Print Form

Appendix C

Notice of Completion & Environmental Document Transmittal

2016122052

SCH #

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

Project Title: The 2016 Fish Habitat Restoration Project

Lead Agency: Dept. of Fish and Wildlife, Watershed Restoration Grants Branch | Contact Person: Karen Carpio

Mailing Address: 1416 9th Street, Rm. 1266 | Phone: 916-327-8658

City: Sacramento | Zip: 95814 | 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 ☐ Draft EIR ☐ Supplement/Subsequent EIR (Prior SCH No.) ☐ Early Cons ☐ Neg Dec ☒ Mit Neg Dec Other:

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

Governor's Office of Planning & Research
DEC 22 2016
STATE CLEARINGHOUSE

Local Action Type:

☐ General Plan Update ☐ Specific Plan ☐ Rezone ☐ Annexation
☐ General Plan Amendment ☐ Master Plan ☐ Prezone ☐ Redevelopment
☐ General Plan Element ☐ Planned Unit Development ☐ Use Permit ☐ Coastal Permit
☐ Community Plan ☐ Site Plan ☐ Land Division (Subdivision, etc.) ☒ 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 ☐ Fiscal ☐ Recreation/Parks ☐ Vegetation
☐ Agricultural Land ☐ Flood Plain/Flooding ☐ Schools/Universities ☐ Water Quality
☐ Air Quality ☐ Forest Land/Fire Hazard ☐ Septic Systems ☐ Water Supply/Groundwater
☐ Archeological/Historical ☐ Geologic/Seismic ☐ Sewer Capacity ☐ Wetland/Riparian
☐ Biological Resources ☐ Minerals ☐ Soil Erosion/Compaction/Grading ☐ Growth Inducement
☐ Coastal Zone ☐ Noise ☐ Solid Waste ☐ Land Use
☐ Drainage/Absorption ☐ Population/Housing Balance ☐ Toxic/Hazardous ☐ Cumulative Effects
☐ Economic/Jobs ☐ Public Services/Facilities ☐ Traffic/Circulation ☒ 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.

Revised 2010

Reviewing Agencies Checklist

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

____	Air Resources Board	____	Office of Historic Preservation
____	Boating & Waterways, Department of	____	Office of Public School Construction
____	California Emergency Management Agency	X	Parks & Recreation, Department of
____	California Highway Patrol	____	Pesticide Regulation, Department of
X	Caltrans District # 1245	____	Public Utilities Commission
____	Caltrans Division of Aeronautics	X	Regional WQCB # 1,2,4
____	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 23, 2016 Ending Date January 23, 2017

Lead Agency (Complete if applicable):

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

Applicant: Department of Fish & Wildlife Watershed Restoration Grants Branch
Address: 1416 9th Street, Room 1266
City/State/Zip: Sacramento, CA 95814
Phone: 916.327.8658

Signature of Lead Agency Representative: Helen Birss **Date:** 12/20/2016

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: 1416 9th Street, Rm. 1266
Sacramento, CA 95814
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): 2016122052

Project Title: The 2016 Fish Habitat Restoration Project

Project Applicant: California Department of Fish and Wildlife

Project Location (include county): Various coastal counties

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

This is to advise that the California Department of Fish and Wildlife (☒ Lead Agency or ☐ Responsible Agency) has approved the above described project on 1-25-17 (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:
Watershed Restoration Grants Branch, 1700 9th Street, 2nd Floor, Sacramento, CA 95811

Signature (Public Agency): Julie Brin Title: Branch Chief, WRGB

Date: 1-25-2017 Date Received for filing at OPR: _____

Governor's Office of Planning & Research
JAN 25 2017
STATE CLEARINGHOUSE

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

Revised 2011

California Department of Fish and Wildlife
Watershed Restoration Grants Branch
Fisheries Restoration Grant Program
1416 9th Street, Room 1266
Sacramento, CA 95814

SCH No. 2016122052
Project title: The 2016 Fish Habitat Restoration Project

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,
Watershed Restoration Grants Branch
1700 9th Street, 2nd Floor
Sacramento, CA 95811

Attention: Karen Carpio
Office: (916) 327-8658
Fax: (916) 654-3820

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 Fish Habitat Restoration Project
- 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 Fish Habitat Restoration Project
- Appendix E. Procedure for the Programmatic Evaluation of Archaeological Resources for the Fish Habitat Restoration Project

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: 1-25-2017

Helen Birss, Chief,
Watershed Restoration Grants Branch

STATE OF CALIFORNIA

THE RESOURCES AGENCY

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

MITIGATED NEGATIVE DECLARATION

FOR

THE 2016 FISH HABITAT RESTORATION PROJECT IN DEL NORTE, HUMBOLDT, MENDOCINO, SANTA BARBARA, SANTA CRUZ, SISKIYOU, SONOMA, AND VENTURA 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 FISH HABITAT RESTORATION PROJECT
IN
DEL NORTE, HUMBOLDT, MENDOCINO, SANTA BARBARA, SANTA CRUZ, SISKIYOU, SONOMA, AND VENTURA COUNTIES
AND
REQUIRED AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

The Project: This project uses grant funds approved by the California Legislature to initiate activities that are designed to restore, enhance, and protect 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. These proposed projects are designed to increase populations of wild anadromous fish in coastal and central valley streams by restoring their habitat.

The project's 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.

The Finding: Although the 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 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 projects 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 Fish Habitat Restoration Project**
- **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 Fish Habitat Restoration Project**
- **Appendix E. Procedure for the Programmatic Evaluation of Archaeological Resources for the Fish Habitat Restoration Project**

DETAILED PROJECT DESCRIPTION AND BACKGROUND INFORMATION

FOR

THE 2016 FISH HABITAT RESTORATION PROJECT
IN
DEL NORTE, HUMBOLDT, MENDOCINO, SANTA BARBARA, SANTA CRUZ, SISKIYOU, SONOMA, AND VENTURA COUNTIES
AND
REQUIRED AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

INTRODUCTION

The 2016 Fish Habitat Restoration (FHR) project include Fisheries Restoration Grant (FRGP) projects, the Steelhead Report and Restoration Card (SHRRC) Program projects, the Forest Land Anadromous Restoration (FLAR) projects, and the Commercial Salmon Stamp (CSS) projects in Del Norte, Humboldt, Mendocino, Santa Barbara, Santa Cruz, Siskiyou, Sonoma, and Ventura counties. These projects are subject to review under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The FHR project involves funding, in whole or in part, of 58 habitat restoration items. These 58 restoration items are divided into 23 action items and 35 non-physical items.

The 23 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 35 non-physical activities are implemented within various counties of the CDFW region. These non-physical items involve grants for projects such as watershed evaluation, assessment, project planning, technical training, monitoring, and public involvement. Each of these non-physical 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 FHR 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 non-physical 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 58 action items and non-physical items. These 58 items represent all funding applications that have been received in response to the FHR 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 CDFW. This analysis includes all potential items in order to disclose the greatest possible potential impacts that could result from CDFW's implementation of the FHR project.

This Initial Study and the MND analyze the environmental impacts that might result from implementation of the proposed FHR project. 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 the FHR project is to maintain and restore natural watershed processes that create habitat characteristics favorable to salmonids.

The objectives of the FHR 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.

The SHRRC program gathers angler information which is used by CDFW to make fisheries management and regulatory decisions as well as track angling trends. Funds generated from Report Card sales support the program and are also used to fund restoration projects that help conserve, monitor, and recover steelhead populations statewide. Since SHRRC funds are generated by anglers, restoration projects must benefit steelhead and have either a direct or indirect benefit to anglers.

The FLAR funds projects in forested watersheds to restore conditions beneficial to State and/or federally listed coho salmon, Chinook salmon, or steelhead trout. FLAR projects are funded by the Timber Regulation and Forest Restoration Fund and are administered by FRGP. FLAR projects must address legacy impacts of

forest management such as impeded fish passage at forest road stream crossings, sediment discharge from old forest roads and landings, and lack of in-stream large woody debris providing rearing habitat.

The CDFW, in partnership with the California Commercial Salmon Trollers Advisory Committee, manage department funds collected from commercial salmon license fees to improve habitat and management of Chinook salmon for the betterment of the State's salmon fishery. The CSS is an entity of the CDFW's Fisheries Branch and concentrates on funding projects that restore Chinook salmon populations through habitat improvement, salmon hatchery management, or projects that provide public education on the importance and biology of salmon. Projects are located within anadromous coastal and inland watersheds where Chinook salmon contribute to the State's salmon fishery.

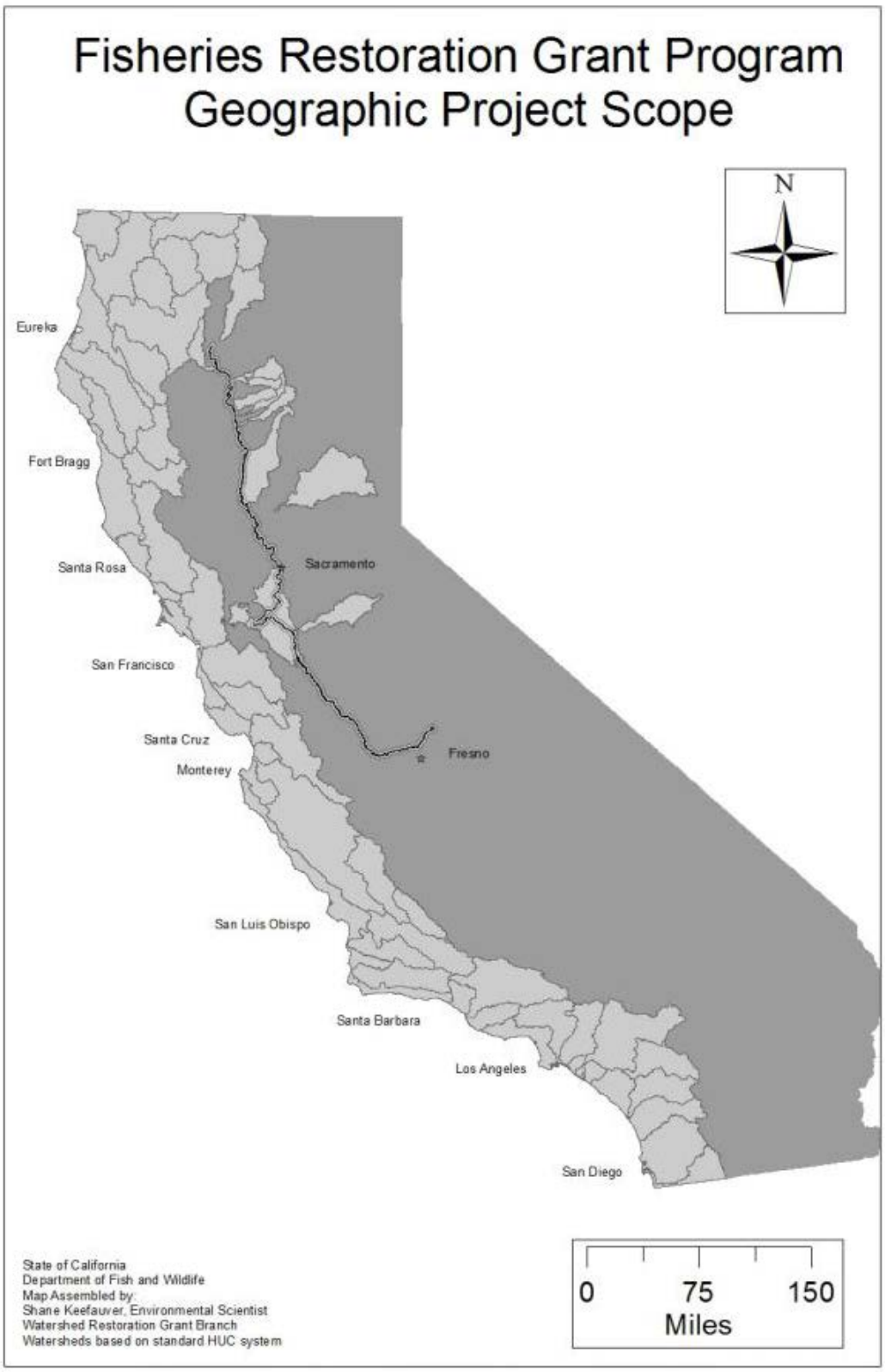
PROJECT LOCATION

Activities performed in the FHR 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.

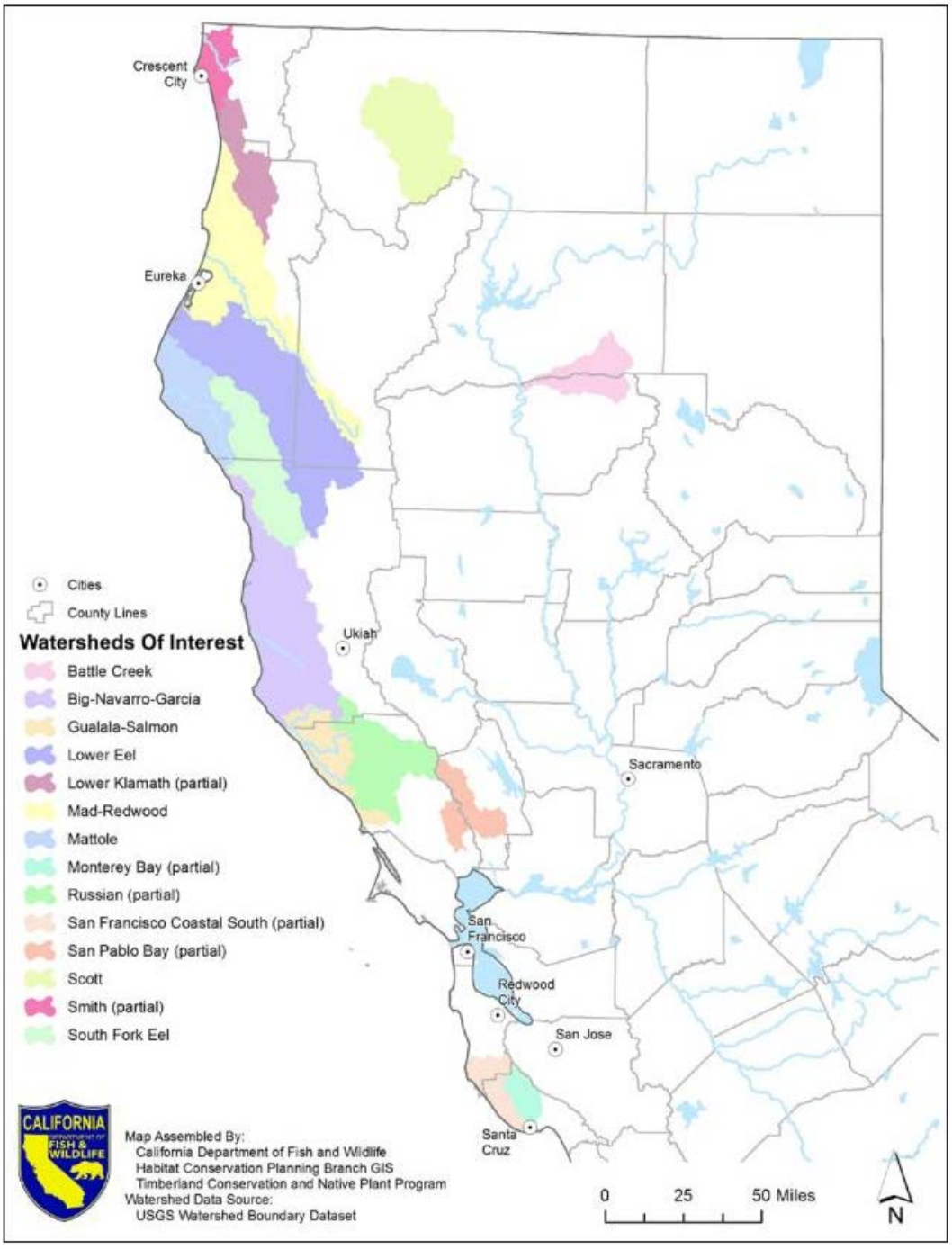
Coastal watersheds previously dominated by mature redwood and Douglas fir forests, contain extensive road and skid trail systems from tractor logging. These previous mature, forested areas can now be found in various seral stages of vegetative recovery and are predominate in the coastal FRGP region.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

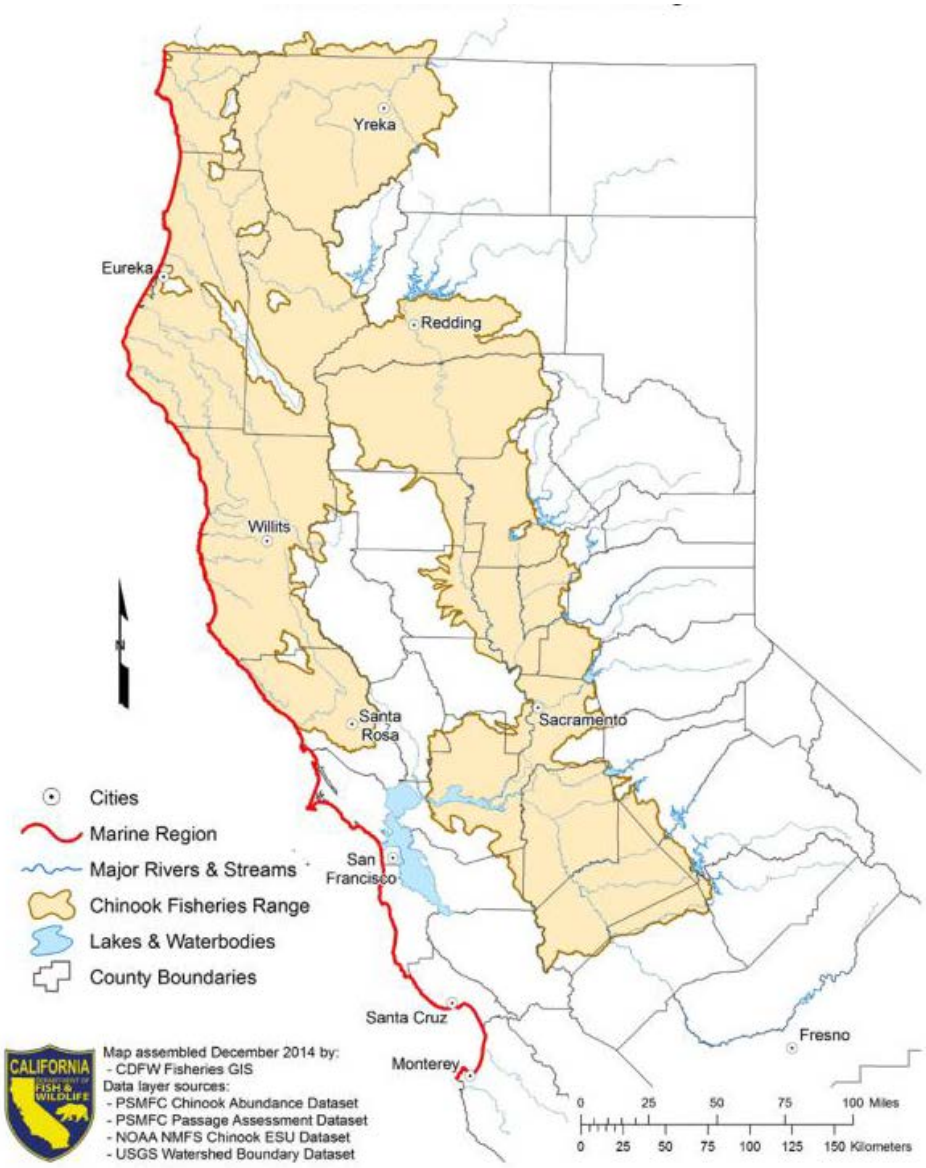
Map 1 illustrates the FRGP geographic range, which include the coastal limits of anadromy and the inland range of anadromy in the Central Valley. Projects focused on restoring habitat impacted by forest management are located on private and nonfederal public forests are depicted in Map 2. The Chinook salmon fishery range is illustrated in Map 3.



Map 1: Area covered by FRG



Map 2: Area covered by Forest Land Anadromous Restoration



Map 3: Chinook salmon fishery range

SCHEDULE

The activities carried out in the FHR project will 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, through the FRGP, releases an annual Proposal Solicitation Notice (Solicitation) for proposals that cover fishery restoration, watershed assessment, and planning work throughout California. 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 non-physical and action items.

The FRGP operates under two Regional General Permits (RGP) issued by the U.S. Army Corps of Engineers (USACE). These permits cover most of the action

items in the FHR project. RGP12 (file number: 2003-27922N) was issued in 2010 and renewed in 2016 by the USACE San Francisco District and covers action items implemented within the regulatory boundaries of the San Francisco District. RGP78 (file number: SPL-2003-01123-BAH) was issued in 2009 and re-issued in 2014 by the USACE Los Angeles District and covers action items implemented within the regulatory boundaries of the Los Angeles District. The 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 for the FHR project covered by the RGP12 and RGP78. 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 FHR project items are considered to fall into two categories corresponding to similar activities and requirements for CEQA review. These two categories of items are as follows.

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

Non-physical items in this category include watershed evaluation, assessment, planning, habitat acquisition, and monitoring projects. The names of 35 non-physical items in this category are presented in a list in Appendix A, Non-physical Items. The 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 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 23 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, 3633 Westwind Blvd., 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, Nevada, and Yuba counties are available for review at the California Department of Fish and Wildlife, Fisheries Restoration Grant Program headquarters, office of Permit/Regulatory Coordinator, Karen Carpio, 1700 9th Street, 2nd Floor, Sacramento, CA 95811. Appointments may be made by telephoning (916) 327-8658, Monday through Thursday, 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 Fish Habitat Restoration Project in Del Norte, Humboldt, Mendocino, Santa Barbara, Santa Cruz, Siskiyou, Sonoma, and Ventura Counties.**

2. Lead Agency Name and Address:

   California Department of Fish and Wildlife
   Watershed Restoration Grants Branch
   Fisheries Restoration Grant Program
   1416 9th Street, Room 1266
   Sacramento, CA 95814

3. Contact People and Phone Numbers:

   Karen Carpio
   (916) 327-8658
   Watershed Restoration Grants Branch, Fisheries Restoration Grant Program
   1416 9th Street, Room 1266
   Sacramento, CA 95814

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

   Gail Seymour
   (707) 576-2813
   Bay Delta Region
   3633 Westwind Blvd.
   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, Mendocino, Santa Barbara, Santa Cruz, Siskiyou, Sonoma, and Ventura Counties (Appendix A).

5. Project Sponsor's Name and Address:

   California Department of Fish and Wildlife
   Fisheries Restoration Grant Program Headquarters
   Watershed Restoration Grants Branch
   1416 9th Street, Room 1266
   Sacramento, CA 95814

6. General Plan Designation: Various

7. Zoning: Various

8. Description of Project: Implementation of 23 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

12/20/2016

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.

Non-Physical Items

Proj. ID	Proj. Type	Prop. No.	Title	Applicant	County	Focus	Region
725203	MD	157	Smith River DIDSON Fish Counting Station	County of Del Norte	Del Norte	CSS	1
725259	MD	037	Distribution and abundance of coho salmon in the Smith River, California	Smith River Alliance	Del Norte	FRGP	1
725190	MD	025	Adult Coho Redd Surveys and Abundance Estimates in the Lower Klamath	Yurok Tribe	Del Norte, Humboldt	FRGP	1
725242	TE	108	20th and 21st Annual Coho Confabs	Salmonid Restoration Federation	Del Norte, Humboldt	FRGP	1
725192	MD	031	Life Cycle Monitoring of Coho Salmon in Prairie Creek	Humboldt State University Sponsored Programs Foundation	Humboldt	FRGP	1
725194	MD	039	Humboldt Bay Coho Monitoring	HSU Sponsored Programs Foundation	Humboldt	FRGP	1
725196	MD	056	Redwood Creek Chinook Salmon Monitoring and Life Cycle Model	HSU Sponsored Programs Foundation	Humboldt	FRGP	1
725214	PD	052	Cochran Creek Fish Passage and Channel Restoration-Planning and Design	Coastal Ecosystems Institute of Northern California	Humboldt	FRGP	1
725215	PD	061	Jameson Creek Fish Passage Improvement at Rohnerville Road Culvert	City of Fortuna	Humboldt	FRGP	1

Non-Physical Items

Proj. ID	Proj. Type	Prop. No.	Title	Applicant	County	Focus	Region
725220	PD	104	City of Eureka Humboldt Bay Tributary Restoration Feasibility Study	City of Eureka	Humboldt	FRGP	1
725224	PD	140	Lower Little River Off-Channel Coho Habitat Improvement Design Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association	Humboldt	FRGP	1
725225	PD	147	Powers Creek Fish Habitat Restoration Project	Trees Foundation	Humboldt	FRGP	1
725226	PD	148	Redwood Creek Instream Habitat Improvement - Genairo and Neufeld	Eel River Watershed Improvement Group	Humboldt	FRGP	1
725227	PD	156	Ryan Creek Off Channel Coho Habitat Improvement Design Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association	Humboldt	FRGP	1
725228	PD	158	Lindsay Creek Off Channel Coho Habitat Improvement Project	Pacific Coast Fish, Wildlife and Wetlands Restoration Association	Humboldt	FRGP	1
725251	PD	049	North Fork Yager Creek Habitat Improvement Plan	Humboldt County Resource Conservation District	Humboldt	FRGP	1
725193	MD	033	Mattole River Juvenile Coho Salmon Summer Spatial Structure Monitoring	Mattole Salmon Group	Humboldt, Mendocino	FRGP	1
725195	MD	042	Chinook Salmon Abundance Monitoring	Mattole Salmon Group	Humboldt, Mendocino	FRGP	1

Non-Physical Items

Proj. ID	Proj. Type	Prop. No.	Title	Applicant	County	Focus	Region
725188	MD	016	Anadromous Steelhead Monitoring in the Santa Monica Bay 2017-2019	RCD of the Santa Monica Mountains	Los Angeles, Ventura	FRGP	5
725189	MD	017	STEELHEAD Abundance Monitoring in the Santa Monica Bay 2017-2019	RCD of the Santa Monica Mountains	Los Angeles, Ventura	FRGP	5
725209	OR	008	CCC Camarillo Steelhead Restoration Support Team	California Conservation Corps	Los Angeles, Ventura, Santa Barbara	FRGP	5
725202	MD	081	Coastal Marin Long-term Coho and Steelhead Monitoring Program	Point Reyes National Seashore Association	Marin	FRGP	3
725205	MO	046	Redwood Creek Emergency Rear and Release Validation Monitoring	Golden Gate National Parks Conservancy	Marin	FRGP	3
725231	PL	062	Lagunitas Creek Floodplain Activation Flow Assessment	Salmon Protection and Watershed Network	Marin	FRGP	3
725206	MO	084	Using Wood to Increase Salmon Abundance, Pudding Creek-A BACI Experiment	Trout Unlimited	Mendocino	FRGP	1
725248	TE	054	Yuba Landowner Education for Actions to Recover Salmon and Steelhead	South Yuba River Citizens League	Nevada, Yuba	FRGP	2

Non-Physical Items

Proj. ID	Proj. Type	Prop. No.	Title	Applicant	County	Focus	Region
725229	PI	032	Watershed Stewards Program - Year 24	California Conservation Corps - Watershed Stewards Program	Program wide	FRGP	All
725253	PD	020	Cecchetti Road Crossing Design Program	Central Coast Salmon Enhancement	San Luis Obispo	FRGP	4
725230	PI	151	South Coast Streams Steelhead Recovery	Earth Island Institute/South Coast Habitat Restoration	Santa Barbara, Ventura	FRGP	5
725198	MD	069	Shasta and Scott Rivers Salmonid Outmigrant Monitoring	Shasta Valley Resource Conservation District	Siskiyou	FRGP	1
725218	PD	097	French Creek Fish Screen and Fish Passage Improvement Project	Scott River Watershed Council	Siskiyou	FRGP	1
725252	PD	047	Nordheimer Creek Habitat Enhancement Project Design	Salmon River Restoration Council	Siskiyou	FRGP	1
725235	PL	105	Instream Flow Study for Sonoma Creek Steelhead	Sonoma Ecology Center	Sonoma	SHRRC	3
725241	TE	086	36th and 37th Annual Salmonid Restoration Conferences	Salmonid Restoration Federation	Sonoma, Mendocino	FRGP	3
725243	TE	135	SRF Steelhead Summit and Water Conservation Workshop	Salmonid Restoration Federation	Ventura	FRGP	5

Project Type

MD: monitoring status

MO: Monitoring watershed restoration
OR: Watershed and Regional Organization
PD: Project design
PL: Watershed evaluation, assessment, and planning
PL: Watershed Evaluation, Assessment, and Planning
TE: Private sector technical training and education

Focus

CSS: Commercial Salmon Stamp
FRGP: Fisheries Restoration Grant Program
SHRRC: Steelhead Report and Restoration Card

Action Items

Proj. ID	Proj. Type	Prop. No.	Title	Applicant	County	Focus	Region
725159	HI	019	Rowdy Creek Instream Habitat Enhancement Project Reach III	Rural Human Services	Del Norte	FRGP	1
725149	FP	079	Dinner Creek Fish Passage Barrier Removal Project	County of Humboldt - Department of Public Works	Humboldt	FRGP	1
725170	HI	109	Supply Creek Restoration Project Phase II	Hoopa Valley Tribe	Humboldt	FRGP	1
725179	HR	083	Miller Riparian Restoration Project	Eel River Watershed Improvement Group	Humboldt	FRGP	1
725185	HU	139	Morrison Gulch Sediment Reduction Project	Pacific Coast Fish Wildlife and Wetland Restoration Association	Humboldt	FRGP	1
725246	WC	127	Mattole Storage and Forbearance 2017-2020	Sanctuary Forest	Humboldt	FRGP	1
725153	HB	053	Mid-Klamath Tributary Fish Passage Improvement Project	Salmon River Restoration Council	Humboldt, Siskiyou	FRGP	1
725151	FP	122	Woodman Creek (Eel River) Railroad Crossing Fish Passage Project	California Trout, Inc.	Mendocino	FRGP	1
725156	HB	107	Upper Jack of Hearts Creek Coho Habitat Restoration Project	Trout Unlimited, Inc.	Mendocino	FRGP	1
725158	HI	006	Little North Fork Big River Instream Coho Habitat Enhancement Project	Trout Unlimited, Inc.	Mendocino	FRGP	1
725165	HI	072	James Creek Coho Stream Habitat Enhancement Project	California Conservation Corps	Mendocino	FRGP	1

Action Items

Proj. ID	Proj. Type	Prop. No.	Title	Applicant	County	Focus	Region
725168	HI	092	String Creek Instream Steelhead Habitat Enhancement Project	Trout Unlimited, Inc.	Mendocino	FRGP	1
725174	HI	130	Anderson Creek Habitat Enhancement Project for Coho Recovery Phase III	Eel River Watershed Improvement Group	Mendocino	FLAR	1
725182	HU	085	Anderson Creek Sediment Reduction and Coho Recovery Project Phase 2	Trout Unlimited, Inc.	Mendocino	FLAR	1
725147	FP	003	Fish Passage Improvement at Crossing 5, Quiota Creek	Cachuma Operation and Maintenance Board	Santa Barbara	FRGP	5
725239	RE	010	Southern Coho Salmon Captive Broodstock Program (UCSC-NOAA)	Regents of the University of California, Santa Cruz	Santa Cruz	FRGP	3
725240	RE	041	MBSTP Coho Captive Broodstock and Recovery Program	Monterey Bay Salmon and Trout Project	Santa Cruz	FRGP	3
725150	FP	121	Scott River, Mill-Shackelford Creek Bridge	California Trout, Inc.	Siskiyou	FLAR	1
725160	HI	022	French Creek Main Channel & Off Channel Habitat Improvement & Monitoring	Scott River Watershed Council	Siskiyou	FRGP	1
725164	HI	043	Kelly Gulch Fisheries and Riparian Habitat Enhancement Phase II	Salmon River Restoration Council	Siskiyou	FRGP	1
725245	WC	096	Montague Water Conservation District-Dwinnell Enhancement	Montague Water Conservation District	Siskiyou	FRGP	1
725154	HB	076	Yellowjacket Creek Fish Passage Improvement Project	Trout Unlimited, Inc.	Sonoma	FRGP	3

Action Items

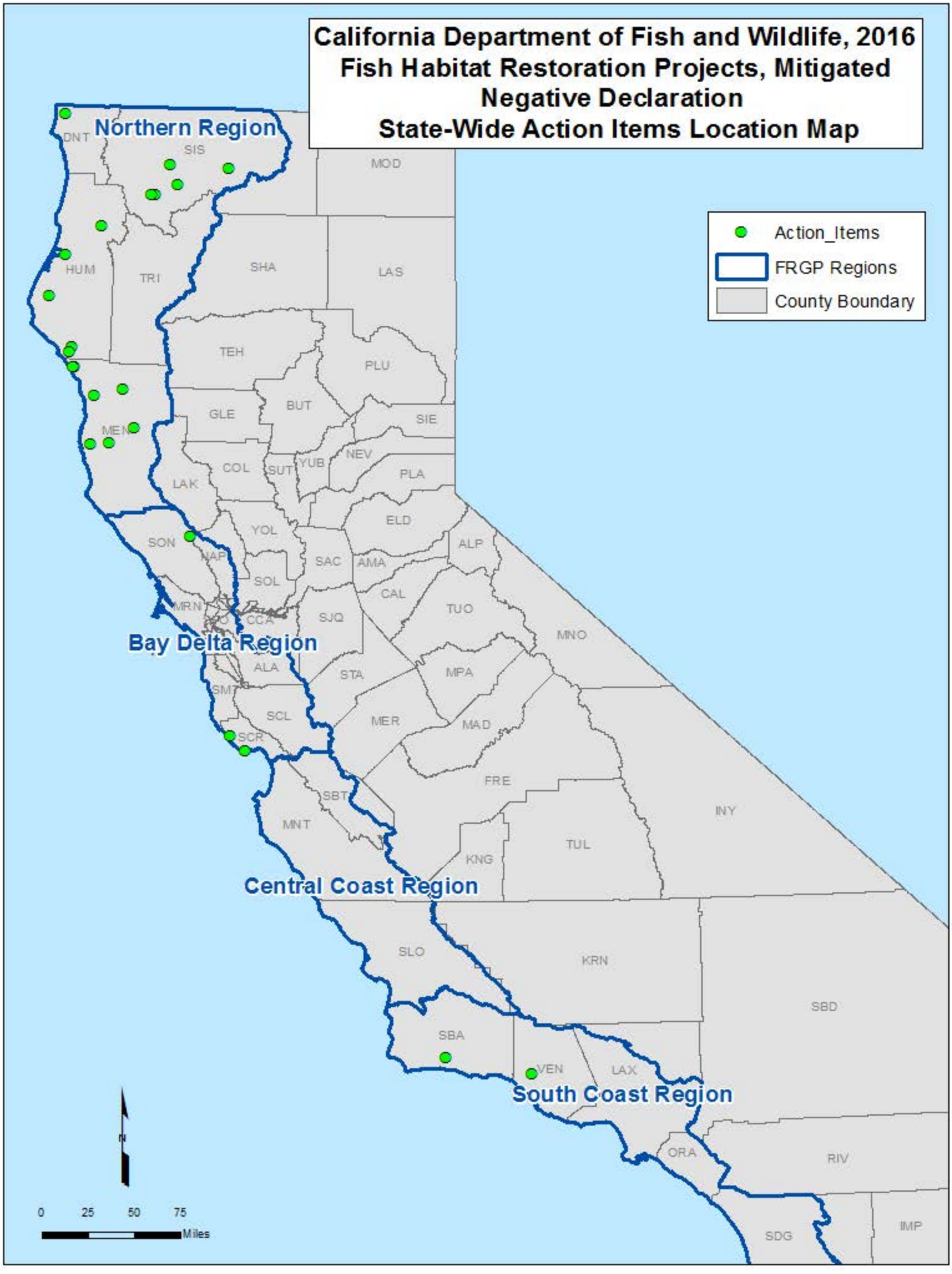
Proj. ID	Proj. Type	Prop. No.	Title	Applicant	County	Focus	Region
725178	HR	009	Lower San Antonio Creek Arundo Eradication	Ojai Valley Land Conservancy	Ventura	FRGP	5

Project Type

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

Focus

FRGP: Fisheries Restoration Grant Program
FLAR: Forest Land Anadromous Restoration


California Department of Fish and Wildlife, 2016
Fish Habitat Restoration Projects, Mitigated Negative Declaration
State-Wide Action Items Location Map
Action_Items
FRGP Regions
County Boundary
Northern Region
Bay Delta Region
Central Coast Region
South Coast Region
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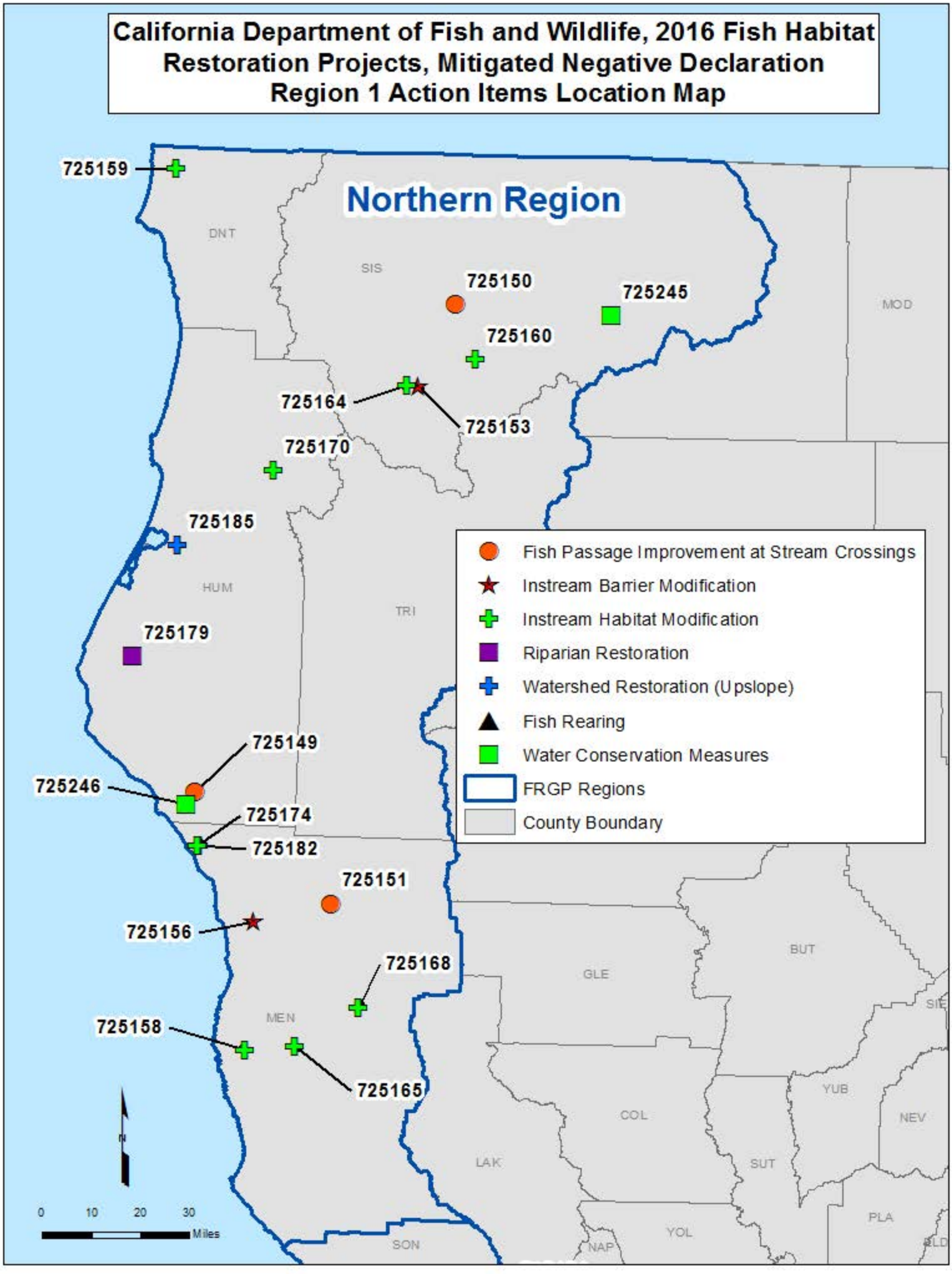
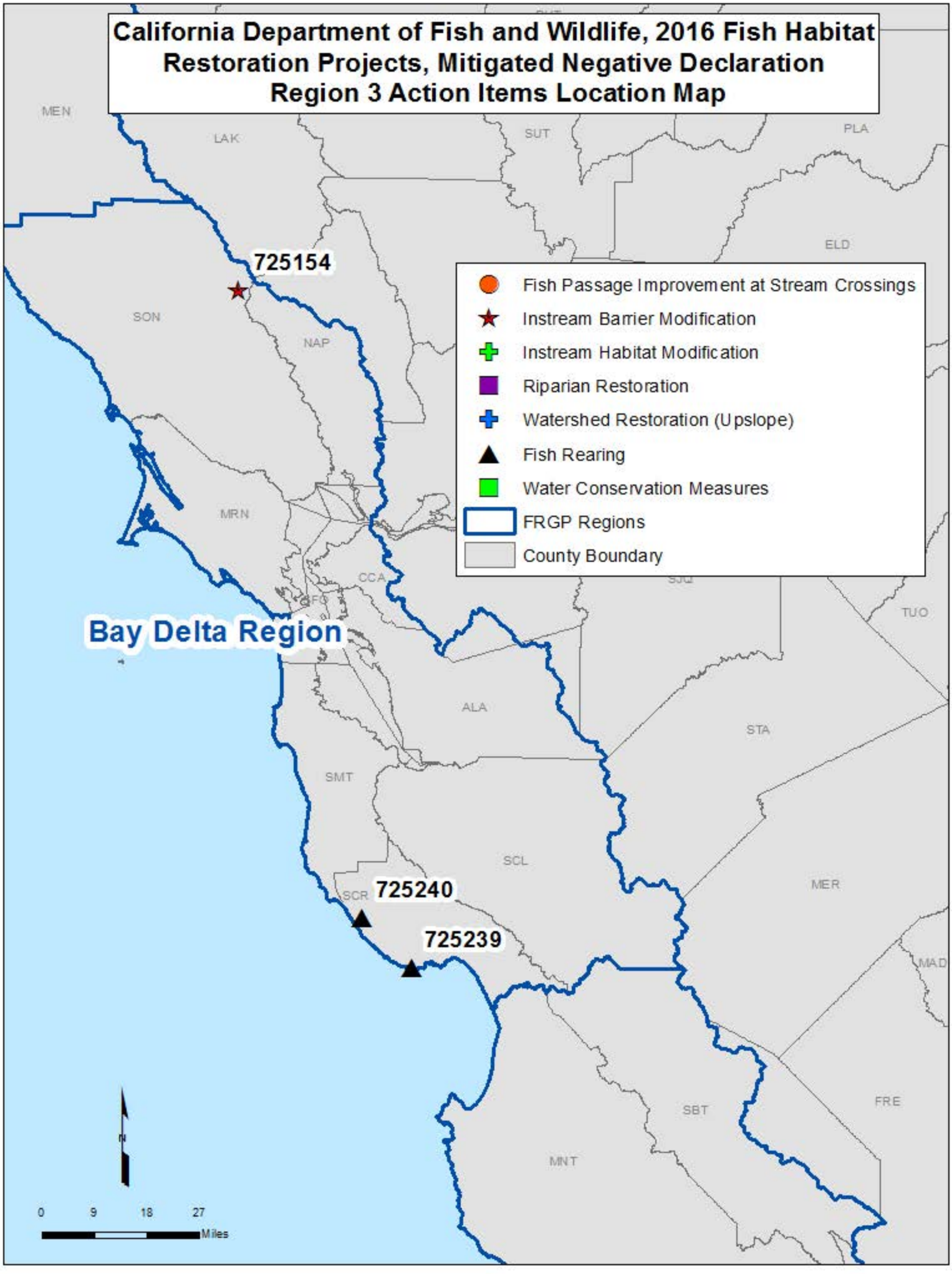
California Department of Fish and Wildlife, 2016 Fish Habitat Restoration Projects, Mitigated Negative Declaration Region 1 Action Items Location Map




California Department of Fish and Wildlife, 2016 Fish Habitat Restoration Projects, Mitigated Negative Declaration
Region 3 Action Items Location Map
725154
725240
725239
Bay Delta Region
Fish Passage Improvement at Stream Crossings
Instream Barrier Modification
Instream Habitat Modification
Riparian Restoration
Watershed Restoration (Upslope)
Fish Rearing
Water Conservation Measures
FRGP Regions
County Boundary
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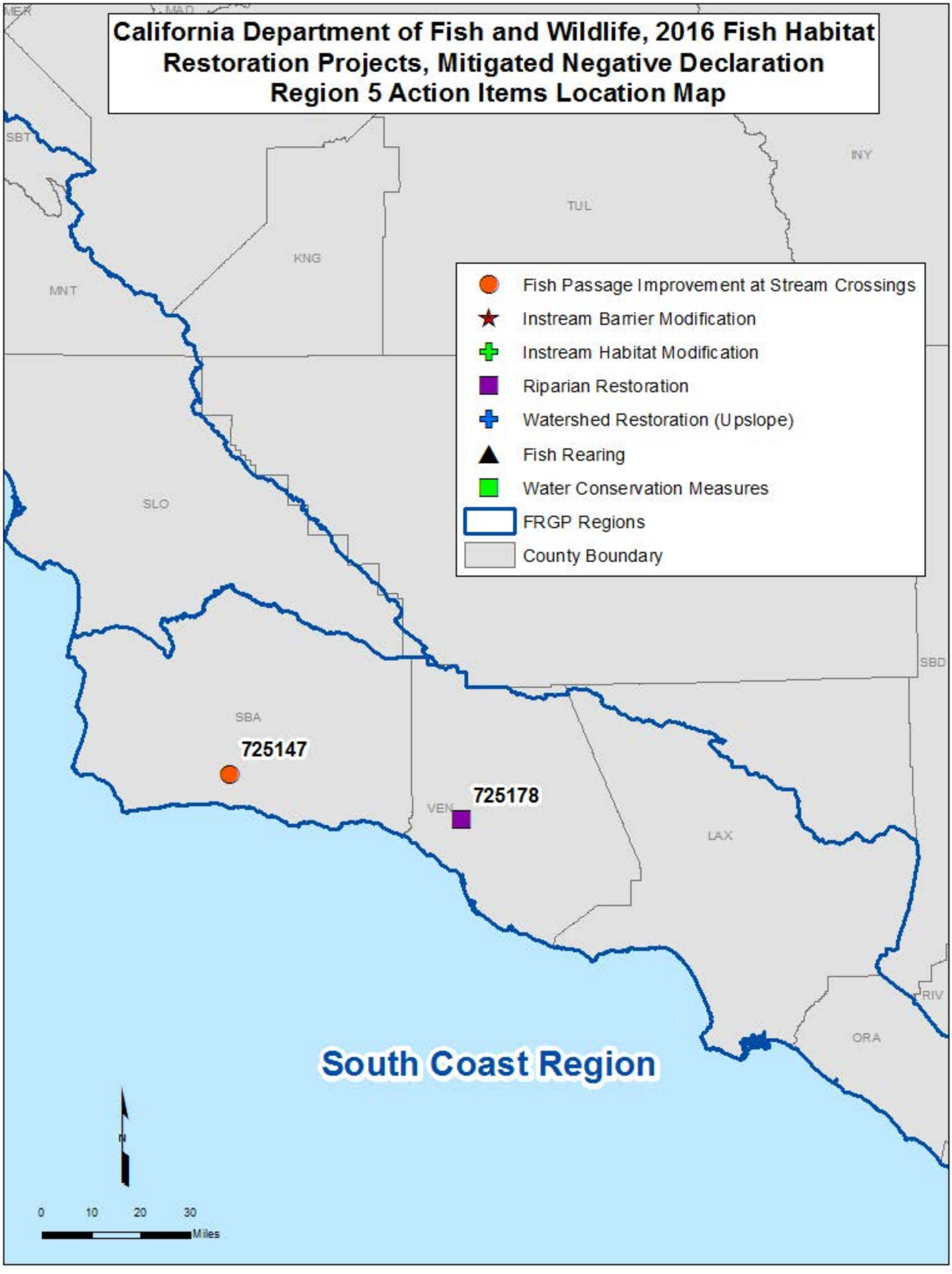
California Department of Fish and Wildlife, 2016 Fish Habitat Restoration Projects, Mitigated Negative Declaration
Region 5 Action Items Location Map
Fish Passage Improvement at Stream Crossings
Instream Barrier Modification
Instream Habitat Modification
Riparian Restoration
Watershed Restoration (Upslope)
Fish Rearing
Water Conservation Measures
FRGP Regions
County Boundary
725147
725178
South Coast Region
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Introduction:

Rural Human Services will implement the Rowdy Creek Instream Habitat Enhancement Project: Reach III. The purpose of the project is to improve spawning and rearing habitat for salmonids through pool retention, pool development and increased habitat complexity. This will be accomplished by installing 16-18 large woody debris structures along 1250 feet of Rowdy Creek. Each structure will consist of four or more logs. 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.

