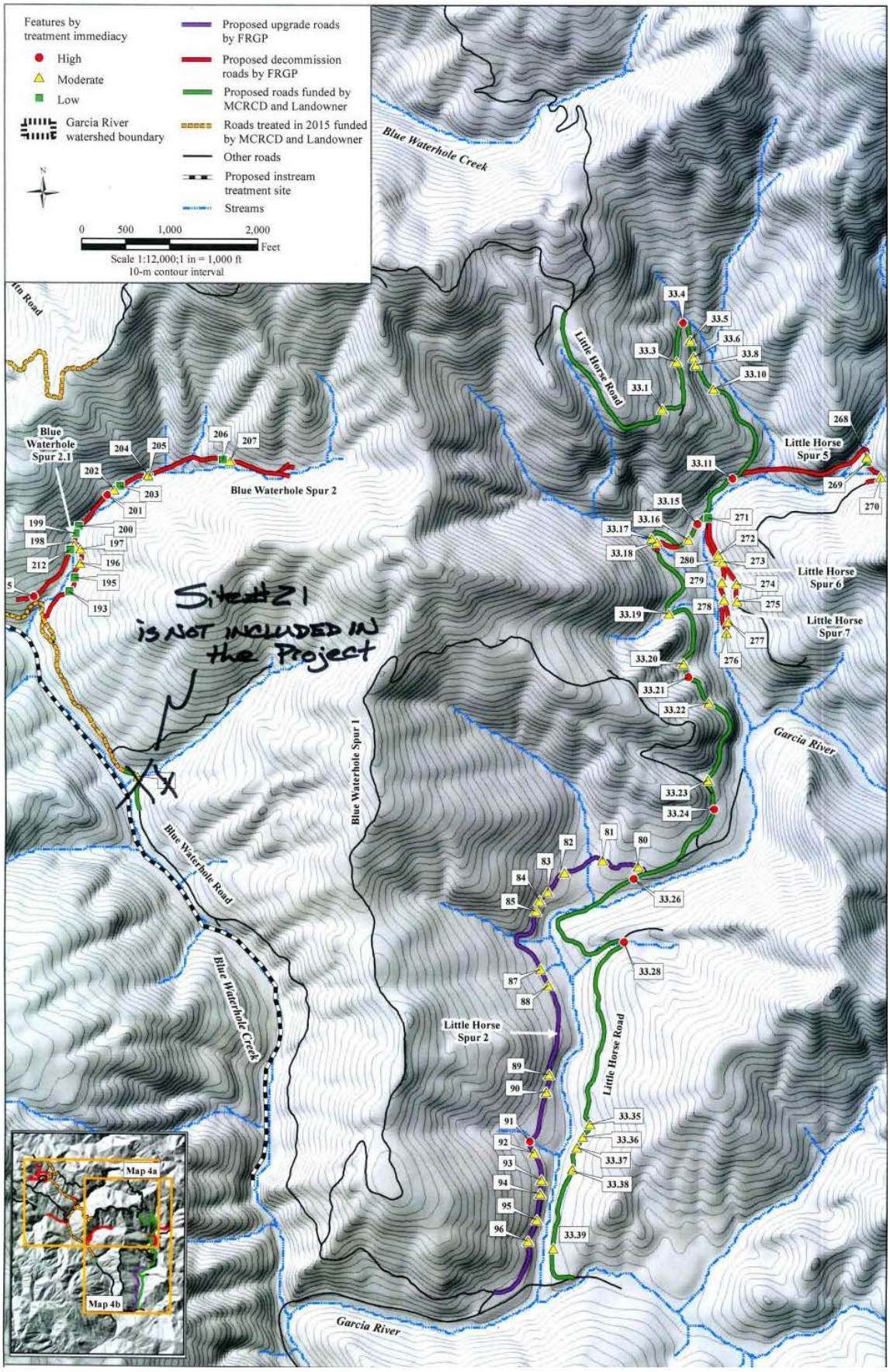
Possible Species within the Zeni Ridge, Ornbaun Valley, Gube Mountain, McGuire Ridge, Gualala, Eureka Hill, Cold Spring, Philo, and Boonville Quads for Blue Waterhole Creek Sediment Reduction and Coho Habitat Enhancement Project, T 12N, R 15W, S 2, Zeni Ridge, Mendocino County, United States

	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	California giant salamander *Dicamptodon ensatus*	AAAAH01020			G3	S2S3	
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	Gualala roach *Lavinia symmetricus parvipinnis*	AFCJB19025			G4T1T2	S1S2	SC
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 dodder *Cuscuta pacifica var. papillata*	PDCUS011A2			G5T1	S1	1B.2
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	Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080			G5	S2S3	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	S3S4	SC
19	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
20	Pomo bronze shoulderband *Helminthoglypta arrosa pomoensis*	IMGASC2033			G2G3T1	S1	
21	Roderick's fritillary *Fritillaria roderickii*	PMLIL0V0M0		Endangered	G1Q	S1	1B.1
22	Santa Cruz clover *Trifolium buckwestiorum*	PDFAB402W0			G2	S2	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	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2	SC
25	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
26	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
27	coast fawn lily *Erythronium revolutum*	PMLIL0U0F0			G4	S3	2B.2
28	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
29	coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2			G4T2T3	S2S3	1B.2
30	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
31	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
32	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
33	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
34	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2	2B.2
35	monarch - California overwintering population *Danaus plexippus pop. 1*	IILEPP2012			G4T2T3	S2S3	
36	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
37	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
38	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
39	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T1	S1	1B.2
40	pygmy cypress *Hesperocyparis pygmaea*	PGCUP04032			G1	S1	1B.2
41	rhinoceros auklet *Cerorhinca monocerata*	ABNNN11010			G5	S3	
42	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
43	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	
44	supple daisy *Erigeron supplex*	PDAST3M3Z0			G2	S2	1B.2
45	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
47	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S1S2	SC
48	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2

Blue Waterhole Creek Sediment Reduction and Coho Habitat Enhancement Project
Project Location Map
T 12N, R 15W, S 2
Zeni Ridge Quad, Mendocino County



Introduction:

Trout Unlimited will increase stream complexity, pool frequency, shelter values and rearing habitat for threatened steelhead by installing at least 30 pieces of large wood at 12 sites within String and Tartar creeks.

Anecdotal evidence indicates that String Creek was historically used for recreational fishing. Areas of high quality habitat in the Tomki Creek basin exist within String Creek, reaches within Little Cave Creek, and tributary reaches of Wheelbarrow Creek (NOAA, 2015). Specific reaches within String Creek are recognized in NOAA's NC Steelhead recovery plan (draft) as areas with moderate to high intrinsic potential.

By improving habitat complexity, pool frequency, shelter values, and rearing habitat the proposed restoration project should assist with the recovery of the NC Steelhead population by creating pool habitat for spawning and rearing. Successful reproduction and increased steelhead productivity in String Creek should benefit anglers throughout the entire watershed. Additionally this project directly address recovery plan tasks within NOAA Fisheries' Coastal Multispecies Recovery Plan Public Draft .There are several recovery actions listed within the plan, but the following recovery action was referenced when developing the proposed project: Recovery Task: 6.1.1.3 - Habitat Complexity- Improve frequency of large woody debris, root wads, and boulders to improve habitat complexity, and pools. Focus efforts in tributaries that currently have suitable stream temperatures such as tributaries to Cave Creek, upper Tomki Creek, String Creek, and tributaries in the northern area of the watershed.

The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured and a “notice to proceed” letter has been received from the Grantor Project Manager. 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 Grantor. All habitat improvement will follow techniques in the California Stream Habitat Restoration.

Objective(s):

Install at least 30 pieces of large wood at 12 sites along 0.65 mile of North Coast Steelhead high priority recovery habitat in String (0.5 miles) and Tartar Creek (0.15 miles). Project will increase stream complexity, pool frequency, shelter values and rearing habitat for threatened steelhead trout.

Project Description:

Location:

DNS: -123 27253, 394744
UPS: -123.28186, 39.47758

String Creek is tributary to Rocktree Creek, tributary to Tomki Creek, tributary to the Mainstem Eel River, located in Mendocino County, California. The project is located approximately 0.75 miles upstream of the confluence of Rocktree Creek, and ~ 2.5 miles upstream of the Tomki Creek. Additionally, the 3 most upstream sites are technically located on Tartar Creek (0.15 miles upstream from the confluence with String Creek).

String Creek is a first order stream and has approximately 3.0 miles of blue line stream according to the USGS Willits 7.5 minute quadrangle. String Creek drains a watershed of approximately 5.5 square miles. Elevations range from about 1,760 feet at the mouth of the creek to 2,400 feet in the headwater areas. Mixed hardwood forest dominates the watershed.

Project Set Up:

The Trout Unlimited Project Manager will provide all contracting oversight and administration including but not limited to obtaining permits, securing contracts (grantors, subcontractors, landowner), project scheduling, invoicing, progress, annual and final report preparation as well as facilitating agency and landowner communications. North Coast Coho Project Coordinator, Anna Halligan, will be available on a full time basis to manage this project. North Coast Coho Project Director Lisa Bolton will also be available to assist with management of this project, if needed. This task will occur throughout the life of the project.

Blencowe Watershed Management (BWM)

- BWM Project Manager- Directs and oversees project implementation including construction of all structure designs and securing construction materials. The Project Manager will also work closely with the Stillwater Sciences engineering and survey staff during the final design development.

- BWM Project Technician - Assists with implementation of structure designs and implementation monitoring.

Pacific Inland, Inc. (PII)

- Licensed Timber Operator - Operates all equipment during implementation and the construction of structure designs.

Stillwater Sciences:

- Senior Restoration Engineer- Will performs a topographic survey of each proposed wood placement site during the final design development. Additionally, the Senior Restoration engineer will develop 100% Design

Plans and a Basis of Design Report. These positions will also oversee installation of the large wood structures, noting any differences as compared to the 100% Design Plans, and prepare the as-built plans.

- Project Engineer - Will develop 100% Design Plans and perform a post-project survey of the longitudinal profile.

- Survey Technician- Will perform a design related topographic survey as well as the post-project survey of the longitudinal profile with a Total Station.

Materials:

Field materials include but are not limited to metal identification tags, chainsaw files, PPE (personal protection equip) and measuring field tapes.

Metal tags: Tags are affixed to all project LWM to facilitate future monitoring of structures. Four aluminum tags displaying the same identify number are nailed to each log. One tag is nailed to the small end, one tag on the large end and two tags on opposite cardinal directions in the middle of the log.

Chainsaw files: Files are used to keep the chainsaw running safely and effectively when cutting LWD associated project material. Chainsaw chains are filed daily and often more frequently depending on field conditions.

Personal protection equipment (PPE): Includes gloves, earplugs, safety glasses, chainsaw caps, etc. PPE is necessary to insure the proper protection and safety of all personnel during the construction process. PPE is considered highly replaceable equipment.

Measuring field tapes: Used implementation monitoring including measuring project LWD and for a longitudinal profile.

Contractor Mileage: BWM and Pll staff require mileage to access the project site for tasks identified in this proposal.

Logs: 30 logs are required to install large wood structures as defined in this proposal. All logs are cost share.

2 ton Boulders: 40 tons of 2 ton boulders (including delivery) are required as anchoring material for large wood structures. These materials are not harvestable on site.

Anchoring Materials: Include but are not limited to steel cable, rebar, and locking bolts.

Tasks:

Task A: Project Administration- Trout Unlimited Project Manager 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. (TU)

Task B: Pre Implementation Surveys- Blencowe Watershed Management (BWM) and Stillwater Sciences will conduct a site visit prior to implementation in order to establish baseline data, pre-implementation photos, and large wood availability. Final tree selection will require the approval from landowner and grant manager. (BWM, Stillwater Sciences)

Task B.I: Stillwater's Senior Restoration Engineer and Survey Technician will perform a topographic survey with a Total Station that will include the channel thalweg and a minimum of one cross section at the proposed location of each large wood structure. This survey will help fine-tune the final wood placement in the 100% Design Plans. The Senior Restoration Engineer will also analyze the location of each proposed wood placement site in the field to identify opportunities and constraints. (Stillwater Sciences)

Task C: Final Designs- Stillwater's Senior Restoration Engineer and Project Engineer will develop 100% Design Plans in AutoCAD Civil3D based on the conceptual design and field survey data. The designs will include plan, profile, and section views as well as construction details. One round of agency/stakeholder comments will be addressed at an intermediate design stage (65-90%). One-dimensional hydraulic modeling of the stream reach will be conducted with FIEC-RAS to guide large wood structure placement. A Basis of Design Report will be developed to support the final designs. Final site selection will require the approval from landowner and grant manager and will each site will include a unique station number following the format designated within the PSN. (Stillwater Sciences)

Task D: Project implementation- Technical contractors for Task C include Blencowe Watershed Management (BWM) and Pacific Inland, Inc. (PII). These contractors have been integral in the development of this project. Additionally, a Registered Professional Forester will be present during construction activities to represent the landowner. (BWM, PII, RPF/Landowner)

Task D.1: Large wood will be transported from nearby (onsite) locations utilizing a rubber-tired skidder and/or backhoe. Due to the proximity and access to the project reach, the same rubber-tired equipment will place logs and boulders into the stream channel at 12 sites along 0.5 miles of String Creek and 0.15 miles of Tartar Creek. Immediately following implementation each piece will be measured, tagged, and photographed at each site (BWM and PII).

Deliverables:

Deliverable 1: Any progress reports, invoices, or other documents that are necessary pursuant to CDFW guidelines. (Task A)

Deliverable 2: Pre-implementation survey data, and photographs (Task B)

Deliverable 3: 100% Design Plans and Basis of Design Report (Task C)

Deliverable 4: Installation of at least 30 pieces of wood at 12 sites along 0.65 mile of stream, thus creating at least 7 pools. (Task D)

Deliverable 5: Post-implementation annual report, photos, post project longitudinal profile, and final as built. (Task E)

Deliverable 6: Upon completion of the project TU and project partners will submit a written completion report (Final 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 including all quantifiable expected results, (7) dates of work, (8) pre- and post-implementation longitudinal profile, (9) labeled before and after photos of selected restoration activities and techniques, (10) grant dollars spent and contributed and/or in kind services used to complete the project and (11) a project map (Task F).

Timelines:

Contract timeline is expected to be June 1, 2016 through March 1, 2018.

Task A: Grant Oversight
The start date will be June 1, 2016, or upon final execution of the grant, Prior to receiving a Final Notice to Proceed, TU will deliver landowner access agreements, subcontracts and assure all permits are finalized. Upon approval and through the contract term ending on March 1, 2018, TU will manage and coordinate the project.

Completion Date: March 1, 2018

Task B: Pre-Implementation Surveys
Pre-implementation data collection and design preparation will occur either in the summer/fall of 2016 or in the spring of 2017.

Completion Date: June 15, 2017

Task C: Final Designs
It is possible that the final design could be completed as early as August 15, 2016 to allow for 2016 implementation however we propose the final designs (100%) will be delivered no later than the summer of 2017.

Completion Date: July 30, 2017

Task D: Implementation
We anticipate beginning the on-the-ground structure designs and implementation (wood installations) work as early as the summer of 2016. If contract or design modifications delays occur, the project will be implemented during the summer of 2017. Implementation is expected to take 10-15 days. All wood installation work will be completed during low-flow periods (June 15-October 31) when impacts to water quality can be minimized or avoided.

Completion Date: October 31, 2017

Task E: Post-Implementation Surveys
After all implementation is complete, all wood will be measured and photographed. This will be completed within the 10-15 day implementation period. Following at least one post-implementation winter flow, a longitudinal profile will be completed.

Completion Date: January 31, 2018
Task F: Data Management and Reporting
Data will be complied and a final completion report accompanied by a final invoice will be submitted by March 2018,or sooner.

Completion Date: March 1, 2018

Additional Requirements

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, the Grantee shall provide to Grantor 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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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 native aquatic species from the project area. If the project requires dewatering of the site and the relocation of listed aquatic species, the Grantee will implement the following measures to minimize harm and mortality to listed species as well as other native aquatic species:

- 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 as approved by the Grantor Project Manager and pursuant to conditions in the USACE Regional General Permit, NMFS Biological Opinion, and project's Lake and Streambed Alteration Agreement (1600 permit).

- 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*.

- Only qualified fisheries biologist that are approved by USFWS and permitted by CDFW under a California Endangered Species Act (CESA) Memorandum of Understanding (MOU) shall handle and relocate CESA listed species.

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

- NMFS Approved fisheries biologists will provide fish relocation data via the Grantee to the Grantor Project Manager on a form provided by Grantor.

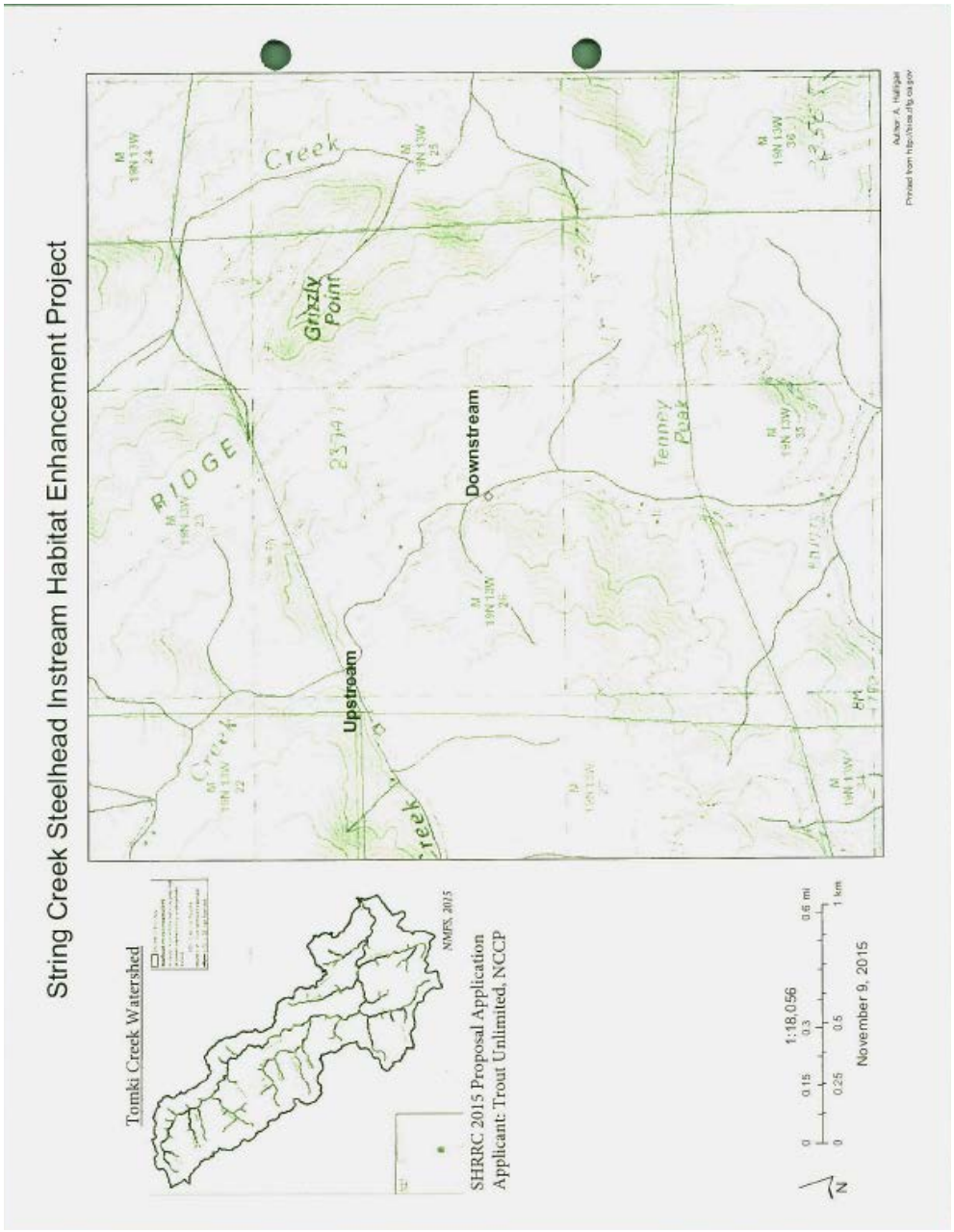
Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Manager. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual.*

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
725030 String Creek Steelhead Instream Habitat Enhancement Project
M 19N 13W Section 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	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
5	Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080		Endangered	G3	S3	1B.1
6	Mayacamas popcornflower *Plagiobothrys lithocaryus*	PDBOR0V0P0			GH	SH	1A
7	Milo Baker's lupine *Lupinus milo-bakeri*	PDFAB2B4E0		Threatened	G1Q	S1	1B.1
8	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
9	Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080			G5	S2S3	2B.2
10	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
11	Roderick's fritillary *Fritillaria roderickii*	PMLIL0V0M0		Endangered	G1Q	S1	1B.1
12	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
13	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2	SC
14	Valley Oak Woodland	CTT71130CA			G3	S2.1	
15	angel's hair lichen *Ramalina thrausta*	NLLEC3S340			G5	S2?	2B.1
16	coast range bindweed *Calystegia collina ssp. tridactylosa*	PDCON04036			G4T1	S1	1B.2
17	deep-scarred cryptantha *Cryptantha excavata*	PDBOR0A0W0			G1	S1	1B.3
18	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
19	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
20	glandular western flax *Hesperolinon adenophyllum*	PDLIN01010			G3	S3	1B.2
21	grass alisma *Alisma gramineum*	PMALI01010			G5	S3?	2B.2
22	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	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	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
25	scabrid alpine tarplant *Anisocarpus scabridus*	PDASTDU020			G3	S3	1B.3
26	sharp-shinned hawk *Accipiter striatus*	ABNKC12020			G5	S4	
27	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
28	watershield *Brasenia schreberi*	PDCAB01010			G5	S3	2B.3
29	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
30	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2
31	yellow warbler *Setophaga petechia*	ABPBX03010			G5	S3S4	SC
32	yellow-breasted chat *Icteria virens*	ABPBX24010			G5	S3	SC

String Creek Steelhead Instream Habitat Enhancement Project
M 19N 13W Section 27
Willits Quad



Introduction:

The Conservation Fund will remove a log jam which is impeding passage for salmonids. The large 55' long x 50' wide x 18' deep wood jam and associated instream stored sediment upstream of the log jam that are adversely impacting a 350 foot segment of Horsethief Canyon, inhibiting fish passage to all life stages of anadromous salmonids. Based on standard geometric relationships, the volume of wood comprising the wood jam appears to be approximately 350 yds3, and the volume of stored sediment upstream of the wood jam is estimated at approximately 1,950 yds3. The general appearance of the wood jam suggests adult fish migration up through the abrupt change in elevation and dense network of wood is unlikely.

The project will also abandon approximately .35 mile of near stream road and associated crossings which pose a high risk of substantial future chronic and episodic sediment delivery if left untreated. The road and all watercourse crossings are in close proximity to Rockpile Creek, a large class I tributary to the Gualala River which provides habitat for both coho salmon and steelhead trout. Road abandonment and stabilization of watercourse crossings with high sediment delivery risk will result in approximately 2,010 yds3 of sediment savings.

The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured and a "notice to proceed" letter has been received from the Grantor Project Manager. 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 Grantor. All habitat improvement will follow techniques in the California Stream Habitat Restoration Manual.