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, Part VII and Part XI. Work in flowing streams is restricted to June 15 through October 31. Actual project start and end dates, within this timeframe, are at the discretion of the CDFW.

Objective(s):

The goals of this project are to improve spawning 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 41.9339 º north latitude, 124.10509º west longitude at the downstream end; and 41.93663 º north latitude, 124.10783º west longitude at the upstream end as depicted in the Project Location Map.

Project Set Up: The project manager 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, and final photo documentation. 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.

Materials: Materials for this project include: boulders, whole tree materials, safety equipment (such as wading gear), heavy equipment hazmat supplies, heavy equipment decontamination supplies, straw mulch, conifer seedlings, chainsaw supplies, anchoring materials, and anchoring power tools.

Tasks:

Task 1. Grant Oversight: Grant oversight will be conducted by Grantee. All reporting and billing will be pursuant to grant and regulatory guidelines. Upon final execution of the Grant and prior to receiving a Final Notice to Proceed, Grantee shall deliver the following items to the Grantor Project Manager identified in Section 6.04 – Contacts:

- Final Landowner Access Agreements as per the requirements of the 2016 Proposal Solicitation Notice, Appendix K, Funding Approval Submissions. Written permission must be obtained from landowners for access to perform grant work.

- Subcontractor Agreements. If a subcontractor is to be used, then a written copy of the sub agreement(s) shall be submitted to the Grantor Project Manager. The subcontract shall include specific language which establishes the rights of the auditors of the State to examine the records of the subcontractor relative to the services and materials provided under the grant.

A Preliminary Notice to Proceed can be requested from the Grantor Project Manager, if necessary, to prepare for project implementation (e.g., obtain permits, secure subcontracts, purchase supplies, apply for a Streambed Alteration Agreement).

A Final Notice to Proceed will be delivered to the Grantee when Final Landowner Access Agreement(s) and subcontracts are delivered to Grantor Project Manager, and when all required permits have been finalized (e.g., 401 State Water Quality Control Board Permit, Streambed Alteration Agreement).

The Grantee shall notify the Grantor Project Manager a minimum of 10 business days prior to the beginning of project implementation.

Task 2. Final Feature Design: Prepare site specific designs based on local channel characteristics, large wood availability and equipment access. Obtain design approval from landowner and Grantor Project Manager. Design and label all features and conduct pre-project photo documentation.

Task 3. Project Implementation:

Task 3.01. Install Instream Habitat Features: Install 16 to 18 LWD features including 85 or more pieces of LWD and 90 boulders along approximately 1250 feet of Rowdy Creek. All structures will consist of four or more logs fastened together and will include root wads wherever feasible. Structures will also be anchored to boulders. Work will consist of the following:

- Obtain and import logs with root wads intact when possible and boulders to staging sites along the creek.
- 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.

Task 3.02. Erosion Control: Mulching and seeding will take place as features are completed to avoid erosion. Seeding and mulching will take place on all exposed soils which may deliver sediment to a stream. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. Plant 250 mixed conifer trees to enhance the riparian zone.

Task 4. Post-Project Data and Photo Collection: 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: Write and deliver progress reports for invoicing, Annual Progress Report(s), and a Final Report to Grantor Project Manager.

Deliverables: Photo documentation of the project sites and a final report prepared for CDFW. Placement of 16 to 18 log, rootwad and boulder combination

structures. Placement of 85 or more logs for in-channel habitat improvements. Placement of 90 or more boulders as anchor points for placed logs. Planting of 250 conifers within the project reaches. Submission of final report containing required detail contained in agreement.

Timelines:

Grant Oversight: June 1, 2017 to February 28, 2021.
Project Implementation: June 1, 2017 to October 30, 2017 and June 1, 2018 to October 31, 2018
Conifer Planting: December 15, 2017 to March 15, 2018 and December 15, 2018 to March 2019
Project documentation and report preparation. November 2018 to February 2021
Final report due February 28, 2021.

Additional Requirements:

The Grantee shall notify the Grant Manager a minimum of five working days before any fish bearing stream reaches are dewatered and the stream flow diverted. The notification will provide a reasonable time for Department personnel to supervise the implementation of the water diversion plan and oversee the safe removal and relocation of salmonids and other aquatic species 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 Grant Manager on a form provided by CDFW.
- 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.

The Grantee will seed and mulch all exposed soils which may deliver sediment to a stream. Mulching and seeding can occur at any time during construction but will need to be completed prior to Oct. 15. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. 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 standard for success is 80% survival of plantings, after a period of three years.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Biscuit Hill (4212318) OR Crescent City (4112472) OR Fourth of July Creek (4212411) OR Gasquet (4112378) OR High Divide (4112481) OR High Plateau Mtn. (4112388) OR Hiouchi (4112471) OR Mt. Emily (4212412) OR Smith River (4112482))

Possible species within the High Divide Quad and surrounding quads for 725159 Rowdy Creek Instream Habitat Enhancement Project Reach III, T18N R01E S19, Del Norte County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
alpine marsh violet *Viola palustris*	PDVIO041G0	None	None	G5	S1S2	2B.2
angel's hair lichen *Ramalina thrausta*	NLLEC3S340	None	None	G5	S2?	2B.1
arctic starflower *Lysimachia europaea*	PDPRI0A030	None	None	G5	S1	2B.2
bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S3	FP
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S2	
black crowberry *Empetrum nigrum*	PDEMP03020	None	None	G5	S1?	2B.2
black swift *Cypseloides niger*	ABNUA01010	None	None	G4	S2	SSC
bluff wallflower *Erysimum concinnum*	PDBRA160E3	None	None	G3	S2	1B.2
Butte County morning-glory *Calystegia atriplicifolia ssp. buttensis*	PDCON04012	None	None	G5T3	S3	4.2
cackling (=Aleutian Canada) goose *Branta hutchinsii leucopareia*	ABNJB05035	Delisted	None	G5T3	S3	
Chace juga *Juga chacei*	IMGASK4180	None	None	G1	S1	
coast checkerbloom *Sidalcea oregana ssp. eximia*	PDMAL110K9	None	None	G5T1	S1	1B.2
coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A	None	None	G4T4	S3	SSC
coast fawn lily *Erythronium revolutum*	PMLIL0U0F0	None	None	G4G5	S3	2B.2
Coast Range lomatium *Lomatium martindalei*	PDAPI1B140	None	None	G5	S3	2B.3
Coastal and Valley Freshwater Marsh *Coastal and Valley Freshwater Marsh*	CTT52410CA	None	None	G3	S2.1	
Coastal Brackish Marsh *Coastal Brackish Marsh*	CTT52200CA	None	None	G2	S2.1	
dark-eyed gilia *Gilia millefoliata*	PDPLM04130	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Darlingtonia Seep *Darlingtonia Seep*	CTT51120CA	None	None	G4	S3.2	
Del Norte pyrrocoma *Pyrrocoma racemosa var. congesta*	PDASTDT0F4	None	None	G5T4	S2	2B.3
Del Norte salamander *Plethodon elongatus*	AAAAD12050	None	None	G4	S3	WL
double-crested cormorant *Phalacrocorax auritus*	ABNFD01020	None	None	G5	S4	WL
eulachon *Thaleichthys pacificus*	AFCHB04010	Threatened	None	G5	S3	
fibrous pondweed *Potamogeton foliosus ssp. fibrillosus*	PMPOT030B1	None	None	G5T2T4	S1S2	2B.3
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC
fork-tailed storm-petrel *Oceanodroma furcata*	ABNDC04010	None	None	G5	S1	SSC
Fort Dick limnephilus caddisfly *Limnephilus atercus*	IITRI15020	None	None	G3G4	S1	
Gasquet rose *Rosa gymnocarpa var. serpentina*	PDROS1J1V1	None	None	G5T3T4	S2	1B.3
ghost-pipe *Monotropa uniflora*	PDMON03030	None	None	G5	S2	2B.2
giant fawn lily *Erythronium oregonum*	PMLIL0U0C0	None	None	G4G5	S2	2B.2
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
great burnet *Sanguisorba officinalis*	PDROS1L060	None	None	G5?	S2	2B.2
great egret *Ardea alba*	ABNGA04040	None	None	G5	S4	
green yellow sedge *Carex viridula ssp. viridula*	PMCYP03EM5	None	None	G5T5	S2	2B.3
Greenland cochlearia *Cochlearia groenlandica*	PDBRA0S020	None	None	G4	S1	2B.3
Henderson's fawn lily *Erythronium hendersonii*	PMLIL0U070	None	None	G4	S2	2B.3
horned butterwort *Pinguicula macroceras*	PDLNT01040	None	None	G4	S2	2B.2
Howell's fawn lily *Erythronium howellii*	PMLIL0U080	None	None	G3G4	S2	1B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Howell's jewelflower *Streptanthus howellii*	PDBRA2G0N0	None	None	G2G3	S2	1B.2
Howell's sandwort *Sabulina howellii*	PDCAR0G0F0	None	None	G4	S3	1B.3
Humboldt marten *Martes caurina humboldtensis*	AMAJF01012	None	Candidate Endangered	G5T1	S1	SSC
Koehler's stipitate rockcress *Boechera koehleri*	PDBRA060Z0	None	None	G3	S2S3	1B.3
lagoon sedge *Carex lenticularis var. limnophila*	PMCYP037A7	None	None	G5T5	S1	2B.2
Langsdorf's violet *Viola langsdorffii*	PDVIO04100	None	None	G4	S1	2B.1
leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020	None	None	G5	S4	4.2
little-leaved huckleberry *Vaccinium scoparium*	PDERI180Y0	None	None	G5	S3	2B.2
Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0	None	None	G5	S3	2B.2
maidenhair spleenwort *Asplenium trichomanes ssp. trichomanes*	PPASP021K2	None	None	G5T5	S1	2B.1
maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0	None	None	G3	S3	4.2
marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
mardon skipper *Polites mardon*	IILEP66030	None	None	G2G3	S1	
marsh pea *Lathyrus palustris*	PDFAB250P0	None	None	G5	S2	2B.2
McDonald's rockcress *Arabis mcdonaldiana*	PDBRA06150	Endangered	Endangered	G3	S3	1B.1
Mendocino gentian *Gentiana setigera*	PDGEN060S0	None	None	G2	S1	1B.2
Methuselah's beard lichen *Usnea longissima*	NLLEC5P420	None	None	G4	S4	4.2
minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0	None	None	G3?	S2	1B.2
northern clustered sedge *Carex arcta*	PMCYP030X0	None	None	G5	S1	2B.2
Northern Coastal Salt Marsh *Northern Coastal Salt Marsh*	CTT52110CA	None	None	G3	S3.2	
northern meadow sedge *Carex praticola*	PMCYP03B20	None	None	G5	S2	2B.2

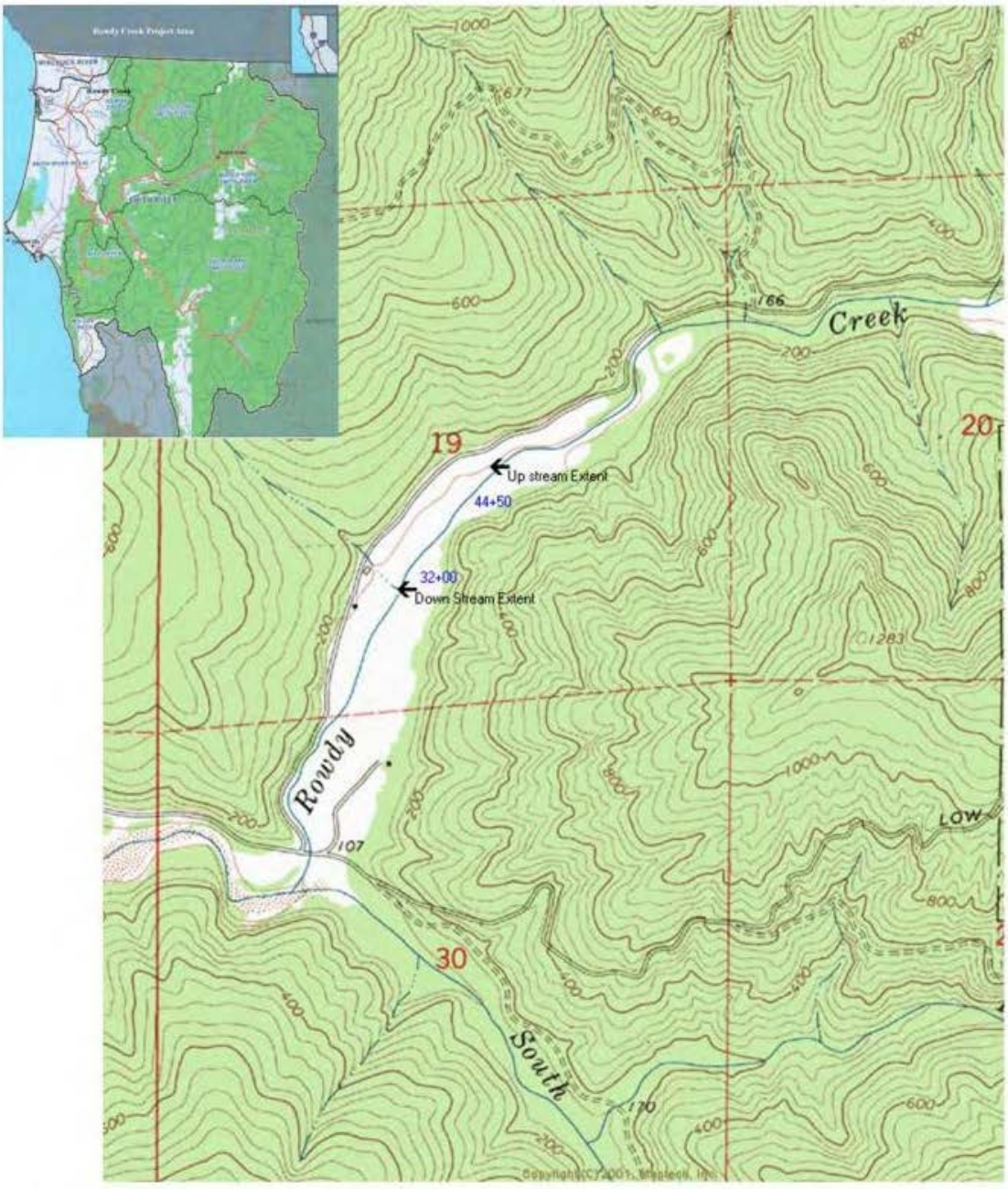
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
northern red-legged frog *Rana aurora*	AAABH01021	None	None	G4	S3	SSC
Nuttall's saxifrage *Cascadia nuttallii*	PDSAX0U160	None	None	G4?	S1	2B.1
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
opposite-leaved lewisia *Lewisia oppositifolia*	PDPOR040B0	None	None	G4	S2	2B.2
Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012	None	None	G3	S3	2B.2
Oregon goldthread *Coptis laciniata*	PDRAN0A020	None	None	G4	S3	4.2
Oregon polemonium *Polemonium carneum*	PDPLM0E050	None	None	G3G4	S2	2B.2
Oregon silverspot butterfly *Speyeria zerene hippolyta*	IILEPJ6087	Threatened	None	G5T1	S1	
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6	None	None	G5T3	S2	1B.2
Pacific tailed frog *Ascaphus truei*	AAABA01010	None	None	G4	S3S4	SSC
perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5	None	None	G3T2	S2	1B.2
pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4	None	None	G4G5T2	S1	1B.1
rhinoceros auklet *Cerorhinca monocerata*	ABNNN11010	None	None	G5	S3	WL
rocky coast Pacific sideband *Monadenia fidelis pronotis*	IMGASC7032	None	None	G4G5T1	S1	
sand dune phacelia *Phacelia argentea*	PDHYD0C070	None	None	G2	S1	1B.1
Sanford's arrowhead *Sagittaria sanfordii*	PMALI040Q0	None	None	G3	S3	1B.2
seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1	None	None	G4T4	S2S3	2B.2
seaside pea *Lathyrus japonicus*	PDFAB250C0	None	None	G5	S2	2B.1
serpentine catchfly *Silene serpentinicola*	PDCAR0U2B0	None	None	G3	S3	1B.2
serpentine sedge *Carex serpenticola*	PMCYP03KM0	None	None	G4	S3	2B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011	None	None	G4T3	S2	1B.2
silver-haired bat *Lasionycteris noctivagans*	AMACC02010	None	None	G5	S3S4	
Siskiyou bells *Prosartes parvifolia*	PMLIL0R014	None	None	G2	S1S2	1B.2
Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9	None	None	G5T2	S2	1B.2
Siskiyou paintbrush *Castilleja elata*	PDSCR0D213	None	None	G3	S2S3	2B.2
small groundcone *Kopsiopsis hookeri*	PDORO01010	None	None	G4?	S1S2	2B.3
snowy egret *Egretta thula*	ABNGA06030	None	None	G5	S4	
southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020	None	None	G3G4	S2S3	SSC
spiral-spored gilded-head pin lichen *Calicium adspersum*	NLT0005640	None	None	G3G4	S1?	2B.2
Steller (=northern) sea-lion *Eumetopias jubatus*	AMAJC03010	Delisted	None	G3	S2	
summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B	None	None	G5T4Q	S2	SSC
Thurber's reed grass *Calamagrostis crassiglumis*	PMPOA17070	None	None	G3Q	S2	2B.1
tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered	None	G3	S3	SSC
Tracy's romanzoffia *Romanzoffia tracyi*	PDHYD0E030	None	None	G4	S2	2B.3
tufted puffin *Fratercula cirrhata*	ABNNN12010	None	None	G5	S1S2	SSC
twisted horsehair lichen *Bryoria spiralifera*	NLTEST5460	None	None	G3	S1S2	1B.1
vanilla-grass *Anthoxanthum nitens ssp. nitens*	PMPOA0F041	None	None	G5	S2	2B.3
Waldo rockcress *Arabis aculeolata*	PDBRA06010	None	None	G4	S2	2B.2
Waldo wild buckwheat *Eriogonum pendulum*	PDPGN084Q0	None	None	G4	S3	2B.2
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western lily *Lilium occidentale*	PMLIL1A0G0	Endangered	Endangered	G1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
western pearlshell *Margaritifera falcata*	IMBIV27020	None	None	G4G5	S1S2	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western ragwort *Packera hesperia*	PDAST8H1L0	None	None	G3	S1	2B.2
western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
western white bog violet *Viola primulifolia ssp. occidentalis*	PDVIO040Y2	None	None	G5T2	S2	1B.2
white-flowered rein orchid *Piperia candida*	PMORC1X050	None	None	G3	S3	1B.2
white-tailed kite *Elanus leucurus*	ABNKC06010	None	None	G5	S3S4	FP
Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0	None	None	G2	S1	1B.1
woodnymph *Moneses uniflora*	PDPYR02010	None	None	G5	S3	2B.2
yellow-tubered toothwort *Cardamine nuttallii var. gemmata*	PDBRA0K0R3	None	None	G5T3Q	S2	3.3
Yontocket satyr *Coenonympha tullia yontockett*	IILEPN6035	None	None	G5T1T2	S1	
Yuma myotis *Myotis yumanensis*	AMACC01020	None	None	G5	S4	
northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC

Record Count: 115

Rowdy Creek Instream Habitat Enhancement Project Reach III
Project Location Map
T18N R01E S19, High Divide Quad, Del Norte County



Rowdy Creek Instream Habitat Improvement: Reach III

High Divide Quadrangle : Contour Interval: 40 feet NAD 83

Down Stream Extent: N 41.93399 W 124.10783 Decimal Degrees

Up Stream Extent: N 41.93663 W 124.10509 Decimal Degrees

N
W E
S

Introduction: The County of Humboldt Department of Public Works will remove three fish migration barriers, opening access to over 9,400 feet of spawning habitat in the Dinner Creek watershed. This will be accomplished by replacing three undersized culverts with fish friendly culverts.

This project is necessary because the existing culverts have been identified as fish migration barriers (Ross Taylor and Associates, 2005) and due to their size and corroded condition pose a potential risk of introducing sediment loads into critical fish habitat downstream during high winter storm events.

- The two barriers at Site 1 could be considered partial barriers for adult Coho and steelhead but complete barriers for juvenile Coho and steelhead.
- The culvert at Site 2 is considered a complete barrier to all Coho and steelhead. The culvert crossing at Briceland Thorne Road is perched approximately 5' above the stream channel.

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

Objectives: Objectives of this project include:

- Remove three fish passage barriers on Dinner Creek.
- Provide access to 1.8 miles of historical habitat for coho salmon.

Project Description:

Location: The project site is located on Dinner Creek at two locations where Briceland Thorne Road crosses the creek. Site 1 is located at Post Mile 3.74 and Site 2 is located at Post Mile 3.27. There is an additional culvert replacement site immediately upstream of Site 2 and will occur at a private property driveway crossing. Site 1 is located roughly 4,800 feet upstream of China Gulch confluence, 12,500 feet upstream of Redwood Creek confluence, and 8.5 miles upstream of the confluence with the South Fork Eel River. Site 2 is roughly 3,000 feet upstream of Site 1.

Site one is located at 40.09305280 north latitude: 123.93156670 west longitude. Site two is located at 40.09149440 north latitude: 123.9376440 west longitude.

Project Set Up:
Humboldt County Environmental will oversee the project.

The time allocated for a County Design Engineer is to complete the bid package to the Board of Supervisors for project approval and answer questions during the project advertisement.

Construction Engineering includes preparation of survey staking data, a full time on-site inspector; two person survey crew for staking the design and staff for materials testing; and a Registered Engineer for construction oversight and contact administration.

Time is allocated for staff from the County Natural Resources Division, a qualified fish biologist, to assist with the fish exclusion fencing installation, fish relocation efforts, weekly oversight for permit compliance and post construction surveys.

Additionally, costs have been included to complete a post construction thalwag survey to complete a performance measure of the completed project. The survey would be completed the following summer allowing time for the sediment to naturally redistribute in the channel.

Prior to the beginning of earthwork activities at each site, a fish protection water bypass system will be installed. Fish exclusion fencing will be installed at both sites approximately 50 feet upstream and downstream of both sites. Fish exclusion fencing will most likely be installed by County fisheries biologist or other qualified biologist (Fisheries Consultant). Fish relocation efforts would be done by a qualified biologist (CDFW or Fisheries Consultant) using e-fishing methods following DFW and NMFS guidelines.

An additional subcontractor will install a vortex weir approximately 50' downstream of the new culvert at Site 2.

The estimated hours for the subcontractor costs for project implementation includes having a foreman, two heavy equipment operators, a truck driver and three laborers on site full time.

Materials: Project materials include:

Traffic Detour items and equipment used to protect the job site and public safety during construction. Construction area signs are placed in advanced warning of the construction site to encourage drivers to slow down and be aware of construction activities. The class 2 aggregate base will then be placed with either an excavator and/or 2 yard Loader to build up an approach road and act as a temporary abutment for the flat car bridge. The flat car bridge will be moved into place with a truck mounted crane and any further adjustments will be made with the excavator. The contractor will hand construct the wooden rails and place the Temporary Railing (Type K) at both sides of the bridge car to channelize traffic and protect the construction site from ongoing traffic. Traffic control signs will be placed as shown in the project plans. The skid steer will be used for the initial grading and maintenance of the gravel approaches.

- 89-ft Flat car bridge
- Construction Area Signs
- Temporary Railing (Type K)

• Class 2 Aggregate Base
• Excavator, 325
• Skid Steer
• Truck Mounted Crane
• 2 yard Loader
• Misc. wood and supplies for wheel guards and railing.

Simultaneously to installing the items for traffic control and public safety, the consultant shall implement the water bypass system and BMPs for the water Pollution Control Plan to protect construction sediments from entering Dinner Creek. This work will be completed by hand with hand-tools to minimize the impact on the channel. The location of the water bypass and details is shown on the project plans. The temporary silt fence will be installed at the excavation limits, prior to excavation. The remaining BMPs will be installed in prior to the prescribed construction activity and/or rainfall and include the following:
• Water Bypass System (Removes water from the work area to prevent sediment from entering the creek)
• 18” Gravity diversion pipe
• Fish exclusion fencing
• Filter fabric with reinforcement (wire mesh fencing or geogrid)
• Sand bags
• Splash Pad (3” to 6”) Rock
• Generator
• Temporary Silt Fence (BMP for Water Pollution Control Plan)
• Temporary Concrete Wash out (BMP for Water Pollution Control Plan)
• Fiber Rolls (BMP for Water Pollution Control Plan)
• Broom (street sweeping)

Materials and Equipment used directly during the culvert installation at Site 1 include the following:
• 18-ft x 9-ft x 100-ft steel plate arch culvert
• Class A Concrete (foundation)
• Bar Reinforcing Steel (foundation)
• Class 2 Aggregate Base (structural backfill)
• Native Backfill (Embankment)
• Rock Slope Protection (1/2T to 2T) (to be placed on the reconstructed embankments at the ends of the
new culverts)
• Imported River Gravel (bedding inside culvert)
• Truck mounted crane (placing culverts at grade)
• Excavator, 325 (excavation, reconstructing embankment)
• Skidsteer (placing river gravel inside culvert)
• Sheepsfoot Roller (structural backfill and embankment compaction
• 2 yd. Loader (materials management)
• Lowboy trailer (transporting the excavator and other equipment)
• Small Motor Compactor (structural backfill)

• 10 yd, Dump Truck (hauling materials)

Materials and Equipment used directly during the culvert installation at Site 2 include the following:

• (2) 10-ft diameter Structural Steel plate Pipe culverts
• Class 2 Aggregate Base (structural backfill)
• Native Backfill (Embankment)
• Rock Slope Protection (1/2T to 2T) (to be placed on the reconstructed embankments at the ends of the new culverts)
• Imported River Gravel (bedding inside culvert)
• Vortex Weir Rock (1/2T to 2T)
• Vortex Weir River Gravel (3/4" to 4")
• Truck mounted crane (placing culverts at grade)
• Excavator, 325 (excavation, reconstructing embankment)
• Skidsteer (placing river gravel inside culvert)
• Sheepsfoot Roller (structural backfill and embankment compaction
• 2 yd. Loader (materials management)
• Lowboy trailer (transporting the excavator and other equipment)
• Small Motor Compactor (structural backfill)
• 10 yd, Dump Truck (hauling materials)

Upon the completion of culvert installation, reconstructing the embankment and installing the Rock Slope Protection (RSP) at the culvert inlets/outlets, the fiber rolls (biodegradable) and hydroseed (native seed mix) will then be applied to the remaining disturbed soil areas and will utilize the following:

• Fiber Rolls
• Misc. Hand Tools
• Hydroseed
• Hydroseed mixer and sprayer truck

Simultaneously, the roadway will be restored to the pre-project conditions and an 18” overside drain will be installed at Site 1 to manage roadway runoff. This will include the following:

• Class 2 Aggregate Base (roadway section)
• Hot Mix Asphalt (roadway paving)
• 18” Corrugated Steel Pipe Downdrain (roadway drainage feature for runoff)
• 18” Entrance Taper (roadway drainage feature for runoff)
• 18” Anchor Assembly (roadway drainage feature for runoff)
• Smooth Drum Roller (compaction)
• Grader (surface preparation for paving)
• 2 yard Loader (surface preparation for paving)
• Skidsteer (surface preparation for paving)
• Paver (roadway paving)
• Broom (surface preparation for paving

Tasks:

Task 1 –

Replace the culvert at Site 1 (PM 3.74) with an 18' x 9' x 100' steel plate arch culvert and remove the existing concrete weir. Replace both culverts at Site 2 (PM 3.27 and associated private driveway approximately 150 ft. upstream) with 10' (120") Structural Steel Pipe Culverts.

1. County Design engineering staff will take the completed design plans and specifications and complete the bid package, which will be sent to the Board of Supervisors for project approval.
2. Upon project approval, the project will be advertised for 5 weeks prior to the bid opening. The bid proposals will be reviewed by the County Construction Engineer and the lowest responsive bidder will be awarded the contract.
3. County Construction Engineer will prepare a separate scope of work for the Vortex Weir construction at Site 2. The scope of work will be included into an informal bid packet and a minimum of three specialty contractors will be contacted to provide a proposal to complete the work. The selection of the specialty contractor will be based on past instream project experience and availability, not cost.
4. Once the contract is awarded and an agreement is executed and approved by the Board of Supervisors, the County Construction Engineer will assign an on-site construction inspector, prepare the construction staking and schedule a pre-construction meeting.
5. Prior to commencing any earthwork , the contractor will prepare a Water Pollution Control Plan (WPCP) outlining the appropriate Best Management Practices (BMPs) to prevent storm water discharges and non-storm water discharges from leaving the work area. BMPs may include temporary silt fence, fiber rolls and a temporary concrete washout (Bid Items).
6. Fish exclusion fencing will be installed by County Environmental staff. Fish relocation activities will be conducted by CDFW staff or a fisheries consultant hired by the County. County fisheries biologist will assist in relocation efforts if needed. Fish exclusion and relocation efforts will take place at one site at a time since there is an extended time between project work at both sites.
7. Water bypass system will be installed by the contractor once all the fish have been relocated.
8. Contractor will install temporary construction signs that provide motorists advanced warning of the construction zone.
9. Install a 90’ flat car bridge during the duration of the earthwork at each site. The county bridge crew will move the flat car bridge on/off site and will move the flat car bridge from Site 1 to Site 2. The contractor will construct the wheel guard and the railing required for the flat car bridge, install the construction area signs and temporary railing (Type K) required for the traffic detour.

**Tasks 6-9 will occur at Site 2 after work has been completed at Site 1.

10. Begin structure excavation to install culvert at Site 1. The existing roadway surface (asphalt concrete) and existing culvert and overside drain shall be removed and hauled off prior to structure excavation. Excavate the

remaining material to be stockpiled and tested to determine if the material meets material standards for embankment construction.

11. Remove Concrete weir, approximately 20 feet downstream of new culvert.
12. Construct footing forms and install reinforcing rebar for pouring the concrete (Class A concrete) for the 18' x 9' x 100' steel plate arch culvert. Assemble and install the culvert; and place approximately 3.5 ft of natural stream gravel.
13. Place and compact the structural backfill and embankment at Site 1. Compaction efforts will be observed by the on-site inspector and tested to meet CalTrans standards for construction. Place Rock Slope Protection (1/2 Ton to 2 Ton)
14. Establish temporary driveway access for landowners to access property during the installation of the culverts at Site 2.
15. Begin structure excavation to install culvert at Site 2. The existing roadway surface (asphalt concrete) and existing culverts shall be removed and hauled off prior to structure excavation. Excavate the remaining material to be stockpiled and tested to determine if the material meets material standards for embankment construction.
16. Excavate and remove the existing culverts and install 2-10' structural steel pipe culverts (L=70' and L=30') embedded approximately 2 ft. with natural river gravel. Excavate the stream channel between the two culverts creating an 8 ft. wide channel.
17. Anchor the vortex weir into the bank at the bank full elevation with 1/2T-2T sized rocks with smaller diameter river gravel placed to fill the voids between the larger rocks. Approximately, 20 tons total of 1/2T to 2Tand approximately 20 CY total of ¾"-4" diameter river gravel will be required.
18. Place and compact the structural backfill and embankment at Site 2. Compaction efforts will be observed by the on-site inspector and tested to meet CalTrans standards for construction. Place Rock Slope Protection (1/2 Ton to 2 Ton).
19. Upon completion of the earthwork and removal of the flat car bridge, restore temporary driveway access to previous conditions. Hydroseed all disturbed soil areas with native grasses and place fiber rolls in locations unprotected by Rock Slope Protection.
20. Install Class 2 Aggregate Base (0.67' section) and finish the roadway grading at both sites with controlled one way traffic. Install three 18-inch diameter overside drains on Briceland Thorne Road to direct storm water to the installed rock slope protection. Pave the roadway with Hot Mix Asphalt.
21. The County qualified fish biologist will assist with monitoring surveys and perform County specific surveys for presence/absence post construction
22. County Survey will perform post construction Thalwag profile and cross sections as a separate performance measure.

Deliverables:

Task 1- Bid Package with Board of Supervisors Approval
Tasks 2-4

- Bid Opening Results
- Executed Agreement approved by the Board of Supervisors
- Informal bid proposals for Vortex Weir Item; Agreement approved by the Director of Public Works (Contract less than $50,000)

Tasks 5-20

- The removal of two known fish migration barriers and the installation of three fish-friendly culverts.
- Additional 1.8 miles of salmonid spawning and rearing habitat
- Elimination of sediment producing culverts and the potential for catastrophic sediment delivery (>1600 CY) into salmonid critical habitat (>1600 CY) into salmonid critical habitat via potential road failure at the road crossings.
- Periodic Status reports throughout the duration of construction as determined by grant manager.

Task 21

- Post Construction monitoring surveys documenting the presence/absence
- Spawning Surveys
- Periodic Status Reports

Task 22

- Post Construction Thalwag Channel Survey.

Tasks 1-22

- Annual Reports
- Final Report

Timelines:

Task 1 – Complete 6/1/2017
Task 2-4 - Complete 6/1/2017
Task 5-20 – 6/15/2017 to 10/15/2017
Task 21 – 10/2017 to 2/2019
Task 22 – 10/2017 to 2/2019
Final Report – Complete 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.

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.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Bear Harbor (3912388) OR Briceland (4012318) OR Ettersburg (4012328) OR Garberville (4012317) OR Honeydew (4012421) OR Miranda (4012327) OR Piercy (3912387) OR Shelter Cove (4012411))

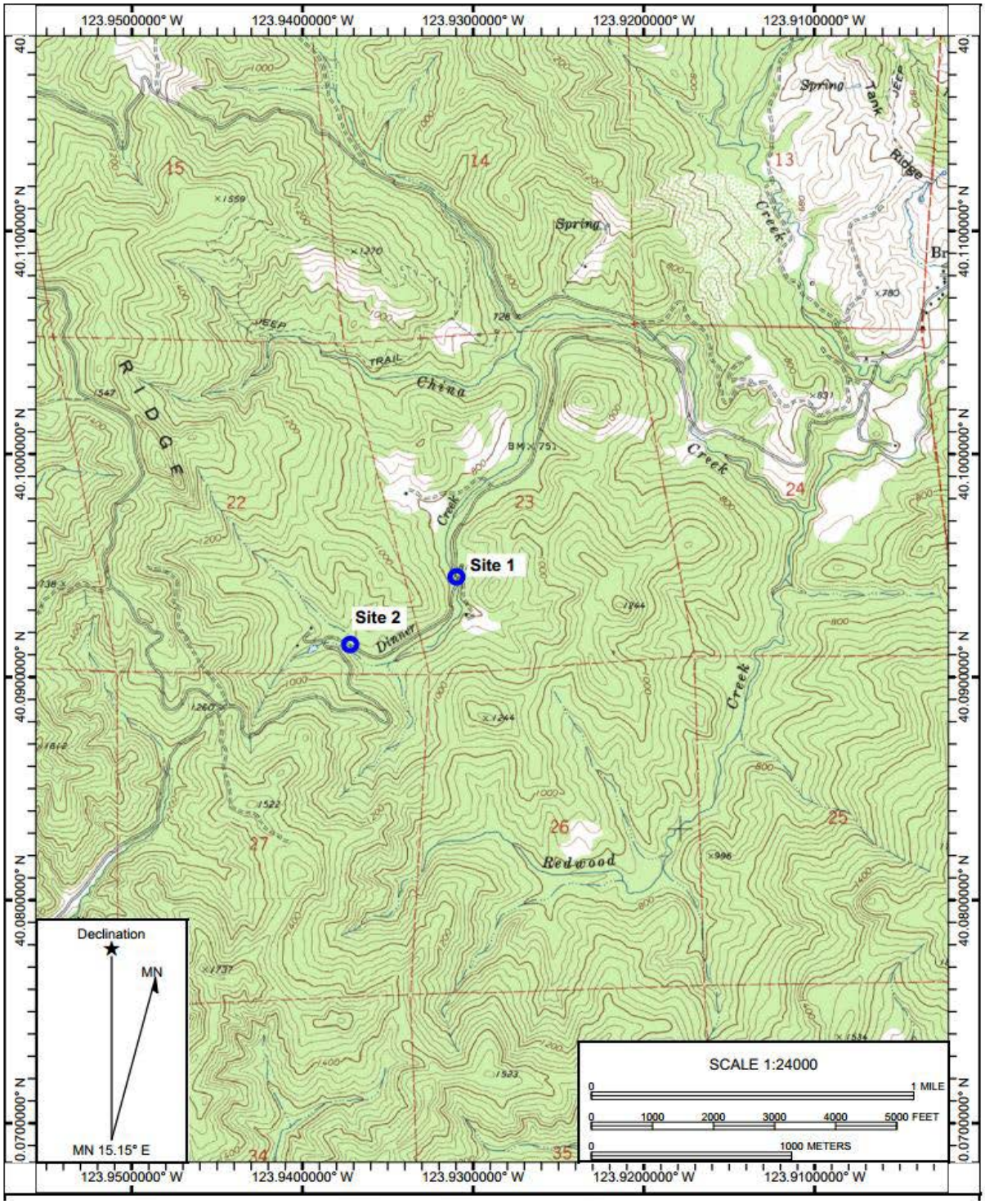
Possible species within the Briceland Quad and surrounding quads for 725149 Dinner Creek Fish Passage Barrier Removal Project, T04S R02E S23, Humboldt County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
coast fawn lily *Erythronium revolutum*	PMLIL0U0F0	None	None	G4G5	S3	2B.2
coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	
Cooper's hawk *Accipiter cooperii*	ABNKC12040	None	None	G5	S4	WL
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC
giant fawn lily *Erythronium oregonum*	PMLIL0U0C0	None	None	G4G5	S2	2B.2
golden eagle *Aquila chrysaetos*	ABNKC22010	None	None	G5	S3	FP
Howell's montia *Montia howellii*	PDPOR05070	None	None	G3G4	S2	2B.2
Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080	None	Endangered	G2	S2	1B.1
leafy reed grass *Calamagrostis foliosa*	PMPOA170C0	None	Rare	G3	S3	4.2
leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020	None	None	G5	S4	4.2
little willow flycatcher *Empidonax traillii brewsteri*	ABPAE33041	None	Endangered	G5T3T4	S1S2	
maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0	None	None	G3	S3	4.2
marsh pea *Lathyrus palustris*	PDFAB250P0	None	None	G5	S2	2B.2
Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0	None	None	G2	S2	1B.2
Methuselah's beard lichen *Usnea longissima*	NLLEC5P420	None	None	G4	S4	4.2
mountain shoulderband *Helminthoglypta arrosa monticola*	IMGASC2035	None	None	G2G3T1	S1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012	None	None	G3	S3	2B.2
Oregon goldthread *Coptis laciniata*	PDRAN0A020	None	None	G4	S3	4.2
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6	None	None	G5T3	S2	1B.2
Pacific tailed frog *Ascaphus truei*	AAABA01010	None	None	G4	S3S4	SSC
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G5	S3	SSC
perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5	None	None	G3T2	S2	1B.2
small groundcone *Kopsiopsis hookeri*	PDORO01010	None	None	G4?	S1S2	2B.3
Sonoma tree vole *Arborimus pomo*	AMAFF23030	None	None	G3	S3	SSC
southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020	None	None	G3G4	S2S3	SSC
summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B	None	None	G5T4Q	S2	SSC
Ten Mile shoulderband *Noyo intersessa*	IMGASC5070	None	None	G2	S2	
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Upland Douglas Fir Forest *Upland Douglas Fir Forest*	CTT82420CA	None	None	G4	S3.1	
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
white-flowered rein orchid *Piperia candida*	PMORC1X050	None	None	G3	S3	1B.2
Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025	None	None	G5T1	S1	1B.1
northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC

Record Count: 38

Dinner Creek Fish Passage Barrier Removal Project
Project Location Map
T04S R02E S23, Briceland Quad, Humboldt County



Introduction: The Salmon River Restoration Council (SRRC) will improve juvenile and adult salmonid fish passage to over 70 tributaries in the Middle Klamath River, Salmon River and Lower Scott River Subbasins through manual modification of seasonal barriers. Project includes habitat assessment and salmonid assessment.

Fish passage improvement at cold water tributaries will increase the function and capacity of thermal refugia during drought conditions and connect habitats critical to juvenile and adult survival.

Access to cold, clean water tributaries of the main-stem Klamath, Salmon and Scott Rivers during low flow, high temperature summer and fall months is critical for salmonid migration and rearing within the Klamath River system. The Mid Klamath Subbasin Fisheries Resource Recovery Plan calls for the identification and implementation of improved fish passage, as well as the assessment and evaluation of long-term restoration projects.

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

Objective(s): The specific objective of this project is to improve juvenile and adult salmonid fish passage to over 70 tributaries in the Middle Klamath, Salmon and Lower Scott River Subbasins through manual modification of seasonal barriers. Re-connecting tributaries to main-stem river corridors provides for significant remediation of all limiting factors affecting salmonids in the Klamath River Basin, including: water quality, water quantity, and habitat quantity and quality. Cold water tributaries provide critical habitat during the juvenile and adult life stages of salmonids, especially during high water temperature, low flow conditions.

This project will address SONCC-SalR.5.1.40.1 Restore and maintain habitat connectivity between the Salmon River and tributaries where low flow or sediment aggradation has been known to restrict coho salmon passage.

The project was designed to ensure both juvenile and adult fish passage into high quality thermal refugia areas during critical periods of migration. Low flow barriers into these anadromous streams will be manually reconstructed to allow for adult and juvenile fish passage. Two surveyors will walk and snorkel the lower 1,000 feet of each tributary to assess fish presence and fish barriers.

Project Description:

Location: The Grantee will conduct work on the following tributaries:

- Aikens Creek - Township 10N, Range 5E, Section 30 of the Weitchpec 7.5 Minute U.S.G.S. Quadrangle, 41.2287^0 N latitude and -123.6522^0 W longitude, Humboldt County
- Beaver Creek - Township 46N, Range 8W, section 6 of the McKinley Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.8691^0 N latitude and -122.8169^0 W longitude, Siskiyou CountyBluff Creek - Township 10N, Range 5E, section 19 of the Weitchpec 7.5 Minute U.S.G.S. Quadrangle, 41.2403^0 N latitude and -123.6526^0 W longitude, Humboldt County
- Boise Creek –Township 10N, Range 5E, section 11 of the Orleans 7.5 Minute U.S.G.S. Quadrangle, 41.2827^0 N latitude and -123.5757^0 W longitude, Humboldt County
- Cade Creek – Township 16N , Range 7E , section 1 of the Slater Butte 7.5 Minute U.S.G.S. Quadrangle, 41.8073^0 N latitude and -123.3491^0 W longitude Siskiyou County
- Camp Creek - Township 10N, Range 5E, section 1 of the Orleans 7.5 Minute U.S.G.S. Quadrangle, 41.2928^0 N latitude and -123.562450198356^0 W longitude Humboldt County
- China Creek - Township 16N, Range 8E, section 5 of the Slater Butte 7.5 Minute U.S.G.S. Quadrangle, 41.8000^0 N latitude and -123.3141^0 W longitude Siskiyou County
- Clear Creek – Township 15N , Range 7E , section 7 of the Clear Creek 7.5 Minute U.S.G.S. Quadrangle, 41.7097^0 N latitude and -123.4480^0 W longitude, Siskiyou County
- Coon Creek - Township 14N, Range 6E, section 16 of the Ukonom Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.6126^0 N latitude and -123.4966^0 W longitude, Siskiyou County
- Cottonwood Creek - Township 47N, Range 6W, section 28 of the Hornbrook 7.5 Minute U.S.G.S. Quadrangle, 41.8888^0 N latitude and -122.5435^0 W longitude, Siskiyou County
- Bogus Creek – Township 47N , Range 5W, section 17 of the Iron Gate Reservoir 7.5 Minute U.S.G.S. Quadrangle, 41.9292^0 N latitude and -122.4432^0 W longitude, Siskiyou County
- Crawford (Orleans RD) Creek - Township 10N, Range 5E, section 2 of the Orleans 7.5 Minute U.S.G.S. Quadrangle, 41.2954^0 N latitude and -123.5654^0 W longitude, Humboldt County

- Crawford (Happy Camp RD) Creek - Township 15N, Range 7E, section 31 of the Clear Creek 7.5 Minute U.S.G.S. Quadrangle, 41.648^0 N latitude and -123.4640^0 W longitude, Siskiyou County
- Dillon Creek – Township 14N, Range 6E, section 30 of the Dillon Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.5760^0 N latitude and -123.5388^0 W longitude, Siskiyou County
- Elk Creek - Township 16N, Range 7E, section 15 of the Happy Camp 7.5 Minute U.S.G.S. Quadrangle, 41.7808^0 N latitude and -123.3942^0 W longitude, Siskiyou County
- Fort Goff Creek - Township 47N, Range 12W, section 32 of the Slater Butte 7.5 Minute U.S.G.S. Quadrangle, 41.8637^0 N latitude and -123.2575^0 W longitude, Siskiyou County
- Grider Creek - Township 46N, Range 12W, section 11 of the Seiad Valley 7.5 Minute U.S.G.S. Quadrangle, 41.8413^0 N latitude and -123.2072^0 W longitude, Siskiyou County
- Hopkins Creek - Township 9N, Range 4E, section 1 of the Weitchpec 7.5 Minute U.S.G.S. Quadrangle, 41.2033^0 N latitude and -123.6616^0 W longitude, Humboldt County
- Horse Creek - Township 46N, Range 10W, section 16 of the Horse Creek 7.5 Minute U.S.G.S. Quadrangle, 41.8237^0 N latitude and -123.0049^0 W longitude, Siskiyou County
- Ikes Creek - Township 11N, Range 6E, section 9 of the Orleans 7.5 Minute U.S.G.S. Quadrangle, 41.3627^0 N latitude and -123.4933^0 W longitude, Humboldt County
- Independence Creek - Township 15N, Range 7E, section 31 of the Clear Creek 7.5 Minute U.S.G.S. Quadrangle, 41.6583^0 N latitude and -123.4511^0 W longitude, Siskiyou County
- Indian Creek - Township 16N, Range 7E, section 11 of the Happy Camp 7.5 Minute U.S.G.S. Quadrangle, 41.7901^0 N latitude and -123.3786^0 W longitude, Siskiyou County
- Irving Creek - Township 12N, Range 6E, section 4 of the Somes Bar 7.5 Minute U.S.G.S. Quadrangle, 41.4679^0 N latitude and -123.5003^0 W longitude, Siskiyou County
- King Creek – Township 14N , Range 6E, section 10 of the Ukonom Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.6181^0 N latitude and -123.4725^0 W longitude
- Little Grider Creek - Township 16N, Range 7E, section 15 of the Happy Camp 7.5 Minute U.S.G.S. Quadrangle, 41.7839^0 N latitude and -123.3947^0 W longitude, Siskiyou County

- Little Horse Creek - Township 16N, Range 8E, section 17 of the Slater Butte7.5 Minute U.S.G.S. Quadrangle, 41.7848^0 N latitude and -123.31850^0 W longitude, Siskiyou County
- Little Humbug Creek - Township 46N, Range 9W, section 13 of the McKinley Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.8356^0 N latitude and -122.8425^0 W longitude, Siskiyou County
- Oak Flat Creek - Township 15N, Range 7E, section 5 of the Clear Creek 7.5 Minute U.S.G.S. Quadrangle, 41.7291^0 N latitude and -123.4357^0 W longitude, Siskiyou County
- O'Neil Creek - Township 46N, Range 11W, section 22 of the Hamburg 7.5 Minute U.S.G.S. Quadrangle, 41.8103^0 N latitude and -123.1153^0 W longitude, Siskiyou County
- Pearch Creek - Township 11N, Range 6E, section 29 of the Orleans 7.5 Minute U.S.G.S. Quadrangle, 41.3122^0 N latitude and -123.5251^0 W longitude, Humboldt County
- Portuguese (Happy Camp RD) Creek - Township 46N, Range 12W, section 4 of the Seiad Valley 7.5 Minute U.S.G.S. Quadrangle, 41.8583^0 N latitude and -123.2473^0 W longitude, Siskiyou County
- Red Cap Creek –Township 10N, Range 5E, section 15 of the Orleans 7.5 Minute U.S.G.S. Quadrangle, 41.2586^0 N latitude and -123.6047^0 W longitude, Humboldt County
- Rock Creek - Township 13N, Range 6E, section 19 of the Dillon Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.5120^0 N latitude and -123.5304^0 W longitude, Siskiyou County
- Rodgers Creek - Township 12N, Range 6E, section 10 of the Somes Bar 7.5 Minute U.S.G.S. Quadrangle, 41.4450^0 N latitude and -123.4906^0 W longitude, Siskiyou County
- Sandy Bar Creek - Township 13N, Range 12E, section 29 of the Bark Shanty Gulch 7.5 Minute U.S.G.S. Quadrangle, 41.4858^0 N latitude and -123.5185^0 W longitude, Siskiyou County
- Seiad Creek - Township 46N, Range 12W, section 11 of the Seiad Valley 7.5 Minute U.S.G.S. Quadrangle, 41.8429^0 N latitude and -123.2117^0 W longitude, Siskiyou County
- Slate Creek - Township 10N, Range 5E, section 19 of the Fish Lake 7.5 Minute U.S.G.S. Quadrangle, 41.2500^0 N latitude and -123.6436^0 W longitude, Humboldt County
- Stanshaw Creek - Township 13N, Range 6E, section 32 of the Bark Shanty Gulch 7.5 Minute U.S.G.S. Quadrangle, 41.4764^0 N latitude and -123.5122^0 W longitude, Siskiyou County

- Swillup Creek - Township 14N, Range 6E, section 16 of the Dillon Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.6083^0 N latitude and -123.5011^0 W longitude, Siskiyou County
- Thompson Creek - Township 17N, Range 8E, section 17 of the Slater Butte 7.5 Minute U.S.G.S. Quadrangle, 41.8635^0 N latitude and -123.3085^0 W longitude, Siskiyou County
- Ti Creek - Township 13N, Range 6E, section 17 of the Dillon Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.52540^0 N latitude and -123.5290^0 W longitude, Siskiyou County
- Titus Creek - Township 15N, Range 7E, section 9 of the Clear Creek 7.5 Minute U.S.G.S. Quadrangle, 41.671302^0 N latitude and -123.4303^0 W longitude, Siskiyou County
- Tom Martin Creek - Township 46N, Range 10W, section 31 of the Hamburg 7.5 Minute U.S.G.S. Quadrangle, 41.7839^0 N latitude and -123.0422^0 W longitude, Siskiyou County
- Ukonom Creek – Township 14N , Range 6E, section 10 of the Ukonom Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.6165^0 N latitude and -123.4848^0 W longitude, Siskiyou County
- Ullathorne Creek - Township 10N, Range 5E, section 2 of the Orleans 7.5 Minute U.S.G.S. Quadrangle, 41.2911^0 N latitude and -123.5708^0 W longitude, Humboldt County
- Walker Creek - Township 46N, Range 11W, section 18 of the Hamburg 7.5 Minute U.S.G.S. Quadrangle, 41.8363^0 N latitude and -123.1716^0 W longitude, Siskiyou County
- Whitmore Creek - Township 11N, Range 6E, section 20 of the Orleans 7.5 Minute U.S.G.S. Quadrangle, 41.3352^0 N latitude and -123.5114^0 W longitude, Humboldt County
- Wilson Creek - Township 11N, Range 6E, section 20 of the Orleans 7.5 Minute U.S.G.S. Quadrangle, 41.3299^0 N latitude and -123.5213^0 W longitude, Humboldt County

Tributaries to the Salmon River:

- Merrill Creek - Township 11N, Range 6E, section 3 of the Somes Bar 7.5 Minute U.S.G.S. Quadrangle, 41.3789^0 N latitude and -123.4729^0 W longitude, Siskiyou County
- Butler Creek - Township 10N, Range 7E, section 20 of the Orleans Mountain 7.5 Minute U.S.G.S. Quadrangle, 41.3366^0 N latitude and -123.4093^0 W longitude, Siskiyou County

- Wooley Creek - Township 11N, Range 7E, section 6 of the Somes Bar 7.5 Minute U.S.G.S. Quadrangle, 41.3770^0 N latitude and -123.4225^0 W longitude, Siskiyou County
- Crapo Creek - Township 10N, Range 7E, section 3 of the Forks of Salmon 7.5 Minute U.S.G.S. Quadrangle, 41.2922^0 N latitude and -123.3628^0 W longitude, Siskiyou County
- Nordheimer Creek - Township 10N, Range 7E, section 3 of the Forks of Salmon 7.5 Minute U.S.G.S. Quadrangle, 41.2967^0 N latitude and -123.3597^0 W longitude, Siskiyou County
- Knownothing Creek - Township 10N, Range 8E, section 20 of the Youngs Peak 7.5 Minute U.S.G.S. Quadrangle, 41.2434^0 N latitude and -123.2917^0 W longitude, Siskiyou County
- Methodist Creek - Township 39N, Range 12W, section 30 of the Cecilville 7.5 Minute U.S.G.S. Quadrangle, 41.2217^0 N latitude and -123.2494^0 W longitude, Siskiyou County
- Indian Creek - Township 39N, Range 12W, section 32 of the Cecilville 7.5 Minute U.S.G.S. Quadrangle, 41.2112^0 N latitude and -123.2324^0 W longitude, Siskiyou County
- Black Bear Creek - Township 38N, Range 12W, section 4 of the Cecilville 7.5 Minute U.S.G.S. Quadrangle, 41.2041^0 N latitude and -123.2247^0 W longitude, Siskiyou County
- St. Claire Creek - Township 38N, Range 12W, section 25 of the Cecilville 7.5 Minute U.S.G.S. Quadrangle, 41.1409^0 N latitude and -123.1724^0 W longitude, Siskiyou County
- Cecil Creek - Township 38N, Range 11W, section 29 of the Cecilville 7.5 Minute U.S.G.S. Quadrangle, 41.1389^0 N latitude and -123.1282^0 W longitude, Siskiyou County
- East Fork of the Salmon River - Township 38N, Range 11W, section 21 of the Grasshopper Ridge 7.5 Minute U.S.G.S. Quadrangle, 41.1539^0 N latitude and -123.1087^0 W longitude, Siskiyou County
- Cronan Creek - Township 40N, Range 12W, section 23 of the Sawyers Bar 7.5 Minute U.S.G.S. Quadrangle, 41.3132^0 N latitude and -123.1919^0 W longitude, Siskiyou County
- Jackass Gulch - Township 40N, Range 11W, section 30 of the Sawyers Bar 7.5 Minute U.S.G.S. Quadrangle, 41.3024^0 N latitude and -123.1583^0 W longitude, Siskiyou County

- Glasgow Creek - Township 40N, Range 12W, section 25 of the Sawyers Bar 7.5 Minute U.S.G.S. Quadrangle, 41.3065^0 N latitude and -123.1656^0 W longitude, Siskiyou County
- Kelly Gulch- Township 40N, Range 12W, section 24 of the Sawyers Bar 7.5 Minute U.S.G.S. Quadrangle, 41.3156^0 N latitude and -123.1686^0 W longitude, Siskiyou County
- White's Gulch - Township 40N, Range 11W, section 26 of the Tanners Peak 7.5 Minute U.S.G.S. Quadrangle, 41.2983^0 N latitude and -123.0837^0 W longitude, Siskiyou County
- Little North Fork Salmon River - Township 40N, Range 12W, section 24 of the Sawyers Bar 7.5 Minute U.S.G.S. Quadrangle, 41.3208^0 N latitude and -123.1770^0 W longitude, Siskiyou County
- North Russian Creek - Township 40N, Range 10W, section 19 of the Tanners Peak 7.5 Minute U.S.G.S. Quadrangle, 41.3266^0 N latitude and -123.0568^0 W longitude, Siskiyou County
- South Russian Creek - Township 40N, Range 10W, section 19 of the Tanners Peak 7.5 Minute U.S.G.S. Quadrangle, 41.3266^0 N latitude and -123.0568^0 W longitude, Siskiyou County

Tributaries to the Lower Scott River:

- Boulder Creek - Township 44N, Range 11W, section 27 of the Scott Bar 7.5 Minute U.S.G.S. Quadrangle, 41.6341^0 N latitude and -123.0993^0 W longitude, Siskiyou County
- Middle Creek - Township 44N, Range 11W, section 16 of the Scott Bar 7.5 Minute U.S.G.S. Quadrangle, 41.6686^0 N latitude and -123.1089^0 W longitude, Siskiyou County
- Thompkins Creek - Township 44N, Range 11W, section 10 of the Scott Bar 7.5 Minute U.S.G.S. Quadrangle, 41.6811^0 N latitude and -123.0973^0 W longitude, Siskiyou County

Project Set Up: The Restoration Director and Program 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 Project Coordinator will provide project implementation support. Project support includes oversight and completion of all listed project tasks including barrier assessment, data collection, and implementation, monitoring, and reporting.

The Technical and Field Staff will implement the strategic action plan. Project support will include modification to fish barrier sites, data collection, and site monitoring and reporting.

Mid Klamath Watershed Council (MKWC) will be subcontracted to implement treatments on the Mid Klamath Tributaries in coordination with the SRRC Fisheries Program. MKWC will play a critical role in organizing volunteer workdays, providing outreach to landowners and organizing workforce to implement these treatments.

Materials: The project will provide the necessary materials to complete the tasks:

- Wetsuits/Drysuits for snorkel surveys.
- Waders & Boots for instream implementation work.
- Shovels, bars, gloves to remove barriers and construct fishways.
- Office & Field Supplies for field data collection and reporting
- Digital cameras for project documentation and monitoring
- Mileage for project travel

Tasks:

Task 1. Coordinate with all collaborators to prioritize treatments, discuss techniques and standardize protocol (March 2017, March 2018).

Task 2. Conduct an assessment of juvenile and adult fish passage on previously identified tributaries of the Klamath, Salmon, and Lower Scott Rivers to locate barriers and record qualitative features (April – May 2017, April – May 2018). Collect data at tributary mouths and other barriers, including channel width, depth, and gradient. This data will add to data collected on Klamath, Scott and Salmon tributaries through a project funded by the National Fish & Wildlife Foundation. Use assessment data to develop a strategic plan for modification of fish barrier sites. This plan will include the use of community volunteer crews to treat identified sites in a timely manner (May 2017, May 2018).

Task 3. Modify identified barriers to allow for juvenile and adult salmonid fish passage (May – November 2017, May – November 2018). Step-and-pool fishway is the primary model to be used for modification. In some cases, creek mouths with large, shallow alluvial fans will be channelized to improve fish passage and minimize solar heating. No machinery will be used.

Task 4. Photo points will be taken before, during, and after the modifications to document methods used on each site and provide a reference for future years (ongoing). Video will also be taken at select sites.

Task 5. Data will be shared with all interested parties to increase understanding of fish passage issues at tributary mouths and develop appropriately scaled projects to address the issue (ongoing).

Task 6. Conduct outreach to private landowners at creek mouths identified as having fish passage issues to gain access for assessment and modification, if needed, of potential fish passage barriers (ongoing). Signs will be posted at locations where swimmer's dams or push-up dams are chronically affecting fish passage educating landowners and river users about the need for appropriate construction of these features.

Deliverables:

- Maps of project areas with identification and type of fish barriers.
- Before, during, and after photo points of project sites. Video of creek mouths, volunteer workdays, and fish barriers.
- Data on improvements to fish passage: fish usage, velocity, pool depths, barrier heights, channel gradient, cover and temperature measurements before and after treatment.
- Community participation in at least six volunteer workdays to manually modify barriers to allow for fish passage.
- Posting of educational signs about fish passage in swimmers dams at public swimming holes.
- Agreements with landowners to access potential fish barriers on private lands.
- Quarterly progress reports, a draft final, and Final Report describing the project, and a summary of findings and results.

Timelines:

March 2017, March 2018: Convene a coordination meeting with the Mid Klamath Watershed Council, the Karuk Tribe Fisheries Program, Salmon River Restoration Council, and USFS Fisheries to standardize survey protocol, establish techniques and discuss priorities. (Task 1)

April-May 2017, April-May 2018: Develop assessment prioritization strategy. Begin assessment of tributaries for fish passage barriers and pre biological monitoring at sites marked for implementation. Begin outreach to private landowners. (Task 1, 2 & 6)

May-July 2017, May-July 2018: Implement treatments on prioritized sites for juvenile fish passage. Collect 12 photo-points and implement pre and post

structural and biological monitoring. Coordinate two volunteer workdays and begin public outreach campaign. (Task 3, 4 & 6)

August-October 2017, August-October 2018: Implement treatments on prioritized sites for adult fish passage and monitor implementations. Coordinate one volunteer workday. (Task 3, 4 & 6)

October 2017, October 2018: Monitor adult fish passage sites. Begin developing final reports. (Task 3, 4 &5)

November-December 2017, November 2018 – March 2019: Publish and distribute final reports and findings. (Task 5)

Additional Requirements:

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

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

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

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

4. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*.

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

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Badger Mtn. (4112276) OR Bark Shanty Gulch (4112345) OR Bear Peak (4112365) OR Blue Creek Mtn. (4112347) OR Bogus Mountain (4112274) OR Boulder Peak (4112351) OR Buckhorn Bally (4112287) OR Cecil Lake (4112312) OR Cecilville (4112322) OR Chimney Rock (4112356) OR Clear Creek (4112364) OR Condrey Mtn. (4112288) OR Copco (4112283) OR Cottonwood Peak (4112286) OR Deadman Peak (4112228) OR Deadman Point (4112384) OR Dees Peak (4112313) OR Dewey Gulch (4112273) OR Dillon Mtn. (4112355) OR Dutch Creek (4112381) OR Dutchman Peak (4212218) OR Eaton Peak (4112238) OR English Peak (4112342) OR Etna (4112248) OR Figurehead Mtn. (4112383) OR Fish Lake (4112336) OR Forks of Salmon (4112333) OR French Camp Ridge (4112327) OR Grasshopper Ridge (4112321) OR Greenview (4112258) OR Grider Valley (4112362) OR Hamburg (4112371) OR Happy Camp (4112374) OR Hawkinsville (4112275) OR Hoopa (4112316) OR Hopkins Butte (4112325) OR Hornbrook (4112285) OR Horse Creek (4112278) OR Huckleberry Mtn. (4112363) OR Hupa Mountain (4112317) OR Indian Creek Baldy (4112267) OR Iron Gate Reservoir (4112284) OR Johnsons (4112337) OR Kangaroo Mtn. (4112382) OR Lonesome Ridge (4112346) OR Marble Mountain (4112352) OR McKinley Mtn. (4112277) OR Medicine Mtn. (4112343) OR Mt. Ashland (4212216) OR Parker Mtn. (4212213) OR Polar Bear Mtn. (4112385) OR Preston Peak (4112375) OR Russell Peak (4112268) OR Salmon Mtn. (4112324) OR Sawyers Bar (4112332) OR Scott Bar (4112361) OR Seiad Valley (4112372) OR Siskiyou Pass (4212215) OR Siskiyou Peak (4212217) OR Slater Butte (4112373) OR Soda Mountain (4212214) OR Somes Bar (4112344) OR Tanners Peak (4112331) OR Thompson Peak (4112311) OR Tish Tang Point (4112315) OR Trinity Mtn. (4112314) OR Ukonom Lake (4112353) OR Weitchpec (4112326) OR Yellow Dog Peak (4112341) OR Youngs Peak (4112323) OR Yreka (4112266))

Possible species within the Iron Gate Reservoir, Hornbrook, Busckhorn Bally, McKinley Mountain, Horse Creek, Hamburg, Russel Peak, Seiad Valley, Scott Bar, Figurehead MTN, Slater Butte, Happy Camp, Clear Creek, Ukonom Lake, Dillon MTN, Somes Bar, Bark Shanty Gulch, Fish Lake, Weitchpec, Forks of Salmon, Youngs Peak, Cecilville, Grasshopper Ridge, Saywyers Barr, and Tanners Peak quads and surrounding quads for 725153 Mid-Klamath Tributary Fish Passage Improvement Project, Humboldt and Siskiyou Counties.

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
A terrestrial snail *Monadenia fidelis leonina*	IMGASC7037	None	None	G4G5T1T2	S1S2	
alkali hymenoxys *Hymenoxys lemmonii*	PDAST530C0	None	None	G4?	S2S3	2B.2
American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
American saw-wort *Saussurea americana*	PDAST8B020	None	None	G5	S1	2B.2
Applegate stonecrop *Sedum oblanceolatum*	PDCRA0A0T0	None	None	G3	S1	1B.1
Ashland thistle *Cirsium ciliolatum*	PDAST2E0P0	None	Endangered	G3	S1	2B.1
bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S3	FP
Bald Mountain milk-vetch *Astragalus umbraticus*	PDFAB0F990	None	None	G3	S2	2B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
black swift *Cypseloides niger*	ABNUA01010	None	None	G4	S2	SSC
blushing wild buckwheat *Eriogonum ursinum var. erubescens*	PDPGN08632	None	None	G3G4T2	S2	1B.3
broad-nerved hump moss *Meesia uliginosa*	NBMUS4L030	None	None	G5	S3	2B.2
brook pocket moss *Fissidens aphelotaxifolius*	NBMUS2W290	None	None	G3G4	S1	2B.2
bunchberry *Cornus canadensis*	PDCOR01040	None	None	G5	S2	2B.2
buttercup-leaf suksdorfia *Hemieva ranunculifolia*	PDSAX0W010	None	None	G5	S2	2B.2
buxbaumia moss *Buxbaumia viridis*	NBMUS1B040	None	None	G4G5	S1	2B.2
California globe mallow *Iliamna latibracteata*	PDMAL0K040	None	None	G2G3	S2	1B.2
California wolverine *Gulo gulo*	AMAJF03010	Proposed Threatened	Threatened	G4	S1	FP
Cascade stonecrop *Sedum divergens*	PDCRA0A0B0	None	None	G5?	S2	2B.3
Cascades frog *Rana cascadae*	AAABH01060	None	None	G3G4	S3	SSC
chinook salmon - upper Klamath and Trinity Rivers ESU. *Oncorhynchus tshawytscha*	AFCHA02056	None	None	G5	S1S2	SSC
coast checkerbloom *Sidalcea oregana ssp. eximia*	PDMAL110K9	None	None	G5T1	S1	1B.2
coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A	None	None	G4T4	S3	SSC
coast fawn lily *Erythronium revolutum*	PMLIL0U0F0	None	None	G4G5	S3	2B.2
Coast Range lomatium *Lomatium martindalei*	PDAPI1B140	None	None	G5	S3	2B.3
crested potentilla *Potentilla cristae*	PDROS1B2F0	None	None	G2	S2	1B.3
crested sideband *Monadenia cristulata*	IMGASC7120	None	None	G1G2	S1S2	
Crotch bumble bee *Bombus crotchii*	IIHYM24480	None	None	G3G4	S1S2	
Darlingtonia Seep *Darlingtonia Seep*	CTT51120CA	None	None	G4	S3.2	
Del Norte salamander *Plethodon elongatus*	AAAAD12050	None	None	G4	S3	WL

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Detling's silverpuffs *Microseris laciniata ssp. detlingii*	PDAST6E0A1	None	None	G4T3	S1	2B.2
downy sideband *Monadenia callipeplus*	IMGASC7110	None	None	G1G2	S1S2	
Dudley's rush *Juncus dudleyi*	PMJUN01390	None	None	G5	S1	2B.3
elongate copper moss *Mielichhoferia elongata*	NBMUS4Q022	None	None	G5	S4	4.3
Engelmann spruce *Picea engelmannii*	PGPIN03030	None	None	G5	S2	2B.2
English Peak greenbrier *Smilax jamesii*	PMSMI010D0	None	None	G3G4	S3S4	4.2
English sundew *Drosera anglica*	PDDRO02010	None	None	G5	S2	2B.3
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC
Franklin's bumble bee *Bombus franklini*	IIHYM24010	None	None	G1	S1	
Gasquet rose *Rosa gymnocarpa var. serpentina*	PDROS1J1V1	None	None	G5T3T4	S2	1B.3
Gentner's fritillary *Fritillaria gentneri*	PMLIL0V080	Endangered	None	G1	S1	1B.1
ghost-pipe *Monotropa uniflora*	PDMON03030	None	None	G5	S2	2B.2
giant fawn lily *Erythronium oregonum*	PMLIL0U0C0	None	None	G4G5	S2	2B.2
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
great gray owl *Strix nebulosa*	ABNSB12040	None	Endangered	G5	S1	
greater sandhill crane *Grus canadensis tabida*	ABNMK01014	None	Threatened	G5T4	S2	FP
Greene's mariposa-lily *Calochortus greenei*	PMLIL0D0H0	None	None	G3	S2S3	1B.2
hairy marsh hedge-nettle *Stachys pilosa*	PDLAM1X1A0	None	None	G5	S3	2B.3
Heckner's lewisia *Lewisia cotyledon var. heckneri*	PDPOR04052	None	None	G4T3	S3	1B.2
Henderson's fawn lily *Erythronium hendersonii*	PMLIL0U070	None	None	G4	S2	2B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Henderson's horkelia *Horkelia hendersonii*	PDROS0W090	None	None	G1G2	S1	1B.1
Henderson's triteleia *Triteleia hendersonii*	PMLIL21070	None	None	G4	S1	2B.2
hoary bat *Lasiurus cinereus*	AMACC05030	None	None	G5	S4	
Holzinger's orthotrichum moss *Orthotrichum holzingeri*	NBMUS560E0	None	None	G3	S2	1B.3
hooded lancetooth *Ancotrema voyanum*	IMGAS36130	None	None	G1G2	S1S2	
horned butterwort *Pinguicula macroceras*	PDLNT01040	None	None	G4	S2	2B.2
Howell's fawn lily *Erythronium howellii*	PMLIL0U080	None	None	G3G4	S2	1B.3
Howell's montia *Montia howellii*	PDPOR05070	None	None	G3G4	S2	2B.2
Howell's sandwort *Sabulina howellii*	PDCAR0G0F0	None	None	G4	S3	1B.3
Howell's tauschia *Tauschia howellii*	PDAPI27050	None	None	G2G3	S2S3	1B.3
Howell's violet *Viola howellii*	PDVIO040U0	None	None	G4	S1	2B.2
Humboldt marten *Martes caurina humboldtensis*	AMAJF01012	None	Candidate Endangered	G5T1	S1	SSC
Jaynes Canyon buckwheat *Eriogonum diclinum*	PDPGN081S0	None	None	G3	S3	2B.3
Karok hesperian *Vespericola karokorum*	IMGASA4040	None	None	G2	S2	
Klamath gentian *Gentiana plurisetosa*	PDGEN060V0	None	None	G2G3	S2	1B.3
Klamath largescale sucker *Catostomus snyderi*	AFCJC02200	None	None	G3	S3	SSC
Klamath Mountain buckwheat *Eriogonum hirtellum*	PDPGN082T0	None	None	G2G3	S2S3	1B.3
Klamath/No Coast Spring Run Chinook/Summer Steelhead Stream *Klamath/No Coast Spring Run Chinook/Summer Steelhead Stream*	CARB2333CA	None	None	GNR	SNR	
Klamath/North Coast Fall/Winter Run Chinook Salmon River *Klamath/North Coast Fall/Winter Run Chinook Salmon River*	CARB2332CA	None	None	GNR	SNR	
Klamath/North Coast Interior Headwater Fishless Stream *Klamath/North Coast Interior Headwater Fishless Stream*	CARB2220CA	None	None	GNR	SNR	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Klamath/North Coast Rainbow Trout Stream *Klamath/North Coast Rainbow Trout Stream*	CARB2312CA	None	None	GNR	SNR	
Koehler's stipitate rockcress *Boechera koehleri*	PDBRA060Z0	None	None	G3	S2S3	1B.3
large-flowered triteleia *Triteleia grandiflora*	PMLIL21060	None	None	G4G5	S1	2B.1
leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020	None	None	G5	S4	4.2
Leech's skyline diving beetle *Hydroporus leechi*	IICOL55040	None	None	G1?	S1?	
little-leaved huckleberry *Vaccinium scoparium*	PDERI180Y0	None	None	G5	S3	2B.2
long seta hump moss *Meesia longiseta*	NBMUS4L010	None	None	G5	S2	2B.3
Lost River sucker *Deltistes luxatus*	AFCJC12010	Endangered	Endangered	G1	S1	FP
Lyall's tonestus *Tonestus lyallii*	PDASTE0050	None	None	G5	S1	2B.3
Marble Mountain campion *Silene marmorensis*	PDCAR0U0Z0	None	None	G2	S2	1B.2
marbled wild-ginger *Asarum marmoratum*	PDARI02070	None	None	G4?	S2	2B.3
McDonald's rockcress *Arabis mcdonaldiana*	PDBRA06150	Endangered	Endangered	G3	S3	1B.1
Mielichhofer's copper moss *Mielichhoferia mielichhoferiana*	NBMUS4Q020	None	None	G4	S1	2B.3
montane peaclam *Pisidium ultramontanum*	IMBIV51220	None	None	G1	S1	
Morrison bumble bee *Bombus morrisoni*	IIHYM24460	None	None	G4G5	S1S2	
Mt. Eddy draba *Draba carnosula*	PDBRA112T0	None	None	G2	S2	1B.3
nard sedge *Carex nardina*	PMCYP03920	None	None	G4G5	S1	2B.2
northern goshawk *Accipiter gentilis*	ABNKC12060	None	None	G5	S3	SSC
northern meadow sedge *Carex praticola*	PMCYP03B20	None	None	G5	S2	2B.2
northern red-legged frog *Rana aurora*	AAABH01021	None	None	G4	S3	SSC
northwestern moonwort *Botrychium pinnatum*	PPOPH010V0	None	None	G4?	S2	2B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
obtuse starwort *Stellaria obtusa*	PDCAR0X0U0	None	None	G5	S4	4.3
Oregon fireweed *Epilobium oreganum*	PDONA060P0	None	None	G2	S2	1B.2
Oregon goldthread *Coptis laciniata*	PDRAN0A020	None	None	G4	S3	4.2
Oregon lungwort *Mertensia bella*	PDBOR0N040	None	None	G4	S1	2B.2
Oregon polemonium *Polemonium carneum*	PDPLM0E050	None	None	G3G4	S2	2B.2
Oregon sedge *Carex halliana*	PMCYP035M0	None	None	G4G5	S2	2B.3
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
Pacific fuzzwort *Ptilidium californicum*	NBHEP2U010	None	None	G4G5	S3S4	4.3
Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6	None	None	G5T3	S2	1B.2
Pacific marten *Martes caurina*	AMAJF01030	None	None	G5	S3	
Pacific silver fir *Abies amabilis*	PGPIN01010	None	None	G5	S2	2B.3
Pacific tailed frog *Ascaphus truei*	AAABA01010	None	None	G4	S3S4	SSC
pale yellow stonecrop *Sedum laxum ssp. flavidum*	PDCRA0A0L2	None	None	G5T4Q	S4	4.3
Peck's lomatium *Lomatium peckianum*	PDAPI1B1G0	None	None	G4	S1	2B.2
pendulous bulrush *Scirpus pendulus*	PMCYP0Q160	None	None	G5	S1	2B.2
prairie falcon *Falco mexicanus*	ABNKD06090	None	None	G5	S4	WL
rattlesnake fern *Botrypus virginianus*	PPOPH010H0	None	None	G5	S2	2B.2
Regel's rush *Juncus regelii*	PMJUN012D0	None	None	G4	S1	2B.3
Robbins' pondweed *Potamogeton robbinsii*	PMPOT030Z0	None	None	G5	S3	2B.3
robust false lupine *Thermopsis robusta*	PDFAB3Z0D0	None	None	G2	S2	1B.2