Objective(s):

The objective is to remove a log jam which is impeding passage for salmonids and abandon approximately 1/2 mile of near stream road and associated crossings.

Project Description:

Location:

Log jam: -123.378739 38.7284331
Road point 1: -123.380282 38.785738
Road point 2: -123.381072 38.78770
Road point 3: -123.381174 38.788462
Road point 4: -123.381125 38.788443
Road point 5: -123.381401 38.790007
Road point 6: -123.381677 38.790292

The project is located on Horsethief Canyon in southern Mendocino County adjacent to and north of the Mendocino Sonoma county line. Horsethief Canyon

is a tributary to Rockpile Creek, which is a tributary to the Gualala River which enters the Pacific Ocean south of the town of Gualala, 114 miles north of San Francisco and 17 miles south of Point Arena. Primary access to the project is via Fish Rock Road.

Project Set Up:

TCF Personnel, TCF Forester & Forest Tech: involved with pre-project development, will be available or on-site during project implementation, and will provide post project follow up and final reporting. TCF Personnel, Accounting Staff: involved in budget development, tracking costs, project invoicing and final budget reporting. Subcontractor, Licensed Professional Geologist, Elias Steinbuck: responsible for fish barrier removal project development, implementation and post project data collection. Subcontractor, Permit Specialist: responsible for the writing the CDFW 1600 permit application. Subcontractor, Licensed Contractor:

• Excavator 320L to implement road treatments & work on log jam removal
• Cat D7 to implement road treatments & work on log jam removal
• Dump truck for endhauling soils
• Lowbed for equipment moving in and out
• Rubber tired Skidder for moving logs from log jam onto landing
• Hand labor for assembling culverts, hand placing rock, spreading straw
• Project Supervisor to ensure project is implemented properly

Materials:

- Straw mulch to be placed for erosion control
- 75 gallons of gasoline
- 1510 gallons of diesel

Tasks:

Task A: Contract Oversight & Project Management.

Contract oversight will be conducted by The Conservation Fund. All reporting and billing will be pursuant to contract and regulatory guidelines. A Permit Specialist will be hired to write the CDFW 1600 permit. Upon final execution of the Grant and prior to receiving a Final Notice to Proceed, deliver the landowner access agreements, subcontracts, and assure all permits are finalized. TCF Accounting Staff will process invoices from subcontractors and develop and submit invoices to the grantor. TCF Forester will administer the project in the field to ensure timeliness, completion, and conformance with restoration and land management goals. TCF Forester & TCF Forest Tech will perform periodic reviews of project progress. A final report will be generated and submitted.

Task B: Implementation of Proposed Treatment.

TCF Forester will administer the project in the field to ensure timeliness, completion, and conformance with restoration and land management goals. The Subcontracted Licensed Contractor will provide a Project Supervisor to insure the project is implemented properly and in a timely fashion. Implementation of the proposed treatment includes the following action items:

Action 1: Heavy equipment will be moved in via Lowbed to the project site. The D7 will be used to reopen .35 mile of road from site 6 to log jam.

Action 2: Remove logs from jam using D7 tractor with winch. The tractor will winch logs from the truck road located approximately 50' away from the jam. A Laborer with a chainsaw will be used to cut some logs into smaller pieces to facilitate removal. Logs will be skidded with a rubber tired skidder to an existing landing approximately 500' northwest of the jam for storage.

Action 3: Abandon truck road between site 1 and 6 (approximately .35 mile). Site specific treatments are outlined in Attachment 2. The following general guidelines apply to road abandonment treatments:

• Stream crossings shall be excavated such that all fill is removed and a 100 year flood flow channel bottom is left. Crossing approaches will be sloped back to 2:1 or otherwise stable sideslopes. Excavated spoils will be stored locally against the road cutbank where it will not erode. Where limited space is present for local spoils disposal, excavated material will be hauled offsite with dumptruck and stabilized such that it will not deliver to a watercourse.

• Road surface treatments to minimize long term chronic erosion and facilitate revegetation will include a combination of the following:
1) Ripping of the road surface with mechanical rippers

2) Excavation of perched fill and unstable sidecast and placement against the truck road cutbank to create an outslope

3) Excavate perched fill and sidecast material creating a partial
outslope; excavated material is hauled to offsite storage location

4) Installation of oversized waterbars to provide road surface drainage.

Deliverables:

Task A:
• Grantor Notification of Lake or Streambed Alteration Application with a check for the cost of the1600 permit

• Progress Reports submitted with each invoice

• Annual Reports by November 15

• Final Report by Task which contains: (1) general grant information, (2) location of work, (3) project access, (4) 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 (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 10 contributed and/or in kind services used to complete the project, and (10) GIS generated maps of project achievements.

Timelines:

Task A:
June 2016 or upon grant approval, attain 1600 permit, collect pre-project data and take pre-project photos.

November 15, 2016, deliver annual progress report to Grantor Project Manager.
March 31, 2018, deliver final report and final invoice to Grantor Project Manager.

Task B:
July 1, 2016 through October 31, 2016, move heavy equipment in to perform proposed treatments, implement project, move equipment out, decommission road and conduct erosion control.

July 1, 2017 through October 31, 2017, finish any portion of the project that might have been delayed in the previous (2016) work season.

Additional Requirements:

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 native aquatic species from the project area. If the project requires dewatering of the site and the relocation of listed aquatic species, the Grantee will implement the following measures to minimize harm and mortality to listed species as well as other native aquatic species:

- 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 as approved by the Grantor

Project Manager and pursuant to conditions in the USACE Regional General Permit, NMFS Biological Opinion, and project's Lake and Streambed Alteration Agreement (1600 permit).

- 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*.

- Only qualified fisheries biologist that are approved by USFWS and permitted by CDFW under a California Endangered Species Act (CESA) Memorandum of Understanding (MOU) shall handle and relocate CESA listed species.

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

- NMFS Approved fisheries biologists will provide fish relocation data via the Grantee to the Grantor Project Manager on a form provided by Grantor.

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

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, the Grantee shall provide to Grantor 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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

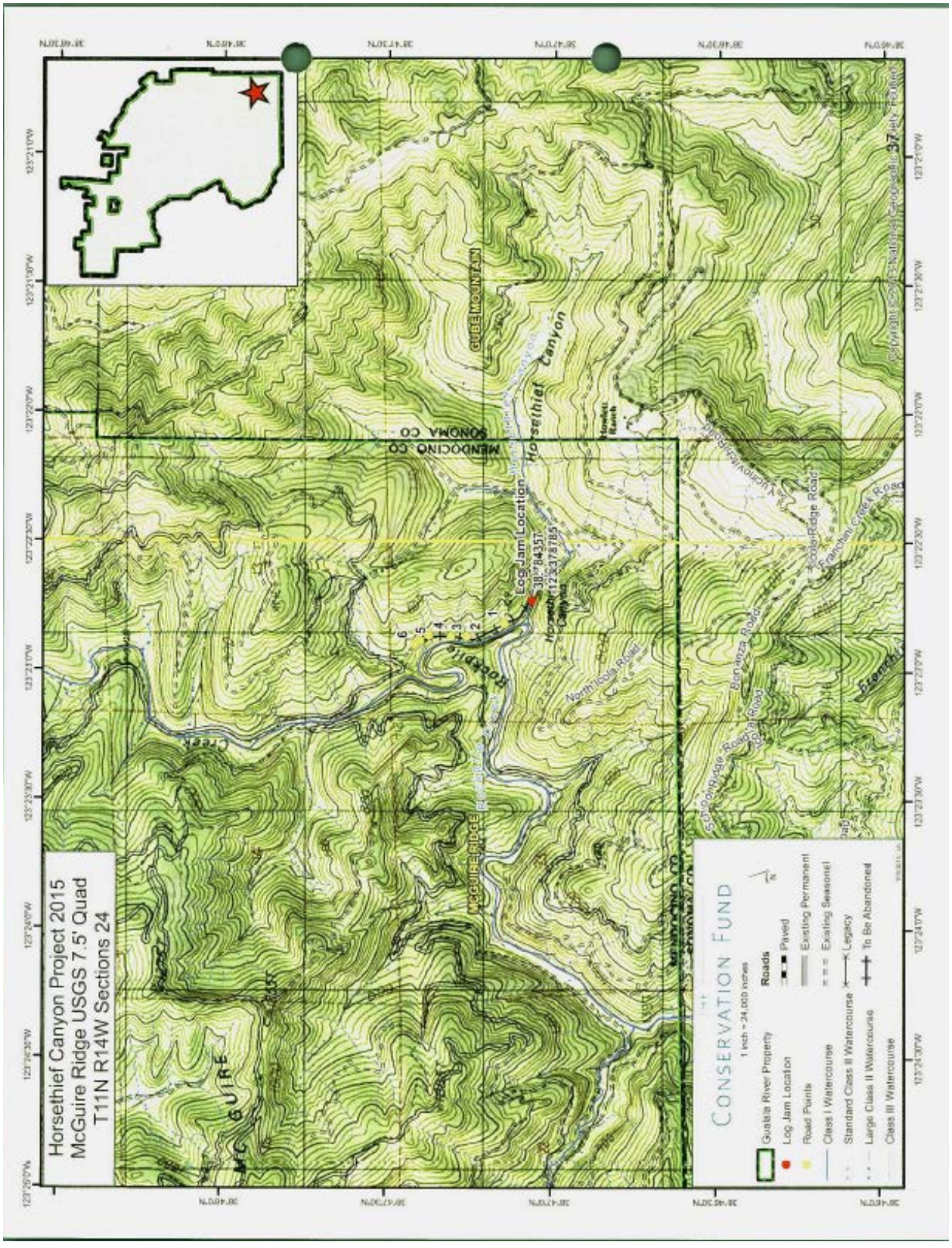
California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
725029 Horsethief Canyon Instream Barrier Modification
M 10N 14W Section 11
Sonoma County

	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	California giant salamander *Dicamptodon ensatus*	AAAAH01020			G3	S2S3	
5	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
6	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
7	Coastal Terrace Prairie	CTT41100CA			G2	S2.1	
8	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
9	Gualala roach *Lavinia symmetricus parvipinnis*	AFCJB19025			G4T1T2	S1S2	SC
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 dodder *Cuscuta pacifica var. papillata*	PDCUS011A2			G5T1	S1	1B.2
14	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
15	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
16	Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012			G5T2	S2	1B.2
17	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
18	Roderick's fritillary *Fritillaria roderickii*	PMLIL0V0M0		Endangered	G1Q	S1	1B.1
19	Sonoma arctic skipper *Carterocephalus palaemon magnus*	IILEP42012			G5T5	S1	
20	Sonoma spineflower *Chorizanthe valida*	PDPGN040V0	Endangered	Endangered	G1	S1	1B.1
21	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
22	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2	SC
23	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	coast lily *Lilium maritimum*	PMLIL1A0C0			G2	S2	1B.1
25	coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2			G4T2T3	S2S3	1B.2
26	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
27	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
28	deceiving sedge *Carex saliniformis*	PMCYP03BY0			G2	S2	1B.2
29	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
30	maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0			G3	S3	4.2
31	marsh pea *Lathyrus palustris*	PDFAB250P0			G5	S2	2B.2
32	monarch - California overwintering population *Danaus plexippus pop. 1*	IILEPP2012			G4T2T3	S2S3	
33	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
34	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
35	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
36	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
37	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T1	S1	1B.2
38	pygmy cypress *Hesperocyparis pygmaea*	PGCUP04032			G1	S1	1B.2
39	rhinoceros auklet *Cerorhinca monocerata*	ABNNN11010			G5	S3	
40	rose leptosiphon *Leptosiphon rosaceus*	PDPLM09180			G1	S1	1B.1
41	running-pine *Lycopodium clavatum*	PPLYC01080			G5	S3	4.1
42	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T3	S2	1B.2
43	steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	SC
44	supple daisy *Erigeron supplex*	PDAST3M3Z0			G2	S2	1B.2
45	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
47	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S1S2	SC
48	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
49	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2
50	woolly-headed gilia *Gilia capitata ssp. tomentosa*	PDPLM040B9			G5T2	S2	1B.1
51	woolly-headed spineflower *Chorizanthe cuspidata var. villosa*	PDPGN04082			G2T2	S2	1B.2

Horsethief Canyon Instream Barrier Modification



Introduction:

San Mateo County Resource Conservation District (Grantee) will implement the San Gregorio Creek Habitat Enhancement Project – Phase 2, by installing large woody debris (LWD) structures, boulders and boulder structures, and other instream features to increase habitat complexity and improve pool frequency and depth, with the goal of enhancing populations of coho salmon and steelhead trout in the San Gregorio Creek watershed. The project is proposed pursuant to recommendations contained in the watershed enhancement plan (Stillwater Sciences, 2010), and LWD assessment (American Rivers, 2014) that were prepared specifically for the San Gregorio Creek watershed.

Objective:

The objective of the project is to install approximately 38-56 pieces of large woody debris (LWD) into San Gregorio Creek at a minimum of 14 separate and distinct locations. The addition of LWD structures as designed will result in greater habitat complexity, improved pool frequency and depth via scour, thereby resulting in improved cover for juvenile fish. The project will also provide high-flow refugia in a reach that currently lacks sufficient quantities of LWD.

Project Description:

Location:

The project site is approximately 8.52 miles upstream of the mouth of San Gregorio Creek. The mid-point of the 0.42 mile of stream reach being treated is located at latitude/longitude 37.31170000: -122.31200000.

Project Set Up:

RCD STAFF:
The Natural Resource Specialist will be the primary person responsible for completion of activities described under Task 1 – Project Management, as well as completing technical work under Task 2 – Permitting and Task 4 - Construction, as well as physical surveys conducted under Task 3 – Biological Monitoring & Physical Surveys. The Natural Resource Specialist will coordinate with RCD staff, contractors, resource agency staff, landowners, and other project partners to ensure the project is completed successfully and on time. The Natural Resource Specialist will oversee completion of all other tasks including responsibilities assumed by the Conservation Assistant, the Program Assistant, subcontractors, the landowner, and other project partners. The Natural Resource

Specialist will also assist as a Biological Monitor under supervision by the Qualified Biologist for the project.

The Conservation Assistant(s) will assist the Natural Resource Specialist as needed to perform work associated with Tasks 1, 2 and 3. This includes but is not limited to conducting surveys and photo documentation of sites, assisting with report and/or map preparation, conducting geospatial analysis using ESRI ArcGIS, installing and tracking the tagging of LWD used in the project, and any other task deemed appropriate by the Natural Resource Specialist. The Conservation Assistants will assist as Biological Monitors under supervision by the Qualified Biologist for the project.

The Program Assistant will assist the Natural Resource Specialist and the Finance Director with duties under Task 1 as needed to set up and maintain project management software (QuickBase), prepare invoices, manage subcontracts, process payments for subcontractors, maintain financial records, prepare reports, prepare press releases and/or social media content about the project, create and update the project webpage, or any other task deemed appropriate by the Natural Resource Specialist.

The Finance Director will assist with duties in Task 1, including responsibility for all aspects of fiscal management, such as invoicing, maintaining financial records, reviewing contracts and subcontracts for fiscal impacts, accounting and bookkeeping, reporting financials to the Board of Directors and the public, and auditing.

The Executive Director will be the signatory to all contracts and assist with strategy, permitting, and overall project direction as part of Task 1.

SUBCONTRACTORS:

The Registered Professional Forester will implement all engineered structure designs including placement of project LWD/boulders in the active channel, install all anchoring hardware, procure LWD from onsite, and coordinate delivery of offsite LWD under Task 4 – Construction. The Registered Professional Forester will assist with implementation monitoring including photo points and project LWD metrics under Task 3 – Biological Monitoring & Physical Surveys.

The Project Technician will be employed by the Registered Professional Forester, and will assist the project team with duties under Task 4 - Construction, including implementation monitoring, photo points, project LWD metrics, and implementation of engineered designs and permits as planned. The Project Technician will also assist the Registered Professional Forester and the Licensed Timber Operator throughout the construction of the engineered structure designs including placement of project LWD/boulders in the active channel, installation of

anchoring hardware, logistics of procuring LWD from onsite, erosion control, and any additional permitting requirements.

The Licensed Timber Operator and their Timber Operation Staff will be the lead equipment operator responsible for all construction as listed in Task 4 – Construction. This includes but is not limited to placement of project LWD/boulders in the active channel, installation of all anchoring hardware, procuring LWD from onsite, and assisting in coordinating delivery of offsite LWD. All heavy equipment work will be done or directly overseen by the Licensed Timber Operator and Timber Operation Staff, with guidance as needed from the Project Engineer.

The Project Engineer will oversee implementation and construction of the project pursuant to Tasks 1 and 4, while providing assistance as needed with Tasks 2 and 3. The Project Engineer will review and approve any necessary changes to the 100% designs, and perform a minimum of two site visits during construction to ensure that the project is being constructed as designed. The Project Engineer will be available to answer specific permitting-related questions about components of the project related to design, engineering, and construction under Task 2 and will perform as-built surveys to insure the project was constructed as designed under Task 3.

The Qualified Biologist will complete biological surveys and monitoring under Task 3 – Biological Monitoring & Physical Surveys with assistance from the Natural Resource Specialist and Conservation Assistants, as needed. The Qualified Biologist will assume multiple responsibilities for this project providing biological monitoring for all species under Task 3, project design field support under Task 4 – Construction, coordination with IWRP, and project management support under Task 1 – Project Management, and any needed permitting support under Task 2 - Permitting. The Qualified Biologist is also expected to have some role offering strategic support under all tasks of this project.

Materials:

- Logs, trees and rootwads: Logs, trees and rootwads of various sizes will be used to construct the bulk of the instream habitat structures.
- Boulders: Boulders will be used to anchor the large wood to prevent it from floating away in large storm events.
- Field Supplies: Field supplies may include but are not limited to metal tags (for LWD), chainsaw files, and personal protection equipment (PPE). Metal tags are affixed to all project LWD to facilitate identification and future monitoring of all structures installed as part of this project. Chainsaw files are used to keep the chainsaw running safely and effectively when cutting LWD. Chains are filed daily and often more frequently depending on field conditions.

PPE includes but is not limited to gloves, helmets, earplugs, safety glasses, chainsaw caps, rebar caps and Dayglo vests. PPE is necessary to insure the proper protection and safety of all personnel during the construction process. PPE is considered replaceable equipment.

- Anchoring Supplies: Anchoring supplies include but are not limited to threaded rebar, epoxy, wood screws, washers, nuts, eyenuts, and quick links. These supplies are used to anchor new large wood to boulders and existing trees.
- Weed Free Rice Straw Mulch: Straw mulch will be used for erosion control upon completion of the project.
- Native Seed: Native grass seed will be used to seed all disturbed areas to promote revegetation and prevent erosion.
- Redwood Seedlings: Redwood seedlings will be planted in the project area to promote long term regeneration of coniferous wood sources.
- Willow Stakes: Willow stakes will be sourced onsite and planted adjacent to wood structures to promote riparian revegetation and help stabilize stream banks.
- Exclusionary Fencing: Exclusionary fencing will be installed around the construction staging area to avoid impacts to the San Francisco garter snake.
- Total Station: A total station will be used for conducting physical surveys to document pre- and postproject conditions. (Grantee has access to a total station and is not requesting funding for rental or purchase of this equipment.)
- Solinst Level Logger, Barologger, and Optical Reader: These instruments will be used to conduct surveys of water depths and estimated flow velocities within the enhanced floodplain during winter flows measuring ≥500 cubic feet per second (cfs) at Feature 3.
- Installation Supplies: Installation supplies will be used to install the Solinst monitoring instruments. This includes but is not limited to 10’ of 1.5” diameter PVC pipe, PVC cap, fencepost, and wire.

Tasks:

TASK 1 - PROJECT MANAGEMENT

Task 1 will be performed by the Natural Resource Specialist (NRS) with significant support from the Conservation Assistants (CA) and Program Assistant (PA). The Executive Director (ED) and Finance Director (FD) will provide input and guidance as needed.

Task elements include:

- Convene project team meetings (CA, NRS)
- Finalize workplan (ED, NRS)
- Draft and finalize subcontracts (ED, FD, NRS)
- Manage project contracts (PA, FD)
- Manage project budget, prepare invoices (NRS, PA, FD)

- Coordinate with project partners (NRS, CA)
- Submit financial and progress reports (NRS, CA, PA, FD, ED)
- Draft and submit final report (NRS, CA, PA, FA, ED)
- Disseminate project materials and results, prepare progress reports and final report (NRS, CA)

TASK 2 - PERMITTING
This task will be performed by the NRS with assistance from the CA, the ED and subcontractors Qualified Biologist (QB) and Project Engineer (PE).

Task elements include:

- Develop and finalize a Lake and Streambed Alteration Agreement (LSAA) (NRS, QB, CA, PE)
- Preparation of all other necessary local permits or environmental compliance documents (NRS, QB, CA, PE)
- Develop and finalize specific conditions for protection of the San Francisco garter snake, including avoidance and minimization measures to be implemented during construction (NRS, CA, QB, PE)

TASK 3 - BIOLOGICAL MONITORING & PHYSICAL SURVEYS
Biological monitoring will be conducted and overseen by the QB with assistance from the NRS and CA. Physical surveys will be conducted and overseen by the PE with assistance from the QB, NRS and CA. Sensitive species with potential habitat within the project area *will be assumed present* and appropriate avoidance and minimization measures to avoid impacts to those species will be followed as indicated in the 2016 FRGP Mitigated Negative Declaration and the LSAA issued for this project. California red legged frogs, San Francisco garter snakes, marbled murrelets, San Francisco dusky footed woodrat, western pond turtle, and anadromous salmonids are species with special status protections that will be assumed present in the project area. The QB and all proposed biological monitors must seek and receive approval from the US Fish and Wildlife Service to handle listed species that may require relocation out of harm's way.

Task elements include:

- Conduct pre-construction reconnaissance surveys for birds, sensitive fish, amphibians, reptiles and mammals in the project area and along access routes as per the requirements of the FRGP CEQA document and RGP to identify potential habitat for special status species (QB, NRS, CA)
- Install exclusionary fencing as needed around project area, staging areas, equipment storage areas and any other location deemed necessary. Exclusionary fencing shall be checked daily to ensure it is functioning as intended and maintenance performed as necessary.

- Conduct biological monitoring during construction for all special status species within the project area, along access routes and adjacent to any stockpile or staging areas associated with the project (QB, NRS, CA)
- Conduct as-built surveys to document that each structure was constructed as designed, or to document field adjustments that were required (PE, QB, NRS, CA)
- Conduct pre- and post-construction topographic surveys of LWD installation sites to measure changes in physical conditions associated with project goals. Survey methods will be based on CDFW's California Salmonid Stream Habitat Restoration Manual (4th edition), instream channel reference sites and illustrated guide to field technique (Harrelson et. al. 1994). The pre-construction survey will be conducted in spring 2016 prior to construction. Post-construction surveys will be repeated annually in the following next three winters (2017, 2018 and 2019). (NRS, CA, QB, PE)
- Conduct one pre-construction in 2016 and three (3) annual post-construction longitudinal profiles in 2017, 2018 and 2019. Cross sections no less than 200' apart will be measured using a total station throughout the project reach. At each LWD implementation site, several cross sections will be measured (as needed) along with pool scour depths, pool area, amount of cover contributed, and aggradation of streambed material. (NRS, CA, QB, PE)
- Conduct three (3) annual non-intrusive visual presence/absence post-construction surveys in 2017, 2018 and 2019 for juvenile anadromous salmonids (NRS, CA)
- Conduct three (3) annual post-construction pebble counts in 2017, 2018 and 2019, in a designated location downstream of each installed LWD structure that is intended to effect development of scour pools and/or substrate sorting (NRS, CA)
- Develop (with guidance from CDFW biologists) a monitoring plan for Feature 3 that will include a minimum of three (3) annual post-construction surveys of water depths and estimated flow velocities within the enhanced floodplain during winter flows of ≥ 500 cfs. Flow measurements shall be taken using a Solinst Level Logger, Barologger, and Optical Reader, which will be installed using 10' of 1.5" diameter PVC pipe, PVC cap, fencepost, and wire. (QB, NRS, CA)

While no dewatering or reach-wide electro-fishing is planned for the project, the QB, NRS, and CA will consult with the Grant Manager to assess conditions at the time of construction, and ensure that all required protective measures are followed during construction.