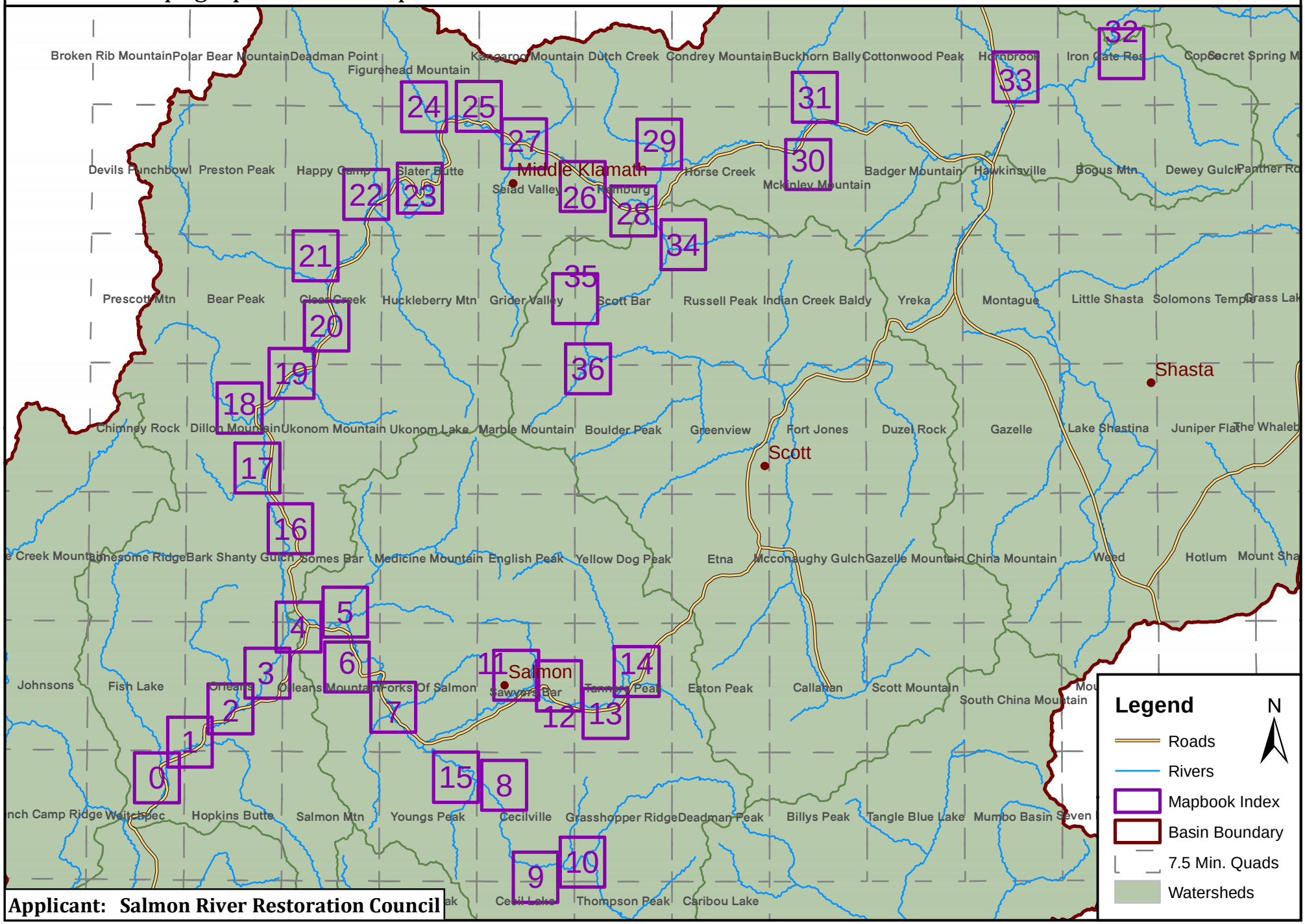
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Rolle's rockcress *Boechera rollei*	PDBRA064H0	None	None	G1	S1	1B.1
ruffed grouse *Bonasa umbellus*	ABNLC11010	None	None	G5	S3S4	WL
Scott Bar salamander *Plethodon asupak*	AAAAD12560	None	Threatened	G1G2	S1S2	
Scott Mountain bedstraw *Galium serpenticum ssp. scotticum*	PDRUB0N1Y6	None	None	G4G5T2	S2	1B.2
Scott Mountain sandwort *Sabulina stolonifera*	PDCAR0G110	None	None	G2	S2	1B.3
Scott Valley buckwheat *Eriogonum umbellatum var. lautum*	PDPGN086UX	None	None	G5T1	S1	1B.1
Scott Valley phacelia *Phacelia greenei*	PDHYD0C1V0	None	None	G2	S2	1B.2
serpentine sedge *Carex serpenticola*	PMCYP03KM0	None	None	G4	S3	2B.3
Shasta chaenactis *Chaenactis suffrutescens*	PDAST200H0	None	None	G3	S3	1B.3
Shasta orthocarpus *Orthocarpus pachystachyus*	PDSCR1H0L0	None	None	G1	S1	1B.1
shortnose sucker *Chasmistes brevirostris*	AFCJC03010	Endangered	Endangered	G1	S1	FP
silver-haired bat *Lasionycteris noctivagans*	AMACC02010	None	None	G5	S3S4	
single-flowered mariposa-lily *Calochortus monanthus*	PMLIL0D0W0	None	None	GH	SH	1A
Siskiyou clover *Trifolium siskiyouense*	PDFAB402S0	None	None	GH	SH	1B.1
Siskiyou fireweed *Epilobium siskiyouense*	PDONA06100	None	None	G3	S3	1B.3
Siskiyou ground beetle *Nebria gebleri siskiyouensis*	IICOL6L091	None	None	G4G5T4	S1S2	
Siskiyou mariposa-lily *Calochortus persistens*	PMLIL0D140	None	Rare	G2	S1	1B.2
Siskiyou Mountains salamander *Plethodon stormi*	AAAAD12180	None	Threatened	G2G3	S1S2	
Siskiyou paintbrush *Castilleja elata*	PDSCR0D213	None	None	G3	S2S3	2B.2
Siskiyou phacelia *Phacelia leonis*	PDHYD0C2N0	None	None	G3	S3	1B.3
Siskiyou shoulderband *Monadenia chaceana*	IMGASC7150	None	None	G2G3	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
slender silver moss *Anomobryum julaceum*	NBMUS80010	None	None	G5?	S2	4.2
slender-stemmed androsace *Androsace filiformis*	PDPRI02040	None	None	G3G4	S1	2B.3
small groundcone *Kopsiopsis hookeri*	PDORO01010	None	None	G4?	S1S2	2B.3
snow dwarf bramble *Rubus nivalis*	PDROS1K4S0	None	None	G4?	S1	2B.3
Sonoma tree vole *Arborimus pomo*	AMAFF23030	None	None	G3	S3	SSC
southern long-toed salamander *Ambystoma macrodactylum sigillatum*	AAAAA01085	None	None	G5T4	S3	SSC
southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020	None	None	G3G4	S2S3	SSC
subalpine fir *Abies lasiocarpa var. lasiocarpa*	PGPIN01072	None	None	G5T5	S3	2B.3
Suckley's cuckoo bumble bee *Bombus suckleyi*	IIHYM24350	None	None	GU	S1	
summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B	None	None	G5T4Q	S2	SSC
Tehama chaparral *Trilobopsis tehamana*	IMGASA2040	None	None	G1	S1	
thread-leaved beardtongue *Penstemon filiformis*	PDSCR1L2A0	None	None	G3	S3	1B.3
topaz juga *Juga acutifilosa*	IMGASK4010	None	None	G2	S2	
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Tracy's sanicle *Sanicula tracyi*	PDAPI1Z0K0	None	None	G4	S4	4.2
Trinity Mountains rockcress *Arabis rigidissima var. rigidissima*	PDBRA061R2	None	None	G3T3	S3	1B.3
Trinity shoulderband *Helminthoglypta talmadgei*	IMGASC2630	None	None	G2	S2	
tufted saxifrage *Saxifraga cespitosa*	PDSAX0U0C0	None	None	G5	S1	2B.3
tundra thread moss *Pohlia tundrae*	NBMUS5S1B0	None	None	G3	S3	2B.3
Upland Douglas Fir Forest *Upland Douglas Fir Forest*	CTT82420CA	None	None	G4	S3.1	
Waldo daisy *Erigeron bloomeri var. nudatus*	PDAST3M0M2	None	None	G5T4	S3	2B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Waldo rockcress *Arabis aculeolata*	PDBRA06010	None	None	G4	S2	2B.2
Warner Mountains buckwheat *Eriogonum umbellatum var. glaberrimum*	PDPGN086U2	None	None	G5T2?	S2	1B.3
water bulrush *Schoenoplectus subterminalis*	PMCYP0Q1G0	None	None	G4G5	S3	2B.3
Wawona riffle beetle *Atractelmis wawona*	IICOL58010	None	None	G1G3	S1S2	
wayside aster *Eucephalus vialis*	PDASTEC0A0	None	None	G3	S1	1B.2
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western pearlshell *Margaritifera falcata*	IMBIV27020	None	None	G4G5	S1S2	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
white-flowered rein orchid *Piperia candida*	PMORC1X050	None	None	G3	S3	1B.2
Wilkin's harebell *Campanula wilkinsiana*	PDCAM020Z0	None	None	G2	S2	1B.2
willow flycatcher *Empidonax traillii*	ABPAE33040	None	Endangered	G5	S1S2	
woolly balsamroot *Balsamorhiza lanata*	PDAST11047	None	None	G3	S3	1B.2
woolly meadowfoam *Limnanthes floccosa ssp. floccosa*	PDLIM02043	None	None	G4T4	S3	4.2
yellow willowherb *Epilobium luteum*	PDONA060H0	None	None	G5	S1	2B.3
yellow-based sideband *Monadenia infumata ochromphalus*	IMGASC7051	None	None	G2T1	S1	
Yreka phlox *Phlox hirsuta*	PDPLM0D100	Endangered	Endangered	G1	S1	1B.2
northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	

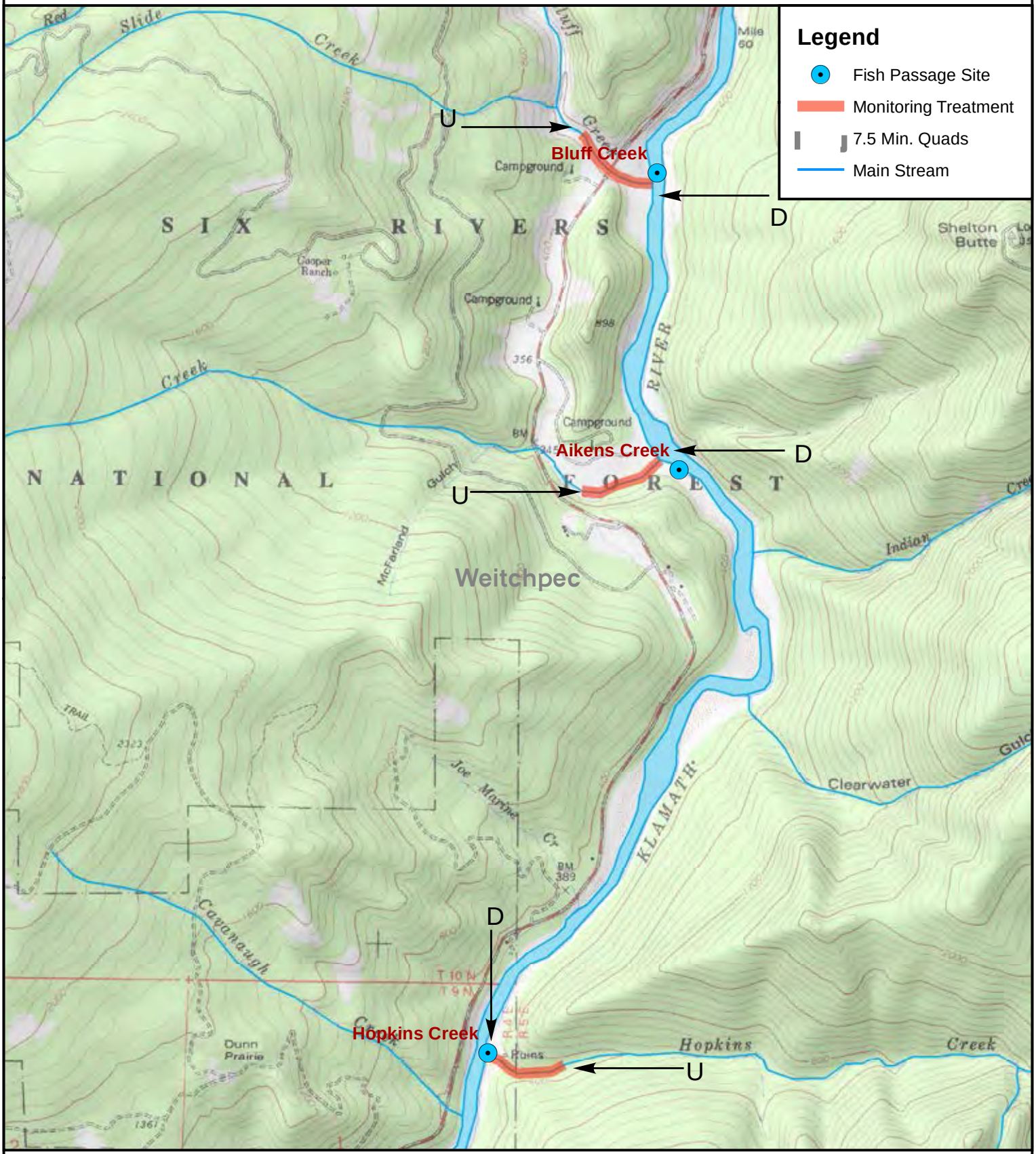
Record Count: 172

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Index Map



Applicant: Salmon River Restoration Council

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 1 of 37



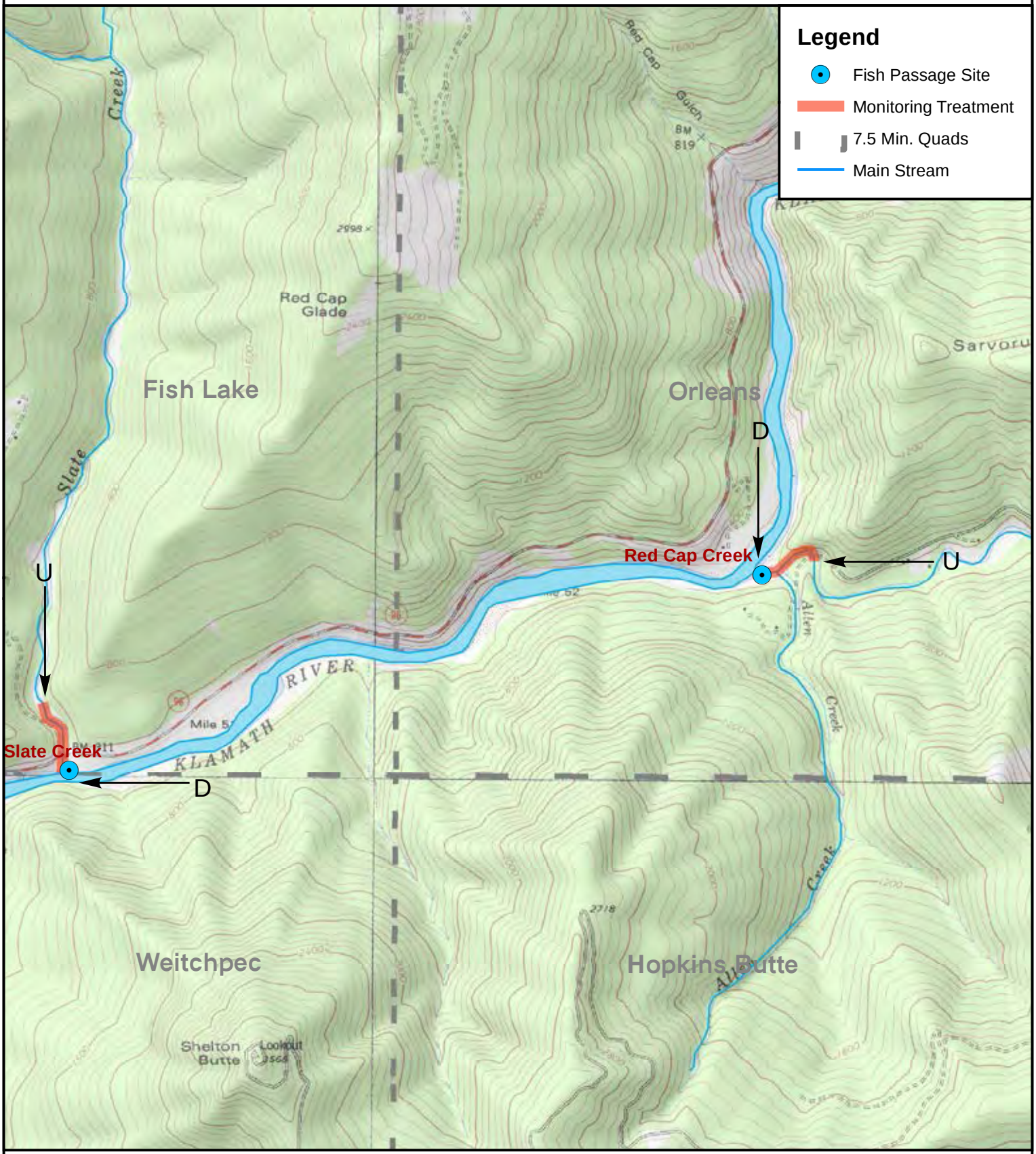
Applicant: Salmon River Restoration Council
Stream name: Bluff Creek, Aikens Creek, Hopkins Creek
Quad name: Weitchpec

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 2 of 37



Applicant: Salmon River Restoration Council

Stream name: Slate Creek, Red Cap Creek

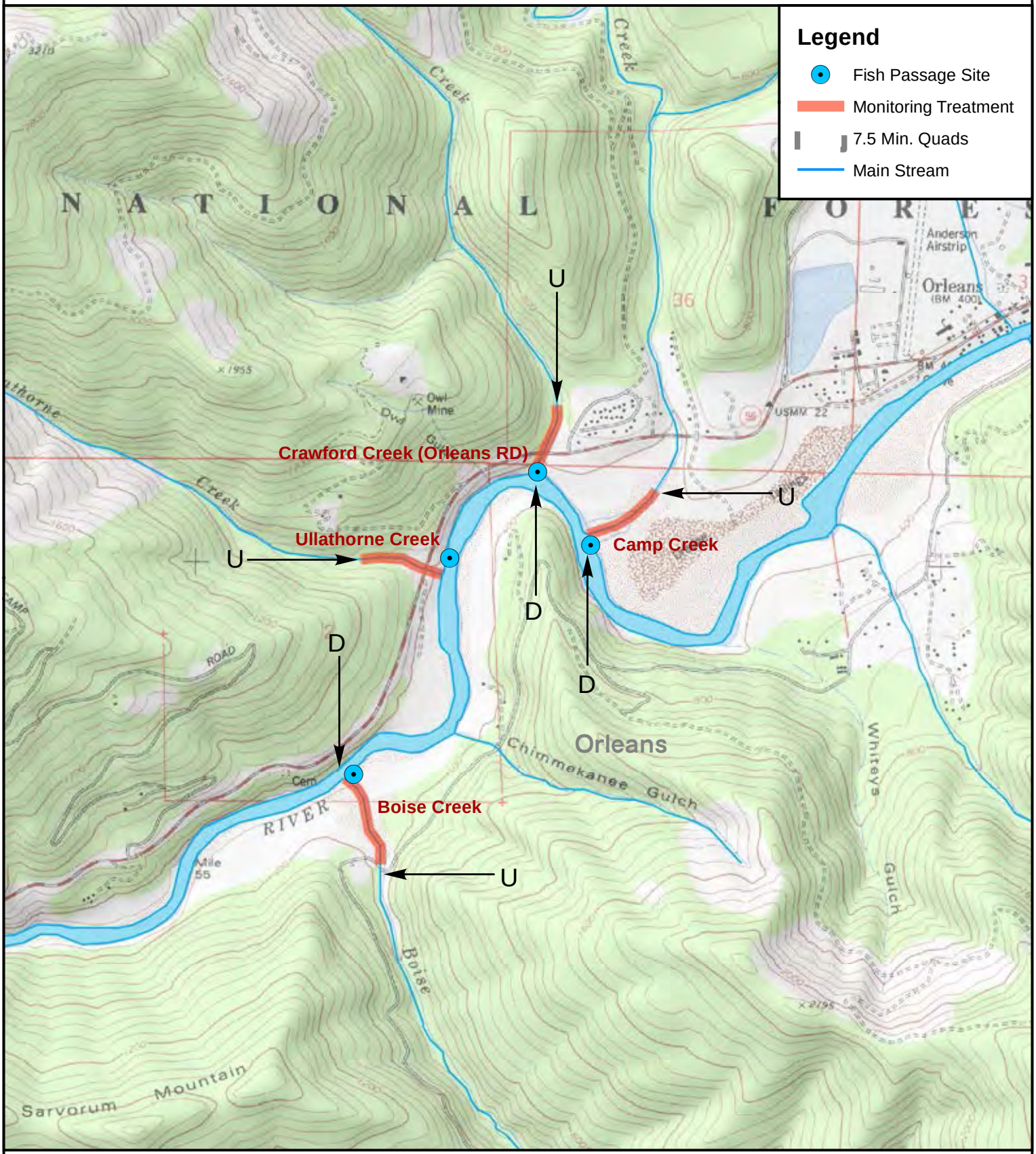
Quad name: Fish Lake, Orleans, Hopkins Butte, Weitchpec

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 3 of 37



Applicant: Salmon River Restoration Council

Stream name: Boise Cr., Ullathorne Cr., Crawford Cr., Camp Cr.

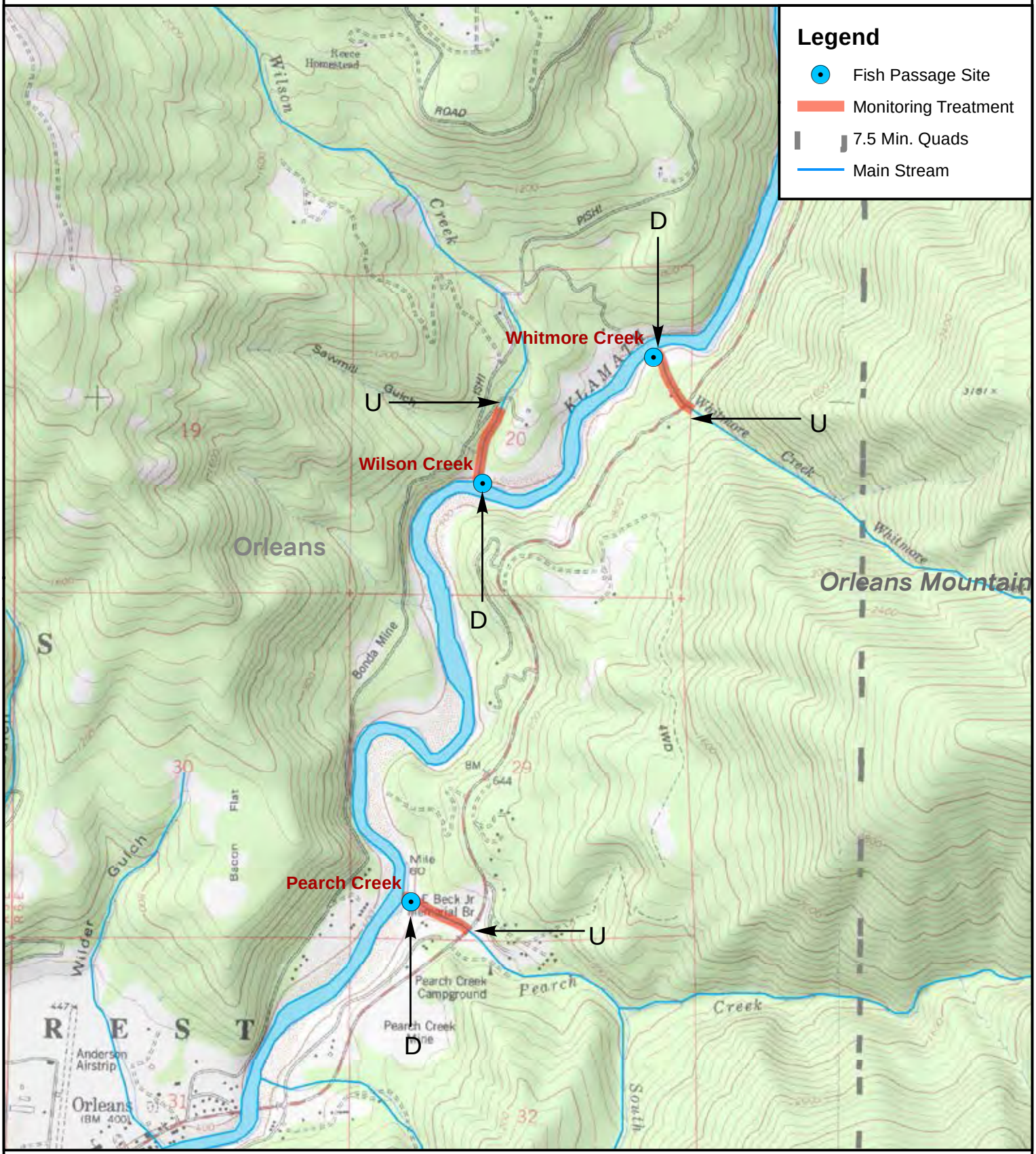
Quad name: Orleans

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 4 of 37



Applicant: Salmon River Restoration Council

Stream name: Pearch Cr., Wilson Cr., Whitmore Cr.

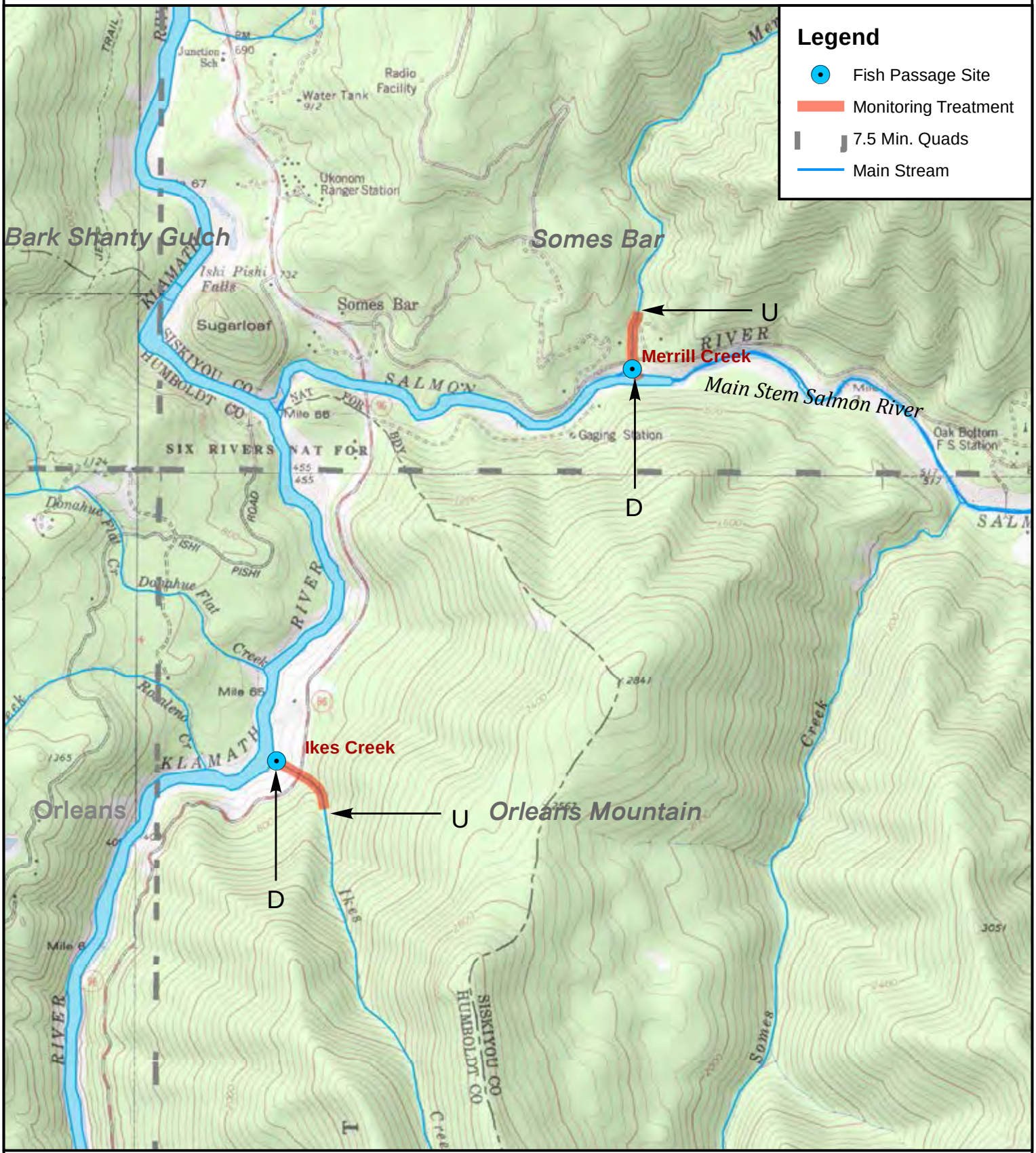
Quad name: Orleans, Orleans Mountain

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 5 of 37



Applicant: Salmon River Restoration Council
Stream name: Ikes Cr., Merrill Cr.

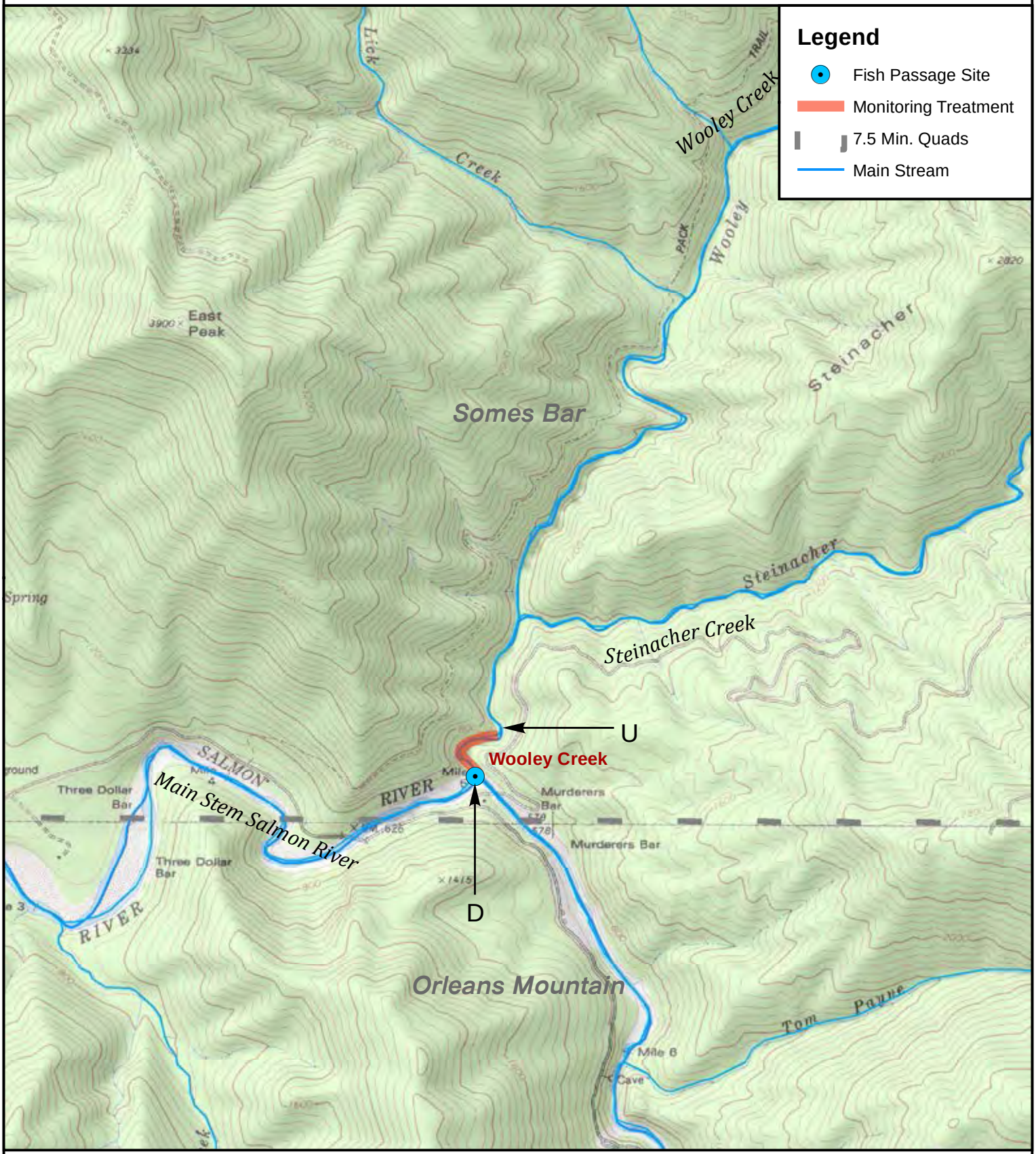
Quad name: Somes Bar, Orleans Mountain

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 6 of 37



Applicant: Salmon River Restoration Council
Stream name: Wooley Creek

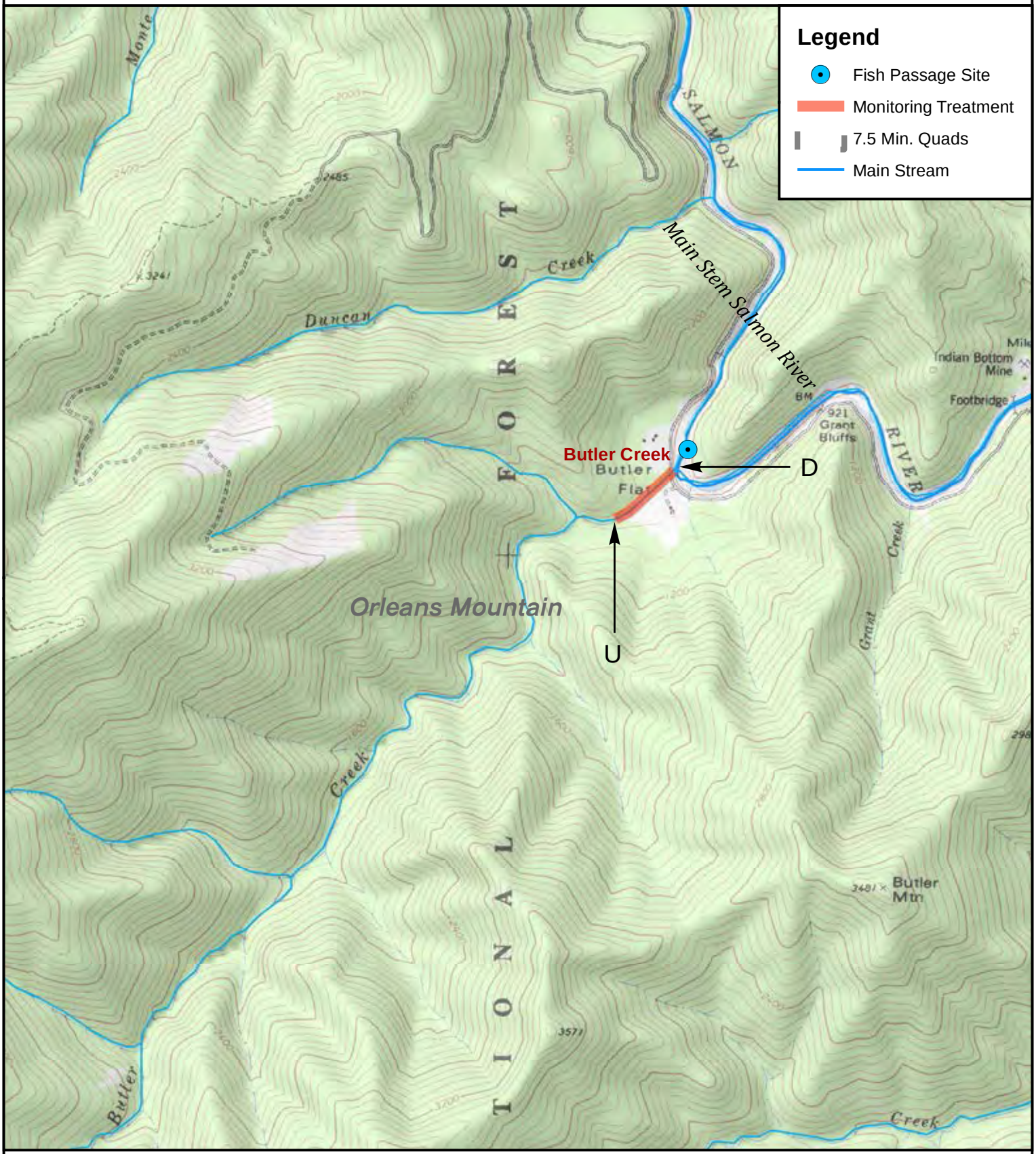
Quad name: Somes Bar

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 7 of 37



Applicant: Salmon River Restoration Council

Stream name: Butler Creek

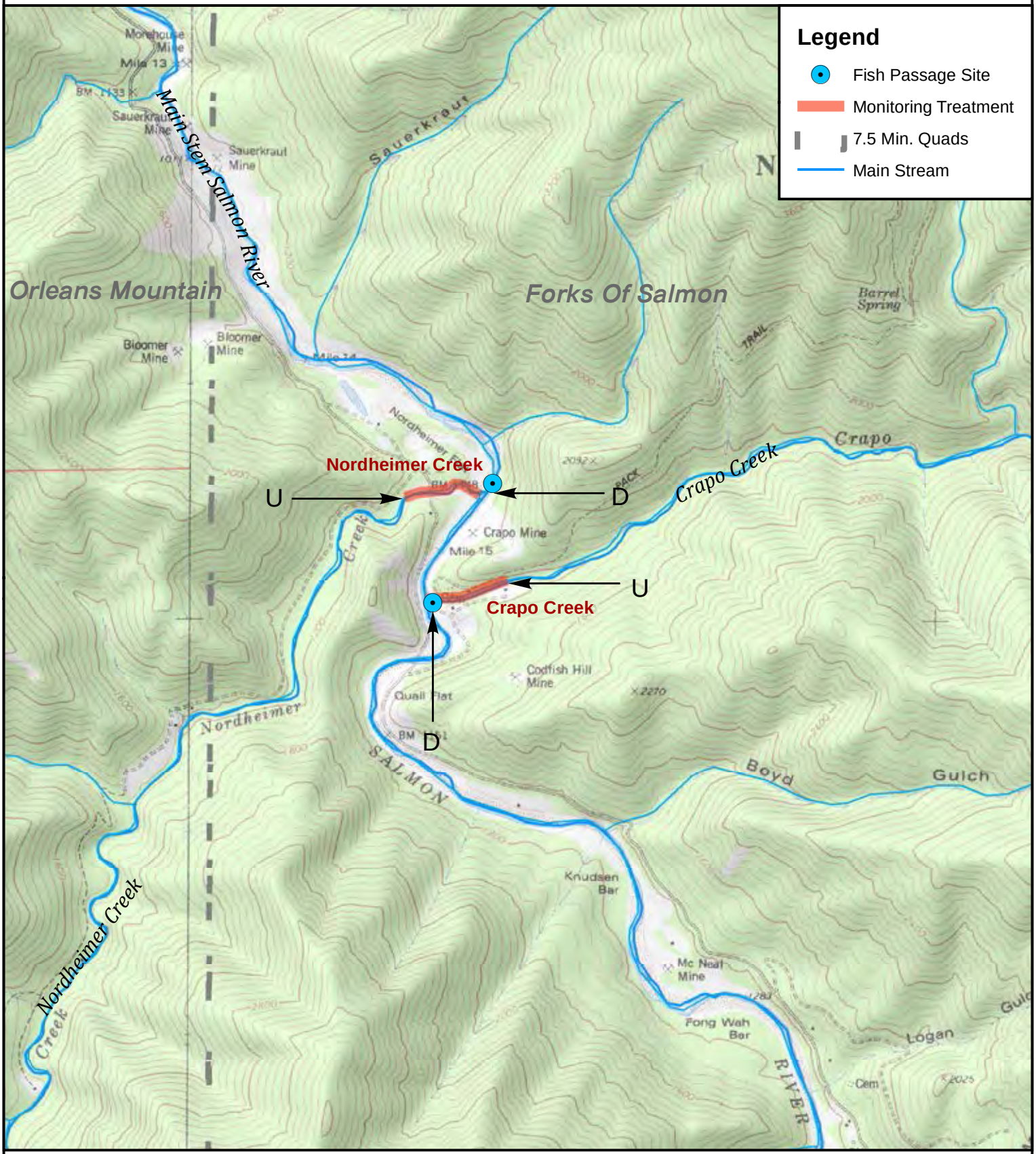
Quad name: Orleans Mountain

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 8 of 37



Applicant: Salmon River Restoration Council

Stream name: Nordheimer Creek, Crapo Creek

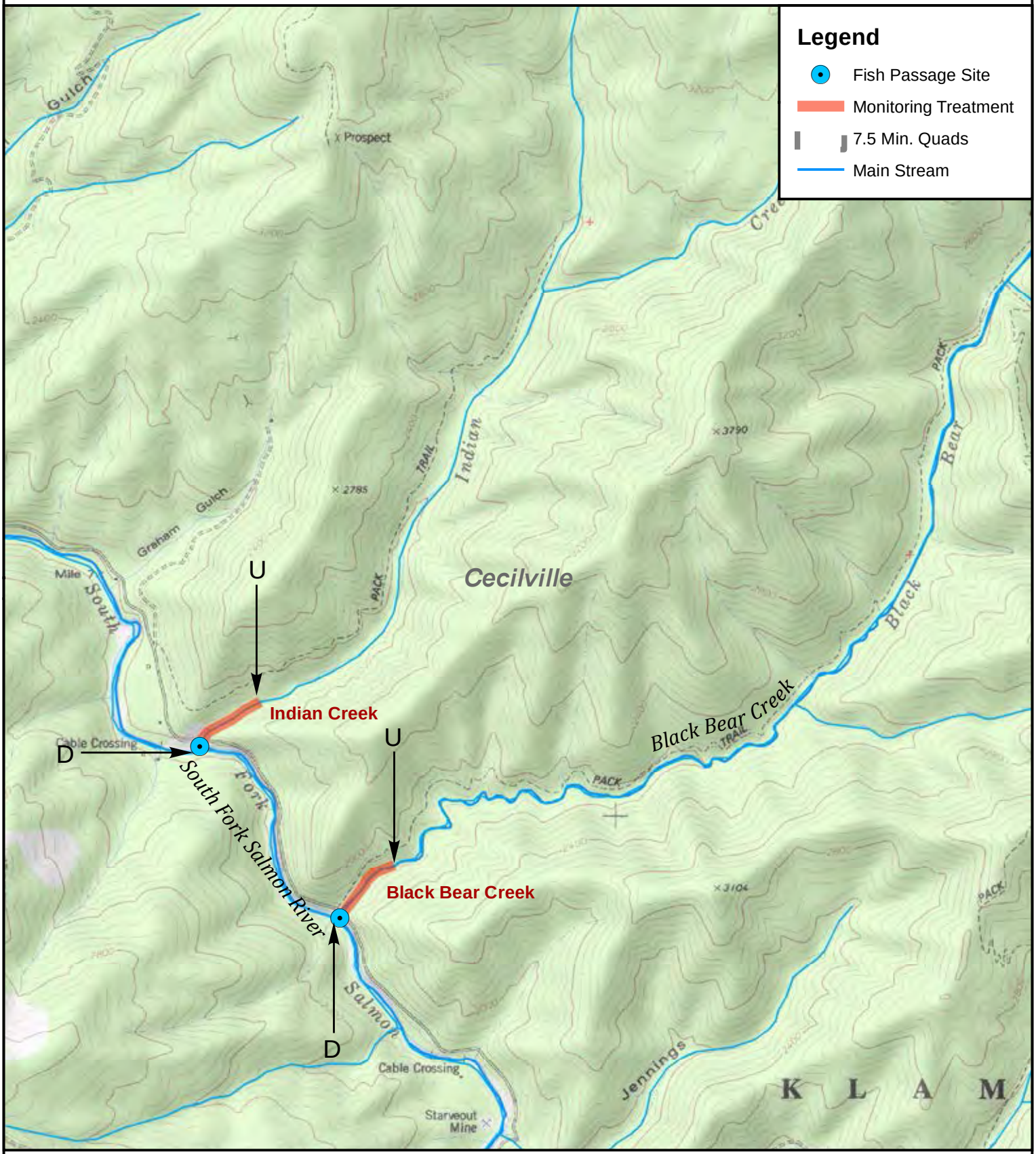
Quad name: Forks of Salmon

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 9 of 37



Applicant: Salmon River Restoration Council

Stream name: Indian Creek, Black Bear Creek

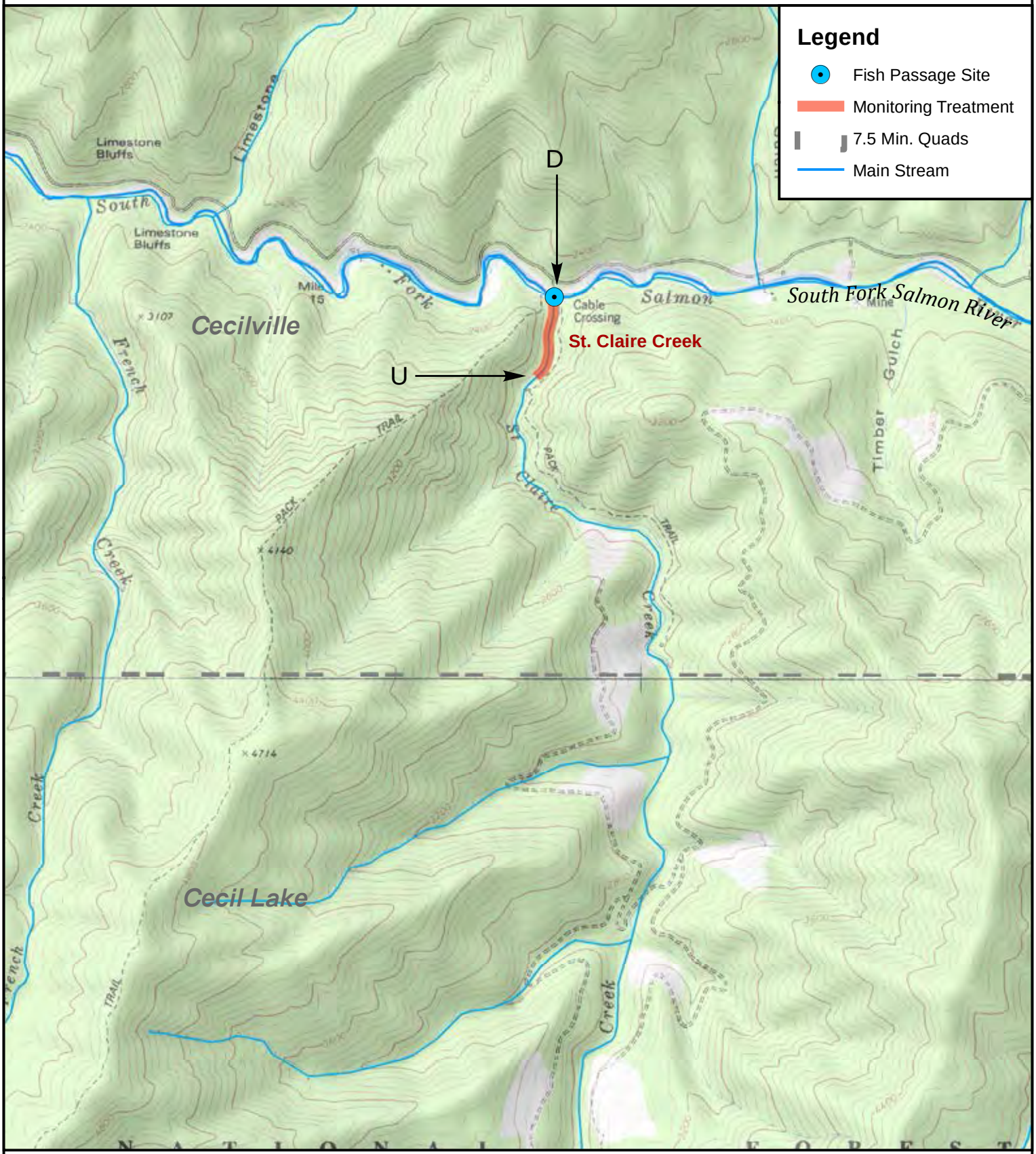
Quad name: Cecilville

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 10 of 37



Applicant: Salmon River Restoration Council

Stream name: St. Claire Creek

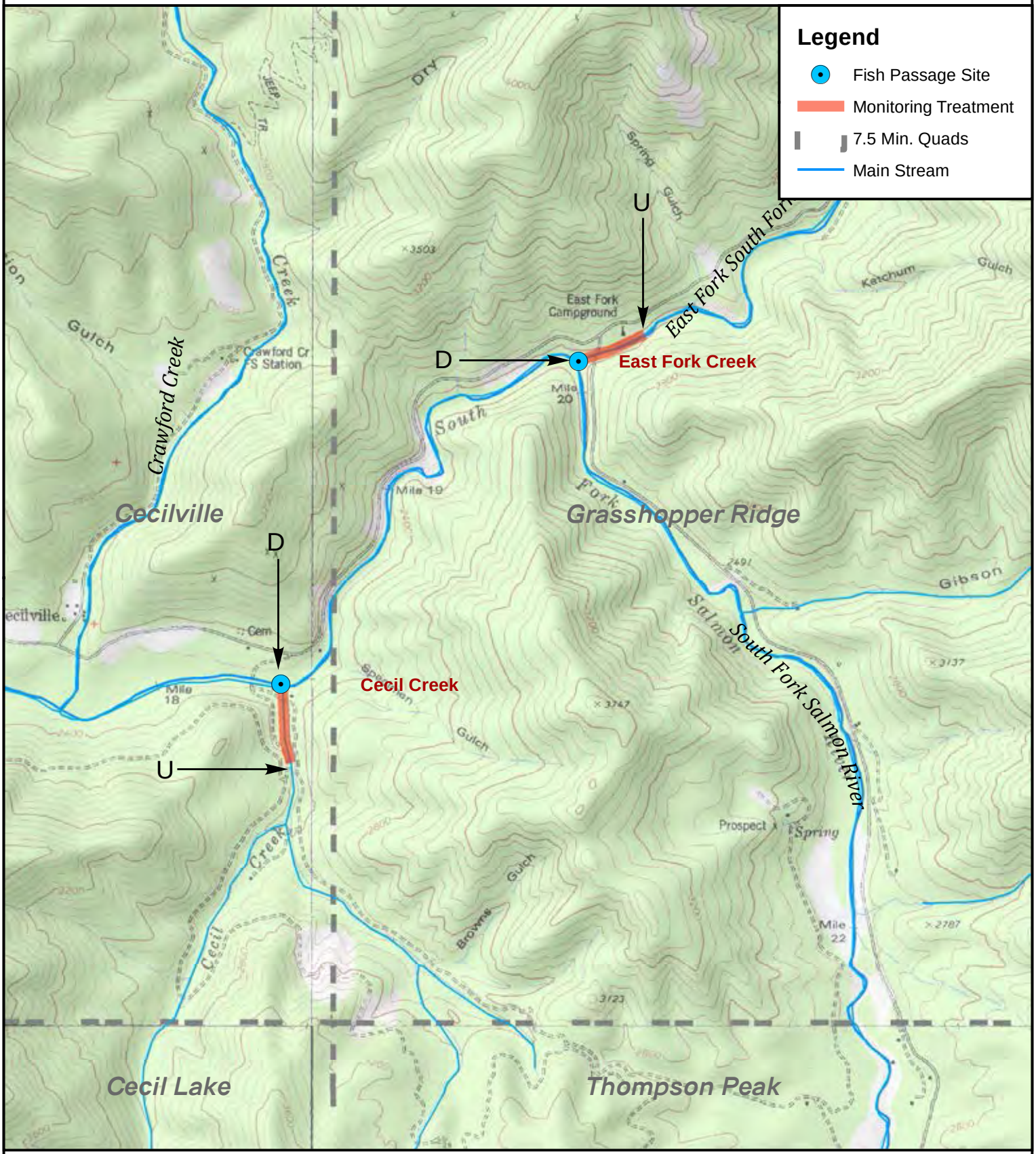
Quad name: Cecilville

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 11 of 37



Applicant: Salmon River Restoration Council
Stream name: Cecil Creek, East Fork Creek