TASK 4. CONSTRUCTION

All responsibilities under Task 4 will be completed or directly overseen by the Licensed Timber Operator (LTO), and the Registered Professional Forester (RPF) with assistance from the Project Technician (PT) and Timber Operation Staff (TOS). Additional guidance and assistance from the PE, NRS and QB may be provided as necessary. Timber harvest on-site will be directly overseen by the Licensed Professional Forester (LPF). When placing wood, the equipment will be restricted to flat or gently sloping ground (less than 40% slope), with existing roads used whenever possible. At no time will heavy equipment enter the wetted portion of the channel. 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. The construction window will be between September 15 and October 31 to avoid marbled murrelet nesting season.

Task elements include:

- Install and anchor up to 14 Large Woody Debris (LWD) structures in previously identified placement locations within the project footprint on San Gregorio Creek, utilizing a mix of logs, rootwads, and/or whole trees (LTO, TOS, PE, NRS).
- Perform fine adjustment and bucking (where appropriate) of placed logs may be performed with hand tools including chain saws, winches, rockbars, and shovels. (LTO, TOS)
- Source and harvest between 4 and 12 trees on-site in accordance with accepted forestry practices. Source, purchase and deliver up to 30 logs, trees and/or root wads from off-site locations. (LPF, PT)
- All placed wood pieces will be tagged for identification and monitoring (NRS, CA, PT)

The 14 identified placement locations extend across the 0.42 mile project reach.

Deliverables:

Under TASK 1 - PROJECT MANAGEMENT

- Final long-term access agreements with landowners
- Quarterly progress reports and invoices
- Executed contracts
- Draft and Final Project reports. The final report will include the following information: (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 log numbers, (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 the project area.

Under TASK 2 - PERMITTING

- Submitted permit applications
- Secured permits
- If needed, approved fish relocation plan

Under TASK 3 - BIOLOGICAL MONITORING & PHYSICAL SURVEYS

- Pre-construction special status species survey reports
- Daily monitor logs
- Final reports detailing results of pre- and post-construction physical surveys

Under TASK 4 - CONSTRUCTION

- A minimum of fourteen (14) constructed instream LWD structures
- As-built or red-line descriptions of each structure
- Final (stamped and signed by PE) plans and maps
- 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

Timelines:

Project Start Date: July 2016 or date of execution of grant contract, whichever occurs later.

TASK 1. PROJECT MANAGEMENT: July 2016 – January 2020
TASK 2. PERMITTING: July 2016 – January 2017
TASK 3. BIOLOGICAL MONITORING & PHYSICAL SURVEYS: July 2016/2017 – November 2019
TASK 4. CONSTRUCTION: September 2016/2017 – October 2016/2017
Project End Date: January 2020

Additional Requirements:

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.

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 surface 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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

If the project requires dewatering of the site, and the relocation of salmonids, the Grantee shall notify the Grant Manager via email 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. Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

a. If fish relocation is deemed necessary by the Grant Manager, fish relocation activities shall be restricted to between June 15 and October 31 of each year.

b. 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*.

c. Electrofishing, if necessary, 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.

This project does not currently include dewatering or fish relocation activities. Alternatively, the Grantee will install the following additional protective measures:

d. 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 from stable dry gravel bars along the toe of the banks.

e. Grantee expects one temporary channel crossing to be necessary in order to access Features 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 polyethylene plastic sheeting to (a) allow unimpeded flow through the crossing, (b) keep equipment at least 12 inches above the water surface elevation, and (c) prevent any accident spill of fluids into the live stream. All materials used to construct temporary channel crossing(s) will be removed from the channel and the site upon completion of the project.

f. Flow levels at this site are very low during the required construction season (September 15 – October 31), and stream flow will be able to percolate through the sand/gravel bags or logs. Remaining sites will be accessed via the main ranch and established crossings adjacent to the project sites.

g. Grantee will use on-site small woody debris (SWD) and pin remnant pieces under larger LWD structures and incorporate them into the structures to add complexity.

h. 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.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
724673 San Gregorio Creek Habitat Enhancement Project - Phase 2
M 07S 04W Section 20
San Mateo County

	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	S3	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 spineflower *Chorizanthe pungens var. hartwegiana*	PDPGN040M1	Endangered		G2T1	S1	1B.1
6	Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060			G2	S2	1B.2
7	Bonny Doon manzanita *Arctostaphylos silvicola*	PDERI041F0			G1	S1	1B.2
8	Butano Ridge cypress *Hesperocyparis abramsiana var. butanoensis*	PGCUP04082	Endangered	Endangered	G1T1	S1	1B.2
9	California black rail *Laterallus jamaicensis coturniculus*	ABNME03041		Threatened	G3G4T1	S1	
10	California clapper rail *Rallus longirostris obsoletus*	ABNME05016	Endangered	Endangered	G5T1	S1	
11	California least tern *Sternula antillarum browni*	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2	
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	Choris' popcornflower *Plagiobothrys chorisianus var. chorisianus*	PDBOR0V061			G3T2Q	S2	1B.2
15	Congdon's tarplant *Centromadia parryi ssp. congdonii*	PDAST4R0P1			G3T2	S2	1B.1
16	Crotch bumble bee *Bombus crotchii*	IIHYM24480			G3G4	S1S2	
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	Dudley's lousewort *Pedicularis dudleyi*	PDSCR1K0D0		Rare	G2	S2	1B.2
20	Edgewood Park micro-blind harvestman *Microcina edgewoodensis*	ILARA47010			G1	S1	
21	Edgewood blind harvestman *Calicina minor*	ILARA13020			G1	S1	
22	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
23	Franciscan thistle *Cirsium andrewsii*	PDAST2E050			G3	S3	1B.2
24	Hoover's button-celery *Eryngium aristulatum var. hooveri*	PDAPI0Z043			G5T1	S1	1B.1
25	Kellman's bristle moss *Orthotrichum kellmanii*	NBMUS56190			G2	S2	1B.2
26	Kellogg's horkelia *Horkelia cuneata var. sericea*	PDROS0W043			G4T2	S2?	1B.1
27	Kings Mountain manzanita *Arctostaphylos regismontana*	PDERI041C0			G2	S2	1B.2
28	Marin western flax *Hesperolinon congestum*	PDLIN01060	Threatened	Threatened	G2	S2	1B.1
29	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
30	Monterey Pine Forest	CTT83130CA			G1	S1.1	
31	Monterey pine *Pinus radiata*	PGPIN040V0			G1	S1	1B.1
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	North Central Coast Steelhead/Sculpin Stream	CARA2637CA			GNR	SNR	
37	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
38	Northern Interior Cypress Forest	CTT83220CA			G2	S2.2	
39	Ohlone manzanita *Arctostaphylos ohloneana*	PDERI042Y0			G1	S1	1B.1
40	Point Reyes meadowfoam *Limnanthes douglasii ssp. sulphurea*	PDLIM02038		Endangered	G4T2	S2	1B.2
41	Ricksecker's water scavenger beetle *Hydrochara ricksecker*i	IICOL5V010			G2?	S2?	
42	Sacramento-San Joaquin Coastal Lagoon	CALA1360CA			GNR	SNR	
43	San Francisco campion *Silene verecunda ssp. verecunda*	PDCAR0U213			G5T2	S2	1B.2
44	San Francisco collinsia *Collinsia multicolor*	PDSCR0H0B0			G2	S2	1B.2
45	San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	AMAFF08082			G5T2T3	S2S3	SC
46	San Francisco garter snake *Thamnophis sirtalis tetrataenia*	ARADB3613B	Endangered	Endangered	G5T2Q	S2	
47	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
48	San Mateo thorn-mint *Acanthomintha duttonii*	PDLAM01040	Endangered	Endangered	G1	S1	1B.1
49	San Mateo woolly sunflower *Eriophyllum latilobum*	PDAST3N060	Endangered	Endangered	G1	S1	1B.1
50	Santa Clara red ribbons *Clarkia concinna ssp. automixa*	PDONA050A1			G5?T3	S3	4.3
51	Santa Cruz Mountains beardtongue *Penstemon rattanii var. kleei*	PDSCR1L5B1			G4T2	S2	1B.2
52	Santa Cruz Mountains pussypaws *Calyptridium parryi var. hesseae*	PDPOR09052			G3G4T2	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	1B.2
56	Santa Cruz wallflower *Erysimum teretifolium*	PDBRA160N0	Endangered	Endangered	G2	S2	1B.1
57	Schreiber's manzanita *Arctostaphylos glutinosa*	PDERI040G0			G1	S1	1B.2
58	Serpentine Bunchgrass	CTT42130CA			G2	S2.2	
59	Toren's grimmia *Grimmia torenii*	NBMUS32330			G2	S2	1B.3
60	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2	SC
61	Valley Needlegrass Grassland	CTT42110CA			G3	S3.1	
62	Valley Oak Woodland	CTT71130CA			G3	S2.1	
63	arcuate bush-mallow *Malacothamnus arcuatus*	PDMAL0Q0E0			G2Q	S2	1B.2
64	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2	
65	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
66	coast yellow leptosiphon *Leptosiphon croceus*	PDPLM09170			G1	S1	1B.1
67	coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2			G2T2	S2	1B.2
68	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
69	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
70	fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0			G2	S2	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
71	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
72	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4	
73	legenere *Legenere limosa*	PDCAM0C010			G2	S2	1B.1
74	long-eared owl *Asio otus*	ABNSB13010			G5	S3?	SC
75	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
76	lost thistle *Cirsium praeteriens*	PDAST2E2B0			GX	SX	1A
77	marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
78	marsh microseris *Microseris paludosa*	PDAST6E0D0			G2	S2	1B.2
79	mimic tryonia (=California brackishwater snail) *Tryonia imitator*	IMGASJ7040			G2	S2	
80	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S2	1B.2
81	monarch - California overwintering population *Danaus plexippus pop. 1*	IILEPP2012			G4T2T3	S2S3	
82	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
83	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
84	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
85	rose leptosiphon *Leptosiphon rosaceus*	PDPLM09180			G1	S1	1B.1
86	round-leaved filaree *California macrophylla*	PDGER01070			G3?	S3?	1B.2
87	salt-marsh harvest mouse *Reithrodontomys raviventris*	AMAFF02040	Endangered	Endangered	G1G2	S1S2	
88	salt-marsh wandering shrew *Sorex vagrans halicoetes*	AMABA01071			G5T1	S1	SC
89	saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A			G5T3	S3	SC
90	sand-loving wallflower *Erysimum ammophilum*	PDBRA16010			G2	S2	1B.2
91	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T3	S2	1B.2
92	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
93	slender-leaved pondweed *Stuckenia filiformis ssp. alpina*	PMPOT03091			G5T5	S3	2B.2
94	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2T3Q	S2S3	
95	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S3	SC
96	two-fork clover *Trifolium amoenum*	PDFAB40040	Endangered		G1	S1	1B.1
97	unsilvered fritillary *Speyeria adiaste adiaste*	IILEPJ6143			G1G2T1	S1	
98	vaginulate grimmia *Grimmia vaginulata*	NBMUS32340			G2G3	S1	1B.1
99	western leatherwood *Dirca occidentalis*	PDTHY03010			G2	S2	1B.2
100	western pearlshell *Margaritifera falcata*	IMBIV27020			G4G5	S1S2	
101	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
102	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
103	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2
104	white-rayed pentachaeta *Pentachaeta bellidiflora*	PDAST6X030	Endangered	Endangered	G1	S1	1B.1
105	woodland woollythreads *Monolopia gracilens*	PDAST6G010			G3	S3	1B.2

San Gregorio Creek Habitat Enhancement Project – Phase 2
M 70S 04W Section 20
San Mateo County

Quiota Creek Fish Passage Improvement, Crossing 4 2016

Introduction:

1. Cachuma Operation and Maintenance Board (COMB) will implement the Quiota Creek Fish Passage Improvement at Crossing 4 project. The purpose of the project is to continue the long-term effort and sequence of projects that will remove all remaining man-made migration barriers within Quiota Creek and throughout the Santa Ynez River basin.

   This project is necessary because by removing the impediment at Crossing 4 on Quiota Creek in Santa Barbara County, 3.27 miles of stream with high-quality critical habitat will be opened up for southern steelhead spawning, rearing and over-summering. No anadromous steelhead have been observed in this creek since monitoring began in 2000, due to partial or total barriers along Quiota Creek. Genetic analysis performed by the National Oceanic and Atmospheric Administration (NOAA) Science Center at the University of California, Santa Cruz identified a tissue sample from a 2008 steelhead (600 mm fork-length) trapped on the Lower Santa Ynez River mainstem just upstream of the Quiota Creek confluence as a fish that originated from Quiota Creek (Garza and Clemento, 2010). Hence, the Quiota Creek O. mykiss population does contain anadromous fish genes. The project will eliminate any migration delays and open up unimpeded access to significant spawning and rearing habitat for steelhead within the Quiota Creek watershed and improve general access to upper basin habitats within the Santa Ynez River drainage, a Core 1 watershed in the Southern Steelhead Recovery Plan (National Marine Fisheries Service (NMFS), 2012).

2. Permit Disclosure: The Project Manager 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 specific objective of this project is to provide access to 3.27 miles of spawning and rearing habitat for southern steelhead by removing the passage migration barrier at Crossing 4 on Quiota Creek, and replacing it with a 53-foot span concrete bottomless bridge. This objective relates to the NMFS Southern California Steelhead Recovery Plan task SYR-SCS-3.1 Develop and implement plan to remove or modify fish passage barriers within the watershed (NMFS 2012).

The goals are to provide hydrologic connectivity through the new crossing, allowing sufficient flow depths for salmonid passage during minimal flows as well as allowing access to good spawning and rearing habitat in Quiota Creek. This effort will help to

facilitate the development of a self-sustaining population of Southern California steelhead within the Santa Ynez River Watershed below Bradbury Dam.

Project Description:

Location: The project site is located in the lower half of the Santa Ynez River watershed, 8.4 stream miles below Bradbury Dam (Lake Cachuma) and 39.6 miles upstream from the Pacific Ocean and east of the cities of Lompoc and Buellton. Quiota Creek enters the Santa Ynez River near the town of Santa Ynez, Santa Barbara County. Crossing 4 is located 2.6 miles upstream of the confluence of Quiota Creek with Santa Ynez River. The project is located at Latitude 34.56152000, Longitude -120.08685000 of the Santa Ynez 7.5 Minute U.S.G.S. Quadrangle, as depicted in the Project Location Map.

The project work site will extend into the creek channel approximately 170 feet upstream and 50 feet downstream of the fourth road crossing on South Refugio Road. The proposed road work will extend approximately 150 feet east and 210 feet west of the stream crossing.

Project Set Up: The Project Manager will provide oversight and administration (secure permits, hire subcontractors, coordinate project related meetings and communication, billing, compiling of project status reports, grant management and biological monitoring) for this project. The Project Manager will hire HDR Fisheries Design Center (HDR) as their engineering subcontractor. HDR will provide all engineering and design work for this project. The Project Manager will also hire a construction subcontractor with the experience and expertise to remove the existing crossing, complete all in-channel work and install a new bridge. The construction subcontractor will be responsible for mobilization, demolition and excavation of the existing crossing, installation of the new bridge and all activities associated with its installation and restoration of the site following construction. Additionally, other subcontractors may be hired as needed to implement this project such as survey crews, geotechnical specialists, construction oversight engineers, materials testing firms, general and specialist construction crew members, water quality inspectors, water diversion experts and arborists.

Materials: The project materials will consist of a new bridge system (bridge components, abutments, rails) as well as a single 18-foot wide lane road surface to the existing County road surfaces. The materials include concrete, gravel, sand, rock, railings, asphalt, fill material, signage, anti-graffiti paint, dewatering system, erosion control material, plants, tree stakes and fencing.

Tasks: The COMB staff, their Engineering subconsultant and the Construction subconsultants will complete the following tasks:

Task 1: Pre-Implementation

a. Finalize plan sets to bring to construction-ready level (100%)
b. Acquire necessary county and state permits
c. Obtain Notice to Proceed following 100% design review
d. Set up photo monitoring sites
e. Fish rescue and relocation, if necessary.

Task 2: Implementation of Fish Passage Improvement

a. Installation of the stream by-pass and reach dewatering system.
b. Demolition and removal of the existing crossing.
c. Excavation and construction of the bridge system and wing wall footings.
d. Installation of 53-foot by 18-foot prefabricated bottomless-arched culvert (bridge) and wing walls.
e. Installation of Engineered Streambed Material.
f. Re-grade the stream bottom with native stream bed materials.
g. Rebuild the roadway and cover with asphalt.
h. Anti-graffiti treatment on exposed areas of concrete.
i. Install the of bridge and road guard rails.
j. Install cattle exclusion fencing.

Task 3: Post Project Monitoring and Maintenance.

a. Site clean-up.
b. 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.
c. Permanent erosion control and re-vegetation of the site with native plants.
d. Maintenance and monitoring of restoration site for a period of 3 to 5 years, including irrigation set up, weed planted areas and re-plant, if necessary. The Monitoring Plan will include monitoring the fish passage hydraulics as well as the condition of the concrete arch bridge, cattle exclusion fencing, and planted vegetation. Any maintenance issues that may arise will be addressed in a timely manner by the Project Manager.
e. Evaluate fish habitat improvement projects as described in the California Salmonid Stream Habitat Restoration Manual.
f. Public Outreach – Upon completing the project, Project Manager will create a newsletter that will describe the project and the objectives achieved for restoration of southern steelhead within the Santa Ynez River basin. In addition, Project Manager will distribute a press release describing the project for the general public and to further promote recovery efforts of southern steelhead, with the objective of heightening awareness and engendering support of steelhead in local waterways.

Task 4: Prior to the bid and construction company selection process, the Project Manager will define the role of HDR Fisheries Design Center staff during construction. All subcontractors bidding on the project must 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 Project Manager will select the subcontractor with prior experience installing bridges since this component is critical to the success and durability of the project.

Task 5: The Project Manager will notify HDR Fisheries Design Center that they will be required to provide weekly Quality Assurance/Quality Control (QA/QC) reports to the Grantor's engineer using the Grantor's QA/QC reporting template.

Task 6: Provide administration of the grant including, but not limited, to personnel oversight, preparing and submission of invoices, progress reports, and the Final Grant 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:

- 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.

Timelines: The project is anticipated to take two years to construct. The construction window is September 15 to October 30 of each year unless otherwise designated in the project permits. Any delays will be communicated to the Grantor's project manager immediately. The following outlines the phases that must be accomplished in order to successfully complete the project:

Tasks 1a and 4: July –August 2016;
Task 1b-e and Task 2: August to October 30 in 2016 and in 2017;
Task 3: November 1 to December 31, 2016;
Task 5: Weekly (September 1 to October 30);
Task 6: Monthly – submission of progress reports and/or updates;
February 1, 2019 - Draft Grant Report in accordance with Attachment 2;
March 1, 2019 - Final Grant Report, final invoice and project documentation

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 bridge (culvert) design and installation will meet flow carrying capacity required for a 100-year flood event, as identified by specifications determined by the NOAA Fisheries and the Grantor, for adult and juvenile salmonid fish passage. The project will follow the NMFS (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 CDFW's engineers prior to commencement of work.

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 Project Manager/landowner will maintain the new crossing, inspect the crossing in a timely manner and remove debris as necessary during the storm season. Planting of tree seedlings shall take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings. The standard for success is 80% survival of plantings or 80% ground cover for broadcast planting of seed, after a period of three years.

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

5. Any modification to the design that occurs during construction must be approved by the Project Manager's design engineers and either Marcin Whitman, (916) 445-3832, or Margie Caisley, (916) 445-3162, CDFW

Engineers 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.

6. In instances where water is present in the work area, the Project Manager 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 Project Manager 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 Project Manager 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 NMFS, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

   - The Project Manager 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 steelhead 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.