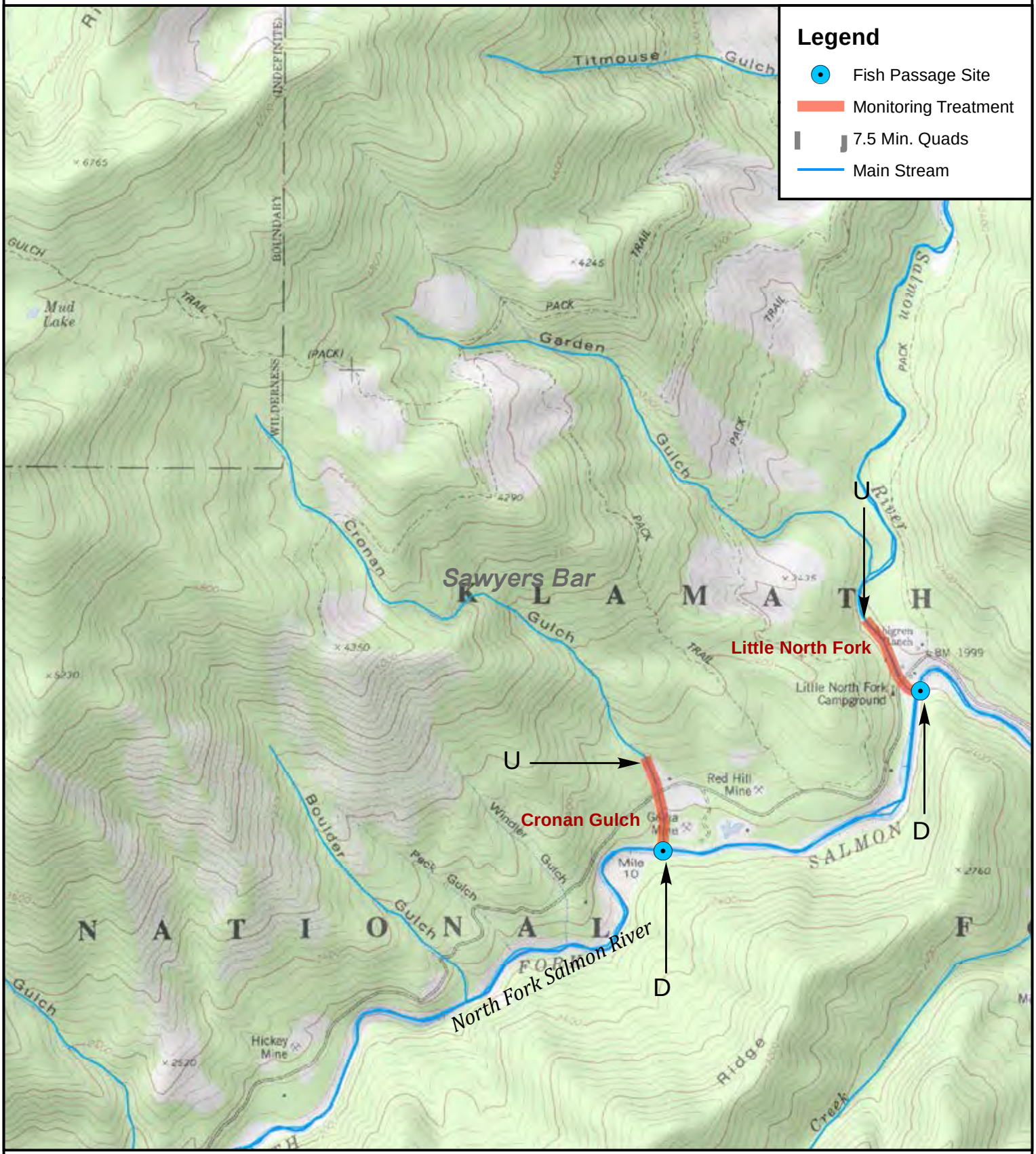
Quad name: Cecilville, Grasshopper Ridge

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 12 of 37



Applicant: Salmon River Restoration Council
Stream name: Cronan Gulch, Little North Fork

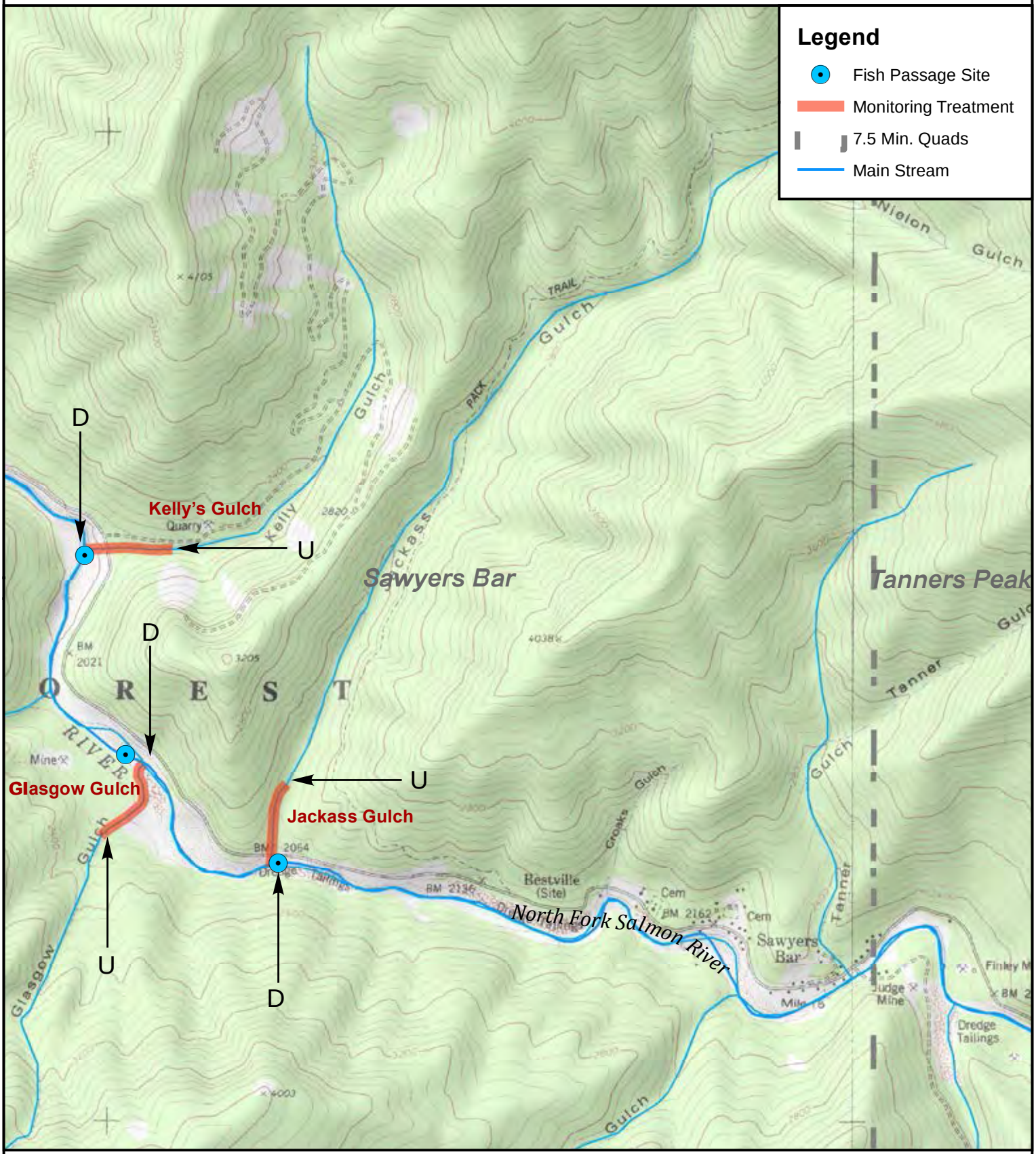
Quad name: Sawyers Bar

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 13 of 37



Applicant: Salmon River Restoration Council

Stream name: Kelly's Gulch, Glasgow Gulch, Jackass Gulch

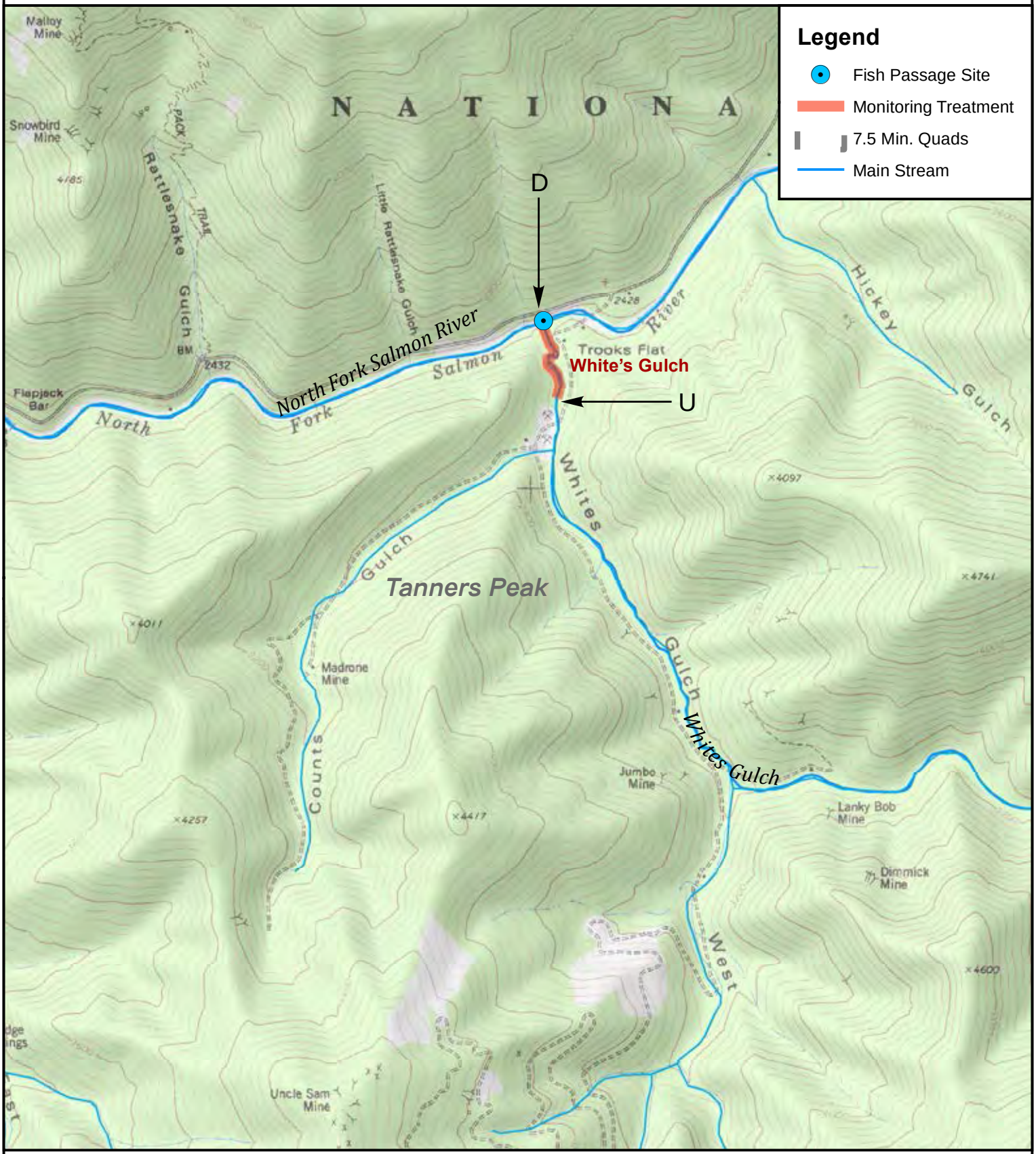
Quad name: Sawyers Bar

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 14 of 37

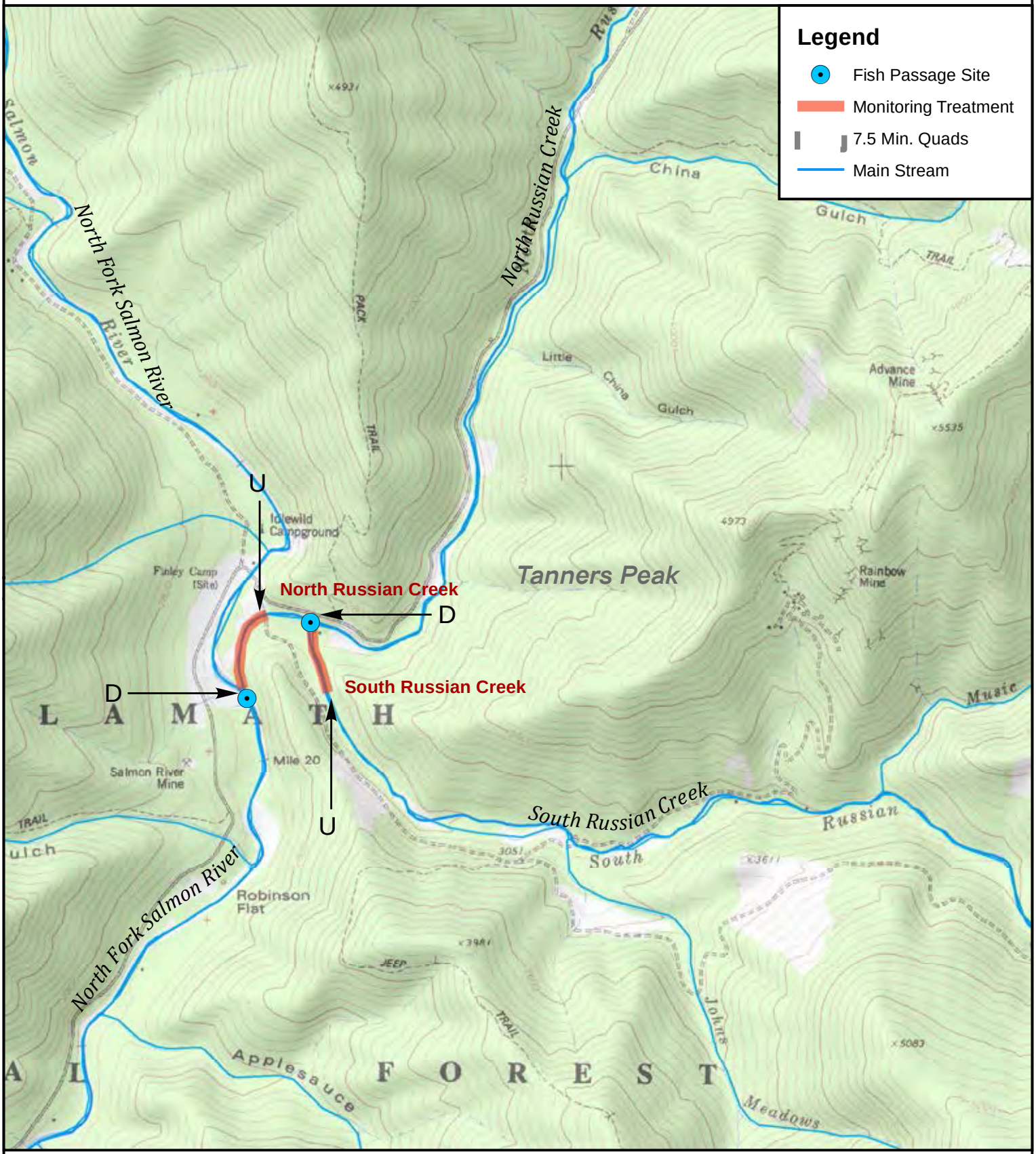


Applicant: Salmon River Restoration Council

Stream name: White's Gulch

Quad name: Tanners Peak

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 15 of 37



Applicant: Salmon River Restoration Council
Stream name: South Russian Cr., North Russian Cr.

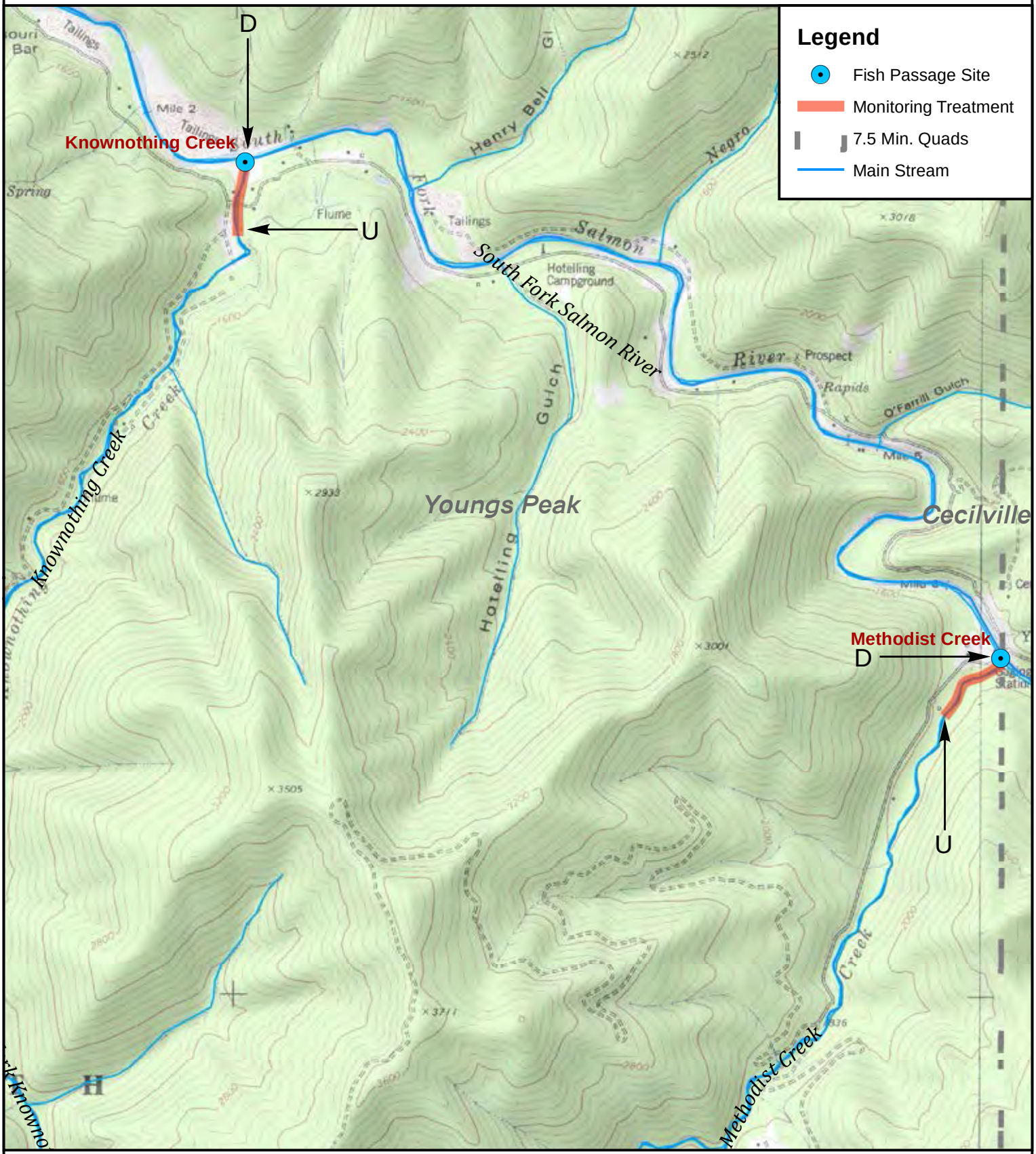
Quad name: Tanners Peak

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 16 of 37



Applicant: Salmon River Restoration Council

Stream name: Knownothing Creek, Methodist Creek

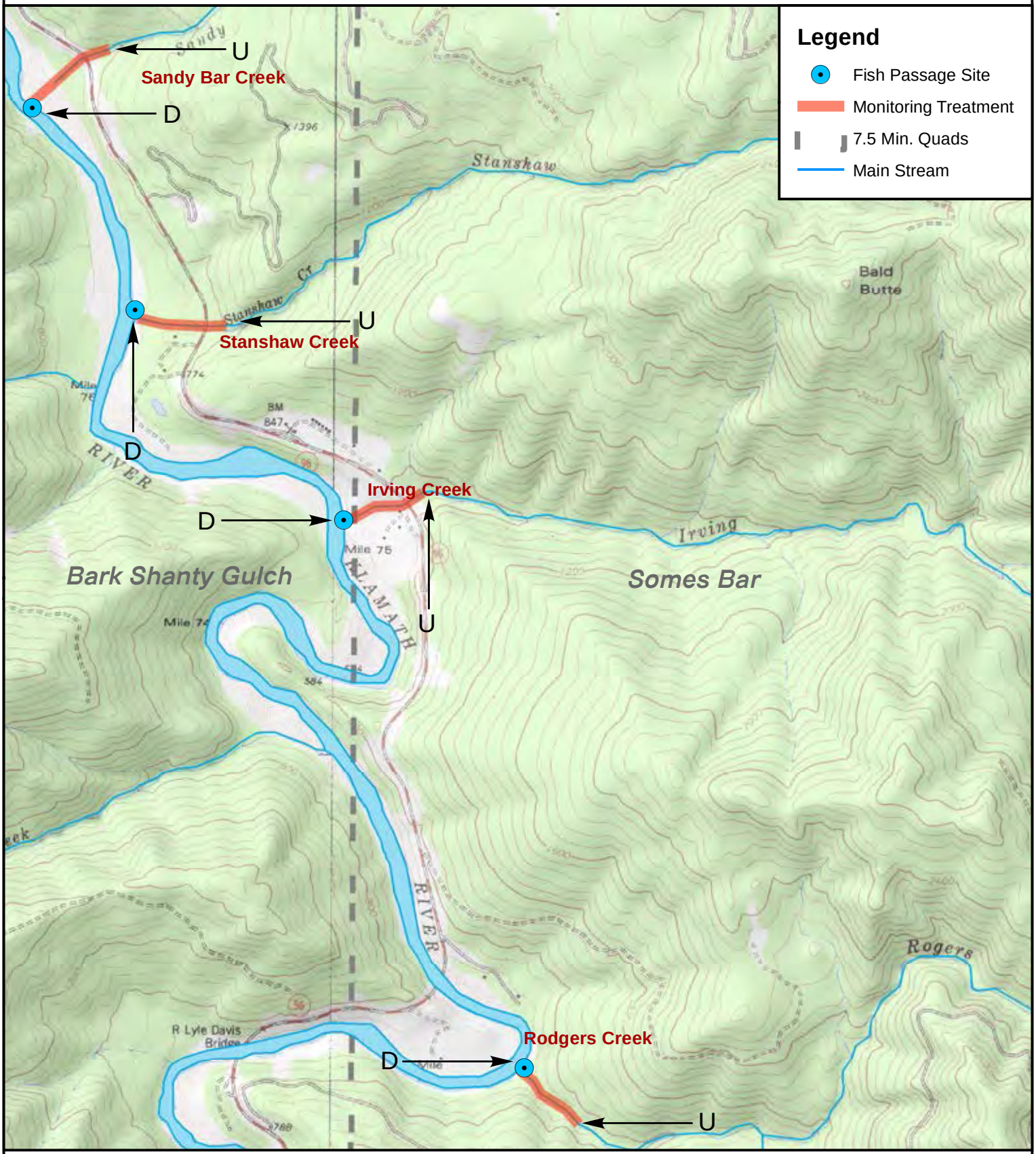
Quad name: Youngs Peak, Cecilville

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 17 of 37



Applicant: Salmon River Restoration Council

Stream name: Sandy Bar Cr., Stanshaw Cr., Irving Cr., Rogers Creek

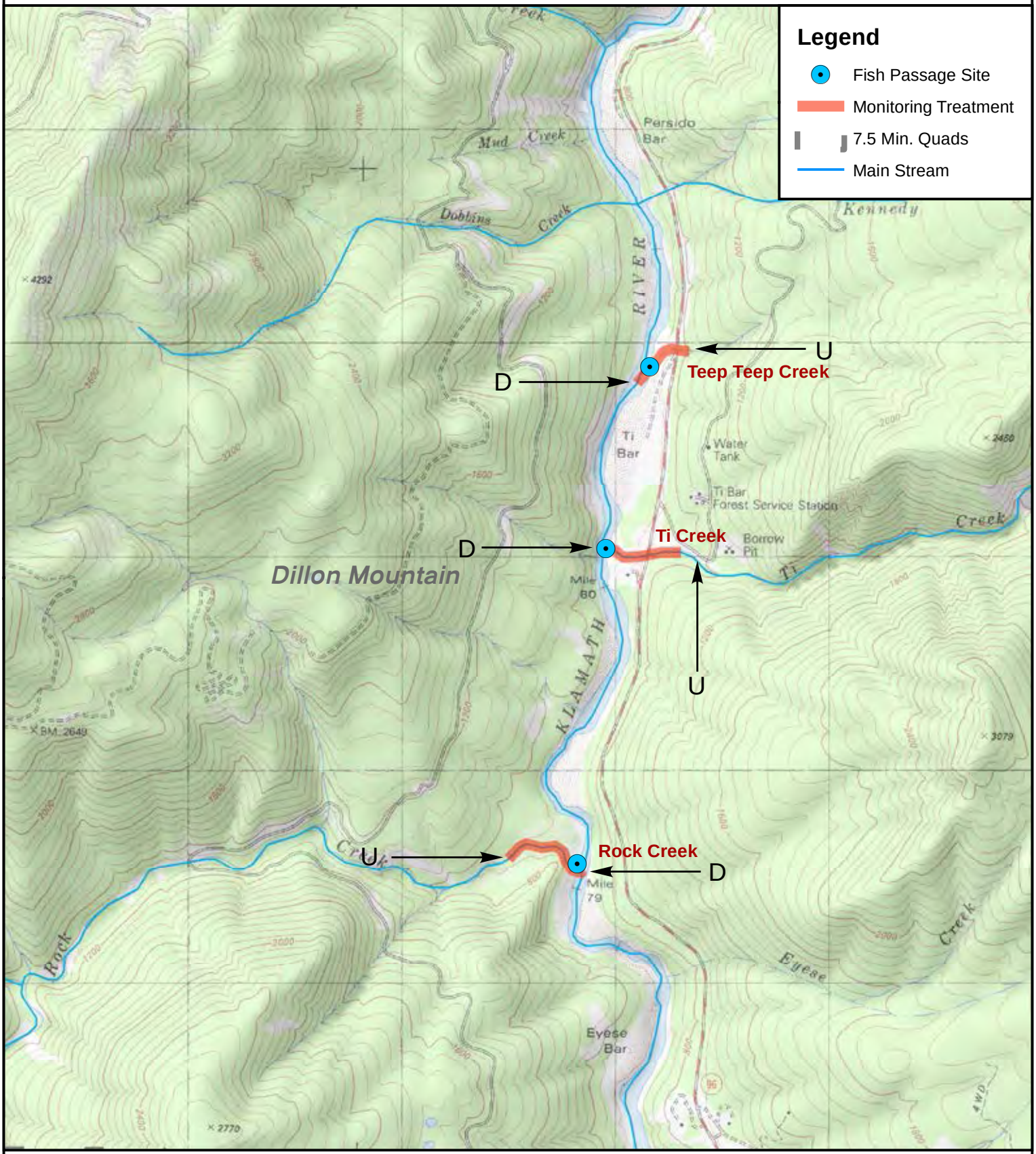
Quad name: Bark Shanty Gulch, Somes Bar

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 18 of 37



Applicant: Salmon River Restoration Council

Stream name: Teep Teep Creek, Ti Creek, Rock Creek

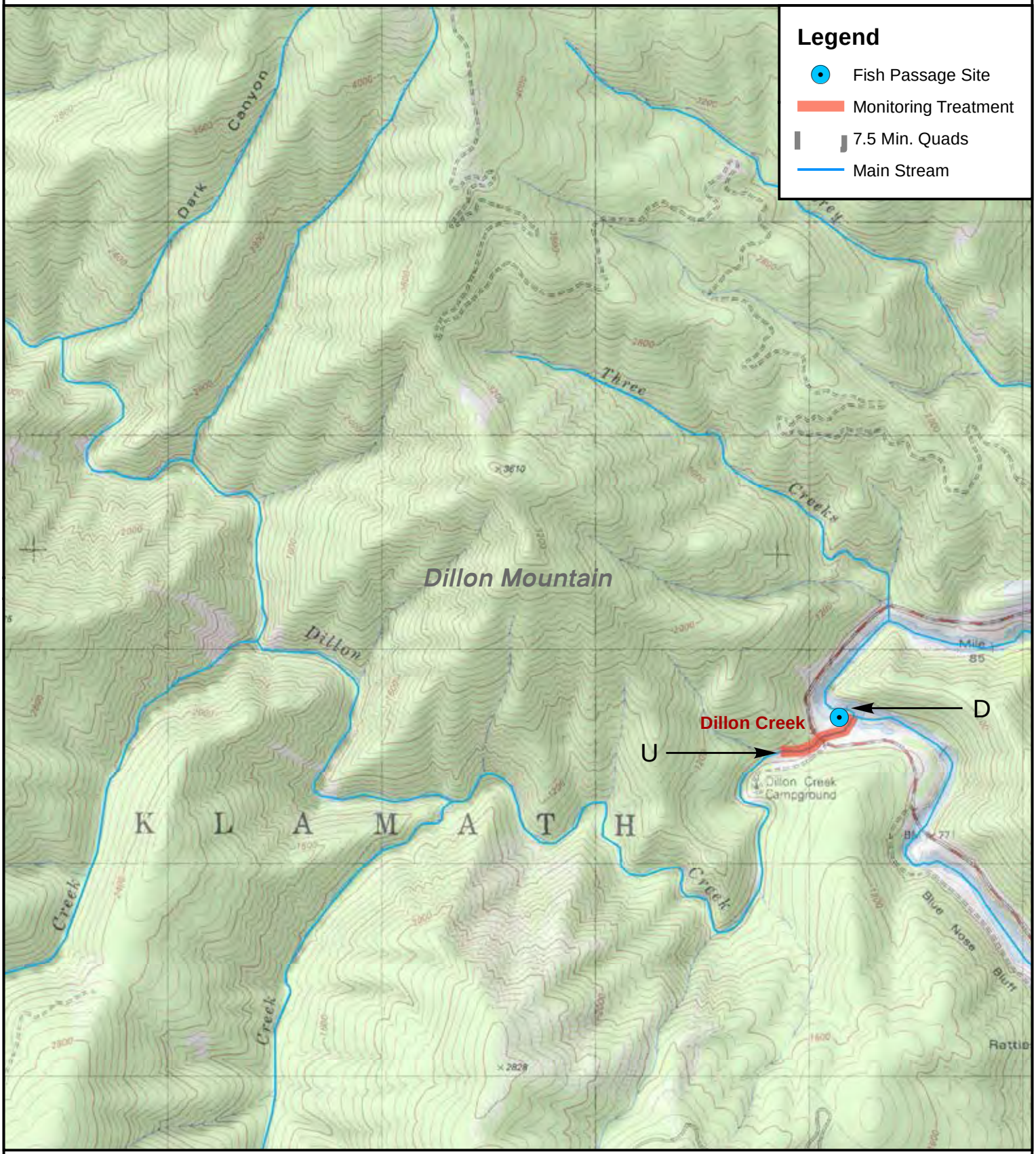
Quad name: Dillon Mountain

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 19 of 37

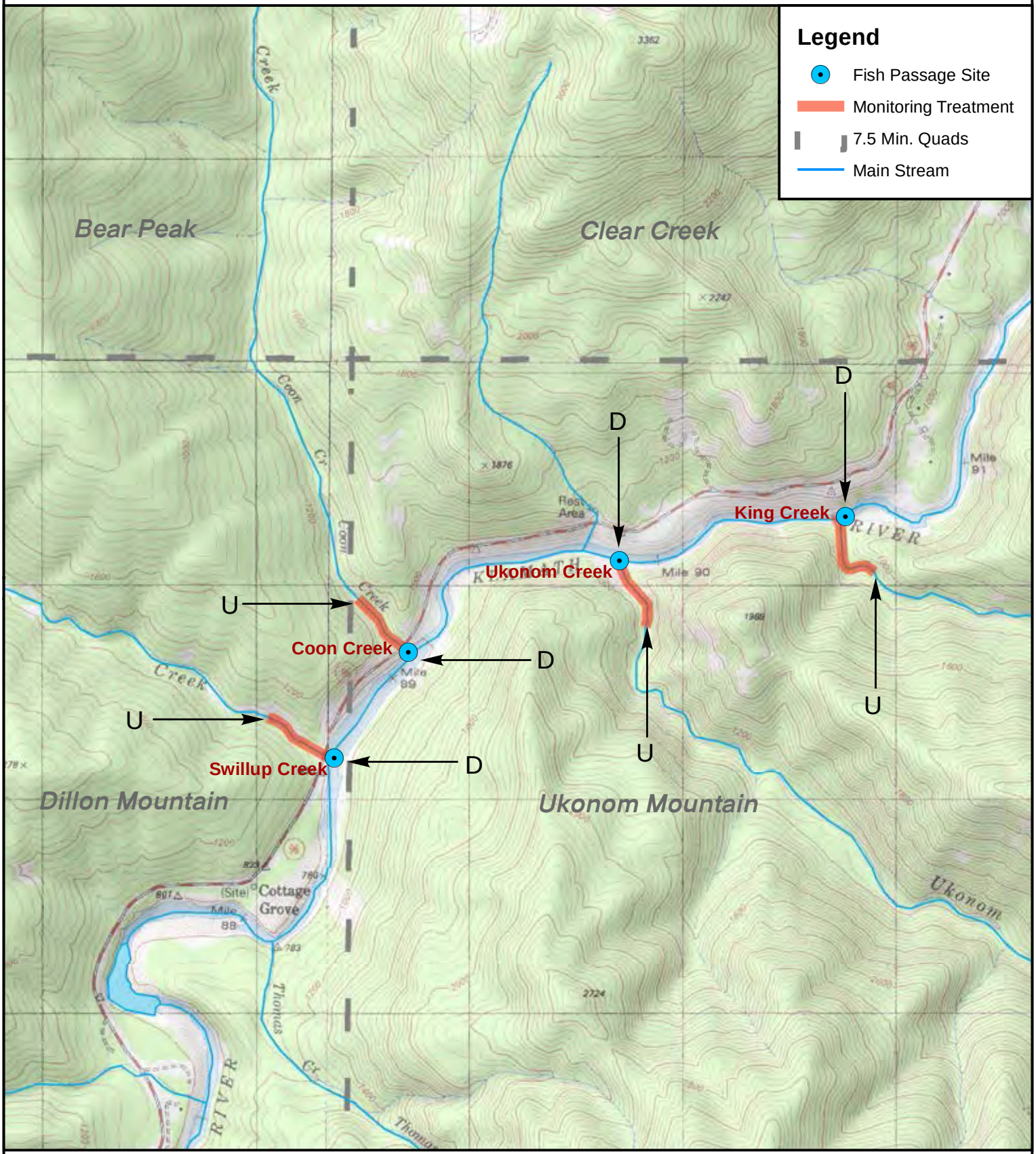


Applicant: Salmon River Restoration Council

Stream name: Dillon Creek

Quad name: Dillon Mountain

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 20 of 37



Applicant: Salmon River Restoration Council

Stream name: King Cr., Ukonom Cr., Coon Cr., Swillup Cr.