7. The Project Manager/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.

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
724654 Fish Passage Improvement at Crossing 4, Quiota Creek
S 06N 31W Section 36
Santa Barbara County

	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	S3	SC
3	California red-legged frog *Rana draytonii*	AAABH01022	Threatened		G2G3	S2S3	SC
4	California tiger salamander *Ambystoma californiense*	AAAAA01180	Threatened	Threatened	G2G3	S2S3	SC
5	Contra Costa goldfields *Lasthenia conjugens*	PDAST5L040	Endangered		G1	S1	1B.1
6	Cooper's hawk *Accipiter cooperii*	ABNKC12040			G5	S4	
7	Coulter's goldfields *Lasthenia glabrata ssp. coulteri*	PDAST5L0A1			G4T2	S2	1B.1
8	Davidson's saltscale *Atriplex serenana var. davidsonii*	PDCHE041T1			G5T1	S1	1B.2
9	Gaviota tarplant *Deinandra increscens ssp. villosa*	PDAST4R0U3	Endangered	Endangered	G4G5T2	S2	1B.1
10	Hoover's bent grass *Agrostis hooveri*	PMPOA040M0			G2	S2	1B.2
11	Miles' milk-vetch *Astragalus didymocarpus var. milesianus*	PDFAB0F2X3			G5T2	S2	1B.2
12	Ojai fritillary *Fritillaria ojaiensis*	PMLIL0V0N0			G2?	S2?	1B.2
13	Palmer's mariposa-lily *Calochortus palmeri var. palmeri*	PMLIL0D122			G3T3?	S3?	1B.2
14	Refugio manzanita *Arctostaphylos refugioensis*	PDERI041B0			G2	S2	1B.2
15	San Diego desert woodrat *Neotoma lepida intermedia*	AMAFF08041			G5T3T4	S3S4	SC
16	Santa Barbara honeysuckle *Lonicera subspicata var. subspicata*	PDCPR030R3			G5T2	S2	1B.2
17	Santa Barbara jewelflower *Caulanthus amplexicaulis var. barbarae*	PDBRA0M012			G4T2	S2	1B.1
18	Santa Ynez false lupine *Thermopsis macrophylla*	PDFAB3Z0E0		Rare	G1	S1	1B.3
19	Sonoran maiden fern *Thelypteris puberula var. sonorensis*	PPTHE05192			G5T3	S2	2B.2
20	Southern California Steelhead Stream	CARE2310CA			GNR	SNR	
21	Southern Coast Live Oak Riparian Forest	CTT61310CA			G4	S4	
22	Southern Cottonwood Willow Riparian Forest	CTT61330CA			G3	S3.2	
23	Southern Vernal Pool	CTT44300CA			GNR	SNR	
24	Southern Willow Scrub	CTT63320CA			G3	S2.1	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2	SC
26	Valley Needlegrass Grassland	CTT42110CA			G3	S3.1	
27	bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S2	
28	black-flowered figwort *Scrophularia atrata*	PDSCR1S010			G2G3	S2S3	1B.2
29	chaparral ragwort *Senecio aphanactis*	PDAST8H060			G3?	S2	2B.2
30	coast horned lizard *Phrynosoma blainvillii*	ARACF12100			G3G4	S3S4	SC
31	ferruginous hawk *Buteo regalis*	ABNKC19120			G4	S3S4	
32	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
33	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	
34	late-flowered mariposa-lily *Calochortus fimbriatus*	PMLIL0D1J2			G3	S3	1B.2
35	mesa horkelia *Horkelia cuneata var. puberula*	PDROS0W045			G4T1	S1	1B.1
36	monarch - California overwintering population *Danaus plexippus pop. 1*	IILEPP2012			G4T2T3	S2S3	
37	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
38	pale-yellow layia *Layia heterotricha*	PDAST5N070			G2	S2	1B.1
39	round-leaved filaree *California macrophylla*	PDGER01070			G3?	S3?	1B.2
40	sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101			G5T2	S1	
41	seaside bird's-beak *Cordylanthus rigidus ssp. littoralis*	PDSCR0J0P2		Endangered	G5T2	S2	1B.1
42	silvery legless lizard *Anniella pulchra pulchra*	ARACC01012			G3G4T3T4Q	S3	SC
43	southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	ABPBX91091			G5T3	S2S3	
44	southern curly-leaved monardella *Monardella sinuata ssp. sinuata*	PDLAM18161			G3T2	S2	1B.2
45	southern tarplant *Centromadia parryi ssp. australis*	PDAST4R0P4			G3T2	S2	1B.1
46	southwestern willow flycatcher *Empidonax traillii extimus*	ABPAE33043	Endangered	Endangered	G5T2	S1	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
47	steelhead - southern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209J	Endangered		G5T1Q	S1	SC
48	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S3	SC
49	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
50	two-striped garter snake *Thamnophis hammondii*	ARADB36160			G4	S3S4	SC
51	umbrella larkspur *Delphinium umbraculorum*	PDRAN0B1W0			G3	S3	1B.3
52	vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened		G3	S3	
53	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
54	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
55	western spadefoot *Spea hammondii*	AAABF02020			G3	S3	SC
56	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3S4	
57	white-veined monardella *Monardella hypoleuca ssp. hypoleuca*	PDLAM180A3			G4T2T3	S2S3	1B.3

Fish Passage Improvement at Crossing 4, Quiota Creek
S 06N 31W Section 36
Santa Barbara County

Project location just south of the town of Santa Ynez on Refugio Road; D downstream and U upstream of the project

South Fork Salmon River Tributary Salmonid Habitat Enhancement Project 2016

Introduction: The Salmon River Restoration Council (SRRC) will construct instream habitat enhancement structures in Methodist and Knownothing Creeks over 3.15 miles of stream (1.42 miles and 1.73 miles respectively), and monitor restoration effectiveness. This project will place structures with an excavator and skidder using purchased whole tree material (trees with root wads intact) from the United States Forest Service (USFS).

This project is necessary because summertime temperatures and lack of winter rearing habitat are stressors for juvenile coho in the Salmon River. Due to a combination of factors, including simplification and fragmentation of habitat, coho populations are declining. Prior to implementation of the Northwest Forest Plan, timber harvest extended into the riparian zone in many areas of the watershed. The most significant outcomes of these logging activities have been the associated changes in the natural fire regime, the substantial building of road networks throughout the basin, and loss of large diameter wood structures in streams. The SRRC's 2014 assessment of large woody debris (LWD) on Knownothing and Methodist creeks showed an overall lack of large in-stream structures, and identified locations where additional structures would be appropriate. This project will provide short-term and long-term benefits to coho salmon by restoring LWD and shade in key cold-water tributaries.

- 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* Part VII, Flosi et al 1998.

Objectives: The goal of this project is to place instream structures, guided by assessment results. The objectives of this project include:

- To increase channel complexity by placing instream structures in areas identified in an assessment.
- To augment LWD structures in two tributaries lacking channel complexity.
- To increase the number of LWD structures to create deeper pools, slower water and more cover for coho salmon.

Project Description:

Location: Knownothing Creek and Methodist Creek are tributaries of the South Fork Salmon River. Knownothing Creek is 3 river miles upstream of the confluence of the South Fork Salmon River and 22 river miles upstream of the mouth of the Salmon River at 41.24144200 north latitude, 123.29284500 west longitude. Methodist Creek is 6 river miles upstream of the confluence of the South Fork Salmon River and 25 miles upstream of the mouth of the Salmon River at 41.22223800 north latitude, 123.24990900 west longitude.

Project Set Up:

Salmon River Restoration Council (SRRC):

- SRRC Director: (Task 1). Provide project oversite and grant management. Participate in stakeholder meeting, and assist in completion of National Environmental Policy Act (NEPA) process.
- SRRC Program Coordinator: (Tasks 1, 2, 3 and 4): Provide overall project management. Manage subcontractors, organize and attend stakeholder meeting, and assist with project tracking and reporting. Responsible for coordinating procurement of wood and helping oversee layout and construction; compile NEPA specialist report and write NEPA document; assisting with project monitoring tasks.

USFS Specialists (Tasks 1 and 2): USFS resource specialists will attend the stakeholder meeting, assist in completing NEPA and perform final NEPA review and approval. They will also assist in acquisition of wood.

Karuk Tribe Fisheries Biologist (Tasks 1, 2 and 3): The Karuk Tribe Fisheries Biologist will attend the stakeholder meeting, and provide input in to project layout and monitoring.

Watershed Restoration Subcontractor (WRS): The WRS will provide project oversight and effectiveness monitoring.

- WRS Principle Geomorphologist: (Tasks: 1, 3, and 4): Provide technical expertise, final work plan review and field guidance for WRS Project Scientist and Physical Science Tech as required in complex landform issues. Responsible for oversight of geologic characterization of landforms, collection of stream habitat field data and monitoring information, and provide technical reviews of reports and publications. Ensure compliance with Geologist and Geophysicist Act (California Business and Professions Code 7800).
- WRS Project Scientist: (Tasks: 1, 2, 3, and 4): Overall responsible charge of project management and oversight, subcontracting, implementation layout, construction oversight, before/after effectiveness monitoring, Quality Assurance/Quality Control (QA/QC) plan development and data collection protocols; database and data form development; and data analysis and reporting associated with the monitoring study.
- WRS Physical Science Tech: (Task 4): Conduct on-the-ground field assessment work including but not limited to: conducting the pre- and post-implementation effectiveness monitoring. Also, collect and enter field data into electronic database. Report directly to Project Scientist.
- WRS Geographic Information Systems (GIS) Staff: (Tasks 2, 3, and 4): Provide project support through development of GIS maps and products, database interfaces, and Global Position System (GPS) data organization

and analysis. Produce field maps in support of assessment work and required final report maps.

- WRS Clerical Staff: (Task 1): Develop invoice tracking spreadsheet analysis, maintain project cost records, and develop timely invoices pursuant to subcontract obligations.

NEPA subcontractor (Task 1.3): Complete specialist reports for NEPA.

Heavy Equipment Subcontractor (Tasks 2.1 and 2.3): The heavy equipment operator will be a licensed contractor and Licensed Timber Operator (LTO) and will procure the whole tree material necessary to conduct project implementation. The equipment required will include but not be limited to: 1) hydraulic excavator, 2) log skidder, 3) end dump, 4) lowboy, 5) field laborer, and 6) pickup truck.

Materials: The materials for this project will include whole tree material (logs with and without root wads, and associated small woody material), anchoring materials, total station and sub-meter GPS, and field and office supplies (flagging, field notebooks, wooden lath stakes, rebar, marking paint, printer paper, and writing utensils).

Tasks: Construct 22 complex LWD structures and monitor restoration effectiveness to improve coho spawning and rearing habitat in the South Fork Salmon River Watershed by completing the flowing tasks.

Task 1: Project Management, Meetings, and Permitting

Task 1.1 SRRC and WRS conduct agreement oversight and project management. All reporting and billing will be pursuant to agreement and regulatory guidelines.

Task 1.2 Stakeholders meeting. The project team will conduct a field meeting to ensure that the stakeholders, including the landowner, have continued direct communication and understanding of how the project is being implemented. The meeting will provide the opportunity for all the stakeholders to have input on the final design elements of the proposed project.

Task 1.3 NEPA permitting. The USFS will be the lead agency for NEPA. The supporting documentation for the process will be prepared by the SRRC. Items to be included for investigation will include 1) fisheries, 2) archeology, 3) botany, 4) geology (paleontology), and 5) hydrology.

Task 1.4 Project tracking and invoicing. Project tracking and invoicing will be conducted over the life of the project. All reporting and billing will be pursuant to agreement and regulatory guidelines.

Task 2: Instream Habitat Restoration

Task 2.1 Wood procurement. Procure whole tree material in close coordination with the USFS, SRRC and WRS. The Heavy Equipment Subcontractor's Licensed Timber Operator will harvest up to 55 live conifer trees by tipping the trees over with the excavator. The 55 trees assumes 2 logs per tree, if the trees are large enough to provide 3 logs per tree the number of required trees will go down but the overall volume of timber will be similar. This process will aim to ensure maximum retention of the root wad. The SRRC and WRS will work directly with USFS staff to 1) develop the "small timber sale", 2) identify the trees for harvest and coordinate the subcontracting, harvest, and delivery to the project sites.

Task 2.2 Project layout. The project layout will be conducted with coordination between SRRC staff and the WRS Project Scientist, and will consist of identifying and flagging equipment access trails to each of the 22 feature locations, setting up pre-project photo documentation, and finalizing the site designs for approval by the CDFW grant manager. Layout will take place prior to the stakeholders meeting (Task 1.2) in order to allow for input from CDFW, SRRC, USFS, and other local agencies or tribes on the final implementation plan.

Task 2.3 Project construction and construction oversight. The Heavy Equipment Subcontractor will install the habitat structures as per the designs and at the direction of the WRS Project Scientist and SRRC staff. The team will construct 22 features using 110 logs over 3.15 miles stream including 1.42 miles in Methodist Creek and 1.73 miles in Knownothing Creek. Logs will be intentionally woven into existing live vegetation and trees. The features will consist of large diameter (12"-36" dia.) logs which will be wedged into the existing riparian forest. There will be full time supervision of the construction of the 22 log jams to ensure the habitat structures will be built in compliance with the project design and CDFW standards, as per Chapter VII of the *California Salmonid Stream Habitat Restoration Manual*. Use an excavator to install the 22 habitat structures.

Task 3: Documentation and Reporting

Task 3.1 Documentation of as-built conditions. Upon completion of the installation of the habitat structures, document the as-built conditions through photo monitoring, site measurements, and scaled figures of the 22 habitat structures, and collection of annual and final report metrics.

Task 3.2 Reporting for instream implementation project. Report annual reporting metrics and final reporting requirements.

Task 4: Before/After Effectiveness Monitoring

Task 4.1 Database and data form development. Prior to the initiation of monitoring activities, develop a database and associated electronic data forms to facilitate habitat attribute data collection activities. Collect habitat attribute data with a sub-meter GPS-enabled electronic data collector. Provide all database and data form elements and associated data to CDFW as a deliverable following completion of the monitoring study.

Task 4.2 QA/QC plan development. Prior to the initiation of monitoring activities, develop a formal QA/QC plan to facilitate consistent data collection and reporting activities. The quality assurance aspect of the plan will consist of a formal system of review procedures to be conducted by field crews to ensure data integrity. The quality control component of the plan will consist of technical activities enlisted to measure and control the quality of the data collected. The QA/QC plan will specify the personnel responsible for conducting specific QA/QC activities, quality assurance and quality control procedures to be accomplished, and reporting, documentation, and archiving protocols.

Task 4.3 Pre-implementation monitoring. Conduct pre-implementation monitoring in reaches of Methodist and Knownothing Creeks (Summer 2016 or 2017). Pre-implementation monitoring will consist of the following specific elements:

- One year of pre-implementation monitoring of treated stream reaches in Methodist and Knownothing Creeks for a total of 3.15 miles of stream channel monitored. Survey/evaluate the following parameters during the pre-implementation monitoring:
  - Topographic data - Channel gradient, bankfull width and depth, sinuosity, pool frequency, and residual pool depth.
  - Habitat attribute data - LWD location, abundance, volume, and cover; substrate particle size distribution, pool tail cobble embeddedness, and LWD feature photo-monitoring (structure persistence, accumulation, or loss, and adjacent channel substrate changes).

Task 4.4 Post-implementation monitoring. Conduct post-implementation monitoring in treated reaches of Methodist and Knownothing creeks for two consecutive years (2018 and 2019). Post-implementation monitoring will consist of the following specific elements:

- Conduct 2 years of post-implementation monitoring of treated stream reaches in Methodist and Knownothing Creeks for a total of 3.15 miles of stream channel monitored. Survey/evaluate the following parameters during the post-implementation monitoring:
  - Topographic data - Channel gradient, bankfull width and depth, sinuosity, pool frequency, and residual pool depth.

- Habitat attribute data - LWD location, abundance, volume, and cover; substrate particle size distribution, pool tail cobble embeddedness, and LWD feature photo-monitoring (structure persistence, accumulation, or loss, and adjacent channel substrate changes).

Task 4.5 Data analysis. Analyze and evaluate the results of pre- and post-implementation monitoring surveys to investigate potential changes in channel gradient, bankfull width and depth, sinuosity, pool frequency, residual pool depth, LWD location, abundance, volume, and cover; substrate particle size distribution, pool tail cobble embeddedness, velocity refugia, LWD feature persistence, wood accumulation, loss, and adjacent channel substrate changes associated with instream wood loading efforts. In addition to data gathered as a component of the monitoring study, evaluate available regional precipitation and runoff data in the context of the results of the study during the data analysis phase of the project to gain further insight into any changes detected.

Task 4.6 Reporting. Develop a manuscript suitable for peer-reviewed journal and submit to the CDFW grant manager. Work with project stakeholders to evaluate and determine an appropriate journal to target and attempt to have the monitoring study published. All data collected as a result of the monitoring study including database and data form elements, will be provided to the California Department of Fish and Wildlife, accompanied with appropriate Federal Geographic Data Committee (FGDC) and Biogeographic Information & Observation System (BIOS) compliant metadata.

Deliverables:

Task 1 Deliverables: Progress reports, invoices, annual reports and final report, according to CDFW agreement, as well as the NEPA permitting, and the results of the stakeholder's meeting.

Task 2 Deliverables: This task will result in 1) delivery of a minimum of 110 logs, of which approximately 1/3 contain intact rootwads, 2) construction of 10 habitat improvement structures in Methodist Creek, and 12 habitat structures in Knownothing Creek, for a total of 22 habitat structures, and 3) pre-implementation photo documentation of the existing conditions at the feature location scale.

Task 3 Deliverables: Documentation of as-built conditions upon completion of construction of the habitat structures to include 1) photo documentation, 2) as-built figures displaying the post construction conditions of the habitat structures, and 3) final reporting metrics.

Task 4 Deliverables: 1) Final manuscript suitable for publication in a scientific journal, in scientific format (Abstract, Introduction, Methods, Discussion, Literature Cited, etc.); 2) Field sampling database, in Excel or Access; Data compilations and analytical products, in Excel or Access; 3) Names

of reports prepared, in the format: Author, date, title, name, source, source address;

Timelines:

Task 1: SRRC's project management will begin once grant agreement is finalized and continue through the life of the project - June 2016 or upon grant approval, through March 2019. The NEPA process will begin immediately following the notice to proceed.

Task 2: Begin the project layout promptly after the notice to proceed - July 2016 - August 2016. Wood procurement will also take place between July 2016 and July 2017. Implementation of 10 habitat structures in Methodist Creek, and 12 habitat structures in Knownothing Creek for a total of 22 habitat structures, will commence between June 2017 and October 2017.

Task 3: Document the as-built conditions upon completion of the habitat structures between October 2017 and December 2017. Final reporting metrics will be submitted during December 2019.

Task 4: Pre-implementation monitoring will be conducted between July 2016 and July 2017 just prior to implementation. The first post-implementation monitoring survey will be conducted between May 2018 and October 2018. The second post-implementation monitoring survey will be conducted between May 2019 and October 2019. Data analysis will begin in 2017 and be completed by November 2019. Final manuscript, database, data compilations and analytical products will be completed and delivered during December 2019.

Additional Requirements:

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.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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:

a. Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.
b. 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*.
c. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.
d. 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.
e. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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.*

In addition to the Final Report of the grant agreement, the required information is as follows:

a. Final manuscript suitable for publication in a scientific journal (including Abstract, Introduction, Methods, Results, Discussion, and Literature Cited sections);

b. Field sampling database, in Excel or Access;

c. Data compilations and analytical products, in Excel or Access;

d. Names of reports prepared, in the format: Author, date, title, name, source, source address;

e. All data collected and created is a required deliverable and will become the property of the California Department of Fish and Wildlife, and not of the Grantee. A condition of final payment shall include the delivery of all related data. Spatial data should be delivered in an ESRI-useable format where applicable and documented with metadata in accordance with minimum BIOS metadata standards (http://bios.dfg.ca.gov/metadata.asp) and FGDC metadata standards (http://www.fgdc.gov/metadata/documents/workbook_0501_bmk.pdf).

California Department of Fish and Wildlife

Natural Diversity Database

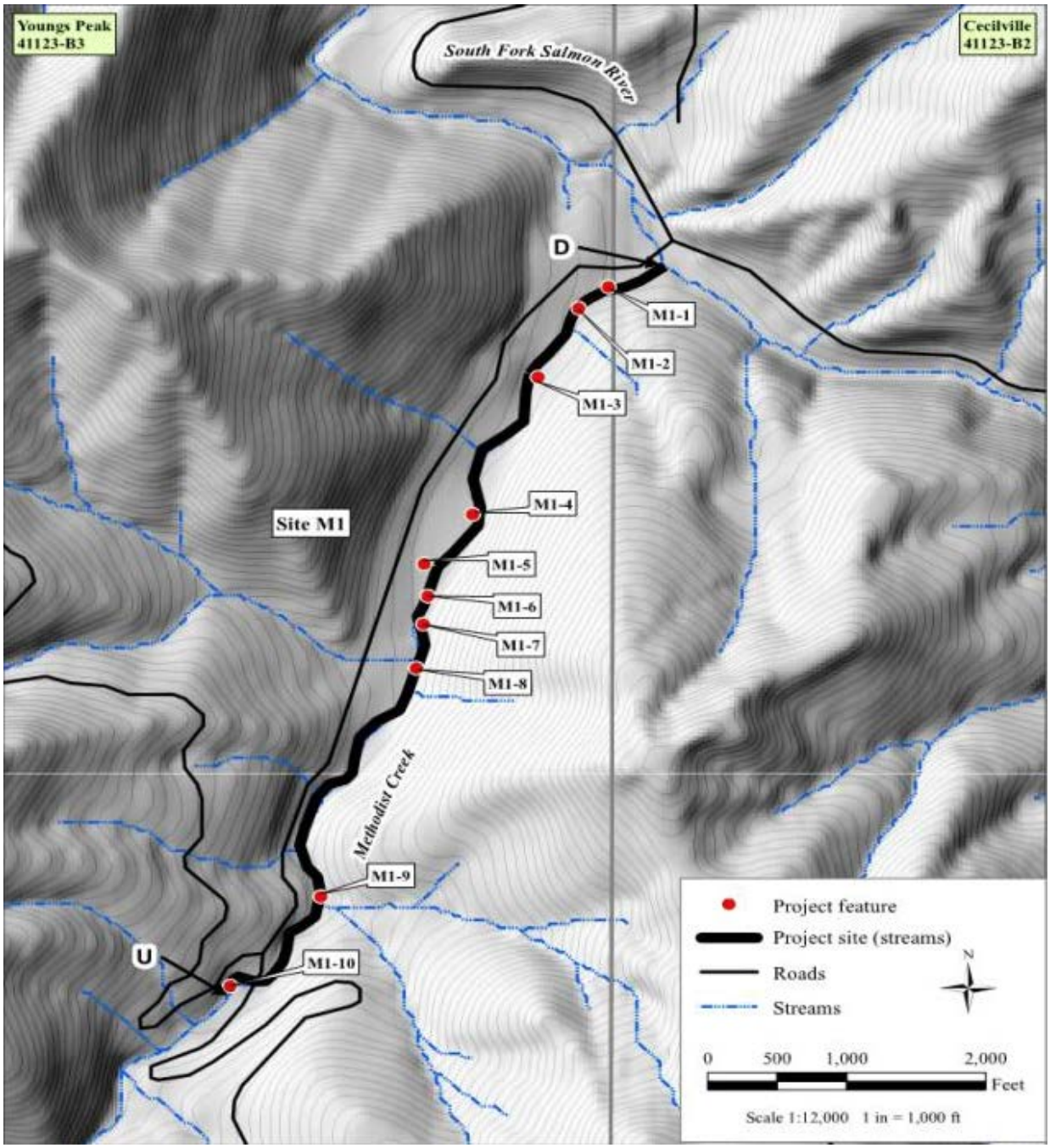
Selected Elements by Common Name - Portrait

Possible Species within the Cecilville, Youngs Peak, Sawyers Bar, Forks of Salmon, Orleans Mt, Trinity Mt, Dees Peak, and Cecil Lake Quads for South Fork Salmon River Tributary Salmonid Habitat Enhancement Project, "Methodist Creek" T 39N, R 12W, S 30, Cecilville, Siskiyou County; "Knownothing Creek" T 10N, R 08E, S 29, Youngs Peak, Siskiyou County, United States

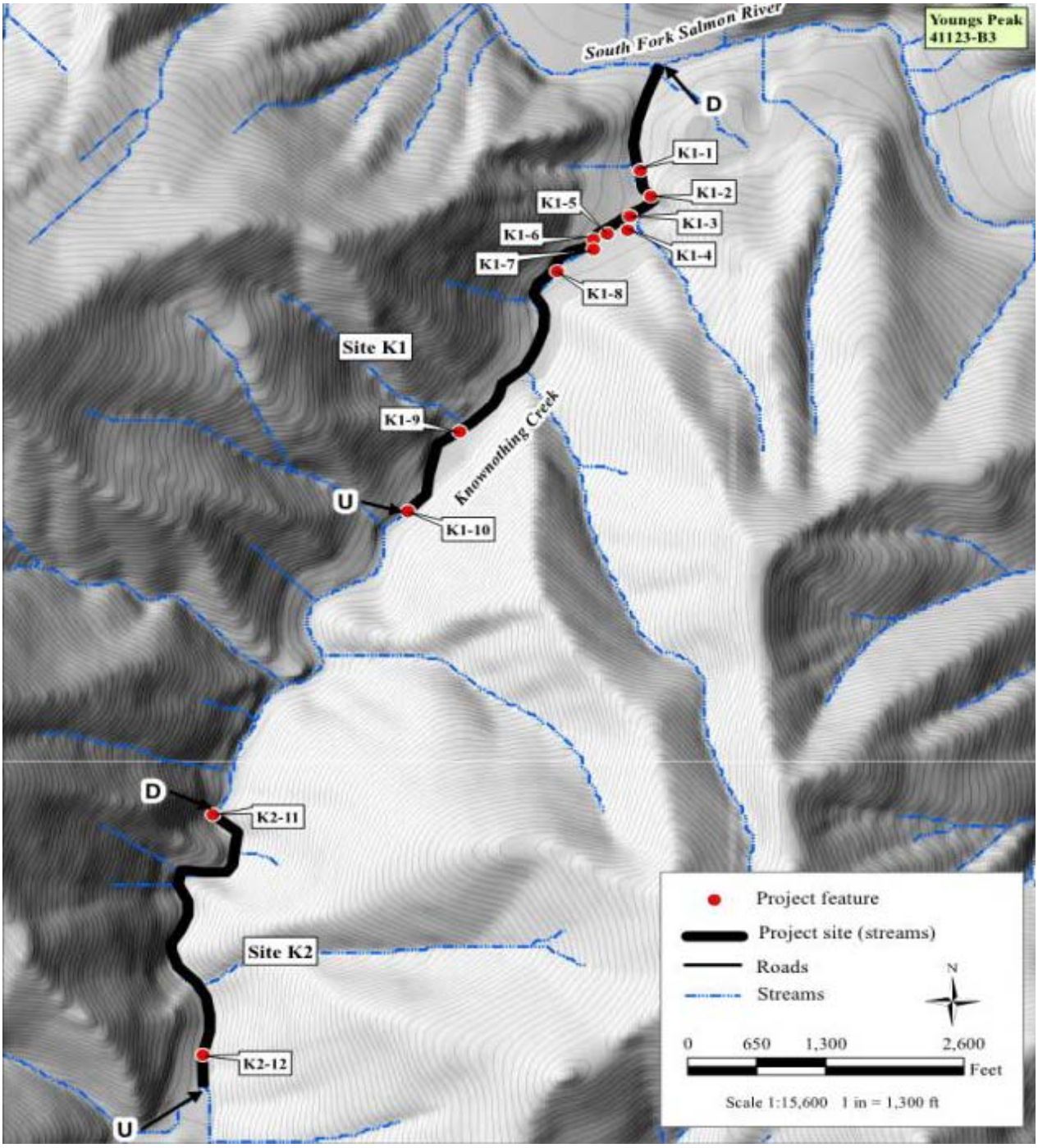
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
2	California wolverine *Gulo gulo*	AMAJF03010		Threatened	G4	S1	
3	Cascade stonecrop *Sedum divergens*	PDCRA0A0B0			G5?	S2	2B.3
4	English Peak greenbrier *Smilax jamesii*	PMSMI010D0			G2	S2	1B.3
5	Henderson's fawn lily *Erythronium hendersonii*	PMLIL0U070			G4	S2	2B.3
6	Howell's tauschia *Tauschia howellii*	PDAPI27050			G2G3	S2S3	1B.3
7	Humboldt marten *Martes caurina humboldtensis*	AMAJF01012			G5T1	S1	SC
8	Karok hesperian *Vespericola karokorum*	IMGASA4040			G2	S2	
9	Klamath gentian *Gentiana plurisetosa*	PDGEN060V0			G2G3	S2	1B.3
10	Klamath/North Coast Interior Headwater Fishless Stream	CARB2220CA			GNR	SNR	
11	Klamath/North Coast Rainbow Trout Stream	CARB2312CA			GNR	SNR	
12	Marble Mountain campion *Silene marmorensis*	PDCAR0U0Z0			G2	S2	1B.2
13	Oregon fireweed *Epilobium oreganum*	PDONA060P0			G2	S2	1B.2
14	Pacific fuzzwort *Ptilidium californicum*	NBHEP2U010			G3G4	S3?	4.3
15	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S3S4	SC
16	Shasta chaenactis *Chaenactis suffrutescens*	PDAST200H0			G3	S3	1B.3
17	Siskiyou fireweed *Epilobium siskiyouense*	PDONA06100			G3	S3	1B.3
18	Siskiyou phacelia *Phacelia leonis*	PDHYD0C2N0			G3	S3	1B.3
19	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2	SC
20	Trinity Mountains rockcress *Arabis rigidissima var. rigidissima*	PDBRA061R2			G3T2	S2	1B.3
21	Trinity shoulderband *Helminthoglypta talmadgei*	IMGASC2630			G2	S2	
22	buttercup-leaf suksdorfia *Hemieva ranunculifolia*	PDSAX0W010			G5	S2	2B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
23	chinook salmon - upper Klamath and Trinity Rivers ESU. *Oncorhynchus tshawytscha*	AFCHA02056			G5	S1S2	SC
24	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
25	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
26	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
27	giant fawn lily *Erythronium oregonum*	PMLIL0U0C0			G5	S2	2B.2
28	hooded lancetooth *Ancotrema voyanum*	IMGAS36130			G1G2	S1S2	
29	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	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	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
33	obtuse starwort *Stellaria obtusa*	PDCAR0X0U0			G5	S4	4.3
34	southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020			G3G4	S2S3	SC
35	summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B			G5T4Q	S2	SC
36	thread-leaved beardtongue *Penstemon filiformis*	PDSCR1L2A0			G3	S3	1B.3
37	western bumble bee *Bombus occidentalis*	IIHYM24250			G2G3	S1	
38	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2

South Fork Salmon River Tributary Salmonid Habitat Enhancement Project
Project Location Map
T 39N, R 12W, S 30
Cecilville Quad, Siskiyou County



South Fork Salmon River Tributary Salmonid Habitat Enhancement Project
T 10N, R 08E, S 2
Youngs Peak Quad, Siskiyou County



Introduction:

California Trout, Inc. will restore floodplain connectivity and increase instream channel habitat complexity in a .21 mile reach of the South Fork Scott River, a tributary to the Scott River, Siskiyou County, California.

The project will construct large wood structures at three locations to enhance/restore floodplain connection, increase stream channel habitat with LWD structures. Legacy mining and historic timber harvest impacts has degraded salmonid habitat, channelizing the South Fork Scott River resulting in excessive flow velocities during storm events, reduced stream flows in summer months, lethal water temperatures, juvenile stranding, restricts riparian habitat recruitment.

The Grantee shall 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 Restoration Manual, Volume One, Section S, and Volume Two Part XII. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

The objectives to this project are:

Address task SONCC-ScoR.2.2.20 Floodplain and Channel Structure-

The SONCC Coho Recovery Plan 2014 lists beaver removal, road construction, agricultural practices, river channelization, dams and diversions, timber harvest, mining/dredging, gravel extraction, high severity fires, and rural residential development as limiting factors that have simplified, degraded, and fragmented migrating, spawning, and rearing habitat throughout the Scott River basin (NOAA, 2014).

By restoring floodplain functions, watershed health and salmonid habitat will improve from;

- Reduced high velocity flow conditions during storm events
- Promote sediment retention and sorting
- Groundwater recharge, water quality improvement
- Riparian vegetation recruitment
- Restore instream habitat structures, complexity and recruitment.

Engineered design/construction ready plans will be completed to restore the geomorphic function and increase instream habitat complexity for coho life cycle requirements.

The project design will address;

- Removal of lateral constraints preventing access to the floodplain
- Installation of large wood logs for fish habitat , floodplain connectivity
- Produce 100 percent construction ready plan set approved by CDFW engineering

California Trout Inc. will implement the approved construction ready plans.

Project Description:
The design engineer will take the 65% design submitted to 100% construction ready plan approved for implementation. Provide technical oversight though the implementation phase.
Excavation, grading and wood logjam placements will be completed by heavy equipment contractor.
Riparian vegetation will be locally procured and planted within the project treatment areas. Native riparian vegetation such as willows, alders, and cottonwood will be selected for project planting phase.

Location:
The project area is located approximately three miles from the town of Callahan, Siskiyou County, California. At the intersection of CA State Hwy 3 and Cecilville/Callahan road the project site is located 2.5 miles on Cecilville/Callahan road on Timbervest property. The project site coordinates are: latitude 41.28959100 : longitude -122.83573600

Project Set Up:
The Project Director and Administration Staff will oversee and coordinate all project components including design, implementation, and monitoring as well as responsibility for all direct project administration, invoicing, cost tracking, grant reporting, environmental reporting/permitting, partnership coordination, and project outreach/media.

The Siskiyou RCD will be contracted for project implementation support. Project support includes overseeing and completing all listed project tasks including design work, permitting, construction, monitoring and reporting.

The Technical Subcontractor Cascade Stream Solutions will finalize the design and prepare construction ready plans and specifications. Cascade Stream Solutions will oversee all project elements including construction oversight and selecting qualified contractors. Project monitoring, maintenance planning.

The Heavy Equipment Subcontractor will be contracted to implement the finalized construction plans. The equipment contractor will complete the excavation, grading, and wood structure placement. Other tasks would include mobilization, access preparation, site preparation and dewatering plan, wood structure installation, riparian planting.

Materials:
Selected subcontractors will provide the necessary materials to completed the contracted tasks, and include these costs with their quote.
Additional project costs are;
Millage
Permitting

Tasks:

1. Construction staking and inspection: Construction staking and inspection involves placement of grade stakes and locating placement of large wood with the contractor. Technical Subcontractor will place the grade stakes in a location that will allow the contractor to construct the work without disturbing the stake while they use it to construct that particular portion of the work. Technical Subcontractor will inspect construction of the project features and oversee construction activities. Inspection includes checking and approving grades and large wood placement.

2. Mobilization and preparation: This subtask includes the contractor to move construction equipment to and from the site.

3. Clear and grub: This subtask includes clearing debris and cutting and clearing vegetation required to access the site and perform construction.

4. Temporary access and crossing: This subtask includes grading a construction access road and installing a temporary culvert crossing to access the work on the south bank (right bank.

5. Excavation: This subtask the contractor will use an excavator and other earth moving equipment for large wood placement, excavation, and fill placement. Transport rock and wood material for project features.

6. Labor: This subtask the contractor will use laborers to assist with water control, site preparation, large wood placement, excavation, and fill placement. The laborers will likely assist the contractor construct the project.

7. Water Control and Site Prep: This subtask the contractors will maintain water quality and prevent hazardous material entering the aquatic and riparian environment. Water control measures may include temporary coffer dam construction, silt fence installation, and piping of river flows.

8. Log Felling and Placement: This subtask the contractor will cut and drop a tree as directed by an engineer in the field and winch or pull the tree into the position directed by the engineer.

9. Planting: The Planting subtask the contractor to procure and plant native vegetation within the constructed project features. Native vegetation includes willows, alders, and cottonwoods.

10. Site Cleanup: Site Cleanup subtask the contractor to restore the construction access and staging areas to pre-project conditions. This work includes regrading and loosening/ripping disturbed and compacted areas and spreading erosion control seed and mulch.

11. Monitoring: This subtask the contractor will complete Pre and Post implementation monitoring as outlined in the CDFW monitoring checklists: Instream habitat and bank restoration checklist.

Deliverables:
Final design plan set, as-built construction plan set in PDF. Riparian management plan restored beneficial fish habitat, monitoring data, and Final Report.

Timelines:
June 2016 through October 2016- Finalize design plans (100%)

November 2016 through August 2017- Permitting and subcontractor bid/selection procurement, site and access preparation, pre implementation monitoring.

September 2017 through October 2017- Implementation of finalize design plan

November 2017 through July 2018- Project reporting, post construction monitoring, site preparation, pre implementation monitoring.

August 2018 through September 2018- Complete implementation of finalize design plans. Submit as-built construction plan set, final report, monitoring report.

Additional Requirements:
The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured and a “notice to proceed” letter has been received from the Grantor Project Manager. 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 Grantor.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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 native aquatic species from the project area. If the project requires dewatering of the site and the relocation of listed aquatic species, the Grantee will implement the following measures to minimize harm and mortality to listed species as well as other native aquatic species:

- 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 as approved by the Grantor Project Manager and pursuant to conditions in the USACE Regional General Permit, NMFS Biological Opinion, and project's Lake and Streambed Alteration Agreement (1600 permit).

- 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*.

- Only qualified fisheries biologist that are approved by USFWS and permitted by CDFW under a California Endangered Species Act (CESA) Memorandum of Understanding (MOU) shall handle and relocate CESA listed species.

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

- USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the Grantor Project Manager on a form provided by Grantor.

Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Manager. 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 insure the best chance of survival of the seedlings.

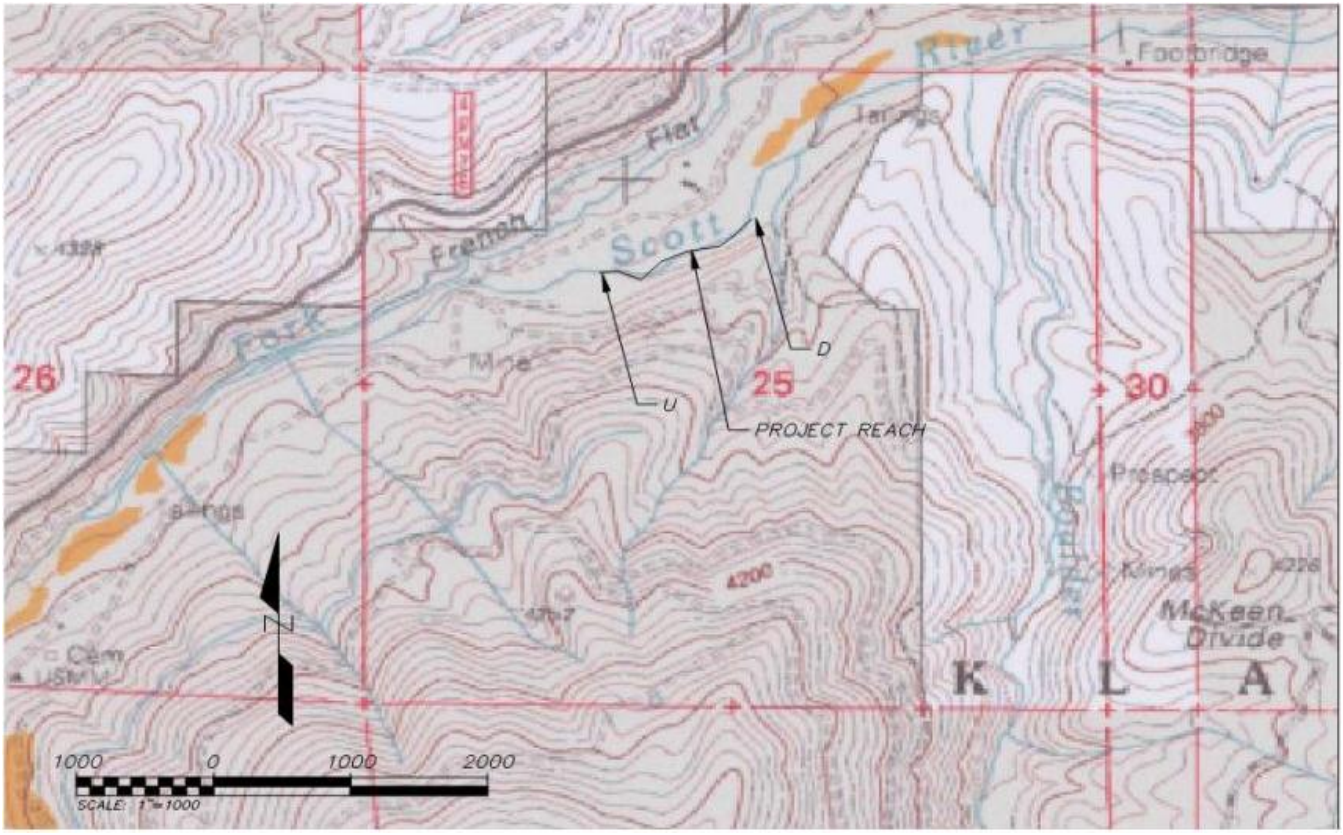
California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
Possible species within Callahan Quad and surrounding quads for Scott River Instream Habitat Restoration Project, 40N 09W S25, Siskiyou County

	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	Cascade grass-of-Parnassus *Parnassia cirrata var. intermedia*	PDSAX0P044			G5T3	S3	2B.2
3	Cascades frog *Rana cascadae*	AAABH01060			G3G4	S3	SC
4	Crotch bumble bee *Bombus crotchii*	IIHYM24480			G3G4	S1S2	
5	Darlingtonia Seep	CTT51120CA			G4	S3.2	
6	Dudley's rush *Juncus dudleyi*	PMJUN01390			G5	S1	2B.3
7	Engelmann spruce *Picea engelmannii*	PGPIN03030			G5	S2	2B.2
8	English Peak greenbrier *Smilax jamesii*	PMSMI010D0			G2	S2	1B.3
9	Holzinger's orthotrichum moss *Orthotrichum holzingeri*	NBMUS560E0			G3	S2	1B.3
10	Jaynes Canyon buckwheat *Eriogonum diclinum*	PDPGN081S0			G3	S2S3	1B.3
11	Jepson's horkelia *Horkelia daucifolia var. indicta*	PDROS0W053			G4T1	S1	1B.1
12	Klamath Mountain catchfly *Silene salmonacea*	PDCAR0U2D0			G3	S3	1B.2
13	Klamath manzanita *Arctostaphylos klamathensis*	PDERI041R0			G3?	S3?	1B.2
14	Mt. Shasta sky pilot *Polemonium pulcherrimum var. shastense*	PDPLM0E0J4			G5T2	S2	1B.2
15	Pacific fuzzwort *Ptilidium californicum*	NBHEP2U010			G3G4	S3?	4.3
16	Pacific marten *Martes caurina*	AMAJF01030			G5	S3	
17	Pacific tailed frog *Ascaphus truei*	AAABA01010			G4	S3S4	SC
18	Pickering's ivesia *Ivesia pickeringii*	PDROS0X0D0			G2	S2	1B.2
19	Scott Mountain bedstraw *Galium serpenticum ssp. scotticum*	PDRUB0N1Y6			G4G5T2	S2	1B.2
20	Scott Mountain howellanthus *Howellanthus dalesianus*	PDHYD0C140			G3	S3	4.3
21	Scott Mountain sandwort *Minuartia stolonifera*	PDCAR0G110			G2	S2	1B.3
22	Scott Mountains fawn lily *Erythronium citrinum var. roderickii*	PMLIL0U042			G4T3	S3	1B.3
23	Scott Valley buckwheat *Eriogonum umbellatum var. lautum*	PDPGN086UX			G5T1	S1	1B.1

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Scott Valley phacelia *Phacelia greenei*	PDHYD0C1V0			G2	S2	1B.2
25	Shasta chaenactis *Chaenactis suffrutescens*	PDAST200H0			G3	S3	1B.3
26	Siskiyou fireweed *Epilobium siskiyouense*	PDONA06100			G3	S3	1B.3
27	Siskiyou ground beetle *Nebria gebleri siskiyouensis*	IICOL6L091			G4G5T4	S1S2	
28	Siskiyou phacelia *Phacelia leonis*	PDHYD0C2N0			G3	S3	1B.3
29	Suckley's cuckoo bumble bee *Bombus suckleyi*	IIHYM24350			GU	S1	
30	Trinity Mountains rockcress *Arabis rigidissima var. rigidissima*	PDBRA061R2			G3T2	S2	1B.3
31	Trinity buckwheat *Eriogonum alpinum*	PDPGN08060		Endangered	G3	S3	1B.2
32	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2	
33	brook pocket moss *Fissidens aphelotaxifolius*	NBMUS2W290			G3G4	S1	2B.2
34	bunchberry *Cornus canadensis*	PDCOR01040			G5	S2	2B.2
35	coast sidalcea *Sidalcea oregana ssp. eximia*	PDMAL110K9			G5T1	S1	1B.2
36	fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
37	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
38	leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020			G5	S4	4.2
39	little hulsea *Hulsea nana*	PDAST4Z060			G4	S3	2B.3
40	little-leaved huckleberry *Vaccinium scoparium*	PDERI180Y0			G5	S3	2B.2
41	northern goshawk *Accipiter gentilis*	ABNKC12060			G5	S3	SC
42	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
43	northwestern moonwort *Botrychium pinnatum*	PPOPH010V0			G4?	S2	2B.3
44	prairie falcon *Falco mexicanus*	ABNKD06090			G5	S4	
45	rattlesnake fern *Botrypus virginianus*	PPOPH010H0			G5	S2	2B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46	showy raillardella *Raillardella pringlei*	PDAST7X030			G3	S3	1B.2
47	silky balsamroot *Balsamorhiza sericea*	PDAST110C0			G4Q	S3	1B.3
48	silver-haired bat *Lasionycteris noctivagans*	AMACC02010			G5	S3S4	
49	subalpine fir *Abies lasiocarpa var. lasiocarpa*	PGPIN01072			G5T5	S3	2B.3
50	thread-leaved beardtongue *Penstemon filiformis*	PDSCR1L2A0			G3	S3	1B.3
51	tundra thread moss *Pohlia tundrae*	NBMUS5S1B0			G3	S3	2B.3
52	water bulrush *Schoenoplectus subterminalis*	PMCYP0Q1G0			G4G5	S3	2B.3
53	western bumble bee *Bombus occidentalis*	IIHYM24250			G2G3	S1	
54	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
55	willow flycatcher *Empidonax traillii*	ABPAE33040		Endangered	G5	S1S2	
56	woolly balsamroot *Balsamorhiza lanata*	PDAST11047			G3	S3	1B.2
57	yellow-based sideband *Monadenia infumata ochromphalus*	IMGASC7051			G2T1	S1	

Scott River Instream Habitat Restoration project
Project Location Map
T40N, R09W Section 25
Callahan Quad
Siskiyou County



Introduction:

With the Upper Green Valley Fish Passage Implementation Project, the Gold Ridge Resource Conservation District seeks to address a significant instream fish passage barrier in upper Green Valley Creek and stabilize the grade through a 600-ft reach.
The project will upgrade a private road culvert that is a widely recognized barrier to coho salmon, thus restoring fish passage for juvenile and adult coho to 4,810 ft of high quality rearing and intermediate spawning habitat. Another partial barrier upstream of the culvert, an abandoned concrete grade control structure and apron, will also be removed. Additionally, The project will preserve the upstream floodplain connectivity, stabilize the grade throughout the reach, and arrest the incising.

The project design involves removal of the existing culvert and concrete debris, along with the abandoned upstream checkdam, installation of a 15ft wide x 7.75ft high multi-plate arch culvert with an open bottom, construction of a 157ft long step-pool roughened channel through the crossing, and construction of two series of boulder weirs on the upstream and downstream ends of the roughened channel. The reach will be dewatered in stages as needed for culvert replacement and boulder weir construction. Overall project management will be carried out by the Gold Ridge RCD, with Stetson Engineers providing engineering oversight during construction. Miller Pacific, as a subcontractor to Stetson, will oversee construction and testing of the helical piles that will support the grade beam foundations for the bottomless arch culvert. The entire reach will also be revegetated with native riparian species, enhancing approximately an acre of riparian habitat. Planting will be conducted in coordination with Point Blue Conservation Science's environmental education program, Students and Teachers Restoring a Watershed (STRAW), who will maintain the plantings for three years after installation.

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 VII and XI (Flosi et al 1998 and 2002).

Objective(s):

The goal of the project is to restore fish passage and stabilize the grade through a 600-ft stream reach of upper Green Valley Creek, thereby ensuring passage for juvenile and adult coho to an additional 4,810 ft of spawning and rearing habitat.

Project Description:

Location:

The project site is on two properties along Green Valley Creek, approximately 1,700-ft upstream of the confluence with Harrison Creek, and 3.7 miles upstream of the confluence of Atascadero Creek. Coordinates of the barrier are 38.45150000 north latitude and 122.92725400 west longitude. The project will encompass a nearly 600-

ft stretch of Green Valley Creek, extending approximately 300 feet on either side of the existing culvert. Pasture borders the creek on both sides throughout the project reach.