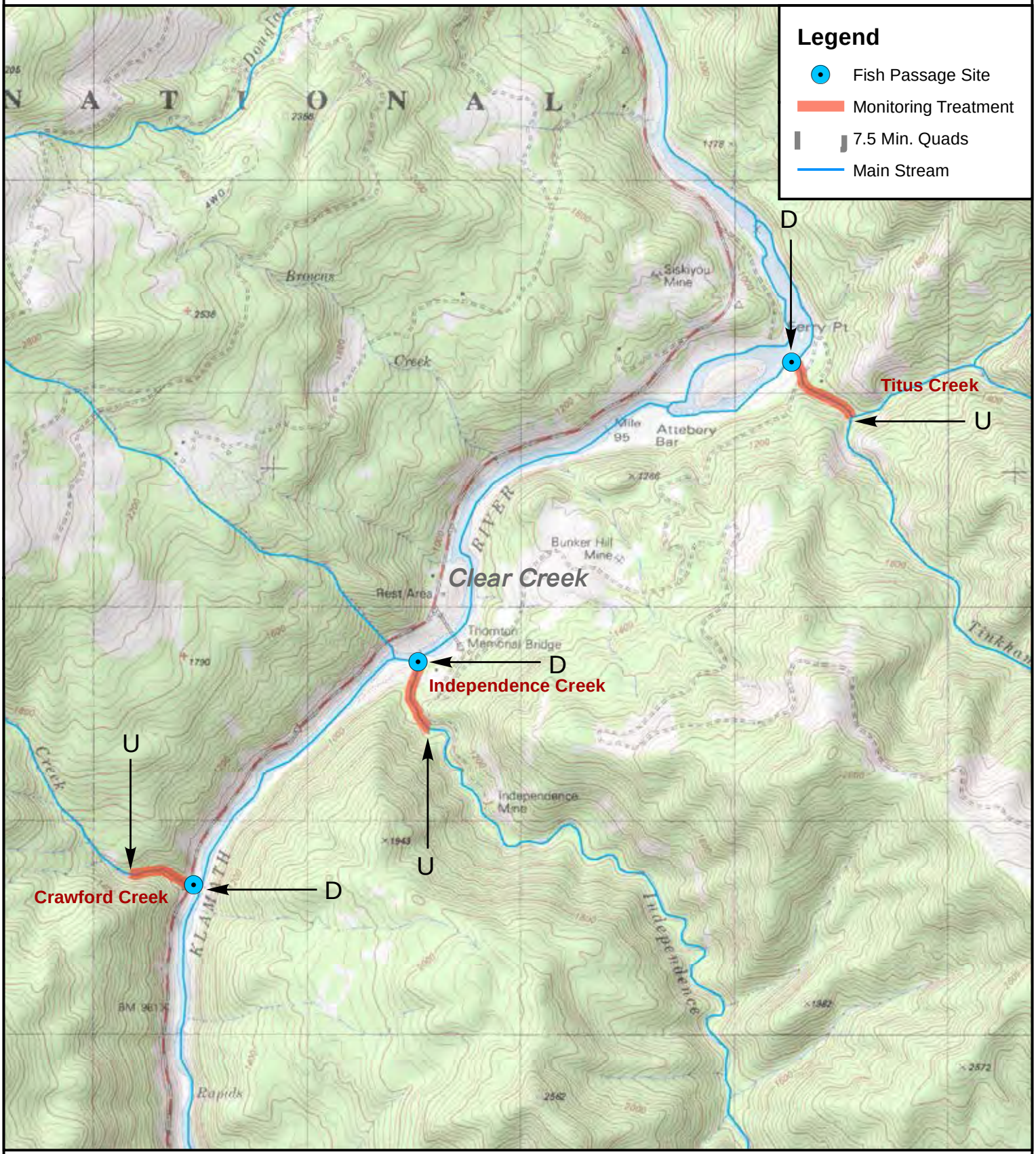
Quad name: Dillon Mountain, Ukonom Mountain

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 21 of 37



Applicant: Salmon River Restoration Council

Stream name: Titus Cr., Independence Cr., Crawford Cr.