Project Set Up:

The GRRCD Project Manager will provide overall project oversight, including contract administration, landowner communication, public outreach, bid packet development and bid tour organization, permit application development, subcontractor selection and management, invoicing, and reporting. GRRCD Lead Scientist and Conservation Planner will assist in permitting and bid tour reparations. The GRRCD Ecologist will perform biological surveys and monitoring as required, and assist in dewatering and species relocation. GRRCD Executive Director will review contracts and invoices, and assist in landowner communications and public outreach. GRRCD Project Coordinator will also assist in public outreach efforts, necessary due to the scale and visibility of the project.

Stetson Engineers, as designers of the project, will assist in permitting and bid tours, will provide construction subcontractor oversight and engineering inspections, and will develop as-builts. Their detailed budget is attached, and includes as a subcontractor Miller Pacific, who will oversee construction and testing of the helical piles that will support the grade beam foundations for the bottomless arch culvert.

The Qualified Biologist will lead dewatering with assistance from the GRRCD Ecologist, GRRCD Project Coordinator, and GRRCD Field Technician. The CDFW certified Biologist and/or CDFW Scientist will lead species relocation with assistance from CDFW agents.

The contractor constructing the project will be selected during a competitive bid process as described in the Gold Ridge RCD's Construction Procurement Policy, and will perform actual construction activities. The construction estimate attached was provided by Stetson Engineers upon completion of the design.

Point Blue Conservation Science will implement the revegetation component of the project, including three years of plant maintenance, through their environmental education program Students and Teachers Restoring a Watershed (STRAW). PRBO's revegetation budget is attached. The GRRCD Project Coordinator and Field Technician will assist in planting and maintenance.

Additional budget expenses include GRRCD staff mileage for travel to and from the project site, and the 1602 LSAA permit fee.

Materials:

Construction materials specifications for all construction components are described in the attached plans and technical specifications, and are included in the budget

attachments. These include materials that compose roughened channel (road base and engineered streambed material), rock for the vegetated slopes and weir structures, and the 15' x 7.75' multi-plate arch culvert and foundation.

Tasks:

Task 1: Project Management. The GRRCD Project Manager will perform all duties related to contract administration, bid packet development and bid tour organization, subcontractor management, invoicing, and reporting. The GRRCD Executive Director will review contracts and invoices, and assist in landowner communications and public outreach, due to the high profile nature of the site. GRRCD Lead Scientist and Conservation Planner will assist in bid tour preparations.

Task 2: Permitting. The GRRCD Project Manager will develop the 1602 LSAA, county grading exemption, and all permitting information required for dewatering and species relocation. GRRCD Lead Scientist and Conservation Planner will assist in permit application development.

Task 3: Biological Surveys. The GRRCD Ecologist and GRRCD Field Technician will perform all biological surveys as required for CEQA and permit compliance.

Task 4: Project Construction. The GRRCD Project Manager will oversee subcontractors engaged in project construction, including Stetson Engineers, the Qualified Biologist, and PRBO's STRAW. Stetson will in turn oversee Miller Pacific as a subcontractor. This task includes all activities related to the culvert replacement and construction of the roughened channel and boulder weirs, and revegetation. Construction preparation activities such as dewatering is also included, to be led by the Qualified Biologist. Listed and sensitive species relocationwill be conducted by CDFW certified biologist or CDFW Scientist. Construction activities will adhere to the attached Aquatic Invasive Species Protocol.

Task 5: Monitoring and Maintenance. The GRRCD Project Manager will oversee monitoring and maintenance, including post-construction storm monitoring, revegetation survival rate monitoring, and plant maintenance. The GRRCD Project Coordinator and Field Technician will assist in planting and maintenance.

Deliverables:

Task 1 Project Management: Annual and final reports

Task 2 Permitting: Copies of Permits, including 1602 LSAA and county grading exemption

Task 3 Biological Survyes: Copies of biological surveys and reports, including: protected species habitat assessment and relocation plan, and final report of findings with data sheets

Task 4 Project Construction: The following will be submitted to demonstrate

successful restoration of the 600-ft project reach and riparian corridor as described in the attached plans: As-built construction plans, Post longitudinal profile, Pre- and post-construction photodocumentation.

Task 5 Monitoring and Maintenance: 80% survival rate of revegetation for three years after implementation; photodocumentation of revegetation

Timelines:

This timeline assumes a Notice to Proceed by July 1, 2016 and that construction occurs in summer/fall 2016.

Task 1: Project Management and Grant Administration - Trout Unlimited contract oversight and administration will begin upon receiving a fully-executed CDFW grant agreement and continue through the life of the project, ending on March 31, 2020.

Task 2: Construction Administration: July 1, 2016 – January 31, 2019

Task 3: Mobilization: July 1, 2016 – November 1, 2016

Task 4: Dewatering: July 1, 2016 – October 15, 2016

Task 5: Site Management: July 1, 2016 – November 1, 2016

Task 6: Channel Construction: July 1, 2016 – October 15, 2016

Task 7: Revegetation: November 1, 2016 – November 30, 2019

Task 8: Monitoring: November 1, 2016 – January 31, 2019

Additional Requirements:

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.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in

the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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:

a. Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.
b. 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*.
c. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.
d. 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.
e. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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.

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.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
724656 Upper Green Valley Creek Fish Passage Implementation Project
M 07N 10W Sectio 14
Sonoma 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 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	G2T1	S1	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 giant salamander *Dicamptodon ensatus*	AAAAH01020			G3	S2S3	
12	California linderiella *Linderiella occidentalis*	ICBRA06010			G2G3	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	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
16	Coastal Terrace Prairie	CTT41100CA			G2	S2.1	
17	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
18	Contra Costa goldfields *Lasthenia conjugens*	PDAST5L040	Endangered		G1	S1	1B.1
19	Crystal Springs lessingia *Lessingia arachnoidea*	PDAST5S0C0			G1	S1	1B.2
20	Cunningham Marsh cinquefoil *Potentilla uliginosa*	PDROS1B4A0			GH	SH	1A
21	Dorr's Cabin jewelflower *Streptanthus morrisonii ssp. hirtiflorus*	PDBRA2G0S2			G2T1	S1	1B.2
22	Franciscan onion *Allium peninsulare var. franciscanum*	PMLIL021R1			G5T1	S1	1B.2
23	Franciscan thistle *Cirsium andrewsii*	PDAST2E050			G3	S3	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Giuliani's dubiraphian riffle beetle *Dubiraphia giulianii*	IICOL5A020			G1G3	S1S3	
25	Greene's narrow-leaved daisy *Erigeron greenei*	PDAST3M5G0			G2	S2	1B.2
26	Gualala roach *Lavinia symmetricus parvipinnis*	AFCJB19025			G4T1T2	S1S2	SC
27	Hoffman's bristly jewelflower *Streptanthus glandulosus ssp. hoffmanii*	PDBRA2G0J4			G4T2	S2	1B.3
28	Jepson's leptosiphon *Leptosiphon jepsonii*	PDPLM09140			G3	S3	1B.2
29	Marin hesperian *Vespericola marinensis*	IMGASA4140			G2	S2	
30	Marin knotweed *Polygonum marinense*	PDPGN0L1C0			G2Q	S2	3.1
31	Mendocino dodder *Cuscuta pacifica var. papillata*	PDCUS011A2			G5T1	S1	1B.2
32	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
33	Morrison's jewelflower *Streptanthus morrisonii ssp. morrisonii*	PDBRA2G0S3			G2T2	S2	1B.2
34	Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	IILEPJ608C	Endangered		G5T1	S1	
35	Napa false indigo *Amorpha californica var. napensis*	PDFAB08012			G4T2	S2	1B.2
36	Navarro roach *Lavinia symmetricus navarroensis*	AFCJB19023			G4T1T2	S1S2	SC
37	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
38	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
39	Northern Hardpan Vernal Pool	CTT44110CA			G3	S3.1	
40	Northern Vernal Pool	CTT44100CA			G2	S2.1	
41	Oregon polemonium *Polemonium carneum*	PDPLM0E050			G3G4	S2	2B.2
42	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
43	Pennell's bird's-beak *Cordylanthus tenuis ssp. capillaris*	PDSCR0J0S2	Endangered	Rare	G4G5T1	S1	1B.2
44	Peruvian dodder *Cuscuta obtusiflora var. glandulosa*	PDCUS01111			G5T4T5	SH	2B.2
45	Pitkin Marsh lily *Lilium pardalinum ssp. pitkinense*	PMLIL1A0H3	Endangered	Endangered	G5T1	S1	1B.1
46	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
47	Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012			G5T2	S2	1B.2
48	Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0			G2	S2	1B.2
49	Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3			G4?T2	S2	1B.2
50	Rincon Ridge ceanothus *Ceanothus confusus*	PDRHA04220			G1	S1	1B.1
51	Rincon Ridge manzanita *Arctostaphylos stanfordiana ssp. decumbens*	PDERI041G4			G3T1	S1	1B.1
52	Russian River tule perch *Hysterocarpus traski pomo*	AFCQK02011			G5T4	S4	SC
53	San Bruno elfin butterfly *Callophrys mossii bayensis*	IILEPE2202	Endangered		G4T1	S1	
54	San Francisco Bay spineflower *Chorizanthe cuspidata var. cuspidata*	PDPGN04081			G2T1	S1	1B.2
55	San Francisco owl's-clover *Triphysaria floribunda*	PDSCR2T010			G2	S2	1B.2
56	Santa Cruz clover *Trifolium buckwestiorum*	PDFAB402W0			G2	S2	1B.1
57	Sebastopol meadowfoam *Limnanthes vinculans*	PDLIM02090	Endangered	Endangered	G1	S1	1B.1
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	Sonoma sunshine *Blennosperma bakeri*	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
61	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
62	The Cedars buckwheat *Eriogonum cedrorum*	PDPGN087A0			G1	S1	1B.3
63	The Cedars fairy-lantern *Calochortus raichei*	PMLIL0D1L0			G2	S2	1B.2
64	The Cedars manzanita *Arctostaphylos bakeri ssp. sublaevis*	PDERI04222		Rare	G2T2	S2	1B.2
65	Thurber's reed grass *Calamagrostis crassiglumis*	PMPOA17070			G3Q	S2?	2B.1
66	Tidestrom's lupine *Lupinus tidestromii*	PDFAB2B3Y0	Endangered	Endangered	G1	S1	1B.1
67	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2	SC
68	Vine Hill ceanothus *Ceanothus foliosus var. vineatus*	PDRHA040D6			G3T1	S1	1B.1

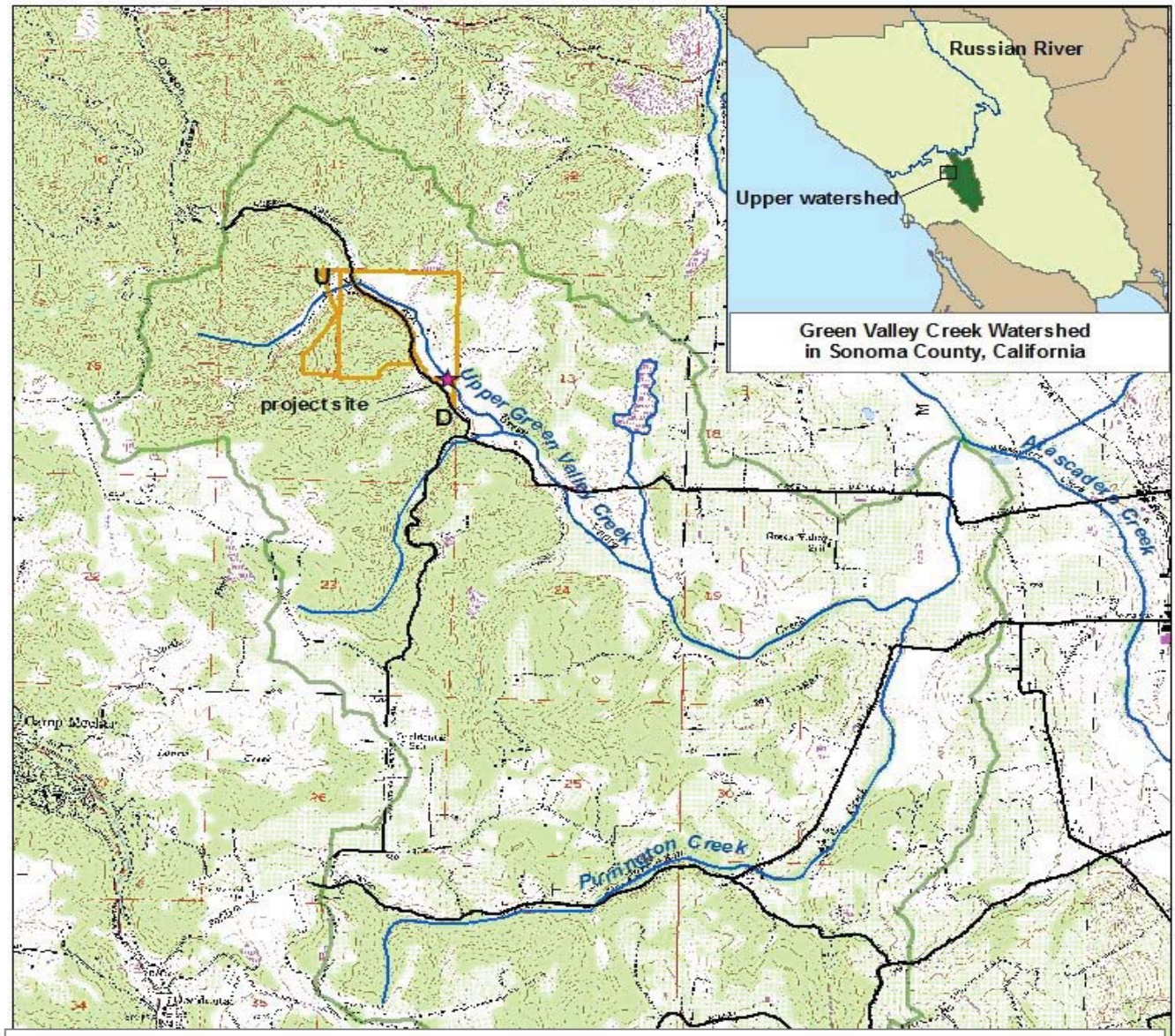
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
69	Vine Hill clarkia *Clarkia imbricata*	PDONA050K0	Endangered	Endangered	G1	S1	1B.1
70	Vine Hill manzanita *Arctostaphylos densiflora*	PDERI040C0		Endangered	G1	S1	1B.1
71	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2	
72	black swift *Cypseloides niger*	ABNUA01010			G4	S2	SC
73	blue coast gilia *Gilia capitata ssp. chamissonis*	PDPLM040B3			G5T2	S2	1B.1
74	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
75	bristly sedge *Carex comosa*	PMCYP032Y0			G5	S2	2B.1
76	brownish beaked-rush *Rhynchospora capitellata*	PMCYP0N080			G5	S1	2B.2
77	bumblebee scarab beetle *Lichnanthe ursina*	IICOL67020			G2	S2	
78	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S3	SC
79	coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2			G4T2T3	S2S3	1B.2
80	coastal triquetrella *Triquetrella californica*	NBMUS7S010			G2	S2	1B.2
81	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
82	congested-headed hayfield tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T1T2	S1S2	1B.2
83	dark-eyed gilia *Gilia millefoliata*	PDPLM04130			G2	S2	1B.2
84	dwarf downingia *Downingia pusilla*	PDCAM060C0			GU	S2	2B.2
85	dwarf soaproot *Chlorogalum pomeridianum var. minus*	PMLIL0G042			G5T2T3	S2S3	1B.2
86	eulachon *Thaleichthys pacificus*	AFCHB04010	Threatened		G5	S3	SC
87	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
88	fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0			G2	S2	1B.2
89	fringed myotis *Myotis thysanodes*	AMACC01090			G4	S3	
90	globose dune beetle *Coelus globosus*	IICOL4A010			G1G2	S1S2	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
91	golden larkspur *Delphinium luteum*	PDRAN0B0Z0	Endangered	Rare	G1	S1	1B.1
92	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
93	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4	
94	holly-leaved ceanothus *Ceanothus purpureus*	PDRHA04160			G2	S2	1B.2
95	legenere *Legenere limosa*	PDCAM0C010			G2	S2	1B.1
96	long-eared myotis *Myotis evotis*	AMACC01070			G5	S3	
97	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
98	many-flowered navarretia *Navarretia leucocephala ssp. plieantha*	PDPLM0C0E5	Endangered	Endangered	G4T1	S1	1B.2
99	marsh microseris *Microseris paludosa*	PDAST6E0D0			G2	S2	1B.2
100	mimic tryonia (=California brackishwater snail) *Tryonia imitator*	IMGASJ7040			G2	S2	
101	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S2	1B.2
102	monarch - California overwintering population *Danaus plexippus pop. 1*	IILEPP2012			G4T2T3	S2S3	
103	narrow-anthered brodiaea *Brodiaea leptandra*	PMLIL0C022			G3?	S3?	1B.2
104	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
105	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
106	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G4G5	S3?	2B.3
107	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
108	pappose tarplant *Centromadia parryi ssp. parryi*	PDAST4R0P2			G3T2	S2	1B.2
109	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
110	pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4			G4G5T2	S1	1B.1
111	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T1	S1	1B.2
112	rhinoceros auklet *Cerorhinca monocerata*	ABNNN11010			G5	S3	

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
113	rose leptosiphon *Leptosiphon rosaceus*	PDPLM09180			G1	S1	1B.1
114	round-headed beaked-rush *Rhynchospora globularis*	PMCYP0N0W0			G4	S1	2B.1
115	saline clover *Trifolium hydrophilum*	PDFAB400R5			G2	S2	1B.2
116	serpentine daisy *Erigeron serpentinus*	PDAST3M5M0			G2	S2	1B.3
117	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T3	S2	1B.2
118	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2T3Q	S2S3	
119	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
120	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
121	tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered		G3	S3	SC
122	tricolored blackbird *Agelaius tricolor*	ABPBXB0020			G2G3	S1S2	SC
123	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S1S2	SC
124	two-fork clover *Trifolium amoenum*	PDFAB40040	Endangered		G1	S1	1B.1
125	western leatherwood *Dirca occidentalis*	PDTHY03010			G2	S2	1B.2
126	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
127	western red bat *Lasiurus blossevillii*	AMACC05060			G5	S3	SC
128	western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened		G3T3	S2	SC
129	western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
130	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
131	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2
132	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3S4	
133	whiteworm lichen *Thamnolia vermicularis*	NLTES43860			G3G5	S1	2B.1
134	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
135	woolly-headed spineflower *Chorizanthe cuspidata var. villosa*	PDPGN04082			G2T2	S2	1B.2

Project Location Topographic Map



Introduction

1. Grantee: Sonoma Resource Conservation District
2. The purpose of this project is to increase the habitat complexity in Felta creek.
3. Permit Disclosure: 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 Stream Habitat Restoration Manual (section VI).

Objective(s):

1. The objective of the project is to provide habitat complexity in Felta Creek to enhance cover, shelter, spawning and rearing conditions for coho salmon and steelhead along a 4,345 foot reach of Felta Creek through the installation of 31 pieces of Large Woody Material (LWM) at 11 sites.

Project Description:

Location: The project will take place along a 4,345 foot reach of Felta Creek, beginning 500 feet downstream of its confluence with Salt Creek and continuing upstream for approximayely 3,845 along Felta Creek. Felta Creek meets Mill Creek two miles below the confluence of Salt Creek with Felta Creek. Mill Creek meets Dry Creek another 1.14 miles downstream. Dry Creek and the Russian River join an additional 0.68 miles downstream. The project reach is within private land located west of the city of Healdsburg in Sonoma County.

38.56857000 : -122.91188000 - Downstream end of project.
38.56730000 : -122.91300000 - Upstream end of project.

Project Set Up:

Materials: Douglas fir and redwood logs and rootwads, steel rebar, nuts and washers will be used. Straw mulch and native vegetation will be used as mulch on disturbed areas.

Tasks:

1. Project Management: The SRCD Project Manager/Resource Planner will be responsible for all aspects of project management, including subcontract development (Subcontractor and Biologist), landowner access agreement, scheduling, permitting, CEQA compliance, updating the SRCD Board about the project, construction oversight, and reporting. The Executive Director will review contracts, permits, annual reports, final report, and perform a site review. The District Administrator will manage the budget and be responsible for all invoices.

2. Biological Surveys: The Project Manager/Resource Planner will subcontract with the Gold Ridge RCD's Qualified Biologist, coordinate with the Biologist, assist with habitat assessments if needed and assist with relocation of endangered species if needed. Gold Ridge RCD Qualified Biologist will perform all biological habitat assessments as needed to comply with permit requirements before and during construction, coordinate fish and/or CA red legged frog relocation as needed, perform CA red-legged frog identification training to construction crew, and generate reports of observations and relocation plans.

3. Project Construction: The project will entail the construction and installation of 11 new LWM structures. Licensed Timber Operator will cut trees that are identified by the Project Manage/Resource Planner, the Landowner, and the Blencowe Watershed Management construction crew. The Project Manager RPF#2905, the Licensed Timber Operator, and Project Technician will perform all aspects of project construction which includes material acquisition, site preparation, pre-project Habitat II survey, mobilization of equipment, construction, anchoring, and erosion control. The construction crew will assist with fish relocation as needed. Blencowe Watershed Management will conform to the techniques and methodologies outlined in the CDFG Salmonid Stream Habitat Restoration Manual, Chapter VII, the Accelerated Recruitment method (Carah, Blencowe, et al. 2014) and will follow protocols in additional supplement section to prevent the spread of invasive aquatic species.

   The Project Manager/Resource Planner will provide technical oversight during construction and provide post-construction photos to allow comparison of pre- and post-construction conditions and evaluate project effectiveness. The Executive Director will perform one site visit for quality control and progress.

4. Reporting: The Project Manager/Resource Planner will produce annual and final project reports which will include photo documentation. The Executive Director will review all project reports.

   Deliverables: Eleven (11) pools will be created through channel structure placement. 0.82 miles of total stream length and overall stream length will be treated for channel structure placement. Annual and final reports detailing project will be submitted as deliverables.

   Timelines:

1. Project Management will begin June 1st, 2016, and final report will be sent in no later than March 30th, 2017. Biological surveys and organization will take place from July 1st, 2016 through October 15th, 2016. Project construction would occur after all permits are obtained and installation would occur during the window of August 1st, 2016 until October 15, 2016. Reporting would occur during June 1st, 2016 through March 30th, 2017.

2. Task 1: Project Management. June 1, 2016 - March 30, 2017 Task 2: Biological Surveys. July 1, 2016 - October 15, 2016 Task 3: Project Construction. August 1st, 2016 - October 15, 2016 Task 4: Reporting. June 30, 2016 - March 30, 2017.

Additional Requirements:

The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured and a "notice to proceed" letter has been received from the Grantor Project Manager. 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 Grantor.

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, the Grantee shall provide to Grantor 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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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

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 native aquatic species from the project area. If the project requires dewatering of the site and the relocation of listed aquatic

species, the Grantee will implement the following measures to minimize harm and mortality to listed species as well as other native aquatic species:

- 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 as approved by the Grantor Project Manager and pursuant to conditions in the USACE Regional General Permit, NMFS Biological Opinion, and project's Lake and Streambed Alteration Agreement (1600 permit).