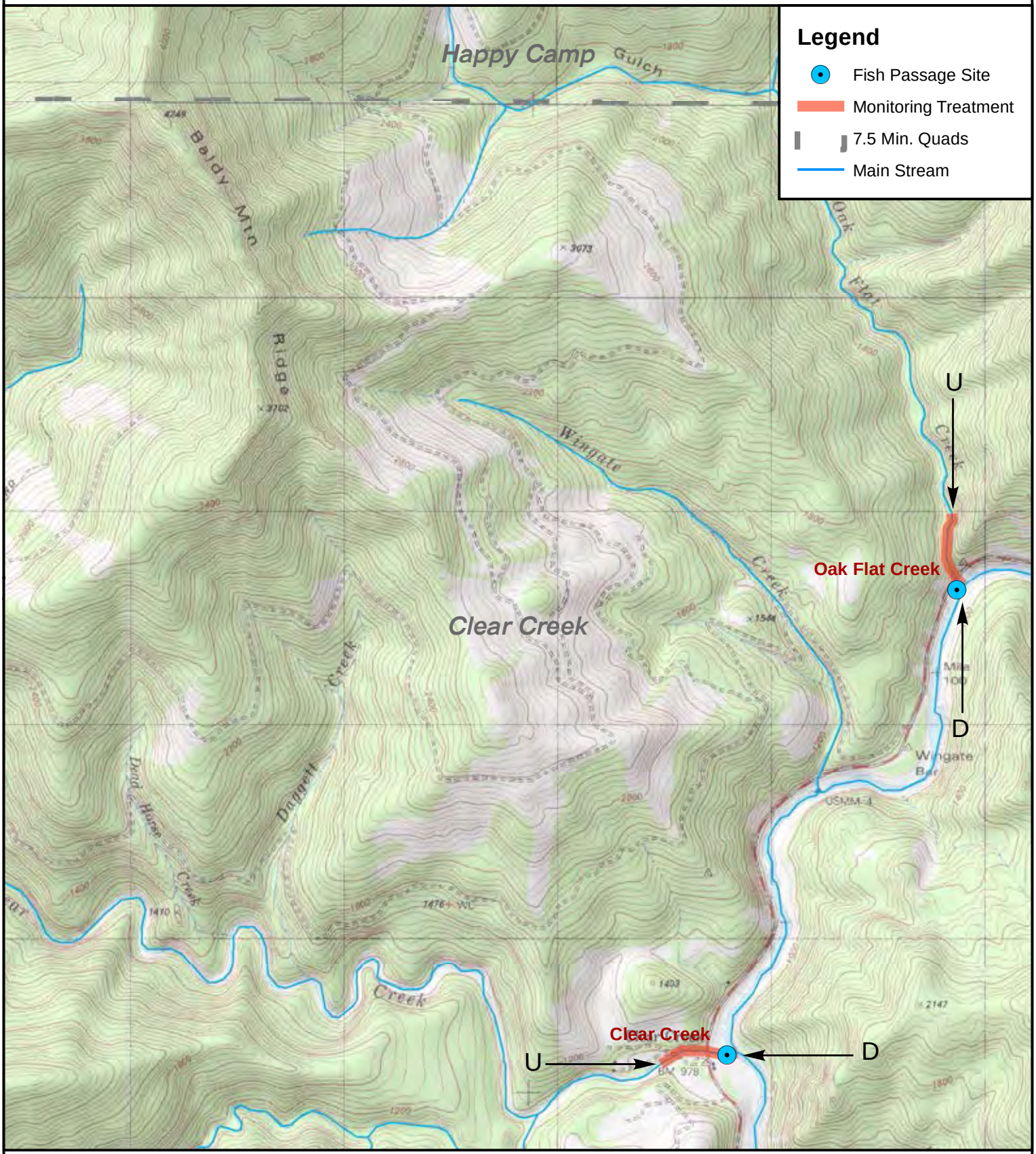
Quad name: Clear Creek

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 22 of 37



Applicant: Salmon River Restoration Council

Stream name: Oak Flat Creek, Clear Creek

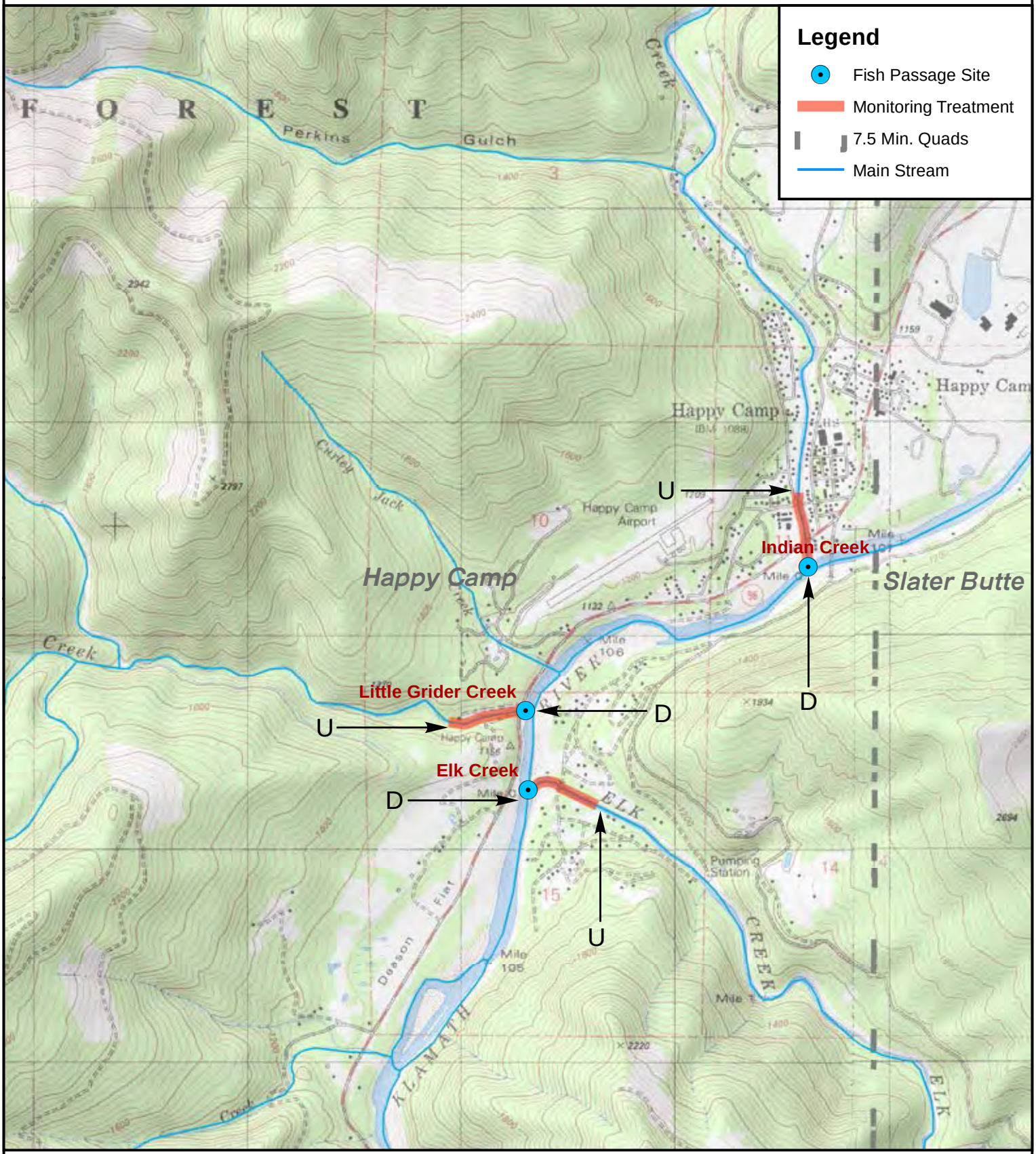
Quad name: Clear Creek

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 23 of 37



Applicant: Salmon River Restoration Council

Stream name: Indian Creek, Little Grider Cr., Elk Creek

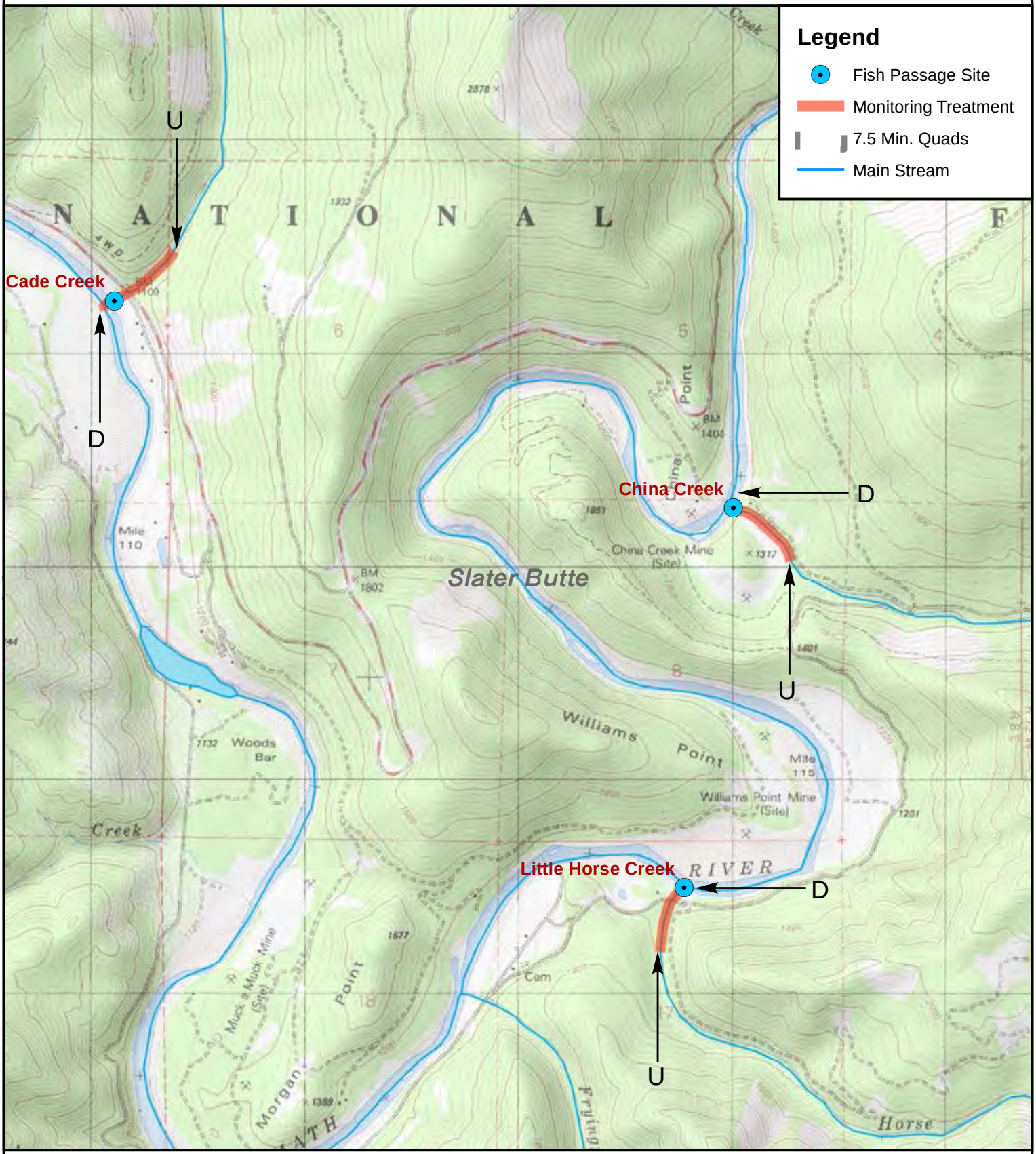
Quad name: Happy Camp

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 24 of 37



Applicant: Salmon River Restoration Council

Stream name: Cade Creek, China Creek, Little Horse Creek

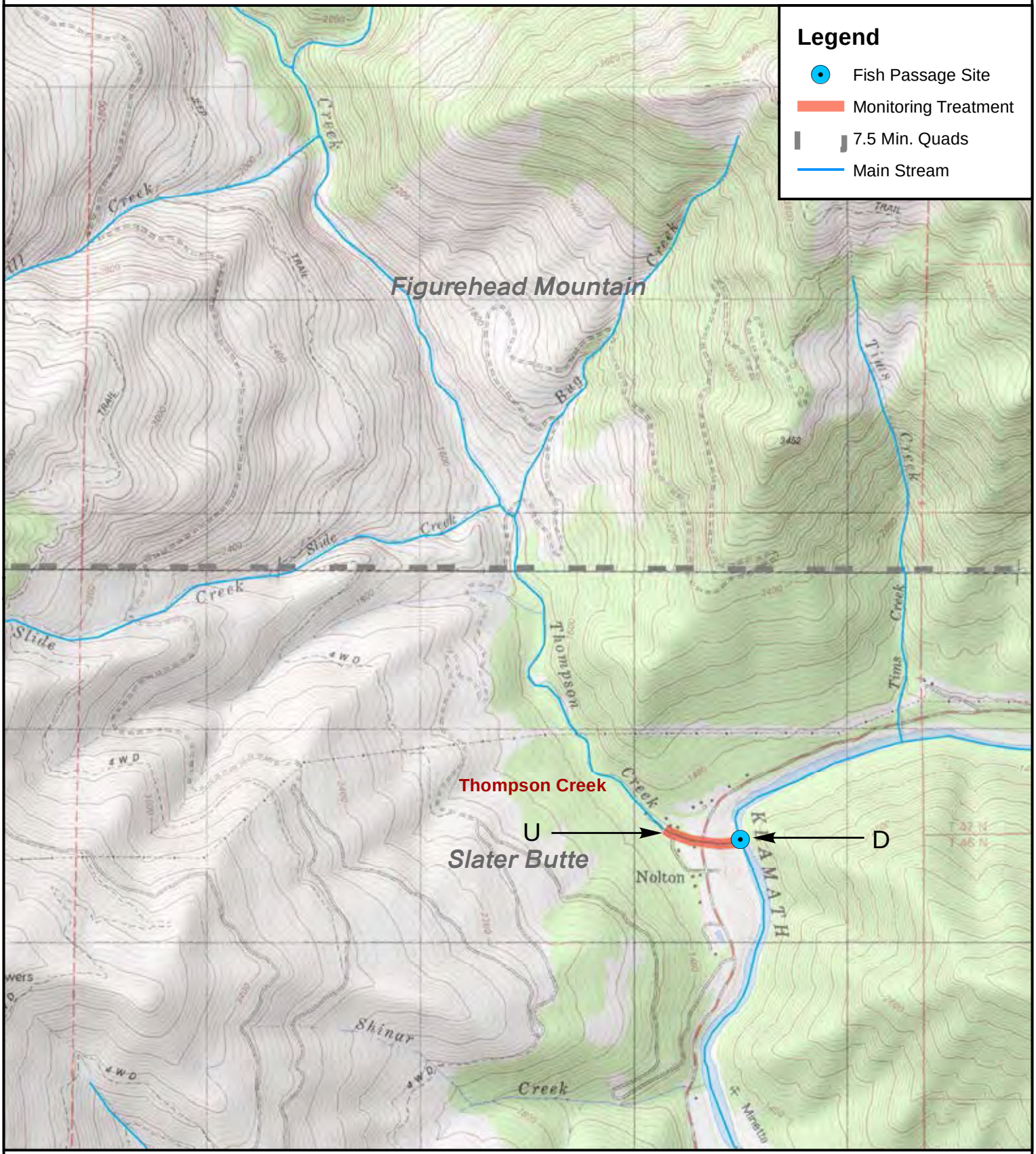
Quad name: Slater Butte

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 25 of 37



Applicant: Salmon River Restoration Council

Stream name: Thompson Creek

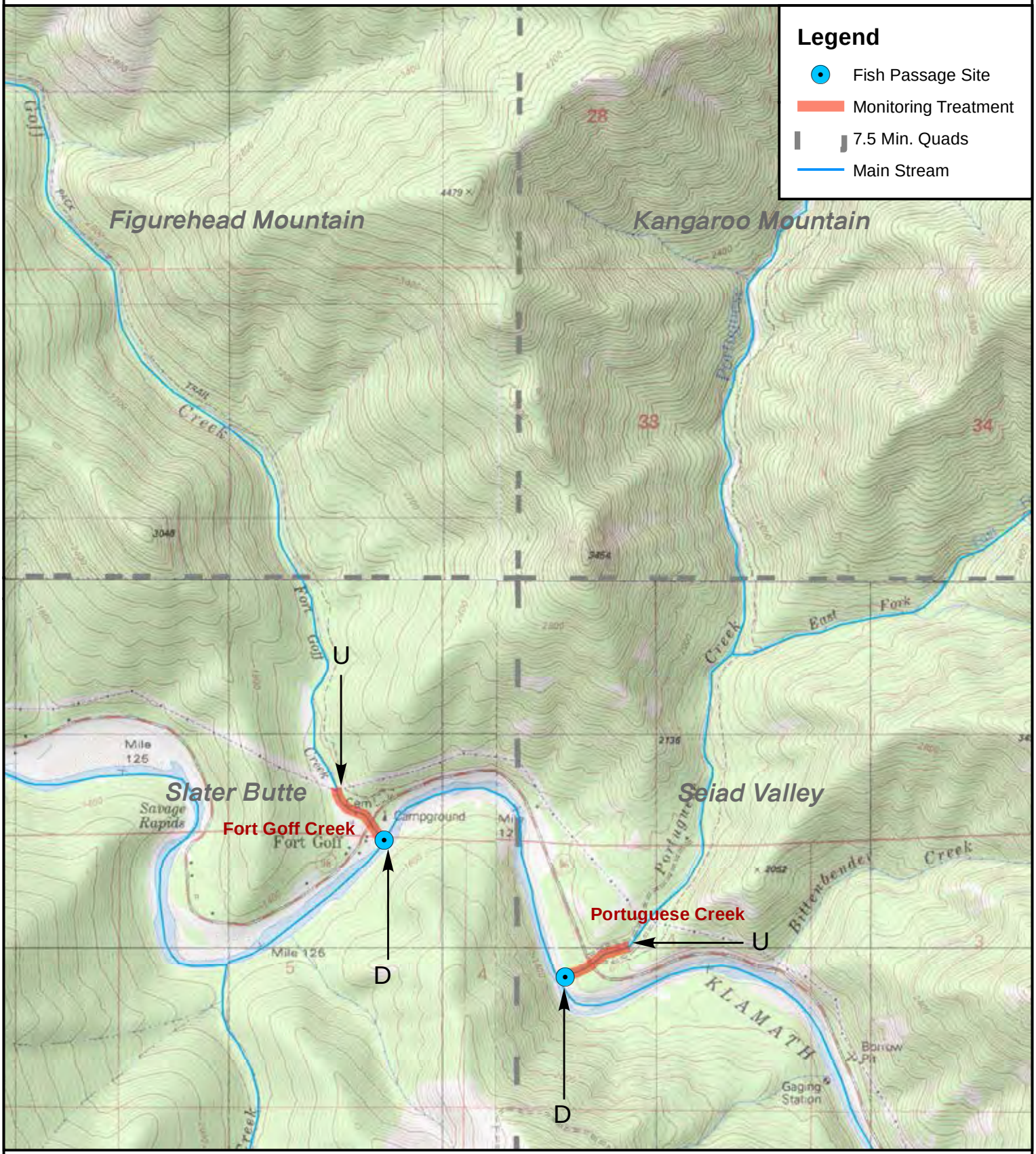
Quad name: Slater Butte

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 26 of 37



Applicant: Salmon River Restoration Council

Stream name: Fort Goff Creek, Portuguese Creek

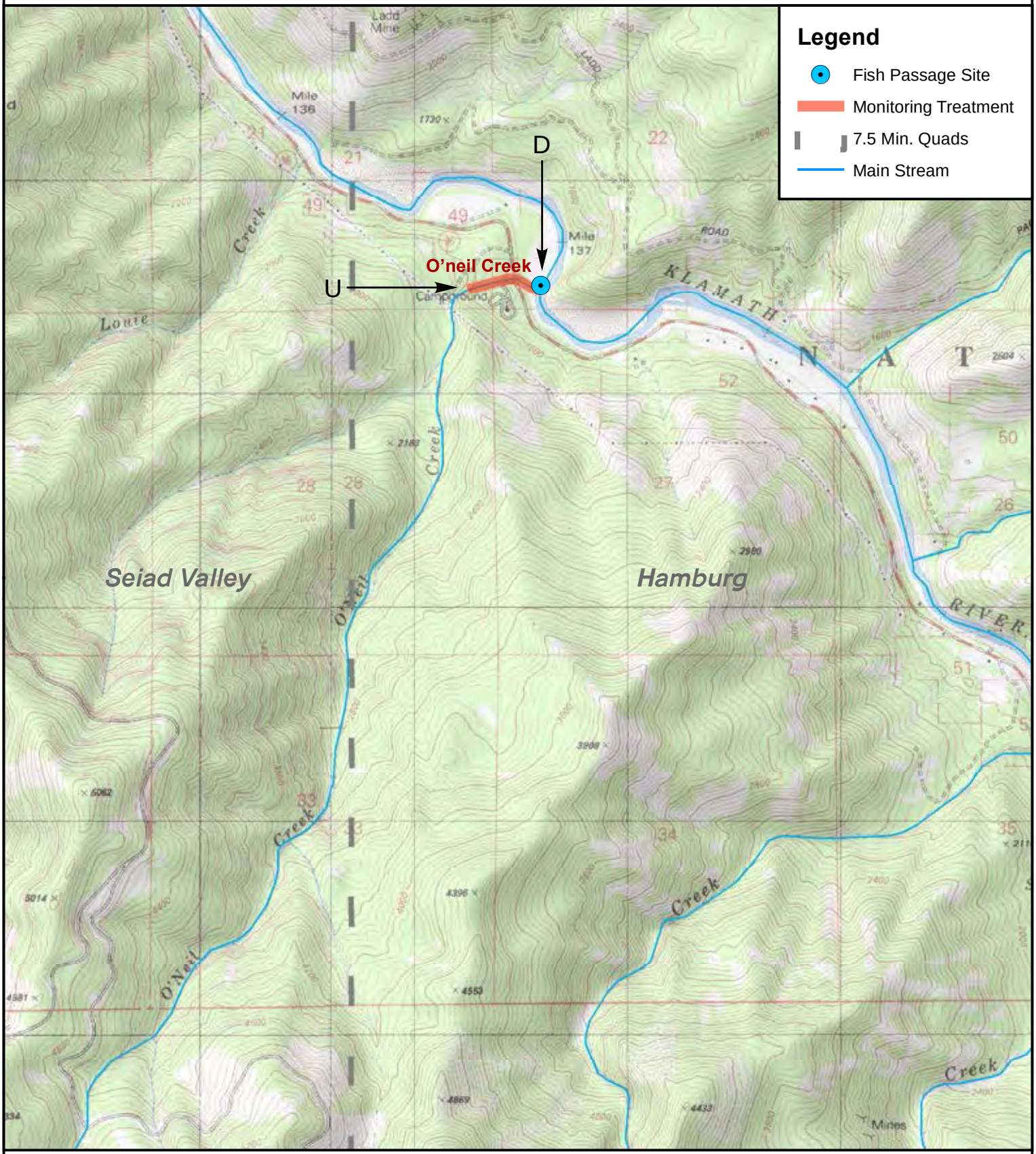
Quad name: Slater Butte, Seiad Valley

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 27 of 37



Applicant: Salmon River Restoration Council

Stream name: O'neil Creek

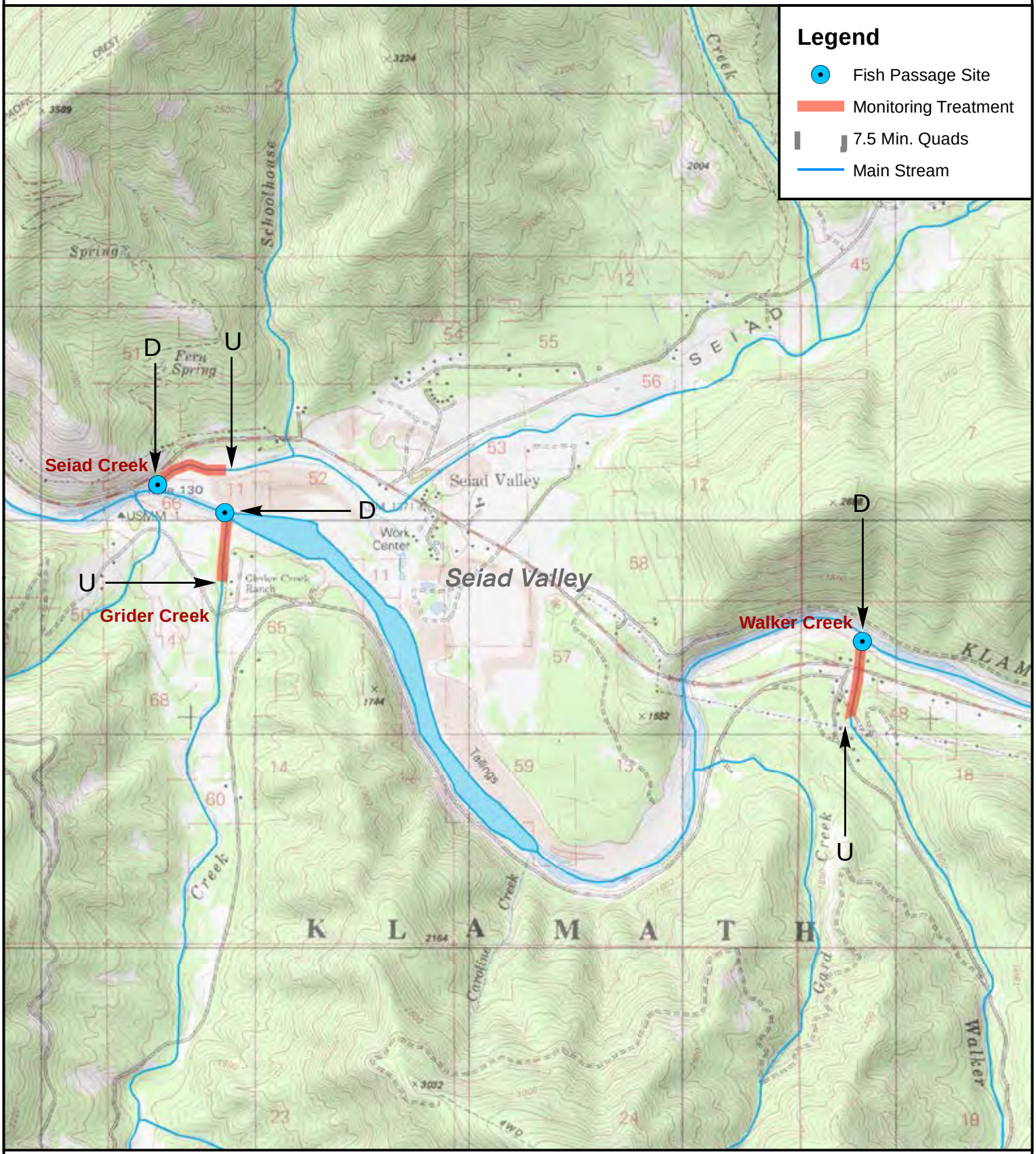
Quad name: Hamburg

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 28 of 37



Applicant: Salmon River Restoration Council

Stream name: Seiad Creek, Grider Creek, Walker Creek

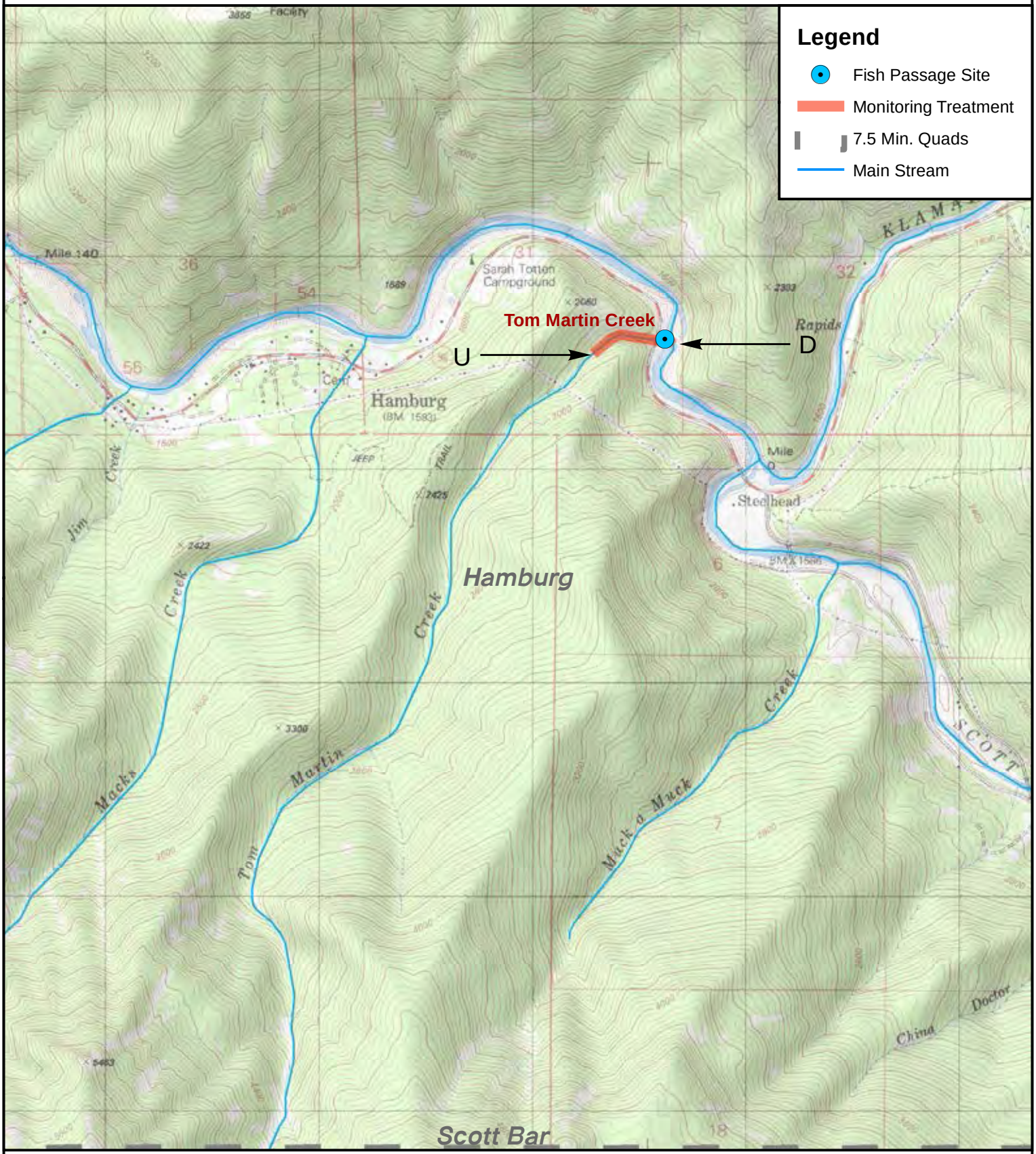
Quad name: Seiad Valley

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 29 of 37



Applicant: Salmon River Restoration Council

Stream name: Tom Martin Creek

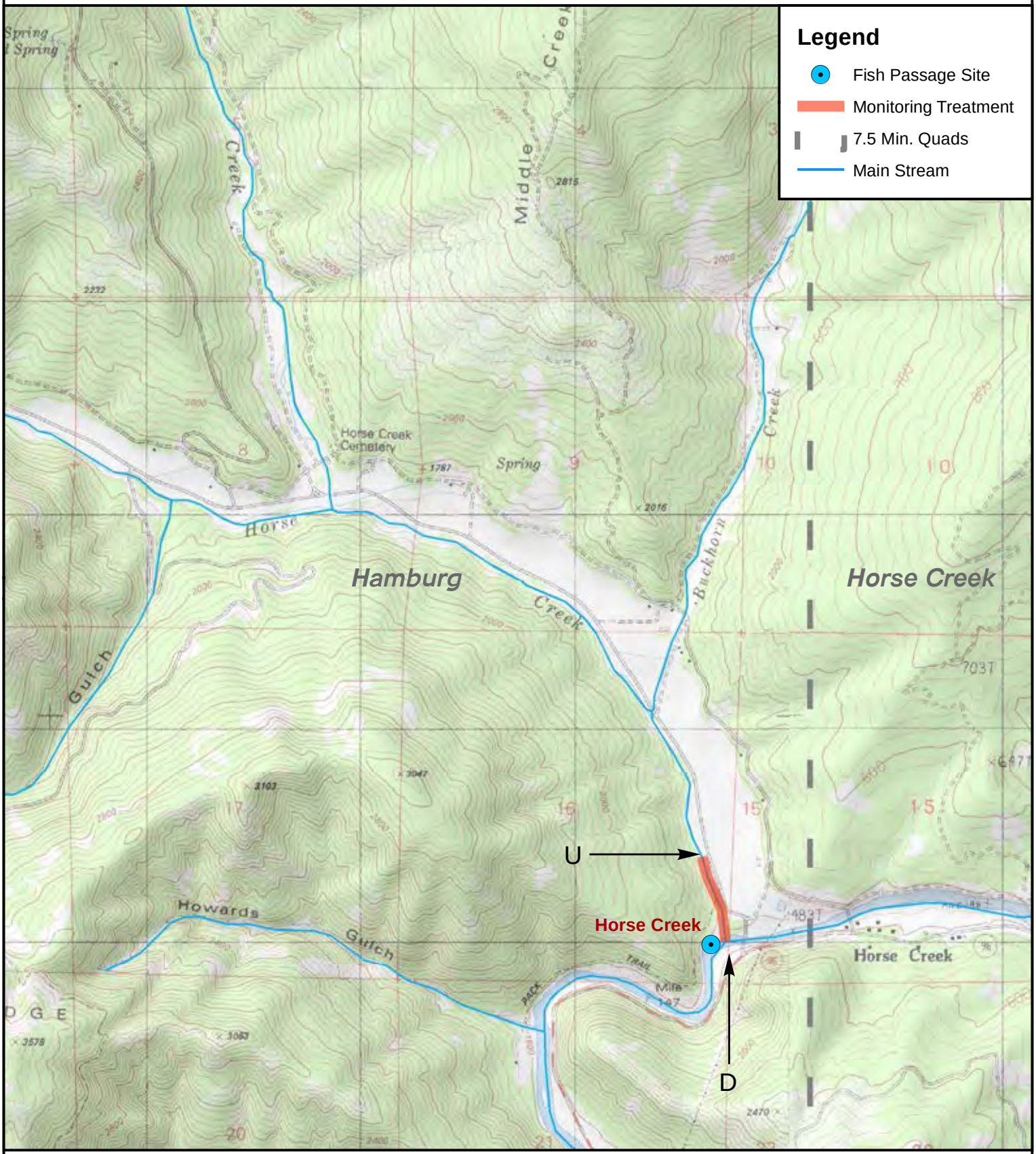
Quad name: Hamburg

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 30 of 37



Applicant: Salmon River Restoration Council

Stream name: Horse Creek

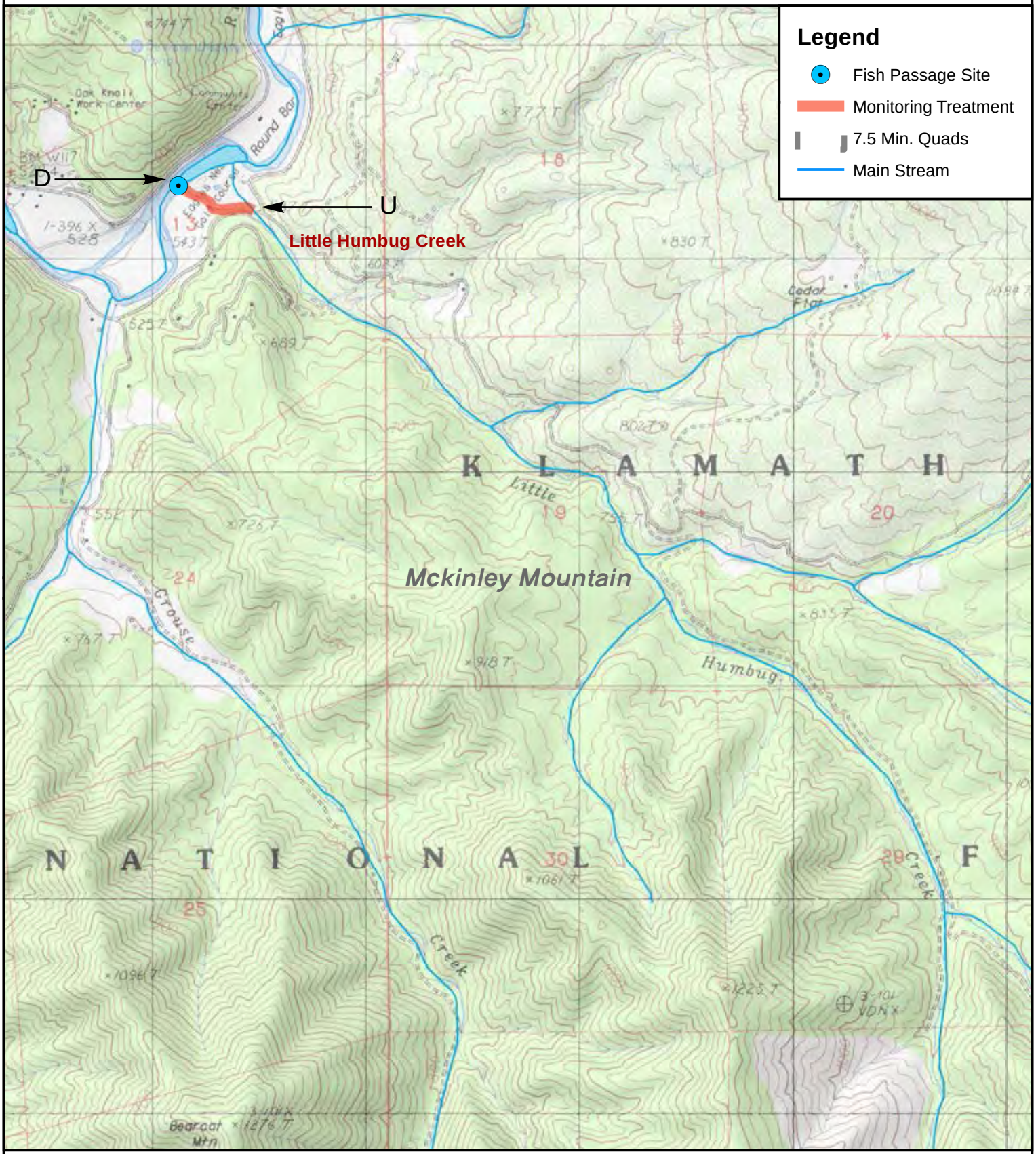
Quad name: Hamburg

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 31 of 37



Applicant: Salmon River Restoration Council

Stream name: Little Humbug Creek

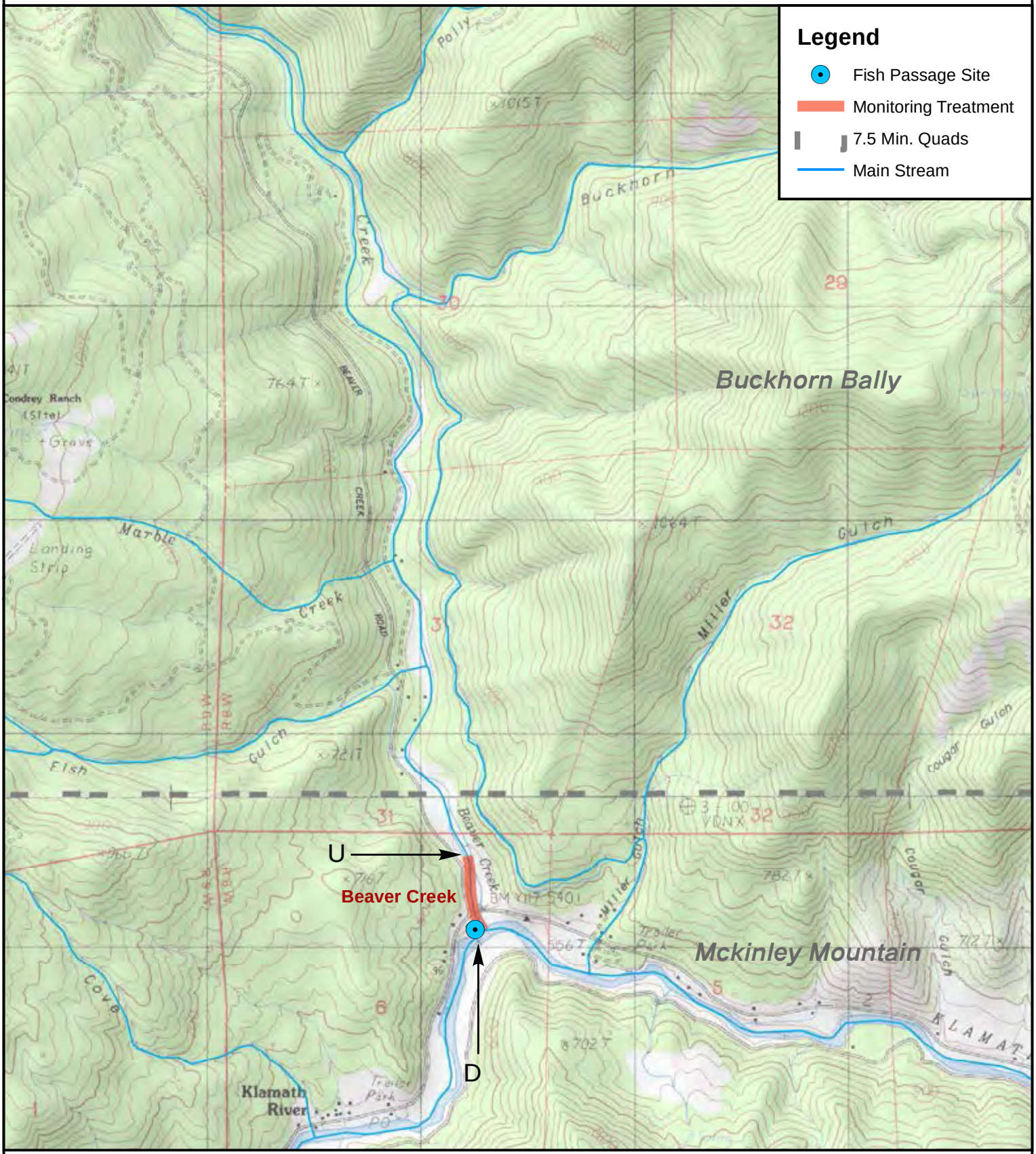
Quad name: Mckinley Mountain

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 32 of 37



Applicant: Salmon River Restoration Council

Stream name: Beaver Creek

Quad name: McKinley Mountain

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 33 of 37

Applicant: Salmon River Restoration Council

Stream name: Bogus Creek

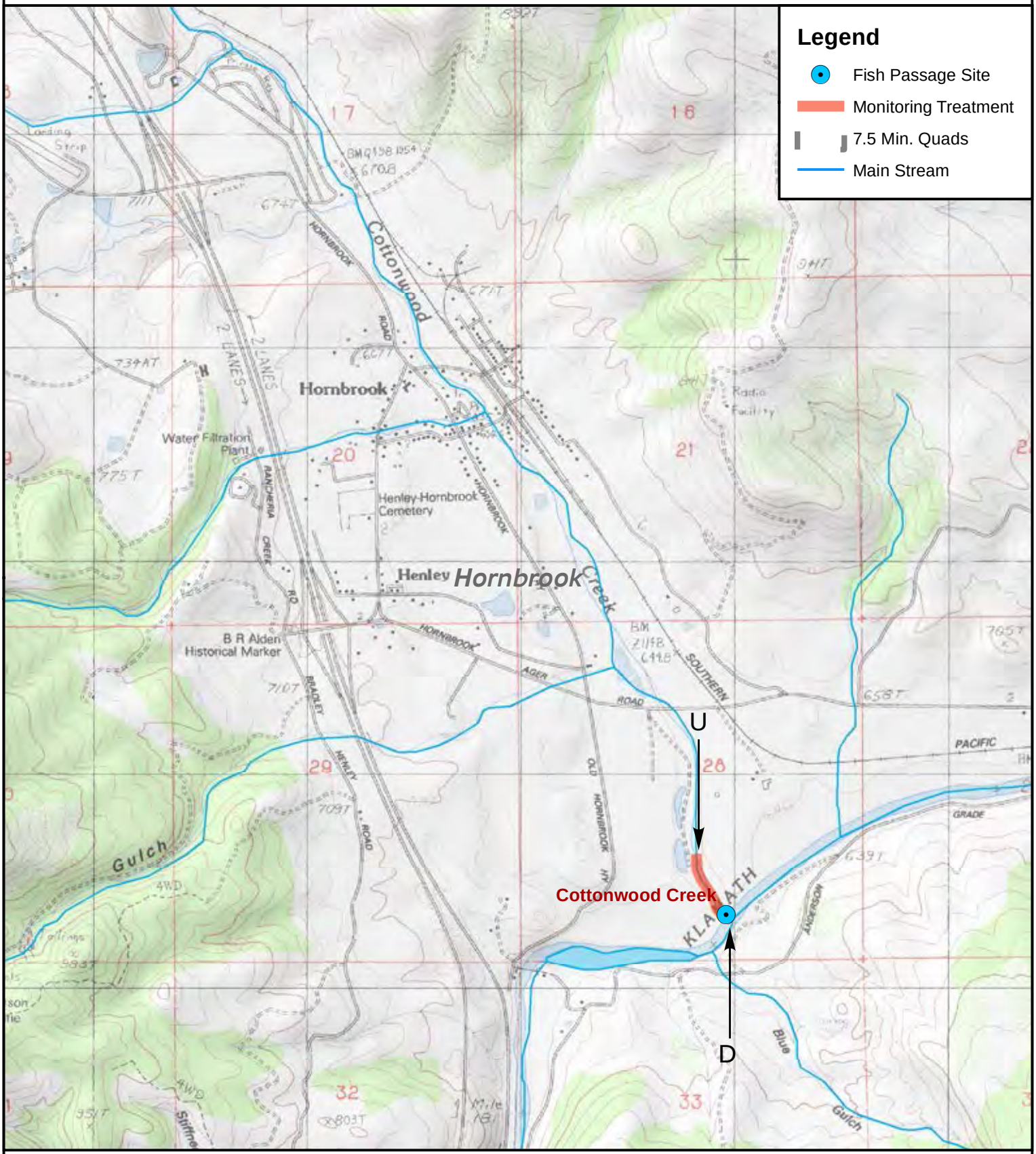
Quad name: Iron Gate Res

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 34 of 37



Applicant: Salmon River Restoration Council

Stream name: Cottonwood Creek

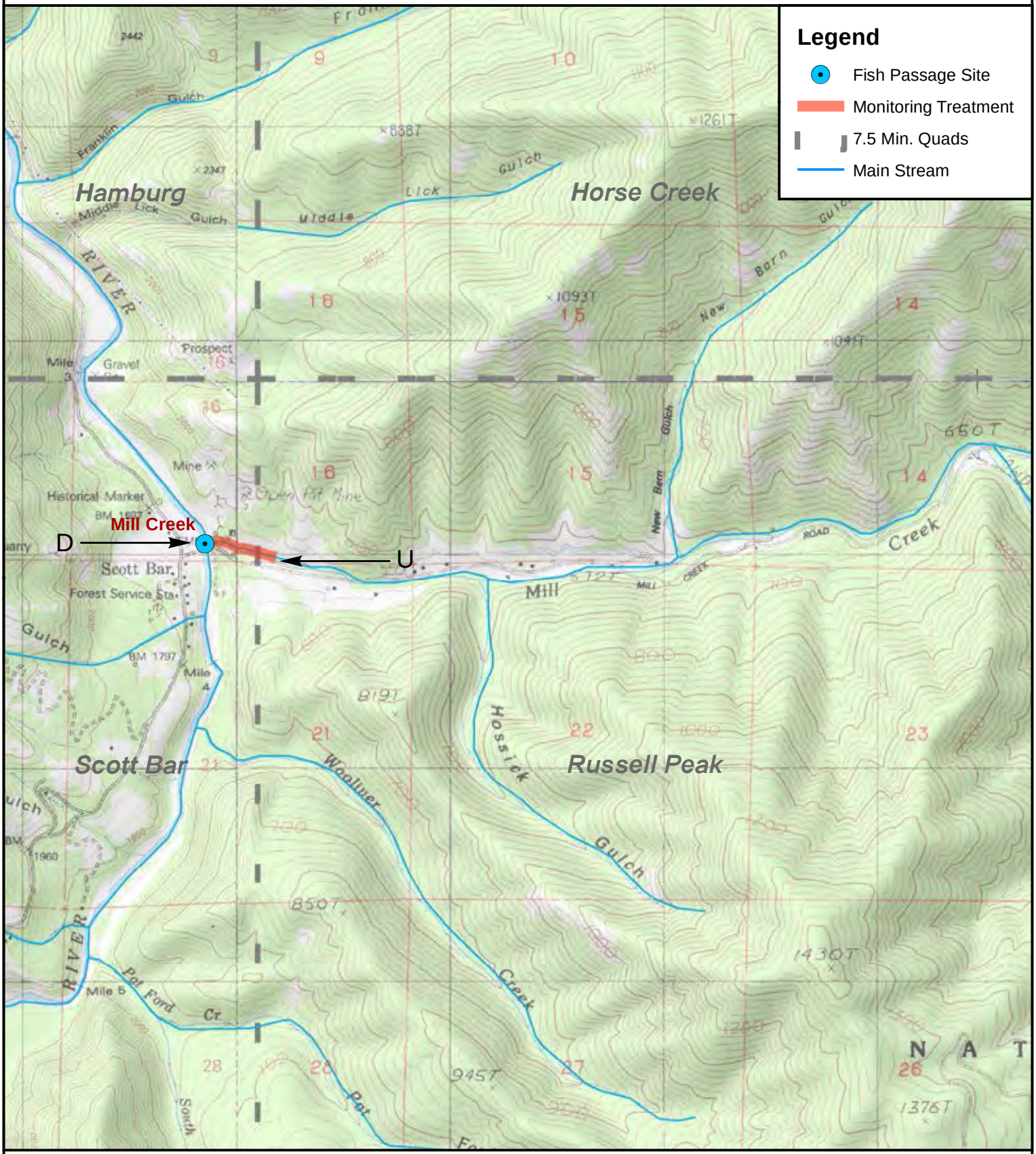
Quad name: Hornbrook

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 35 of 37



Applicant: Salmon River Restoration Council

Stream name: Mill Creek

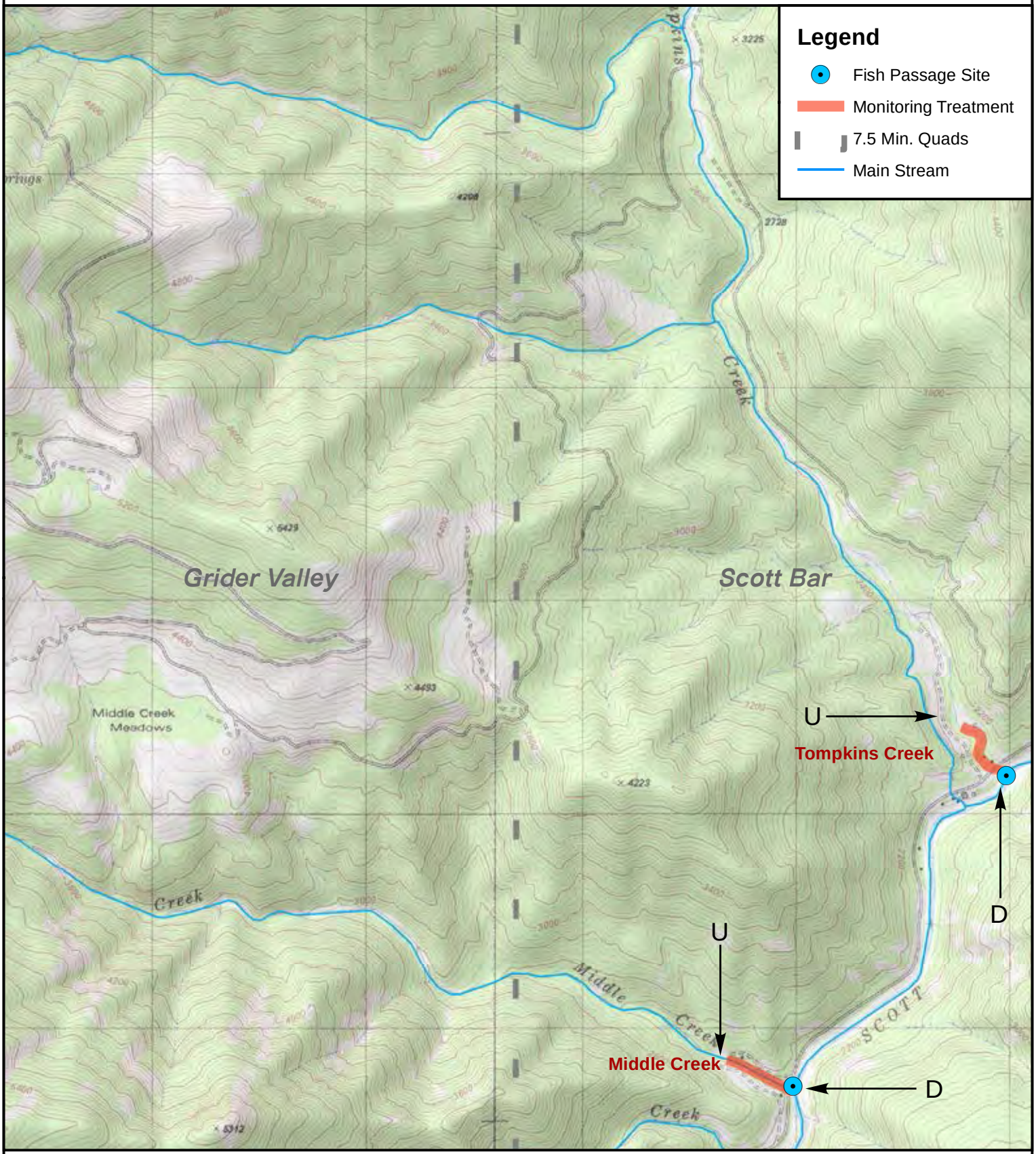
Quad name: Scott Bar, Russell Peak

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 36 of 37



Applicant: Salmon River Restoration Council

Stream name: Tompkins Creek, Middle Creek

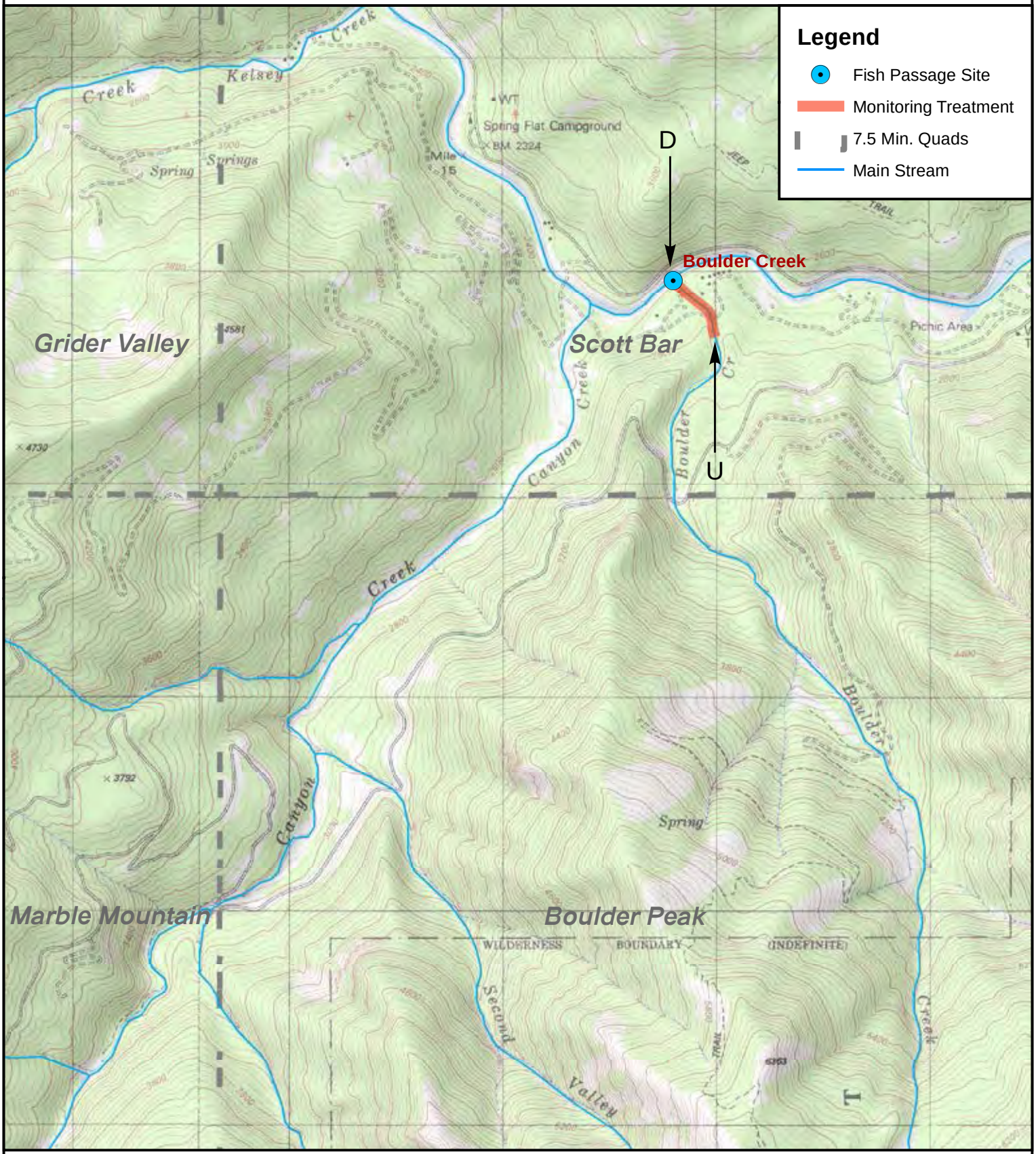
Quad name: Scott Bar

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Salmon and Mid-Klamath Tributary - Fish Passage Improvement Project
Location Topographic Map Number 37 of 37



Applicant: Salmon River Restoration Council

Stream name: Boulder Creek

Quad name: Scott Bar

1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

N

Introduction: The Hoopa Valley Tribe's Fisheries Habitat Division (HVTF) will improve ecological function and hydrologic connectivity in the historic floodplain of Supply Creek through levee/road removal and instream, off-channel, and riparian habitat creation and enhancement.

Due to the mountainous terrain, low-gradient floodplain reaches favored by coho salmon like Supply Creek are rare in tributaries to the Trinity River. This project is necessary because Supply Creek has high intrinsic potential for coho salmon, but the lower reach is constrained by a levee, which impairs the streams ability to provide over-summer and wintering habitat for coho and reduces the channel's ability to store gravel and large wood critical for all life stages. The paucity of off-channel habitat within the project area, combined with depensation, is likely having a significant population level effect within the creek and throughout the Trinity River Watershed, where coho from other natal streams redistribute from in search of improved habitat.

Permit Disclosure: The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured. All habitat improvement will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* Parts VII, IX, XI, and 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:

- Breach a levee/remove a road contributing sediment, and construct off-channel ponds, seasonal wetlands, floodplains, and side channel areas that will provide immediate high quality winter and summer juvenile coho natal and non-natal rearing habitat (emphasizing winter rearing);
- Implement a process-based restoration approach that restores mainstem channel form, floodplain connectivity, habitat complexity, riparian function, and salmon habitat for all life stages by encouraging the channel to restore itself over time.
- Provide access to and restore high quality habitat blocked by the 1964 levee that is now Scale Shack Road (on the south side of Supply Creek between Highway 96 and Loop Road), allowing coho access to low gradient complex backwater and seasonal wetlands throughout the summer and winter rearing season not currently available.
- Add large wood to improve habitat by providing improved cover, gravel sorting, and increased channel complexity within the cold water perennial refuge Supply Creek provides.
- Implement riparian enhancements (floodplain lowering and plantings) to improve shading, food supply, and provide future large wood loading.
- Directly address the major limiting factor for this core population identified in the National Marine Fisheries Service Final Recovery Plan (2014) - a lack of off-channel rearing habitat- while improving conditions for all anadromous species and life-stages by breaching levees and restoring channel form and connectivity with the historic floodplain.

Project Description:

Location: This project is located in the Hoopa Valley in the Trinity River Watershed along Supply Creek. This project will focus on the former floodplain on the south side of Supply Creek within the valley floor, where a road/levee (Scale Shack road, labeled Bair Road on some maps) confines the creek. This site is 0.1 miles upstream of the mouth at Trinity River mile 12.3. The south side of Supply Creek between Loop Road and Highway 96 is located at 41.05328 north latitude, 123.67718 west longitude (at the downstream end of Supply Creek).

Project Set Up: This project will be overseen by the HVTF, 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 and pre- and post-project biological monitoring) as well as the as-built survey post-project with the Engineering Subcontractor's assistance. All construction-related activities will be implemented by the Heavy Equipment Subcontractor under supervision of the Roads Director, with oversight by the Habitat Division Lead. During construction, the HVTF will contract with the Engineering Subcontractor for on-site construction support and inspection. The HVTF will also hire a Biological Subcontractor during large wood placement who will 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 Technician IIIs.

Materials: Materials necessary for this project include:

- Erosion control silt fencing
- Fir and pine large wood/logs (n=40) with root wads.
- River rock (round large boulder and cobbles)
- Stormwater Pollution Prevention Plan implementation supplies (straw, mulch, seed, etc.)
- Irrigation supplies needed for revegetation, and
- Construction signage, needed for construction noticing.

Tasks: Create 4 acres of high quality winter coho rearing floodplain and instream habitat and improve another 3 acres of upland habitat by removing Scale Shack road/levee (20 feet high and 1,300 feet in length) and constructing a more sinuous and longer mainstem channel, two oxbow ponds, two winter base flow side channels, extensive floodplain and riparian habitats, and at least 11 large wood structures to provide immediate habitat benefits and encourage pool development. Increase floodway width commensurate to upstream and downstream reaches with newly restored high quality aquatic and riparian habitat to support self-sustaining natural riverine processes and restore channel

complexity and riparian function over the long term. Remove Scale Shack road/levee on the south side of lower Supply Creek and construct features to create an accessible and topographically diverse floodplain, backwater features, and instream habitat that will provide coho rearing habitat across multiple flows. Excavate the levee/road on the south side of Supply Creek with a portion of spoils kept on site (for levee setback) but most hauled off-site. All earthwork will occur on dry surfaces. The mainstem, side channel and backwater features will be opened and wetted as a final step at the very end of construction.

Specific restoration elements include:

- **Mainstem and Floodplain Restoration.** Remove Scale Shack Road to create a restored mainstem channel, topographically diverse floodplain, winter side channels, and off-channel ponds. To facilitate channel realignment, construct one boulder and large wood habitat structure within the mainstem of Supply Creek. Construct the large wood habitat structure to direct 90% of streamflow up to a 1.25-year event into the new mainstem channel alignment, after which the upper bar surface will be overtopped. Construct approximately 4 acres of new floodplain adjacent to the new right bank mainstem channel. Mainstem channel large wood features will consist of Douglas fir and pine with root wads and branches intact. Large wood placements in bar features will be ballasted with large boulders (2 to 3 feet in diameter) and cobble. This bar feature is along the left bank of Supply Creek. Smaller wood will be added along the right bank woven into existing vegetation.
- **Secondary channels to be activated during winter/spring flows.** Narrow part of the existing mainstem channel to be used as a winter/spring side channel. Block off this 900-foot channel with a large constructed wood and boulder feature that will send most of the flow into the newly constructed channel. Another secondary channel will provide water to two oxbow off-channel ponds in the winter, creating large areas where limited overwintering habitat will be available and accommodating future channel migration and riparian recruitment over the long term. This will result in 1.2 acres of complex, off-channel instream habitats. Flow inundation targets initially will be winter base flow (20 cubic feet per second).
- **Large wood habitat elements.** Large wood habitat structures will be included in new channel, floodplain, side channel, and pond design features, as noted above. In sum, include at least 40 large wood pieces, including root wads, for a total of 11 large wood features. 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 ballast with other wood/boulders. Anchor pieces of wood shorter than 1.5 times the length of the bankfull width.

- **Riparian restoration and replanting.** Revegetation will consist of upland, riparian, and native grass planting. Douglas fir, Ponderosa Pine, oaks, and incense cedar will be planted over 3 acres. Plant riparian woody and herbaceous plant species including black cottonwood, willows, sedges and rushes 4 acres. Spread native grass seed and native grass straw mulch across the spoils and Heavy Equipment Subcontractor use areas. Irrigate and maintain the site for three years after construction. Grow plants at the adjacent Tsmeta Nursery.
- **As-built survey.** The HVTF will complete the post longitudinal profile for projects where channel grade is to be restored or otherwise modified by the project (as-built survey).

Implement the above project elements by completing the following tasks:

Task 1. Project Management. Project management and grant administration will be completed by HVTF and the Heavy Equipment Subcontractor. The Habitat Division Lead will track the project budget and develop and submit invoices to the Grantor's Project Manager on a regular basis. In addition, required annual report metrics will be generated and submitted to the Grantor's Project Manager by December 1st of every year during the Agreement term.

Task 2. Environmental Compliance and Permitting. The HVTF and Heavy Equipment Subcontractor will apply for and complete all necessary federal, state, and tribal permits and associated environmental compliance.

Task 3. Project Implementation. The construction aspects of the project will be implemented by the Heavy Equipment Subcontractor. This will include pre-project setup, excavation and the construction and placement of habitat and engineered features. Large wood with root wads will be sourced from Hoopa Valley Indian Reservation via the Roads and the Hoopa Valley Tribal Forestry Department activities. Construction will be overseen by the Engineering Subcontractor, Biological Subcontractor, and the Habitat Division Lead. Implement riparian planting and grass seeding under the supervision of the Riparian Ecologist and Habitat Division Lead using Tribal Technicians IIIs and possibly Tribal Civilian Conservation Corps (CCC) volunteers.

Task 4. Riparian Maintenance. Riparian maintenance will be performed by Tribal Technicians and possibly Tribal CCC under the supervision of the Riparian Ecologist and Habitat Division Lead.

Task 5. Monitoring. Post-project monitoring by HVTF will include physical monitoring of the project to ensure that the constructed channel is functioning using as-built criteria, longitudinal profile surveys, cross-sectional surveys, photo monitoring, and vegetation survival monitoring.

Pre-project baseline monitoring will be conducted prior to implementation and post-project effectiveness monitoring for the off channel features will be performed (done with funds outside this agreement). The HVTF will maintain and enhance its existing fisheries out-migrant monitoring and stream gauging stations on Supply Creek.

Deliverables:

Task 1. Progress reports and invoices, annual reports and final.

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

Task 3. Project invoices, reports (progress, annual, and final) inclusive of quantified deliverables, construction subcontract. 100% stamped design.

Task 4. Project invoices and reports.

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

Timelines:

Task 1. Project Management. June 1, 2017, or upon agreement execution, to February 28, 2021.

Task 2. Environmental Compliance and Permitting. June 1, 2017, or upon grant execution, to October 1, 2019.

Task 3. Project Implementation. June 30, 2017 to September 1, 2018. 100% Designs will be finalized before grant agreement execution.

Task 4. Riparian Maintenance November 30, 2017 to October 1, 2020.

Task 5. Monitoring June 1, 2017, or upon agreement execution, to December 31, 2020.

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 California Department of Fish and Wildlife (CDFW) Grant 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 CDFW.

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 CDFW Grant 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 CDFW 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 CDFW Grant 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 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.

Final structure design and placement will be determined by field consultation between the Grantee and the CDFW Grant Manager. 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 CDFW Grant 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 which are expected to erode and deliver sediment to the stream are the only locations where work will be authorized for reimbursement under the terms of this agreement. Reimbursement will not be authorized for work done to improve aesthetics only.

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 ensure the best chance of survival of the seedlings.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Fish Lake (4112336) OR French Camp Ridge (4112327) OR Hoopa (4112316) OR Hopkins Butte (4112325) OR Hupa Mountain (4112317) OR Johnsons (4112337) OR Orleans (4112335) OR Tish Tang Point (4112315) OR Weitchpec (4112326))

Possible species within Weitchpec Quad and surrounding quads for 725170 Supply Creek Restoration Project Phase II, T10N R04E S36, Humboldt County

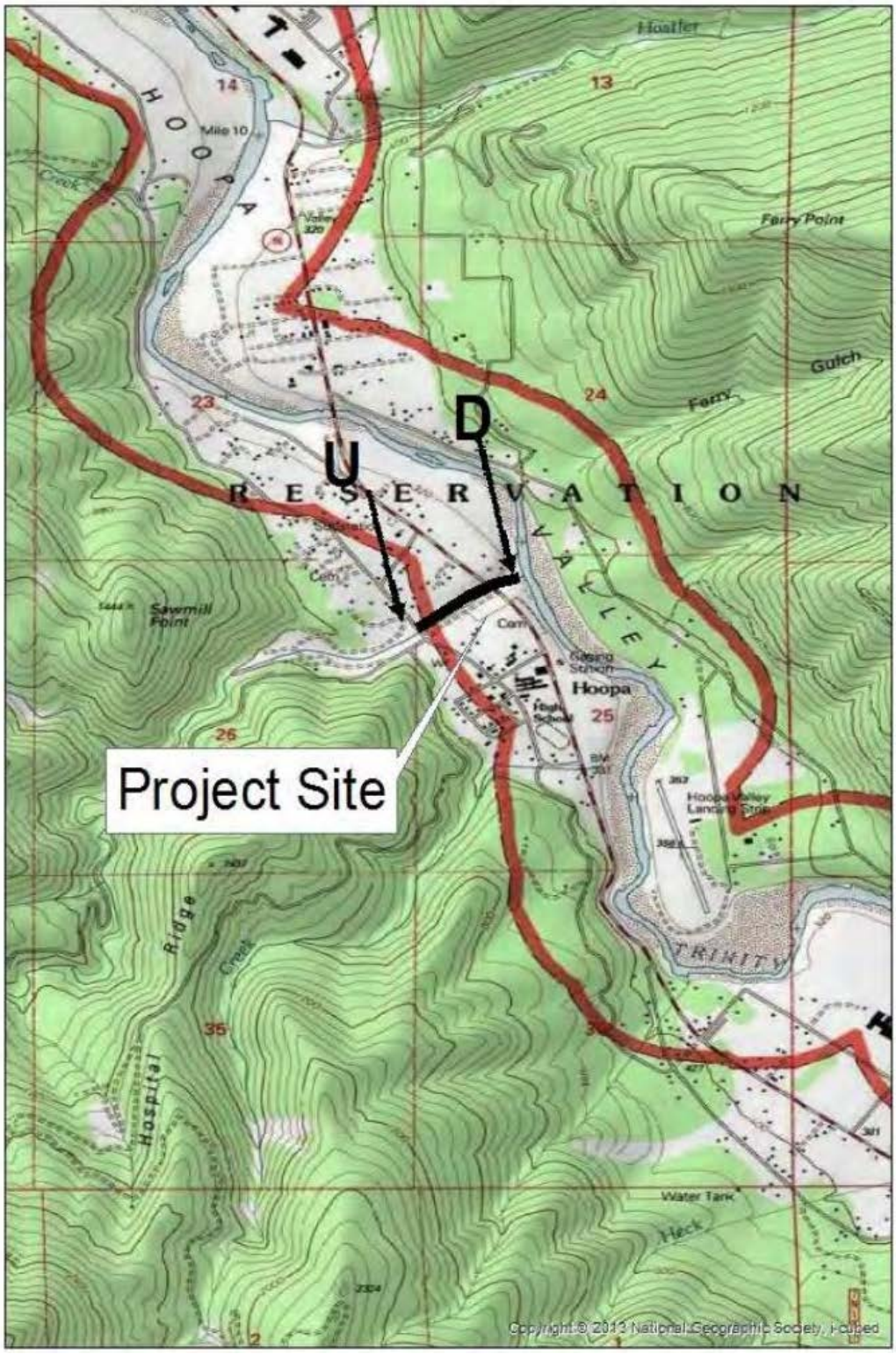
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S3	FP
Bald Mountain milk-vetch *Astragalus umbraticus*	PDFAB0F990	None	None	G3	S2	2B.3
black swift *Cypseloides niger*	ABNUA01010	None	None	G4	S2	SSC
bunchberry *Cornus canadensis*	PDCOR01040	None	None	G5	S2	2B.2
California globe mallow *Iliamna latibracteata*	PDMAL0K040	None	None	G2G3	S2	1B.2
chinook salmon - upper Klamath and Trinity Rivers ESU. *Oncorhynchus tshawytscha*	AFCHA02056	None	None	G5	S1S2	SSC
coast checkerbloom *Sidalcea oregana ssp. eximia*	PDMAL110K9	None	None	G5T1	S1	1B.2
coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A	None	None	G4T4	S3	SSC
coast fawn lily *Erythronium revolutum*	PMLIL0U0F0	None	None	G4G5	S3	2B.2
Columbia yellow cress *Rorippa columbiae*	PDBRA27060	None	None	G3	S1	1B.2
Del Norte salamander *Plethodon elongatus*	AAAAD12050	None	None	G4	S3	WL
Dudley's rush *Juncus dudleyi*	PMJUN01390	None	None	G5	S1	2B.3
elongate copper moss *Mielichhoferia elongata*	NBMUS4Q022	None	None	G5	S4	4.3
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC
giant fawn lily *Erythronium oregonum*	PMLIL0U0C0	None	None	G4G5	S2	2B.2
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
Heckner's lewisia *Lewisia cotyledon var. heckneri*	PDPOR04052	None	None	G4T3	S3	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
hooded lancetooth *Ancotrema voyanum*	IMGAS36130	None	None	G1G2	S1S2	
Howell's montia *Montia howellii*	PDPOR05070	None	None	G3G4	S2	2B.2
Humboldt marten *Martes caurina humboldtensis*	AMAJF01012	None	Candidate Endangered	G5T1	S1	SSC
Karok hesperian *Vespericola karokorum*	IMGASA4040	None	None	G2	S2	
Klamath/North Coast Fall/Winter Run Chinook Salmon River *Klamath/North Coast Fall/Winter Run Chinook Salmon River*	CARB2332CA	None	None	GNR	SNR	
Klamath/North Coast Interior Headwater Fishless Stream *Klamath/North Coast Interior Headwater Fishless Stream*	CARB2220CA	None	None	GNR	SNR	
Klamath/North Coast Rainbow Trout Stream *Klamath/North Coast Rainbow Trout Stream*	CARB2312CA	None	None	GNR	SNR	
northern goshawk *Accipiter gentilis*	ABNKC12060	None	None	G5	S3	SSC
northern meadow sedge *Carex praticola*	PMCYP03B20	None	None	G5	S2	2B.2
northern red-legged frog *Rana aurora*	AAABH01021	None	None	G4	S3	SSC
Oregon goldthread *Coptis laciniata*	PDRAN0A020	None	None	G4	S3	4.2
Oregon shoulderband *Helminthoglypta hertleini*	IMGASC2280	None	None	G1	S1S2	
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
Pacific fuzzwort *Ptilidium californicum*	NBHEP2U010	None	None	G4G5	S3S4	4.3
Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6	None	None	G5T3	S2	1B.2
Pacific tailed frog *Ascaphus truei*	AAABA01010	None	None	G4	S3S4	SSC
pale yellow stonecrop *Sedum laxum ssp. flavidum*	PDCRA0A0L2	None	None	G5T4Q	S4	4.3
robust false lupine *Thermopsis robusta*	PDFAB3Z0D0	None	None	G2	S2	1B.2
ruffed grouse *Bonasa umbellus*	ABNLC11010	None	None	G5	S3S4	WL
slender silver moss *Anomobryum julaceum*	NBMUS80010	None	None	G5?	S2	4.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
small groundcone *Kopsiopsis hookeri*	PDORO01010	None	None	G4?	S1S2	2B.3
Sonoma tree vole *Arborimus pomo*	AMAFF23030	None	None	G3	S3	SSC
southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020	None	None	G3G4	S2S3	SSC
Suckley's cuckoo bumble bee *Bombus suckleyi*	IIHYM24350	None	None	GU	S1	
summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B	None	None	G5T4Q	S2	SSC
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Tracy's sanicle *Sanicula tracyi*	PDAPI1Z0K0	None	None	G4	S4	4.2
Trinity shoulderband *Helminthoglypta talmadgei*	IMGASC2630	None	None	G2	S2	
Upland Douglas Fir Forest *Upland Douglas Fir Forest*	CTT82420CA	None	None	G4	S3.1	
water bulrush *Schoenoplectus subterminalis*	PMCYP0Q1G0	None	None	G4G5	S3	2B.3
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western pearlshell *Margaritifera falcata*	IMBIV27020	None	None	G4G5	S1S2	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
white-flowered rein orchid *Piperia candida*	PMORC1X050	None	None	G3	S3	1B.2
Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0	None	None	G2	S1	1B.1
northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	

Record Count: 55

Supply Creek Restoration Project Phase II
Project Location Map
T10N R04E S36, Hoopa Quad, Humboldt County



Miller Riparian Restoration Project

Introduction:

1. Overview/Need: The Eel River Watershed Improvement Group (ERWIG) will work with the landowner and the landowner's General Engineering Contractor to construct 19,980 feet of riparian protection fencing, treat 15 erosion livestock concentration erosion sites, place off-stream livestock watering stations at five locations, sanitize one 20,000 gallon water storage facility and two water troughs, lay 12,235 feet of High Density Polyethylene (HDPE) waterline, and plant 20 acres of native riparian seedlings. The project will create 191 acres of livestock-free riparian area, develops control fencing at two existing water trough sites and develops 5 additional water trough sites. The purpose of the project is to protect riparian areas of Oil and Maple creeks from livestock impacts and enhance them by treating livestock-related sediment sources and planting native seedlings. This project is the final riparian implementation needed to bring to conclusion the comprehensive landscape overhaul described in the ranch plan as part of the conservation easement. The work will address sediment and nutrient issues at current stream watering locations and improve riparian shading by minimizing cattle browsing of existing vegetation and planting riparian seedlings. This project is necessary to improve water quality and habitat conditions in Oil Creek, where rearing coho salmon have been observed. Reduction of sediment and nutrient contributions from Maple and Oil Creek will contribute to improvement in salmonid habitat conditions in the lower Eel River.

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

All habitat improvement will follow techniques in the California Stream Habitat Restoration Manual (Parts VI, VII, and XI)

Objective(s):

The goal of this project is to eliminate livestock impacts to Oil and Maple creeks. The objectives for reaching this goal are to a) install fencing to keep livestock away from streams, creating 191 acres of riparian area protected from livestock impacts; b) provide off-stream watering stations, improving two existing and developing five additional watering sites; and c) planting 20 acres of riparian seedlings in heavily impacted areas where there is inadequate young tree growth. The fencing will eliminate browsing on riparian vegetation, reduce sediment and nutrient inputs, and improve bank stability by keeping livestock away from the streams and their riparian areas.

Project Description:

Location: The project is located within the Howe Creek Ranch on Oil Creek (tributary to the Eel River) and Maple Creek (tributary to Price Creek, thence, Eel River). The project boundaries are 40.48647000° north latitude, -124.19273000° west longitude for upstream end; and 40.49788000° north latitude, -124.18526000° west longitude for downstream end on Oil Creek. Boundary

coordinates for Maple Creek are 40.49757000° north latitude, -124.19287000° west longitude for upstream end; and 40.49898000° north latitude, -124.20185000° west longitude for downstream end.

Project Set Up: The Eel River Watershed Improvement Group (ERWIG) will subcontract the work to the landowner and the landowner's General Engineering Contractor (Agland Engineering, Inc.). ERWIG's Executive Director will coordinate with CDFW grant manager, administer the subcontract, provide technical assistance, and oversee all aspects of project for quality and timeliness, prepare grant invoices and project reports. The General Engineering Contractor and landowner will be responsible for site preparation, staking and flagging fence, tank and waterline locations, placing tanks and troughs, installing waterlines, plumbing tanks, pouring concrete footings and trough skirts, fence construction, applying rock at erosion control points, fence construction, installing culverts and boulders to address head cut at one site, seedling planting and browse protector installation, application of erosion control. The General Engineering Contractor will prepare as-built reports. Landowner, General Engineering Contractor, and Grantee Executive Director will prepare final report.

Materials: The project will use 977 (appox. 89 loads) of quarry rock and woven geotextile fabric in 12.5 ft. by 432 ft. rolls for surface hardening at 15 erosion control points. Eight culverts for a total of 230 feet of 15" diameter culvert will be installed. Field fencing, barbed wires, T-posts, railroad tie relays (bracing), and pressure-treated round posts for 19,980 feet of fence are to be used. For upgrading existing watering systems and installing others: three head pressure break tanks and five concrete water troughs will be installed with stainless steel fittings; Redi-mix concrete and poured concrete footings and concrete skirts will be used around tanks and troughs; piping will be Polyvinyl chloride (PVC, above ground) and HDPE (below ground). Ten yards of ½ ton angular boulders will be placed to reduce head cutting at one culvert. Approximately 2,500 tree seedlings will be planted and caged with biodegradable Vexar mesh to avoid wildlife browsing. Erosion control materials (weed-free straw mulch and annual rye grass seed will be applied on bare soil

Tasks:

Task 1 – Contract Oversight

The ERWIG Executive Director will be responsible for contract oversight. Contract oversight will involve all project coordination and administrative tasks necessary to complete the project including and not limited to obtaining permits, securing subcontracts and agreements, scheduling, implementation oversight, invoicing, reporting and agency (including CDFW) and landowner communications.

Task 2 – Staking of worksites

The landowner and General Engineering Contractor will see that stakes are placed for water trough area to be leveled and trough center locations are flagged. Head break tank locations, based on elevations designed for head pressure and flow, and pipeline trenching routes will be staked as well as fenceline flagged.

Task 3 – Site Preparation for Fence, Pipeline and Tank Locations
General Engineering Contractor and landowner will carry out site-preparation for fence, pipeline, and tank locations including brush removal and some ground leveling will be done with bulldozer rake and light excavator. Some riparian planting area brush will also be mechanically removed during this stage of mechanical site area preparation (blackberry vines in Area 1 and coyote brush & poison oak in the south end of Area 3). This activity will be carried out in summer dry-soil season.