- 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.

- Only qualified fisheries biologist that are approved by USFWS and permitted by CDFW under a California Endangered Species Act (CESA) Memorandum of Understanding (MOU) shall handle and relocate CESA listed species.

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

- NMFS Approved fisheries biologists will provide fish relocation data via the Grantee to the Grantor Project Manager on a form provided by Grantor.

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
724717 Felta Creek Stream Habitat Enhancement Project
M 08N 10W Section 1
Sonoma 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 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	G2T1	S1	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 giant salamander *Dicamptodon ensatus*	AAAAH01020			G3	S2S3	
12	California linderiella *Linderiella occidentalis*	ICBRA06010			G2G3	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	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
16	Coastal Terrace Prairie	CTT41100CA			G2	S2.1	
17	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
18	Crystal Springs lessingia *Lessingia arachnoidea*	PDAST5S0C0			G1	S1	1B.2
19	Dorr's Cabin jewelflower *Streptanthus morrisonii ssp. hirtiflorus*	PDBRA2G0S2			G2T1	S1	1B.2
20	Freed's jewelflower *Streptanthus brachiatus ssp. hoffmanii*	PDBRA2G071			G2T2	S2	1B.2
21	Giuliani's dubiraphian riffle beetle *Dubiraphia giulianii*	IICOL5A020			G1G3	S1S3	
22	Greene's narrow-leaved daisy *Erigeron greenei*	PDAST3M5G0			G2	S2	1B.2
23	Gualala roach *Lavinia symmetricus parvipinnis*	AFCJB19025			G4T1T2	S1S2	SC

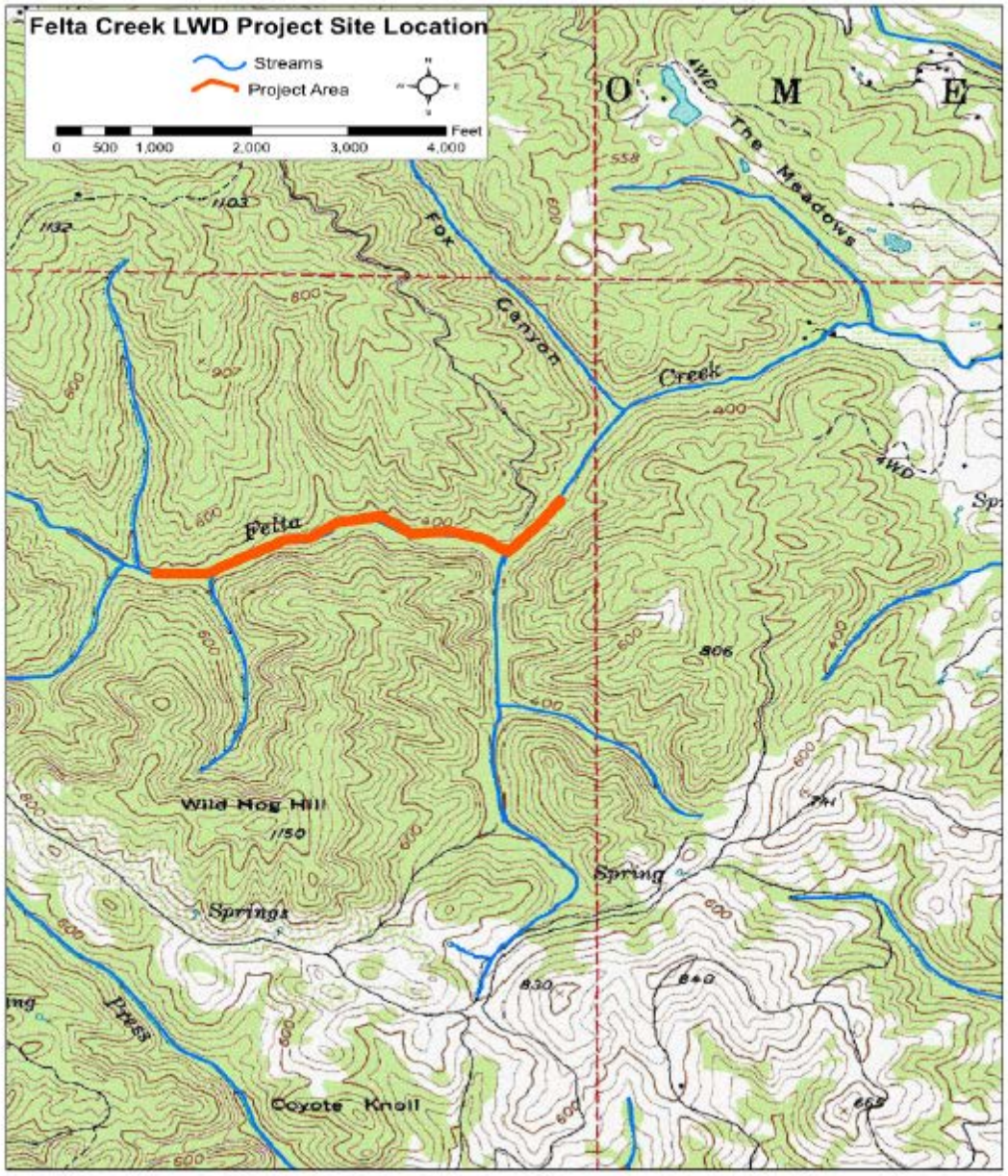
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Hoffman's bristly jewelflower *Streptanthus glandulosus ssp. hoffmanii*	PDBRA2G0J4			G4T2	S2	1B.3
25	Jepson's leptosiphon *Leptosiphon jepsonii*	PDPLM09140			G3	S3	1B.2
26	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
27	Morrison's jewelflower *Streptanthus morrisonii ssp. morrisonii*	PDBRA2G0S3			G2T2	S2	1B.2
28	Mt. Saint Helena morning-glory *Calystegia collina ssp. oxyphylla*	PDCON04032			G4T3	S3	4.2
29	Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	IILEPJ608C	Endangered		G5T1	S1	
30	Napa false indigo *Amorpha californica var. napensis*	PDFAB08012			G4T2	S2	1B.2
31	Navarro roach *Lavinia symmetricus navarroensis*	AFCJB19023			G4T1T2	S1S2	SC
32	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
33	Northern Hardpan Vernal Pool	CTT44110CA			G3	S3.1	
34	Northern Vernal Pool	CTT44100CA			G2	S2.1	
35	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
36	Pennell's bird's-beak *Cordylanthus tenuis ssp. capillaris*	PDSCR0J0S2	Endangered	Rare	G4G5T1	S1	1B.2
37	Peruvian dodder *Cuscuta obtusiflora var. glandulosa*	PDCUS01111			G5T4T5	SH	2B.2
38	Pitkin Marsh lily *Lilium pardalinum ssp. pitkinense*	PMLIL1A0H3	Endangered	Endangered	G5T1	S1	1B.1
39	Pitkin Marsh paintbrush *Castilleja uliginosa*	PDSCR0D380		Endangered	GXQ	SX	1A
40	Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012			G5T2	S2	1B.2
41	Rincon Ridge ceanothus *Ceanothus confusus*	PDRHA04220			G1	S1	1B.1
42	Rincon Ridge manzanita *Arctostaphylos stanfordiana ssp. decumbens*	PDERI041G4			G3T1	S1	1B.1
43	Russian River tule perch *Hysterocarpus traski pomo*	AFCQK02011			G5T4	S4	SC
44	Santa Cruz clover *Trifolium buckwestiorum*	PDFAB402W0			G2	S2	1B.1
45	Sebastopol meadowfoam *Limnanthes vinculans*	PDLIM02090	Endangered	Endangered	G1	S1	1B.1
46	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
47	Sonoma spineflower *Chorizanthe valida*	PDPGN040V0	Endangered	Endangered	G1	S1	1B.1
48	Sonoma sunshine *Blennosperma bakeri*	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
49	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
50	The Cedars buckwheat *Eriogonum cedrorum*	PDPGN087A0			G1	S1	1B.3
51	The Cedars fairy-lantern *Calochortus raichei*	PMLIL0D1L0			G2	S2	1B.2
52	The Cedars manzanita *Arctostaphylos bakeri ssp. sublaevis*	PDERI04222		Rare	G2T2	S2	1B.2
53	Thurber's reed grass *Calamagrostis crassiglumis*	PMPOA17070			G3Q	S2?	2B.1
54	Tidestrom's lupine *Lupinus tidestromii*	PDFAB2B3Y0	Endangered	Endangered	G1	S1	1B.1
55	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2	SC
56	Vine Hill ceanothus *Ceanothus foliosus var. vineatus*	PDRHA040D6			G3T1	S1	1B.1
57	Vine Hill clarkia *Clarkia imbricata*	PDONA050K0	Endangered	Endangered	G1	S1	1B.1
58	Vine Hill manzanita *Arctostaphylos densiflora*	PDERI040C0		Endangered	G1	S1	1B.1
59	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2	
60	blue coast gilia *Gilia capitata ssp. chamissonis*	PDPLM040B3			G5T2	S2	1B.1
61	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
62	bristly sedge *Carex comosa*	PMCYP032Y0			G5	S2	2B.1
63	brownish beaked-rush *Rhynchospora capitellata*	PMCYP0N080			G5	S1	2B.2
64	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S3	SC
65	coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2			G4T2T3	S2S3	1B.2
66	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
67	congested-headed hayfield tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T1T2	S1S2	1B.2
68	dwarf downingia *Downingia pusilla*	PDCAM060C0			GU	S2	2B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
69	dwarf soaproot *Chlorogalum pomeridianum var. minus*	PMLIL0G042			G5T2T3	S2S3	1B.2
70	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
71	fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0			G2	S2	1B.2
72	golden larkspur *Delphinium luteum*	PDRAN0B0Z0	Endangered	Rare	G1	S1	1B.1
73	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
74	hardhead *Mylopharodon conocephalus*	AFCJB25010			G3	S3	SC
75	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4	
76	holly-leaved ceanothus *Ceanothus purpureus*	PDRHA04160			G2	S2	1B.2
77	legenere *Legenere limosa*	PDCAM0C010			G2	S2	1B.1
78	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
79	many-flowered navarretia *Navarretia leucocephala ssp. plieantha*	PDPLM0C0E5	Endangered	Endangered	G4T1	S1	1B.2
80	marsh microseris *Microseris paludosa*	PDAST6E0D0			G2	S2	1B.2
81	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S2	1B.2
82	monarch - California overwintering population *Danaus plexippus pop. 1*	IILEPP2012			G4T2T3	S2S3	
83	narrow-anthered brodiaea *Brodiaea leptandra*	PMLIL0C022			G3?	S3?	1B.2
84	northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
85	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
86	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
87	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G4G5	S3?	2B.3
88	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
89	pappose tarplant *Centromadia parryi ssp. parryi*	PDAST4R0P2			G3T2	S2	1B.2
90	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
91	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T1	S1	1B.2
92	rhinoceros auklet *Cerorhinca monocerata*	ABNNN11010			G5	S3	
93	round-headed beaked-rush *Rhynchospora globularis*	PMCYP0N0W0			G4	S1	2B.1
94	saline clover *Trifolium hydrophilum*	PDFAB400R5			G2	S2	1B.2
95	serpentine cryptantha *Cryptantha dissita*	PDBOR0A0H2			G2	S2	1B.2
96	serpentine daisy *Erigeron serpentinus*	PDAST3M5M0			G2	S2	1B.3
97	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T3	S2	1B.2
98	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2T3Q	S2S3	
99	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
100	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
101	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S1S2	SC
102	two-fork clover *Trifolium amoenum*	PDFAB40040	Endangered		G1	S1	1B.1
103	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
104	western red bat *Lasiurus blossevillii*	AMACC05060			G5	S3	SC
105	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
106	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2
107	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3S4	

Felta Creek Stream Habitat Enhancement Project
M 08N 10W Section 1
Sonoma County



Introduction:

Through the Mill Creek Dam Fish Passage Project, Trout Unlimited (TU) will address NMFS CCC Coho Salmon Recovery Task RR-CCC-6.1.2.2 by modifying or removing the flashboard dam on lower Mill Creek near the confluence with Wallace Creek—this barrier is the highest priority barrier within the Russian River population for remediation. This project will remediate the barrier and restore passage by constructing a roughened channel that provides an adult passage option and a roughened ramp fishway/side channel to allow juvenile passage.

This project is needed because the dam blocks access to approximately 11.2 miles of high-quality habitat spawning and rearing in the Mill Creek watershed. This is 62% of the anadromous stream in one of the most important coho streams in the Russian River. The project will improve passage conditions for coho salmon (Oncorhynchus kisutch) and steelhead (Oncorhynchus mykiss) at various life history stages and various flows. NMFS (2012) has identified the barrier in the project as "the highest priority barrier within the Russian River population for remediation." The dam is a complete barrier to upstream juvenile salmonid passage and a partial barrier to upstream adult passage. The dam is a barrier for coho under most flow conditions. Broodstock program monitoring efforts have documented how the dam is blocking coho passage. In the fall of 2012, agencies and other partners eliminated a severe partial barrier to fish passage (a human-modified waterfall) below the Mill Creek dam. Now, there are no barriers in the watershed below the Mill Creek flashboard dam, and the project will reconnect access to habitat in Mill, Angel, Palmer, and Wallace creeks.

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 VII and XI (Flosi et al 1998 and 2002).

Objective(s):

Overall project objectives are to remediate the highest priority barrier for coho within the Russian River and to restore access to 11.2 mi. of high-quality habitat in the Mill Creek watershed by constructing a roughened channel and side channel to allow adult and juvenile passage.

Project Description:

Location:

The project is located in Healdsburg, CA near Mill Creek Road, which is 2.73 miles from the intersection of Westside Road and Highway 101 (see Attachment 4, Project Location Topographic Map). The project is located approximately 2 miles above the confluence of Felta and Mill creeks, 3.1 miles above the confluence of Dry and Mill creeks, and 3.9 miles above the confluence of Dry Creek and Russian River. Coordinates of the current barrier are 38.59591100 north latitude and 122.90752800 west longitude. The length of the project site reach is approximately 380 ft. and the area is approximately 8,500 sq. ft.

Project Set Up:
The Trout Unlimited Stewardship Manager will provide all contracting oversight and administration including but not limited to securing contracts and agreements (grantors, subcontractors, and landowners), scheduling, implementation oversight, invoicing, reporting and agency communication. This task will occur throughout the life of the project. Trout Unlimited's California Director and Staff Counsel will provide oversight and contracting support. The National Resource Director of TU will assist with grant administration, contracting, and compliance. Lastly, the Conservation Grants Assistant will assist in processing invoices and vendor payments, grant tracking, and reporting.

A general construction subcontractor with extensive experience in habitat restoration construction, Prunuske Chatham, Inc. (PCI), will manage and perform all construction and revegetation tasks and a portion of the post-construction monitoring tasks. PCI will hire and oversee local subcontractors, as needed, for portions of the work. Key requirements for secondary subcontractors will include availability within project timeline, cost efficiency, and ability to comply with CDFW contract conditions.

Materials:
The following list outlines the general materials required in various project tasks. Other smaller, miscellaneous materials may be needed.

Site management and mobilization materials to facilitate and sustain construction operations, and to replace infrastructure and landscaping removed on properties during construction activities:
- Safety equipment and signs
- Small hand tools that will be expended during project construction
- Miscellaneous hardware
- Site repair materials
- Wire, power cords and electrical fittings to power site and equipment
- Gravel for access road, ramp and pads
- Lumber and hardware to repair/replace fencing
- 5,000 gallon water tank(s) for temporary water supply
- PVC pipe and fittings

Dewatering to allow equipment to work in channel and install project elements:
- Sump pumps
- Sand or gravel bags
- Plastic sheeting
- Pipe, HDPE, various diameters
- Pipe, PVC, various diameters
- Pipe and pump fittings

Channel Construction for installation of roughened channel fill and side channel:
- Boulders, range from 2 to 6 ton, to form key elements
- Rock and gravel for interstitial fill

- Shotcrete to line side channel and stabilize banks

Erosion Control (permanent and temporary):
- Wattles, burlap encased
- Plastic sheeting
- Stakes, wooden, various sizes
- Coir, twine mat
- Compost
- Straw mulch

Planting and Plant Establishment for revegetation and vegetation survival:
- Plants, including tree pots, and 1 gallons
- Browse protectors
- Weed protection mats
- Irrigation supplies
- Replacement irrigation parts and/or DriWater

Tasks:

Task 1: Project Management and Grant Administration.
Trout Unlimited will provide contracting oversight and administration including but not limited to obtaining permits, securing contracts (grantors, subcontractors, landowners), scheduling, invoicing, reporting and agency communication.

Task 2: Construction Administration (PCI)
Construction administration represents all of the supplemental site activities it takes to coordinate and run a large construction project, including such activities as:
- Public notification
- Construction workplan and schedule
- Requests for information regarding design
- Conducting tours and meetings with landowner, stakeholders, and agency staff
- Procurement and management of subcontractors
- Procurement of materials and equipment
- Geotechnical and Structural engineering consultations and inspections
- Construction period engineering tasks
- Overall project coordination, management, and reporting
- Conduct as-built survey and final project walk through

Task 3: Mobilization (PCI)
Mobilization includes preparing for construction activities, including moving equipment and materials on to the site, conducting pre-construction biological surveys and crew trainings, and setting up site for construction start up. At end of construction, demobilization activities include moving equipment and remaining materials out and cleaning up the site.

Task 4: Dewatering (PCI)
Dewatering and fish relocation includes the following activities:

- Final design of dewatering system based on site conditions
- Installation of coffer dams
- Installation of first set of sump pumps; including running power to pumps
- Plumbing streamflow bypass pipe
- Fish rescue/relocation will be conducted by certified CDFW Biologist or CDFW Scientist
- Installation of second set of sumps in reservoir staging area to maintain workable conditions
- Installation of local sumps to handle seepage and groundwater infiltration into channel construction zone.
- Installation and maintenance of turbid water tank and discharge system
- System removal at project completion

Task 5: Site Management (PCI)
Site management includes all the work associated with preparing the site for construction and repairing it after construction. Activities include:

- Conducting vegetation management for reducing risk of migratory bird nesting activity in project area
- Preparing safety plan, training crew, installing signage for public
- Developing access ramps and pads, including removing obstructing infrastructure and landscaping
- Repairing and restoring access areas and landscaping after construction
- Preparing staging area for heavy equipment use and materials storage
- Restoring staging area (channel reservoir area) after construction work
- Installing temporary water supplies for residents
- Removing and then replacing residents' water intake systems

Task 6: Channel Construction (PCI)
Channel construction consists of the primary construction tasks, other than dewatering, associated with the installation of the engineered roughened channel fill and fishway/side channel. Activities include:

- Removing trees within the project footprint and grubbing
- Demolition of the dam's concrete apron and any bedrock/large boulders in project footprint
- Rough excavation of the main channel and side channel areas in preparation for installing shotcrete
- and engineered stream beds
- Installing the channel beds and banks, shotcrete walls, and bed liners
- Implementing temporary erosion control treatments if rain events are forecasted
- Installing permanent erosion control on exposed slopes

Also included in this task is the work to remove up to 1000 feet of galvanized steel pipe along the right bank that was once used to deliver water from the dam downstream to the historic ranch property.

Task 7: Revegetation (PCI)
Revegetation includes planting of disturbed areas and new cut slopes on the project area's right bank with approximately 200 native trees, shrubs, and grass plugs to revegetate the site and provide beneficial wildlife habitat, as well as pole planting the downstream left bank boulder fill with willow sprigs. Three years of maintenance, including watering and weed control, will be performed to ensure maximum plant survival. Monitoring and reporting of plant survival and other metrics per permit conditions will be performed.

Task 8: Monitoring (PCI and UCCE/CSG)
Physical Monitoring: The site will be monitored by PCI for 2 years post-construction to document stability and functioning. Long profiles will be surveyed annually after each high flow season to document slopes and thalweg geometry. Repeat photography at set photo points will visually document any changes in channel configuration or sediment distribution. An evaluation of actual fish passage conditions through the site will be completed during one low fish passage flow and one high fish passage flow. Direct measurements of velocities and water depths at multiple locations throughout the engineered roughened channels will be made. Preliminary findings will be reported in progress reports and a final report will be produced at the end of the 2-year monitoring period.

Biological Monitoring: Biological effectiveness will be documented by UC cooperative Extension (UCCE) and California Sea Grant (CSG) as part of their on-going monitoring for the Russian River Coho Salmon Captive Broodstock Program (RRCSCBP). (No FRGP funding is requested for this project sub-task.)

Through that monitoring program, spawner surveys are conducted to document sightings of live fish, carcasses, and redds as adult coho return to the Russian River watershed to spawn during the winter months and are performed in accordance with CDFW protocols. Each study reach is surveyed at approximately two week intervals, beginning once flows are sufficient to allow entrance of adult salmon into the tributaries and generally continuing through the end of February for coho and mid-April for steelhead. Any live fish observed are identified to species, sex, and origin (wild or broodstock hatchery). Approximate fork length, fish condition, and location are also recorded. Photographs and video footage of spawning behavior are taken to help confirm sightings and identification, and all carcasses are scanned for presence of a coded wire tag (CWT), a PIT tag, an adipose clip, and other marks or tags. Carcass heads are removed and, if present, the CWT is retrieved to determine release year, season, and stocking stream. Otoliths are collected for future analysis of movement, growth and feeding patterns. A unique identifier tag is attached to all carcasses to estimate escapement and observer efficiency. Additional sampling from carcasses includes scale sampling and fin clipping for genetic analysis. When a completed redd is observed, pot and tail spill measurements are taken. If a redd is built by an unknown species of salmonid, these metrics aid in species identification. Redd locations are flagged and mapped using a handheld GPS unit. On subsequent visits, redd age and condition are noted until the redd is no longer visible.

UCCE and CSG will conduct pre- and post-project evaluation by continuing to conduct spawner surveys each winter and operating PIT tag antennas at sites downstream and upstream of the dam. In addition, snorkel surveys are conducted every summer on the entire length of Mill Creek to document the presence and distribution of juvenile salmonids and to confirm successful spawning the previous winter. This will document the number and proportion of fish that make it upstream of the site each year. The Broodstock program will also continue to release PIT-tagged juvenile coho into Mill Creek each year and operate stationary PIT tag detection systems throughout the watershed to track movement and survival patterns from the time coho are released until they return as adults.

Prior to release, approximately 20% of the program coho are weighed, measured, and PIT-tagged. Information about individual fish, including age, size at release, and release season are recorded along with each unique tag number. When a PIT-tagged fish swims through an antenna, a transceiver located on the stream bank records the unique tag number and the time that the fish passed through the antenna. Data collected at antennas placed above and below the dam site will be used to estimate the number, proportion, and timing of adult coho that migrate upstream of the dam site.

Deliverables:

Task 1: Project Management and Grant Administration (TU)

- Agreement between TU and CDFW and contracts with subcontractors
- Progress reports and other materials (e.g., outreach materials) as required by the CDFW grant agreement
- Final Report
- Regarding the Clearinghouse for Dam Removal Information: no dam is being removed, so we presume the project information would not be of interest; if it is, TU will enter the information into the CDRI

Task 2: Construction Administration (PCI)

- Construction schedule
- Photo documentation of construction
- Project status reports
- As-built drawing (profile) and documentation

Task 3: Mobilization/ Task 4: Dewatering/ Task 5: Site Management (PCI)

- No deliverables

Task 6: Channel Construction (PCI)

- Constructed fish passage project: 100 feet of roughened channel in main channel at 6% (50 feet) and 8% (50 feet) slope for adult fish passage and 100 feet of a roughened fishway/side channel at 3.2% slope for juvenile and adult passage.

Task 7: Revegetation (PCI)

- Installed plants: 236 container trees, shrubs, willow sprigs, and grasses (see Sheet 9 of 65% Plans)
- 80% plan survival (3 years)
- Planting success report at end of 3-year post construction maintenance period

Task 8: Monitoring (PCI, UCCE/CSG)

- Effectiveness monitoring interim memos for Progress Reports
- Effectiveness monitoring final reports (at end of 2nd year post-construction period)

  - Physical monitoring – Summary and analysis of annual post-construction long profile surveys, repeat photography, and low flow and high flow fish passage condition measurements (velocities and depths)

  - Biological monitoring – Summary of coho and steelhead spawning and rearing distributions in Mill Creek pre- and post-construction, and an evaluation of changes due to project implementation.

Timelines:

This timeline assumes a Notice to Proceed by July 1, 2016 and that construction occurs in summer/fall 2016.

Task 1: Project Management and Grant Administration - Trout Unlimited contract oversight and administration will begin upon receiving a fully-executed CDFW grant agreement and continue through the life of the project, ending on March 31, 2020.

Task 2: Construction Administration: July 1, 2016 – January 31, 2019

Task 3: Mobilization: July 1, 2016 – November 1, 2016

Task 4: Dewatering: July 1, 2016 – October 15, 2016

Task 5: Site Management: July 1, 2016 – November 1, 2016

Task 6: Channel Construction: July 1, 2016 – October 15, 2016

Task 7: Revegetation: November 1, 2016 – November 30, 2019

Task 8: Monitoring: November 1, 2016 – January 31, 2019

Additional Requirements:

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.

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.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). 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 AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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:

a. Listed and sensitive species relocation will be conducted by CDFW certified biologist or CDFW Scientist.
b. Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.
c. 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. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.
e. 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.
f. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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.*

All construction will take place out of the wetted channel either by implementing the project from the bank and out of the channel or by constructing cofferdams, removing aquatic species located within the project reach by CDFW certified biologist or CDFW Scientist, and dewatering the channel.

No more than 500 linear feet (250 feet on each side of the channel) of riparian vegetation will be removed. All disturbed areas will be re-vegetated with native grasses, trees, or shrubs.

All dewatering efforts associated with small dam removal will abide by the applicable minimization measures (Section D. Sideboards, Minimization Measures, and Other Requirements).

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Common Name - Portrait
724746 Mill Creek Dam Fish Passage Project
M 09N 10W Section25
Sonoma 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 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	G2T1	S1	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 giant salamander *Dicamptodon ensatus*	AAAAH01020			G3	S2S3	
12	California linderiella *Linderiella occidentalis*	ICBRA06010			G2G3	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	Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
16	Coastal Terrace Prairie	CTT41100CA			G2	S2.1	
17	Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
18	Crystal Springs lessingia *Lessingia arachnoidea*	PDAST5S0C0			G1	S1	1B.2
19	Dorr's Cabin jewelflower *Streptanthus morrisonii ssp. hirtiflorus*	PDBRA2G0S2			G2T1	S1	1B.2
20	Freed's jewelflower *Streptanthus brachiatus ssp. hoffmanii*	PDBRA2G071			G2T2	S2	1B.2
21	Giuliani's dubiraphian riffle beetle *Dubiraphia giulianii*	IICOL5A020			G1G3	S1S3	
22	Greene's narrow-leaved daisy *Erigeron greenei*	PDAST3M5G0			G2	S2	1B.2
23	Gualala roach *Lavinia symmetricus parvipinnis*	AFCJB19025			G4T1T2	S1S2	SC

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	Hoffman's bristly jewelflower *Streptanthus glandulosus ssp. hoffmanii*	PDBRA2G0J4			G4T2	S2	1B.3
25	Jepson's leptosiphon *Leptosiphon jepsonii*	PDPLM09140			G3	S3	1B.2
26	Methuselah's beard lichen *Usnea longissima*	NLLEC5P420			G4	S4	4.2
27	Morrison's jewelflower *Streptanthus morrisonii ssp. morrisonii*	PDBRA2G0S3			G2T2	S2	1B.2
28	Mt. Saint Helena morning-glory *Calystegia collina ssp. oxyphylla*	PDCON04032			G4T3	S3	4.2
29	Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	IILEPJ608C	Endangered		G5T1	S1	
30	Napa false indigo *Amorpha californica var. napensis*	PDFAB08012			G4T2	S2	1B.2
31	Navarro roach *Lavinia symmetricus navarroensis*	AFCJB19023			G4T1T2	S1S2	SC
32	North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070		Threatened	G2	S2	1B.1
33	Northern Hardpan Vernal Pool	CTT44110CA			G3	S3.1	
34	Northern Vernal Pool	CTT44100CA			G2	S2.1	
35	Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6			G5T3T4	S2	1B.2
36	Pennell's bird's-beak *Cordylanthus tenuis ssp. capillaris*	PDSCR0J0S2	Endangered	Rare	G4G5T1	S1	1B.2
37	Peruvian dodder *Cuscuta obtusiflora var. glandulosa*	PDCUS01111			G5T4T5	SH	2B.2
38	Pitkin Marsh lily *Lilium pardalinum ssp. pitkinense*	PMLIL1A0H3	Endangered	Endangered	G5T1	S1	1B.1
39	Pitkin Marsh paintbrush *Castilleja uliginosa*	PDSCR0D380		Endangered	GXQ	SX	1A
40	Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012			G5T2	S2	1B.2
41	Rincon Ridge ceanothus *Ceanothus confusus*	PDRHA04220			G1	S1	1B.1
42	Rincon Ridge manzanita *Arctostaphylos stanfordiana ssp. decumbens*	PDERI041G4			G3T1	S1	1B.1
43	Russian River tule perch *Hysterocarpus traski pomo*	AFCQK02011			G5T4	S4	SC
44	Santa Cruz clover *Trifolium buckwestiorum*	PDFAB402W0			G2	S2	1B.1
45	Sebastopol meadowfoam *Limnanthes vinculans*	PDLIM02090	Endangered	Endangered	G1	S1	1B.1
46	Sonoma alopecurus *Alopecurus aequalis var. sonomensis*	PMPOA07012	Endangered		G5T1Q	S1	1B.1

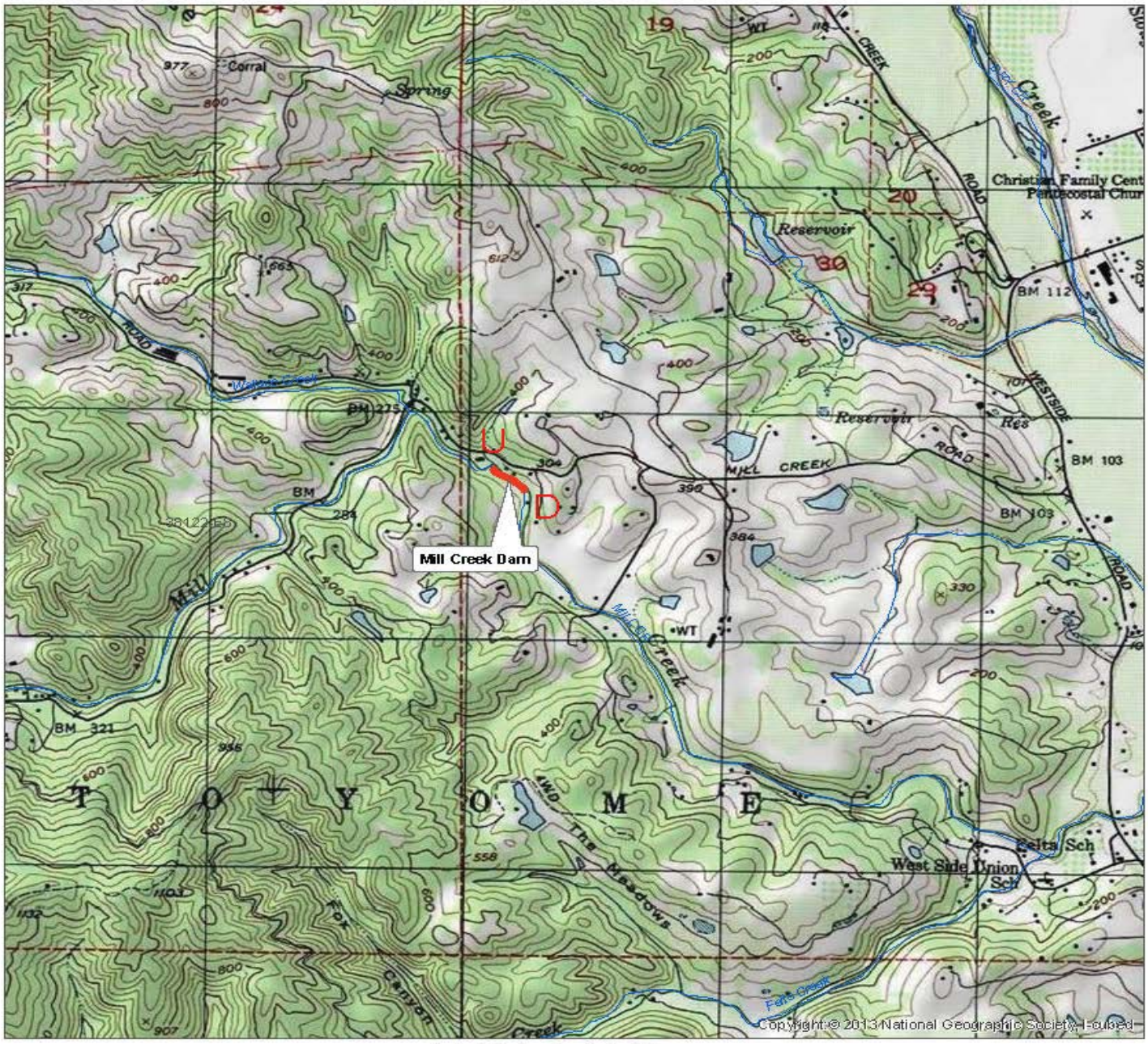
	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
47	Sonoma spineflower *Chorizanthe valida*	PDPGN040V0	Endangered	Endangered	G1	S1	1B.1
48	Sonoma sunshine *Blennosperma bakeri*	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
49	Sonoma tree vole *Arborimus pomo*	AMAFF23030			G3	S3	SC
50	The Cedars buckwheat *Eriogonum cedrorum*	PDPGN087A0			G1	S1	1B.3
51	The Cedars fairy-lantern *Calochortus raichei*	PMLIL0D1L0			G2	S2	1B.2
52	The Cedars manzanita *Arctostaphylos bakeri ssp. sublaevis*	PDERI04222		Rare	G2T2	S2	1B.2
53	Thurber's reed grass *Calamagrostis crassiglumis*	PMPOA17070			G3Q	S2?	2B.1
54	Tidestrom's lupine *Lupinus tidestromii*	PDFAB2B3Y0	Endangered	Endangered	G1	S1	1B.1
55	Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010		Candidate Threatened	G3G4	S2	SC
56	Vine Hill ceanothus *Ceanothus foliosus var. vineatus*	PDRHA040D6			G3T1	S1	1B.1
57	Vine Hill clarkia *Clarkia imbricata*	PDONA050K0	Endangered	Endangered	G1	S1	1B.1
58	Vine Hill manzanita *Arctostaphylos densiflora*	PDERI040C0		Endangered	G1	S1	1B.1
59	bank swallow *Riparia riparia*	ABPAU08010		Threatened	G5	S2	
60	blue coast gilia *Gilia capitata ssp. chamissonis*	PDPLM040B3			G5T2	S2	1B.1
61	bluff wallflower *Erysimum concinnum*	PDBRA160E3			G3	S3	1B.2
62	bristly sedge *Carex comosa*	PMCYP032Y0			G5	S2	2B.1
63	brownish beaked-rush *Rhynchospora capitellata*	PMCYP0N080			G5	S1	2B.2
64	burrowing owl *Athene cunicularia*	ABNSB10010			G4	S3	SC
65	coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2			G4T2T3	S2S3	1B.2
66	coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
67	congested-headed hayfield tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065			G5T1T2	S1S2	1B.2
68	dwarf downingia *Downingia pusilla*	PDCAM060C0			GU	S2	2B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
69	dwarf soaproot *Chlorogalum pomeridianum var. minus*	PMLIL0G042			G5T2T3	S2S3	1B.2
70	foothill yellow-legged frog *Rana boylii*	AAABH01050			G3	S3	SC
71	fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0			G2	S2	1B.2
72	golden larkspur *Delphinium luteum*	PDRAN0B0Z0	Endangered	Rare	G1	S1	1B.1
73	great blue heron *Ardea herodias*	ABNGA04010			G5	S4	
74	hardhead *Mylopharodon conocephalus*	AFCJB25010			G3	S3	SC
75	hoary bat *Lasiurus cinereus*	AMACC05030			G5	S4	
76	holly-leaved ceanothus *Ceanothus purpureus*	PDRHA04160			G2	S2	1B.2
77	legenere *Legenere limosa*	PDCAM0C010			G2	S2	1B.1
78	longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SC
79	many-flowered navarretia *Navarretia leucocephala ssp. plieantha*	PDPLM0C0E5	Endangered	Endangered	G4T1	S1	1B.2
80	marsh microseris *Microseris paludosa*	PDAST6E0D0			G2	S2	1B.2
81	minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0			G3?	S2	1B.2
82	monarch - California overwintering population *Danaus plexippus pop. 1*	IILEPP2012			G4T2T3	S2S3	
83	narrow-anthered brodiaea *Brodiaea leptandra*	PMLIL0C022			G3?	S3?	1B.2
84	obscure bumble bee *Bombus caliginosus*	IIHYM24380			G4?	S1S2	
85	osprey *Pandion haliaetus*	ABNKC01010			G5	S4	
86	oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080			G4G5	S3?	2B.3
87	pallid bat *Antrozous pallidus*	AMACC10010			G5	S3	SC
88	pappose tarplant *Centromadia parryi ssp. parryi*	PDAST4R0P2			G3T2	S2	1B.2
89	perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5			G3T2	S2	1B.2
90	purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL			G5T1	S1	1B.2

	Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
91	rhinoceros auklet *Cerorhinca monocerata*	ABNNN11010			G5	S3	
92	round-headed beaked-rush *Rhynchospora globularis*	PMCYP0N0W0			G4	S1	2B.1
93	saline clover *Trifolium hydrophilum*	PDFAB400R5			G2	S2	1B.2
94	serpentine cryptantha *Cryptantha dissita*	PDBOR0A0H2			G2	S2	1B.2
95	serpentine daisy *Erigeron serpentinus*	PDAST3M5M0			G2	S2	1B.3
96	short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011			G4T3	S2	1B.2
97	steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened		G5T2T3Q	S2S3	
98	swamp harebell *Campanula californica*	PDCAM02060			G3	S3	1B.2
99	thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0			G2	S2	1B.2
100	tufted puffin *Fratercula cirrhata*	ABNNN12010			G5	S1S2	SC
101	two-fork clover *Trifolium amoenum*	PDFAB40040	Endangered		G1	S1	1B.1
102	western pond turtle *Emys marmorata*	ARAAD02030			G3G4	S3	SC
103	western red bat *Lasiurus blossevillii*	AMACC05060			G5	S3	SC
104	white beaked-rush *Rhynchospora alba*	PMCYP0N010			G5	S2	2B.2
105	white-flowered rein orchid *Piperia candida*	PMORC1X050			G3	S3	1B.2
106	white-tailed kite *Elanus leucurus*	ABNKC06010			G5	S3S4	

Project Location Topographic Map

Mill Creek Location Topographic Map



United States Geological Survey
7.5 Minute Topographic Map. Guemeville Quadrangle

0 0.125 0.25 0.5 0.75 1 Miles

APPENDIX B

MITIGATION MEASURES, MONITORING AND REPORTING PROGRAM FOR THE 2016 FISHERIES RESTORATION GRANT PROGRAM, THE STEELHEAD REPORT AND RESTORATION CARD PROGRAM, AND THE FOREST LAND ANADROMOUS RESTORATION PROJECTS

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 wildlife 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 2016 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 2016 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 2016 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 34 work sites proposed as part of the 2016 grants program, none of the sites shows the Arroyo Toad listed on the corresponding species list in Appendix A.

3) California freshwater shrimp (*Syncaris pacifica*)

One of the 34 work sites proposed as part of the 2016 grants program occurs within the range of California freshwater shrimp (CFS) (724702 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase II) (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 34 work sites proposed as part of the 2016 grants program, eight occur within the range of the California red-legged frog (CRLF). Activities proposed for (724797 Blue Waterhole Cr Sediment Reduction and Coho Habitat Enhancement, 724702 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase II, 724673 San Gregorio Creek Habitat Enhancement Project - Phase 2, 724656 Upper Green Valley Creek Fish Passage Implementation Project, 724717 Felta Creek Stream Habitat Enhancement Project, 724746 Mill Creek Dam Fish Passage Project, 725029 Horsethief Canyon Instream Barrier Modification, and 724654 Fish Passage Improvement at Crossing 4, Quiota Creek) (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) 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/docs/species/protocols/DAFTA.pdf) shall be followed at all times.

d) 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.

e) 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.

f) Before 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.

g) 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.

h) 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.

i) 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.

j) 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.

k) 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.

l) 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.

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 i 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)*

Of the 34 prosed projects in the 2016 grant program, none are within the range of the California tiger salamander.

6) Chinook salmon (*Oncorhynchus tshawytscha*), Coho salmon (*Oncorhynchus kisutch*), steelhead trout (*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 2016 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. Captured 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 34 projects proposed as part of the 2016 grants program, none are within the range of the least Bell's vireo.

8) Marbled murrelet (*Brachyrampus marmoratus*)

Six of the 34 work sites proposed as part of the 2016 grants program are in potentially suitable habitat for the marbled murrelet. Activities proposed for the sites (724785 Lower Mill Creek Instream Restoration Project, Phase 2, 724782 Greater Eel River Arundo Eradication Phase III, 724655 South Fork Noyo River Instream Habitat Enhancement Project, 724684 East Branch Little North Fork LWD and Instream Barrier Modification, 724706 James Creek Fish Barrier Modification Project, and 724702 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase II) (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 34 work sites proposed as part of the 2016 grants program, 19 are in potentially suitable habitat for the northern spotted owl (724794 East Fork Ryan Creek Sediment Reduction and Habitat Enhancement Project, 724782 Greater Eel River Arundo Eradication Phase III, 724655 South Fork Noyo River Instream Habitat Enhancement Project, 724684 East Branch Little North Fork LWD and Instream Barrier Modification, 724694 Little North Fork Navarro River Coho Stream Habitat Enhancement Project, 724705 Noyo Headwaters Instream Habitat Enhancement Project, 724706 James Creek Fish Barrier Modification Project, 724744 Anderson Creek Sediment Reduction and Coho Recovery Project, 724745 Olds Creek Instream Coho Salmon Habitat Enhancement Project, 724764 Anderson Creek Habitat Enhancement Project for Coho Recovery Phase II, 724781 Hollow Tree Tributary Complex Instream Restoration Project Phase II, 724797 Blue Waterhole Cr Sediment Reduction and Coho Habitat Enhancement, 724714 South Fork Salmon River Tributary Salmonid Habitat Enhancement Project, 724702 Lagunitas Creek Winter Habitat Enhancement Implementation – Phase II, 724656 Upper Green Valley Creek Fish Passage Implementation Project, 724717 Felta Creek Stream Habitat Enhancement Project, 724746 Mill Creek Dam Fish Passage Project, 725030 String Creek Steelhead Instream Habitat Enhancement Project, and 725029 Horsethief Canyon Instream Barrier Modification) (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 34 projects proposed 2016 grants program, none are within the range of the Point Arena mountain beaver.

11) San Francisco Garter snake (*Thamnophis sirtalis tetrataenia*)

Of the 34 projects proposed in the 2016 grants program, one (724673 San Gregorio Creek Habitat Enhancement Project - Phase 2) (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) 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.

b) 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 the 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.

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 34 work sites proposed as part of the 2016 grants program, none are in potentially suitable habitat for the southwestern willow flycatcher.

13) Tidewater goby (*Eucyclogobius newberryi*)

Of the 34 work sites proposed as part of the 2016 grants program, none are in potentially suitable habitat for the tidewater goby.

14) Willow flycatcher (*Empidonax traillii)*

Of the 34 work sites proposed as part of the 2016 grants program, four (724776 Rowdy Creek Instream Habitat Enhancement Project Reach IV, 724738 Fish Passage Improvements at South Fortuna Boulevard, 724785 Lower Mill Creek Instream Restoration Project, Phase 2, and 724782 Greater Eel River Arundo Eradication Phase III) (Appendix A) are in potentially suitable habitat for the Willow flycatcher. 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. <u>Riparian and re-vegetation</u>

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 field surveys at the time of year when species are both evident and identifiable, typically during flowering or fruiting season. Space visits throughout the growing season to accurately determine what plants exist on site. To capture the floristic diversity at a level necessary to determine if special status plants are present[14], this may involve multiple visits to the same site (e.g. in early, mid, and late-season for flowering plants). 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

Nearby reference populations (or accessible occurrences of the plants) should be visited whenever possible to determine if known special status plant populations are evident and identifiable at the time of the survey, to obtain a visual image of the target species, and to determine associated habitat and natural community. Reference populations may be particularly important during drought years to ensure that the timing of surveys is appropriate and to help substantiate negative findings in adverse conditions caused by drought. A drought and other adverse conditions may mean some annual, short–live perennial plant taxa, and plants with persistent long-lived seed banks that are known not to germinate every year may not be identifiable or evident. The failure to locate a plant during the floristic surveys of one field season does not constitute evidence that the plant is absent from the surveyed location. Multiple visits to a reference site should be made (e.g. in early, mid, and late-season) to accurately survey the floristic diversity of the site and detect the presence of all special status plant taxa that are evident and identifiable.

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

[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

- 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

- 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

[16] U.S. Fish and Wildlife Service Survey Guidelines available at http://www.fws.gov/sacramento/es/survey-protocols-guidelines/es_survey.htm

[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

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.

- 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

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Review Process and During Timber Harvesting Operations", available at https://r1.dfg.ca.gov/Portal/LinkClick.aspx?fileticket=iPKkfYqe5i0=&tabid=949

[18] NAD83, NAD27 or WGS84

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.

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,

[19] http://www.dfg.ca.gov/biogeodata
[20] NAD83, NAD27 or WGS84
[21] http://www.dfg.ca.gov/biogeodata/vegcamp/veg_publications_protocols.asp
[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.

- 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.

- **Detailed description of survey methodology and results**

  - o 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;

  - o A discussion of how the timing of the surveys and adverse conditions affects the comprehensiveness of the survey;

  - o A list of potential special status species or natural communities;

  - o A description of the area surveyed relative to the project area;

  - o References cited, persons contacted, and herbaria visited;

  - o Description of reference site(s), if visited, and size, condition, and phenological development of special status plant(s);

  - o 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;

  - o Any use of existing surveys and a discussion of applicability to this project;

  - o A discussion of the potential for a false negative survey;

  - o 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;

  - o 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,

[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.

- 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
Archaeological 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 Historic 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.