Task 4 – Installation of Off-stream Water System Components
General Engineering Contractor will install off-stream water system components including a) pouring concrete bases for head break tanks and skirts for water troughs, large tank saddles and footings for two storage tanks tank and trough placement; b) placement of 5 troughs, 1 valve box, and 3 head break tanks; and replacement of two steel storage tanks after they have been sanitized and concrete saddles and steel-reinforced footings have been constructed; c) Once all piperun beginning – ending tank locations are established, the pipelines can be laid, buried and plumbed. The pipeline runs will be trenched at a target 6" width and 16" depth with a dedicated all-terrain trencher. All pipe will be laid by hand labor, and trenches backfilled and compacted by hand labor where terrain demands, and mechanically where possible; d) Any trench location that has the potential to capture & accumulate water will be water-barred with appropriately spaced wooden blocks, placed across the trench and extending above the surrounding ground to divert captured flow away from the trench. Rock surfacing will be applied in heavy traffic areas around water troughs where there is easy access on established roads and deep-style troughs already in place. This work will be carried out in the summer dry-soil season.

Task 5 – Culvert Installation and Surface Hardening of Trails and Crossings
Landowner and General Engineering Contractor will use rock to surface harden trails and crossings where exclusion fencing concentrates livestock movement along the new fences. This includes 15 trail & road erosion prevention site locations. All culverts will be 15-inch diameter Dual Wall Polypropylene (DWPP), which can be installed with a small excavator. All sites will be hardened with quarry rock over geotextile fabric, spreading approximately 9" deep with a truck and shaping with a grader or 6-way blade bulldozer, then compacting with a 6x6 loaded water truck. Geotextile fabric will be placed with a 2 foot overlap on trough center areas. All exposed soil will be seeded and mulched with hay mulch, and temporarily fenced as necessary with portable fencing provided by the property's

grazing lessee. This work must be completed during the dry-soil summer work season.

Task 6 – Exclusion Fence Construction
General Engineering Contractor and landowner will construct 19,980 feet of wildlife-friendly field fence. Wildlife gaps will be installed at strategic locations to allow all local species and age groups to pass, at a minimum of at least every 800 feet and at every water trough location. Eleven gates will be installed in the exclusion fencing. Gates will either have standard hinged galvanized livestock gate installed for frequent forestry management and road maintenance, or a tied hog panel for infrequent access. Line posts may be driven and field fence erected during wet soil conditions using an ATV or UTV for personnel access, so long as the materials are pre-staged.

Task 7 - Riparian Planting
General Engineering Contractor will plant native trees in streamside or upland riparian sites. All of the plantings will be containerized seedling stock, with the conifers and alder being pulled by the nursery and packed as bare-root to be planted by planting crews. Cottonwood and maple will come in individual containers to facilitate careful spacing. The spacing of cottonwood should not be closer to each other than 25 feet, and maple should be no closer to each other than 40 feet. All trees will be hoedad-planted and any tree location selected with competing vegetation within a 10" radius will be scalped before planting. Biodegradable 24" Vexar protectors will be installed on all trees immediately after planting to protect the trees for 2-3 years from deer browsing. The plants will be monitored and replanted (if necessary) for 3 years or more to achieve the specified standard for success.

Task 8 – Photo points and Reporting
Landowner and General Engineering Contractor will take pre- and post-project photos at monumented photo points established at all 15 treated Erosion Control Point sites and all six planting areas within the project area. General Engineering Contractor will provide as-built field reports on 15 ECP sites, 4 riparian exclusions, 5 new trough installations (all tank sites including pipelines), 2 trough center installations, 1 storage tank installation site, 3 head break tank installations, and 6 riparian planting sites. ERWIG and landowner will provide progress reports, invoicing for grant, annual reports, and final report.

Deliverables:

- 191 acres of riparian protected by livestock exclusion fencing with wildlife gaps every 800 feet
- 25,920 feet of stream length protected from livestock-related bank erosion, as well as nutrient and sediment loading
- 2,535 native trees planted and protected from wildlife browsing with Vexar netting

- An off-stream water delivery system including 5 low profile wildlife-friendly water troughs with concrete skirts; 3 concrete tank saddles and footings and 3 water head pressure reduction break tanks with associated HDPE waterline, and stainless steel fittings and bronze alloy valves
- Treatment of 15 erosion control points associated with livestock concentration that includes 8 new double-walled plastic culverts at stream crossings with 10 yards of ½ ton boulder placed at one culvert outlet; surface-hardening with quarry rock over geotextile fabric on 990 feet of livestock trail and for a total of 14,760 sq. ft. at three trough centers and one pond dike
- Pictures at monumented photo points associated with 15 treated erosion control points and 6 planting areas
- Annual Report indicating progress after each year of implementation and a Final Report including description and analysis of restoration treatments from As-Built field reports on erosion control points, tank locations and trough centers, fencelines, and planting areas; a description of the results of project including seedling count mortality by species, dates of work, the number of person-hours expended and before and after photos of planting areas, erosion control points, tank installations, and fencelines.

Timelines:

The project is proposed for June 1, 2017 through March 31, 2019.

ERWIG and Landowner:

- Environmental Compliance and Permitting (CEQA & NEPA): June 2017
- Planning: subcontract development & approval: June 2017
- Contract development with landowner, and review of landowner's general contract: June 2017

General Contractor (Agland Engineering):

- Materials purchase order development, materials delivery scheduling and operations scheduling: June 2017
- Preparation: pre-project photo assessment report component: July 2017
- Construction and preparation of staging sites, staging purchased materials: Aug. – Sept. 2017
- Pre-staking and flagging fence, tank and waterline locations: June – July 2017
- Site prep leveling for BT and trough placement and planting and fencing site preparation brush removal: July – Aug. 2017
- Place tanks (BTs and troughs): Aug 2017
- Remove (set aside) ST 69 storage tanks, pour concrete footings and saddles, replace tanks: Aug 2017
- Trench, lay and bury waterlines: September 2017
- Plumb tanks: October – November 2017; Aug 2017
- Place waterline trench waterbars: Aug 2017
- Pour trough skirts: June 2018

- Construct fence braces and stage fencing materials for wet weather: May – July 2018 (except where ECP construction will interfere with brace location)
- Construct elements at 15 fence-related Erosion Control Point (ECP)sites and complete fence braces, mulch and seed exposed soil: Aug.- Sept. 2018
- Erect field fencing: October – December 2018
- Plant seedlings and install protectors: Dec. 2018 – Jan 2019
- Draft and submit to Grantor annual reports: December 1, 2017 and 2018
- Final report compilation and final invoicing: Feb. 2019

Most tasks will be implemented during the dry season work window of June 15 – October 31. Except at erosion control points, fence post and brace installation may occur in May. Field fence erection (with minimal soil disturbance) is planned for October 1 – December 31. Seedling planting is planned for after December 1 through January 31.

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.

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

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, 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.

An agreement will be developed with the landowner that states 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.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Buckeye Mtn. (4012432) OR Bull Creek (4012431) OR Capetown (4012443) OR Ferndale (4012453) OR Fortuna (4012452) OR Hydesville (4012451) OR Petrolia (4012433) OR Scotia (4012441) OR Taylor Peak (4012442))

Possible species within the Taylor Peak Quad and surrounding quads for 725179 Miller Riparian Restoration Project, T01N R01W S9, Humboldt County

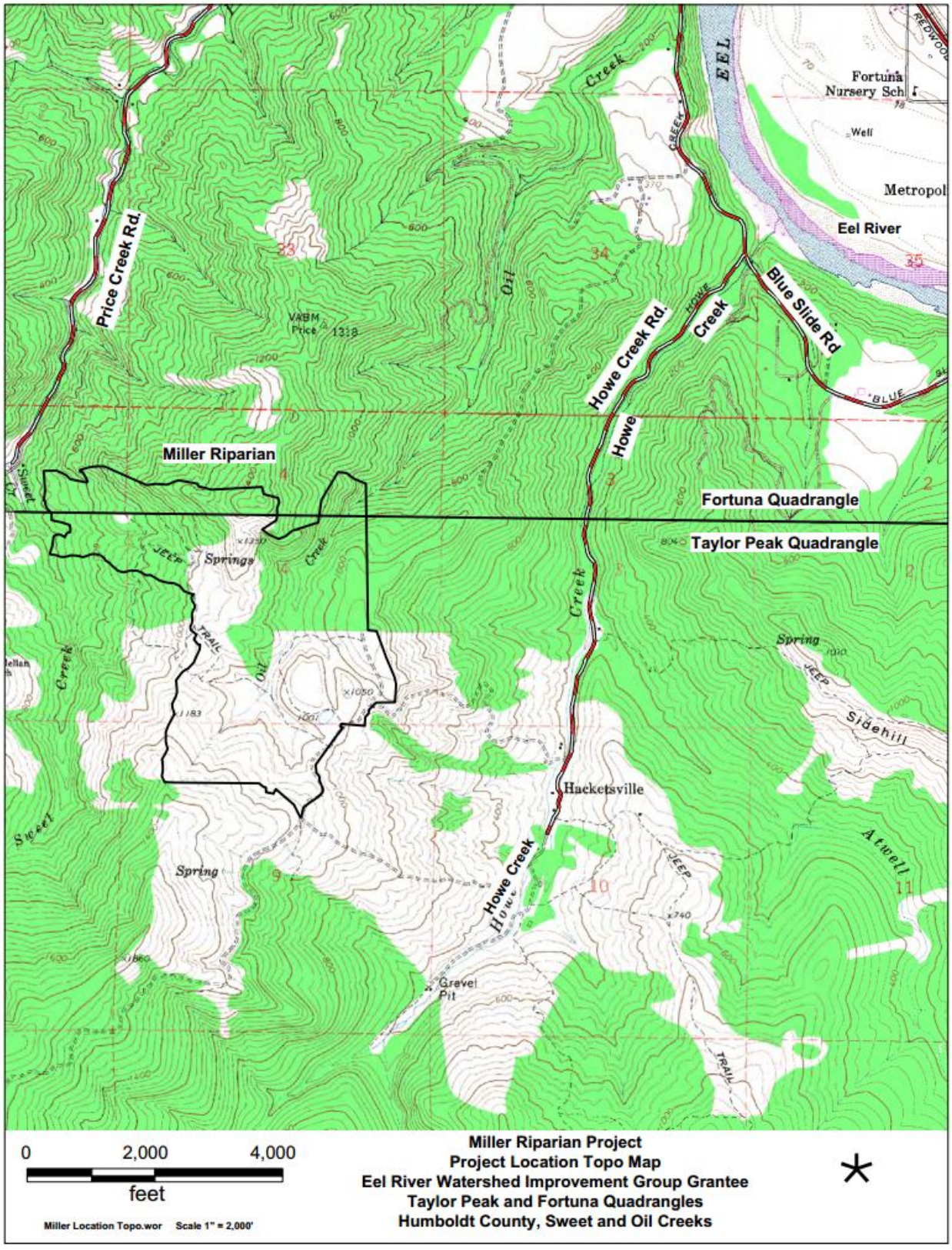
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S2	
beach layia *Layia carnosa*	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
bluff wallflower *Erysimum concinnum*	PDBRA160E3	None	None	G3	S2	1B.2
coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A	None	None	G4T4	S3	SSC
coast fawn lily *Erythronium revolutum*	PMLIL0U0F0	None	None	G4G5	S3	2B.2
Coastal and Valley Freshwater Marsh *Coastal and Valley Freshwater Marsh*	CTT52410CA	None	None	G3	S2.1	
Coastal Douglas Fir Western Hemlock Forest *Coastal Douglas Fir Western Hemlock Forest*	CTT82410CA	None	None	G4	S2.1	
coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2	None	None	G2T2	S2	1B.2
coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	
Cooper's hawk *Accipiter cooperii*	ABNKC12040	None	None	G5	S4	WL
dark-eyed gilia *Gilia millefoliata*	PDPLM04130	None	None	G2	S2	1B.2
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC
giant fawn lily *Erythronium oregonum*	PMLIL0U0C0	None	None	G4G5	S2	2B.2
golden eagle *Aquila chrysaetos*	ABNKC22010	None	None	G5	S3	FP
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
great egret *Ardea alba*	ABNGA04040	None	None	G5	S4	
Hitchcock's blue-eyed grass *Sisyrinchium hitchcockii*	PMIRI0D0S0	None	None	G2	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
hoary bat *Lasiurus cinereus*	AMACC05030	None	None	G5	S4	
Howell's montia *Montia howellii*	PDPOR05070	None	None	G3G4	S2	2B.2
Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402	None	None	G4T2	S2	1B.2
Humboldt marten *Martes caurina humboldtensis*	AMAJF01012	None	Candidate Endangered	G5T1	S1	SSC
leafy reed grass *Calamagrostis foliosa*	PMPOA170C0	None	Rare	G3	S3	4.2
longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SSC
Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0	None	None	G5	S3	2B.2
maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0	None	None	G3	S3	4.2
marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
Methuselah's beard lichen *Usnea longissima*	NLLEC5P420	None	None	G4	S4	4.2
minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0	None	None	G3?	S2	1B.2
Northern Coastal Salt Marsh *Northern Coastal Salt Marsh*	CTT52110CA	None	None	G3	S3.2	
northern red-legged frog *Rana aurora*	AAABH01021	None	None	G4	S3	SSC
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012	None	None	G3	S3	2B.2
Oregon polemonium *Polemonium carneum*	PDPLM0E050	None	None	G3G4	S2	2B.2
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6	None	None	G5T3	S2	1B.2
Pacific tailed frog *Ascaphus truei*	AAABA01010	None	None	G4	S3S4	SSC
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G5	S3	SSC
running-pine *Lycopodium clavatum*	PPLYC01080	None	None	G5	S3	4.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1	None	None	G4T4	S2S3	2B.2
sharp-shinned hawk *Accipiter striatus*	ABNKC12020	None	None	G5	S4	WL
short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011	None	None	G4T3	S2	1B.2
Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9	None	None	G5T2	S2	1B.2
slender silver moss *Anomobryum julaceum*	NBMUS80010	None	None	G5?	S2	4.2
Sonoma tree vole *Arborimus pomo*	AMAFF23030	None	None	G3	S3	SSC
southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020	None	None	G3G4	S2S3	SSC
summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B	None	None	G5T4Q	S2	SSC
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	None	G2G3	S1S2	SSC
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
white-flowered rein orchid *Piperia candida*	PMORC1X050	None	None	G3	S3	1B.2
Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025	None	None	G5T1	S1	1B.1
Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0	None	None	G2	S1	1B.1
Yuma myotis *Myotis yumanensis*	AMACC01020	None	None	G5	S4	
northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC

Record Count: 57

Miller Riparian Restoration Project
Project Location Map
T01N R01W S9, Taylor Peak Quad, Humboldt County



Introduction: The Pacific Coast Fish, Wildlife and Wetlands Restoration Association (PCFWWRA) will prevent approximately 4,344 cubic yards of sediment delivery and restore coho habitat through road decommissioning in the Morrison Gulch Watershed. .

Morrison Gulch provides both spawning and rearing habitat for coho salmon. Morrison Gulch confluences with Jacoby Creek a short distance downstream of a series of waterfalls and cascades on main stem Jacoby Creek that prevent fish passage further upstream. This increases the pressure on downstream tributaries. This project is necessary because ;egacy logging activities in the Morrison Gulch Watershed have highly altered and degraded historic coho habitat and those impacts continue to deliver sediment and turbidity into coho bearing reaches. Abandoned roads contain stream crossings in various states of decay, as well as potentially unstable logging road fillslopes that are perched precariously above the 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 1998 and 2002).

Objectives: The goal of this project is to implement the prioritized remediation projects for the sources of sediment identified in the *Recovery Strategy for California Coho Salmon* (CDFG 2004) Specific objectives of this project include:

- Improve and protect water quality and salmonid habitat in the Morrison Gulch Watershed.
- Iimplement cost-effective erosion control and erosion prevention work on high priority sediment sources identified during the field inventory for the *Jacoby Creek Watershed Assessment* (PWA 2003).
- Decommission the road to reduce threats of episodic inputs of sediment from larger road failures during large magnitude storms and floods.
- Implement prescribed remedial treatments to hydrologically disconnect road surfaces, prevent fill failures, stream crossing washouts and stream diversions. Reduce further degradation of water quality and salmonid habitat in the Morrison Gulch Watershed.

Project Description:

Location: The Morrison Gulch Watershed is located approximately 5 miles southeast of Arcata, California in the Jacoby Creek Watershed in Humboldt County. The location of the project is in the Morrison Gulch Watershed Green Diamond Resources Company (GDRC) property. The project is focused on two streamside road segments (G110 and G100 spur) and closely associated bulldozer skid road segments. The center location of the project is at 40.81860470 north latitude: 124.03943750 west longitude.

Project Set Up:

The project will be managed by PCFWWRA as described below:

- The Project Manager (PM): Tasks 1, 3.4 & 6. The PM will oversee all aspects of the project. The PM responsibilities include coordination and problem solving with agencies, landowner and subcontractors. Compliance with permitting, landowner agreements and grant agreements are primarily the PM's responsibility. They PM regularly reviews the progress of the project and completed work with respect to the budget, as well as working regularly with the Geological Subcontractor to make sure it is being implemented to the required standards. Evaluating information developed during the project and identifying realistic permitting strategies for implementation will be a task for the PM. The PM will ensure compliance with requirements contained in the Agreement's Exhibit 1.b Non-Public Entities General Grant Provisions during the entire project. The PM is responsible for the review and editing of all invoices and reporting on projects.
- Administrative Assistant: Tasks 1, 3.4 & 6. The Administrative Assistant is responsible for drafting subcontracts, invoices, permit applications, and reports, and works closely with the PM. The Administrative Assistant assists in tracking project budgets and progress. The Administrative Assistant communicates with partners, and reviews/verifies subcontractor invoicing. The Administrative Assistant also ensures compliance with the Agreement's Exhibit 1.b Non-Public Entities General Grant Provisions during the entire project.
- Field Crew: Tasks 3.1, 3.2 & 5. The Field Crew is responsible for entering field information into an electronic database and performing riparian planting (Task 5). The Field Crew is responsible for tasks that are not performed by subcontractors, such as complex water diversions, biological monitoring, and permit compliance. During implementation, the Field Cre do whatever is needed to keep implementation running smoothly, whether that is picking up and staging materials or any other field related tasks. The Field Crew coordinatse their activities with the Geological Subcontractor Professional Geologist.
- Bookkeeper/Office Manager: Task 1. The Bookkeeper/Office Manger is responsible for financial bookkeeping, accounting, and administrative work as needed. This includes payroll, accounts receivable and payable, financial statements, and maintaining accounting records for individual agreements. The Bookkeeper/Office Manager maintainx office functions, provides communications and performs site visits and support as needed. The Bookkeeper/Office Manager also ensures compliance with

Agreement's Exhibit 1.b Non-Public Entities General Grant Provisions during the entire project.

Technical plan development and construction oversight will be performed by the Geological Subcontractor (GS) :

- GS Principal Geologist: Tasks 2, 3 & 6. Provides technical expertise and guidance in developing design options, geologic and geomorphic investigations, and draft and final work plan review. Also in charge of final report technical editing and review.
- GS Senior Engineer (GSSE): Tasks 2.2. Provides project support through total station surveys, and development of a grading plan and project specifications.
- GS Project Geologist (GSPG): Tasks 1, 2, 3.1, 3.3, 3.4, 4, 5 & 6. Provides geologic and geomorphic characterization (surface and subsurface) and develops the design excavations for the project. Provides input on complex geological issues encountered during heavy equipment implementation. Ensures compliance with Geologist and Geophysicist Act (California Business and Professions Code 7800). The GSPG will lead GS project management tasks.
- GS Technical Scientist staff (GSTS): Task 2.3, 3, & 4. Provides project support by working with the geologist to collect field data, assist in stream crossing surveys and monitoring tasks, and process data.
- GS Geographic Information Systems (GIS) /Drafting Staff: Tasks 2 & 6. Provides project support through technical drafting of design plans, development of GIS maps and products, and produces field maps in support of site characterization.
- GS Clerical Staff: Task 1. Develops invoice tracking spreadsheet analysis, maintains project cost records, and develops timely invoices pursuant to contract requirements.

Heavy Equipment Subcontractor:

- Excavator with operator: Task 3.1. The excavator is used to: 1) help open access to and prepare each site for treatment (brushing and filling of gullies); 2) excavate soil and organic debris (logs and chunks) from stream crossings and landslide features; 3) place small volumes of excavated spoil on stable slopes near the decommissioned stream crossings; 4) outslope the old road bed between features; 5) decompact short segments of road; 6) install cross road drains for final drainage; and 7) mulch the treated road with logs, limbs and brush.

- Bulldozer with operator: Task 3.1. The bulldozer is used to: 1) help open abandoned roads to allow access for dump trucks, if needed; 2) decompact the road bed and spoil disposal locations; 3) re-contour and pack spoils placed on the road-bed during outsloping activities; 4) establish and maintain stable off-site spoil disposal areas; 5) maintain a drivable road surface for dump trucks and other vehicles; 6) create ramps to allow dump trucks to access excavation sites; and 7) help remove and stockpile large logs and woody debris removed from stream crossings and other locations along the road.
- Dump truck with operator: Task 3.1. The dump truck will endhaul spoil from decommission areas where all spoils cannot be stored locally.
- Truck and trailer, and skip loader with operator: Task 3.1. Both of these are used in activities related to moving materials to or around the work site. The truck and trailer is used to bring straw bales to the job site and the skip loader stages and shuttles smaller loads around the work area as needed, and grades roads to keep vehicles moving efficiently.
- Lowbed and pilot car with operator: Task 3.1. Both of these are required to move heavy equipment to or from the project area at the start and end of each work season.
- Labor: Task 3.1. Laborers are used to manage the water pump or to set up limited water diversions to protect water quality during decommissioning of live stream crossings. They are also used to spread seed and straw at completed construction sites, operate chainsaws and other small equipment, move materials and vehicles, and help assist the heavy equipment team implement their work.

Materials: The following materials will be used as part of this project:

- A total station (Task 2.2) (rental - not be purchased for the project)
- An auto level (Task 3.3) (rental - not be purchased for the project
- Silt fence and fish exclusion (if needed) construction supplies: metal t-stakes, rebar, filter fabric, small diameter wire rolls, wire cutters and pliers, and shovels. (Tasks 3.1 and 3.2)
- Filter fabric (at features 409 and 287.2) (Task 3.1)
- Thirty feet (30') of metal culvert (Task 3.1).
- Flex pipe, 6" diameter (Task 3.1).
- Water pumps (rental) (Task 3.1)
- Sand bags (Task 3.1)
- Chain saws (rental) (Task 3.1)
- Trees (1,000 seedlings): Containerized or bare root tree seedlings (Task 5)
- Erosion Control seed and straw mulch (Task 3.1)

- Office supplies (Tasks 1-6) photographic supplies, field maps, plastic overlays for field maps, photo duplication for final reports, copying/binding for final reports, report maps, phone, fax, email and postage, and
- Field supplies (Tasks 2-4): rolls of flagging, tape measures, marking pens, and clipboards, small hand saws and other miscellaneous materials.

Tasks:

Task 1 – Project Management and administration. Manage the project including grant management, subcontracting oversight and administration, obtain permits, schedule, communicate with landowners and agencies, obtain final landowner access agreements, obtain subcontracts, coordinate with the various stakeholders and members of the project team, prepare invoices and progress reports, track project costs and accomplishments and assist with final report preparation.

Task 2 – Pre-implementation layout and monitoring. The GS GIS/Drafting Staff will generate LiDAR based field base maps for use during Tasks 2.1 – 2.3.

Task 2.1–Existing conditions characterization and pre-treatment monitoring. Assessand document existing conditions and set up photo point monitoring stations along the roads and treatment feature locations. Use these photo points to document and monitor the work sites before, during, and following the excavation work.

Task 2.2 – Stream Crossing Surveying and design development. The GSSE, GSPG, and GSTS will carry out pretreatment surveys of a subset of stream crossings to help develop final grading plans to help guide heavy equipment excavations and for final reporting. Deviations from the preliminary designs may occur based on exposures of subsurface conditions and involve adaptive management utilizing close oversight and input from the GSPG. Steam crossing surveys can be as crude as tape and clinometer based surveys or as detailed as total station surveys where more accurate information is required. Conduct detailed topographic surveys on project features #403, #287, #287.1, and #290.1 to capture topography of the ground within and in the immediate vicinity adjacent to any potential channel excavation area. During the survey, also map large trees (>12” diameter at breast height) within the potential work area.

Task 2.3 – Pre-construction layout. Assess and lay out (flagg) specific treatments and the spatial extent of planned excavations. Compile field information into a detailed set of construction maps, road logs, and detailed treatment information that will be provided to the Heavy Equipment Subcontractor. The GS will flag heavy equipment

access routes and construction boundaries (layout) as well as spoil disposal sites, equipment exclusion areas for biologic or cultural resource protection, and large woody debris staging areas.

Task 3 – Road Decommissioning Implementation

Task 3.1 – Heavy equipment implementation. Road decommissioning treatments will include excavation work at 11 sediment source features. Excavate and remove sediment to fully decommission 8 stream crossings and excavate 3 unstable road fills (potential fillslope failure features). Haul spoil materials to stable disposal areas on each road as identified in the treatment recommendation.

Road opening, feature treatment, and erosion control. The GS will work with the Heavy Equipment Subcontractor to reopen the proposed road for equipment access and decommissioning treatments. Use low bed trucks to move heavy equipment in and out of the project area at the beginning and end of the work season. Use a pilot car to move through the freeway and public highway system. Use an excavator and bulldozer to reopen the roads decommissioning by removing the vegetation and developing temporary crossings at the streams. Use an excavator, bulldozer and dump truck to remove the anthropogenic fill material from the stream crossings and other site specific features. Treat all of the road surface drainage from the end of the decommissioned road back out to the start of the road. Concurrently working with the excavator and bull dozer, the dump truck will endhaul spoil from decommissioned areas where spoil material cannot be stored locally. Use silt fences and a water pump to protect water quality during decommissioning of live stream crossings, which will be set up and managed by a laborer. Finally, use the Heavy Equipment Subcontractor laborers to spread seed and straw and plant trees at completed construction sites.

Task 3.2 – Electrofishing and Fish relocation. CDFW or GDRC fisheries biologists will implement fish relocation activities where appropriate. Field Staff or the GSTS will set up and maintain fish exclusion fencing and support the CDFW or GDRC fish biologist or crew with this task.

Task 3.3 – Quality Assurance /Quality Control and technical support. Technical support and oversight will be provided by the GSPG to ensure adherence to treatment designs or work with the excavator to use adaptive management in cases where unexpected subsurface conditions are exposed. The GSPG and GSTS will provide surveying assistance during excavations requiring more control and precision utilizing an auto level surveying instrument.

Task 3.4 – Project tracking. As the project is implemented, track the status of the budget and compare progress to the status of numeric goals set by the project.

Task 4 – Post-treatment surveys and data collection

Task 4.1 – Post-treatment inspections with the Grantor's Project Manager. The GSPG will regularly update the Grantor's Project Manager and meet with in the field to attend post-treatment inspections and to act as a guide and respond to any questions or issues that might arise.

Task 4.2 – Collect post treatment data. The GSPG and GSTS will collect as-built construction data, conduct post-treatment stream surveys, and post-treatment photo point monitoring. Enter data into electronic format for use in analyses and final reporting. Post-treatment photo point management extends throughout the season following implementation to document changes that occur throughout the first post-treatment wet weather season.

Task 5 – Riparian replanting. The Field Crew will replant riparian areas disturbed by heavy equipment operations with tree seedlings composed of species that would be expected to grow in the project area naturally. Purchase trees from local nurseries if available and plant after the onset of the wet weather season once soil moisture conditions are favorable for promoting survival of the planted trees. Purchase and pick up trees from the nursery and transport and stage the trees in the project area. The GS will create a tree planting map and orient the tree planters around the project area.

Task 6 – Reporting

Task 6.1 – Prepare and submit annual reporting metrics. The GS will analyze data and submit an electronic file containing data that documents the work completed on an annual basis.

Task 6.2 – Prepare and submit draft final report. The GS will develop a draft report that documents the work completed and the total costs to implement the project. The draft report will be provided as a portable document file (PDF) electronic file to the Grantor's Project Manager for review.

Task 6.3 – Prepare and submit final report. Following review and receipt of written and verbal comments on the draft submittal, incorporateedits or missing information into the final report submittal. The final report will be provided as a hard copy, in addition to a PDF electronic file.

Deliverables:

Task 1 - Applicable permits and signed landowner access agreements.

Task 2 - Road logs and operator instructions for proposed restoration activities.

Task 3.1 - Permanent road decommissioning of 0.6 miles of road in the Morrison Gulch Watershed; direct treatment of 11 site specific erosional features along the decommissioned road alignments, including 8 stream crossings, and 3 potential fillslope failures; prevention of approximately 4,344 yd3 of sediment from entering the Morrison Gulch Watersjed.

Task 3.2 - Results of dewatering and fish relocation data (where applicable).

Task 5 - 1,000 trees planted.

Task 6.1 - Upon completion of each year of restoration activities, submit an annual report as an electronic file in PDF format detailing the work completed that season. The annual report will include the following if applicable: (1) implementation start and end dates; (2) percentage of the project completed in total to date; (3) dewatering and fish relocation data; (4) project start and end dates for work to be implemented the following season; (5) road length segment decommissioned; (6) sediment spoils volume estimate; (7) upslope stream crossings decommissioned (not for fish passage); (8) stream crossings treated to improve fish passage (number); (9) stream length opened for fish passage by improving stream crossings (miles); (10) sediment volume prevented from entering the stream; (11) upslope area treated (fillslope failures); (12) amount of riparian area treated (acres); and (13) number and species of trees planted.

Task 6.2 - Upon completion of the project, submit a written completion report also provided as an electronic file in PDF format including (1) general grant information, (2) location of work, (3) project access, (4) participating landowner's name and address, (5) a description and analysis of the restoration and planning person hours expended, (6) a quantified description of the results of the project, including as-built road logs number and types of features treated, (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 of the project area and as-built results.

Task 6.3 - The final report will contain project description and results. It will address any comments or issues brought up by the Grantor's Project Manager during the draft report review. Report submission will include 1 hard copy as well as electronic file in PDF format.

Timelines:

Task 1 - Agreement Management June 1, 2017 – March 31, 2019

Task 2.1 - Complete existing conditions characterization and pre-treatment photo point monitoring by July 1, 2017

Task 2.2 - Complete topographic surveying and stream crossing grading and construction plans by July 31, 2017

Task 2.3 - Complete pre-construction layout and road log development by August 15, 2017

Tasks 3.1-3.4 - August 15, 2017 – September 30, 2018. Begin on-the-ground implementation (road decommissioning) work during the summer of 2017. Because of potential permitting seasonal and weather limitations on operations, it is expected that the full project may take up to two work seasons to complete; therefore the project may stretch into the summer of 2018.

Tasks 3.2–3.4 - August 15, 2017 – September 30, 2018

Tasks 4.1-4.2 - August 15, 2017 – December 31, 2018

Task 5 - November 1, 2017 – January 31, 2019

Task 6.1 - Annual reporting metrics submitted by November 15, 2017 and November 15, 2018.

Task 5 - Draft final report submittal February 28, 2019

Task 6.3 - Final report submittal March 31, 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 California Department of Fish and Wildlife (CDFW) Grant 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 CDFW.

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

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.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Arcata North (4012481) OR Arcata South (4012471) OR Blue Lake (4012388) OR Eureka (4012472) OR Fields Landing (4012462) OR Iaqua Buttes (4012368) OR Korbel (4012378) OR McWhinney Creek (4012461) OR Tyee City (4012482))

Possible species within the Arcata South Quad and surrounding quads for 725185 Morrison Gulch Sediment Reduction Project, T05N R01E, S14, Humboldt County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
alpine marsh violet *Viola palustris*	PDVIO041G0	None	None	G5	S1S2	2B.2
bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S3	FP
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S2	
beach layia *Layia carnosa*	PDAST5N010	Endangered	Endangered	G2	S2	1B.1
black-crowned night heron *Nycticorax nycticorax*	ABNGA11010	None	None	G5	S4	
bristle-stalked sedge *Carex leptalea*	PMCYP037E0	None	None	G5	S1	2B.2
California clapper rail *Rallus longirostris obsoletus*	ABNME05016	Endangered	Endangered	G5T1	S1	FP
California globe mallow *Iliamna latibracteata*	PDMAL0K040	None	None	G2G3	S2	1B.2
coast checkerbloom *Sidalcea oregana ssp. eximia*	PDMAL110K9	None	None	G5T1	S1	1B.2
coast cutthroat trout *Oncorhynchus clarkii clarkii*	AFCHA0208A	None	None	G4T4	S3	SSC
coast fawn lily *Erythronium revolutum*	PMLIL0U0F0	None	None	G4G5	S3	2B.2
coastal marsh milk-vetch *Astragalus pycnostachyus var. pycnostachyus*	PDFAB0F7B2	None	None	G2T2	S2	1B.2
coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	
Cooper's hawk *Accipiter cooperii*	ABNKC12040	None	None	G5	S4	WL
cylindrical trichodon *Trichodon cylindricus*	NBMUS7N020	None	None	G4	S2	2B.2
dark-eyed gilia *Gilia millefoliata*	PDPLM04130	None	None	G2	S2	1B.2
Del Norte salamander *Plethodon elongatus*	AAAAD12050	None	None	G4	S3	WL
double-crested cormorant *Phalacrocorax auritus*	ABNFD01020	None	None	G5	S4	WL

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
eulachon *Thaleichthys pacificus*	AFCHB04010	Threatened	None	G5	S3	
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC
ghost-pipe *Monotropa uniflora*	PDMON03030	None	None	G5	S2	2B.2
giant fawn lily *Erythronium oregonum*	PMLIL0U0C0	None	None	G4G5	S2	2B.2
golden eagle *Aquila chrysaetos*	ABNKC22010	None	None	G5	S3	FP
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
great egret *Ardea alba*	ABNGA04040	None	None	G5	S4	
green sturgeon *Acipenser medirostris*	AFCAA01030	Threatened	None	G3	S1S2	SSC
Howell's montia *Montia howellii*	PDPOR05070	None	None	G3G4	S2	2B.2
Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402	None	None	G4T2	S2	1B.2
Humboldt marten *Martes caurina humboldtensis*	AMAJF01012	None	Candidate Endangered	G5T1	S1	SSC
Kneeland Prairie pennycress *Noccaea fendleri ssp. californica*	PDBRA2P041	Endangered	None	G5?T1	S1	1B.1
leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020	None	None	G5	S4	4.2
long-eared myotis *Myotis evotis*	AMACC01070	None	None	G5	S3	
longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SSC
Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0	None	None	G5	S3	2B.2
maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0	None	None	G3	S3	4.2
marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
marsh pea *Lathyrus palustris*	PDFAB250P0	None	None	G5	S2	2B.2
Menzies' wallflower *Erysimum menziesii*	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Methuselah's beard lichen *Usnea longissima*	NLLEC5P420	None	None	G4	S4	4.2
minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0	None	None	G3?	S2	1B.2
northern clustered sedge *Carex arcta*	PMCYP030X0	None	None	G5	S1	2B.2
Northern Coastal Salt Marsh *Northern Coastal Salt Marsh*	CTT52110CA	None	None	G3	S3.2	
Northern Foredune Grassland *Northern Foredune Grassland*	CTT21211CA	None	None	G1	S1.1	
northern meadow sedge *Carex praticola*	PMCYP03B20	None	None	G5	S2	2B.2
northern red-legged frog *Rana aurora*	AAABH01021	None	None	G4	S3	SSC
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012	None	None	G3	S3	2B.2
Oregon goldthread *Coptis laciniata*	PDRAN0A020	None	None	G4	S3	4.2
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6	None	None	G5T3	S2	1B.2
Pacific tailed frog *Ascaphus truei*	AAABA01010	None	None	G4	S3S4	SSC
perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5	None	None	G3T2	S2	1B.2
pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4	None	None	G4G5T2	S1	1B.1
Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	PDSCR0J0C3	None	None	G4?T2	S2	1B.2
running-pine *Lycopodium clavatum*	PPLYC01080	None	None	G5	S3	4.1
sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101	None	None	G5T2	S2	
seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1	None	None	G4T4	S2S3	2B.2
seaside bittercress *Cardamine angulata*	PDBRA0K010	None	None	G5	S1	2B.1
seaside pea *Lathyrus japonicus*	PDFAB250C0	None	None	G5	S2	2B.1

Selected Elements by Common Name

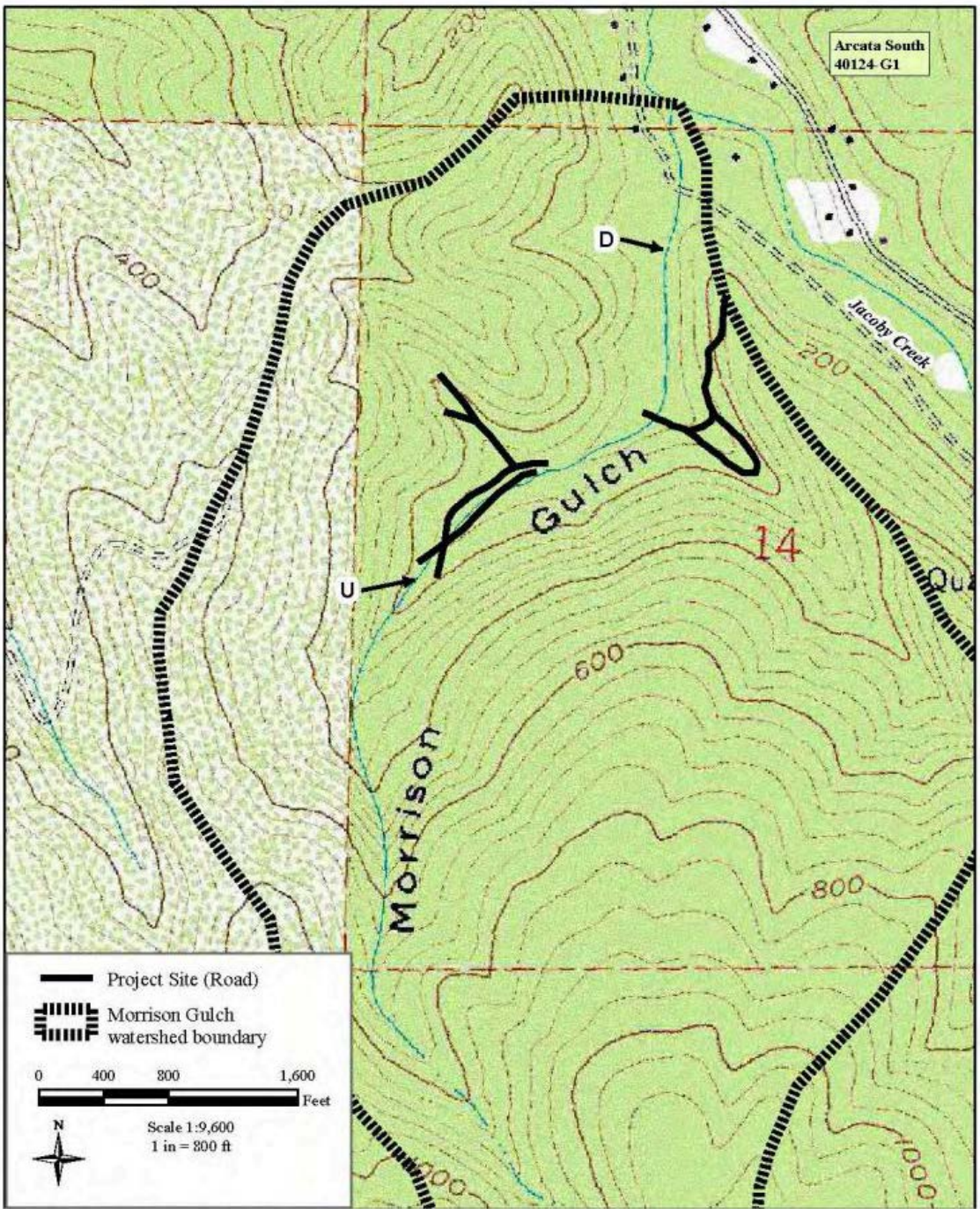
California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
sharp-shinned hawk *Accipiter striatus*	ABNKC12020	None	None	G5	S4	WL
short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011	None	None	G4T3	S2	1B.2
Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9	None	None	G5T2	S2	1B.2
snowy egret *Egretta thula*	ABNGA06030	None	None	G5	S4	
Sonoma tree vole *Arborimus pomo*	AMAFF23030	None	None	G3	S3	SSC
southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020	None	None	G3G4	S2S3	SSC
summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B	None	None	G5T4Q	S2	SSC
tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered	None	G3	S3	SSC
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
twisted horsehair lichen *Bryoria spiralifera*	NLTEST5460	None	None	G3	S1S2	1B.1
Upland Douglas Fir Forest *Upland Douglas Fir Forest*	CTT82420CA	None	None	G4	S3.1	
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western lily *Lilium occidentale*	PMLIL1A0G0	Endangered	Endangered	G1	S1	1B.1
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western sand-spurrey *Spergularia canadensis var. occidentalis*	PDCAR0W032	None	None	G5T4	S1	2B.1
western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
white-flowered rein orchid *Piperia candida*	PMORC1X050	None	None	G3	S3	1B.2
white-footed vole *Arborimus albipes*	AMAFF23010	None	None	G3G4	S2	SSC
white-tailed kite *Elanus leucurus*	ABNKC06010	None	None	G5	S3S4	FP
Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0	None	None	G2	S1	1B.1
northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC

Record Count: 81

Morrison Gulch Sediment Reduction Project
Project Location Map
T05N R01E S14, Arcata South Quad, Humboldt County



Introduction:

Grantee will implement the Mattole Storage and Forbearance 2017-2020 Project. This project will restore, improve, and protect juvenile anadromous fish habitat and fish passage through installation of storage tanks totaling 50,000 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. 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 50,000 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. This project is located on the mainstem at river mile 53.4, at coordinates 40.0539° north latitude and -123.9614° 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 Supervisor/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 Streamflow Monitor will perform all monitoring required for operation of the seasonal storage and forbearance program and manage all data. 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 Installation crew, Laborers, Dozer/Excavator, Heavy Equipment Transport, Dump truck, and Compactor 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 50,000-gallon water storage systems including 900 feet of plastic pipe, a leak safety and valves, a fish screen, a water meter, 50 yards of gravel, and miscellaneous system components.

Tasks: Install 50,000-gallon water storage systems in the Mattole headwaters, with accompanying forbearance agreement that prohibits 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:

- Copy of executed forbearance agreement
- Landowner Water Management Plans
- Installation of 50,000 gallon water storage system
- Installation of Grantor compliant fish screens for all diversions associated with the project
- Documentation of Compliance Monitoring
- Final Project Report

Timelines:

June 1, 2017 through June 31, 2018: 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

July 1, 2018 through December 30, 2019: Install water tanks, water system modifications and CDFW compliant fish screens at the diversion point

June 2018 – December 2020: Operate seasonal storage and forbearance program including new landowner participants from this proposal.

February 2021: 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.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Bear Harbor (3912388) OR Briceland (4012318) OR Ettersburg (4012328) OR Garberville (4012317) OR Honeydew (4012421) OR Miranda (4012327) OR Piercy (3912387) OR Shelter Cove (4012411))

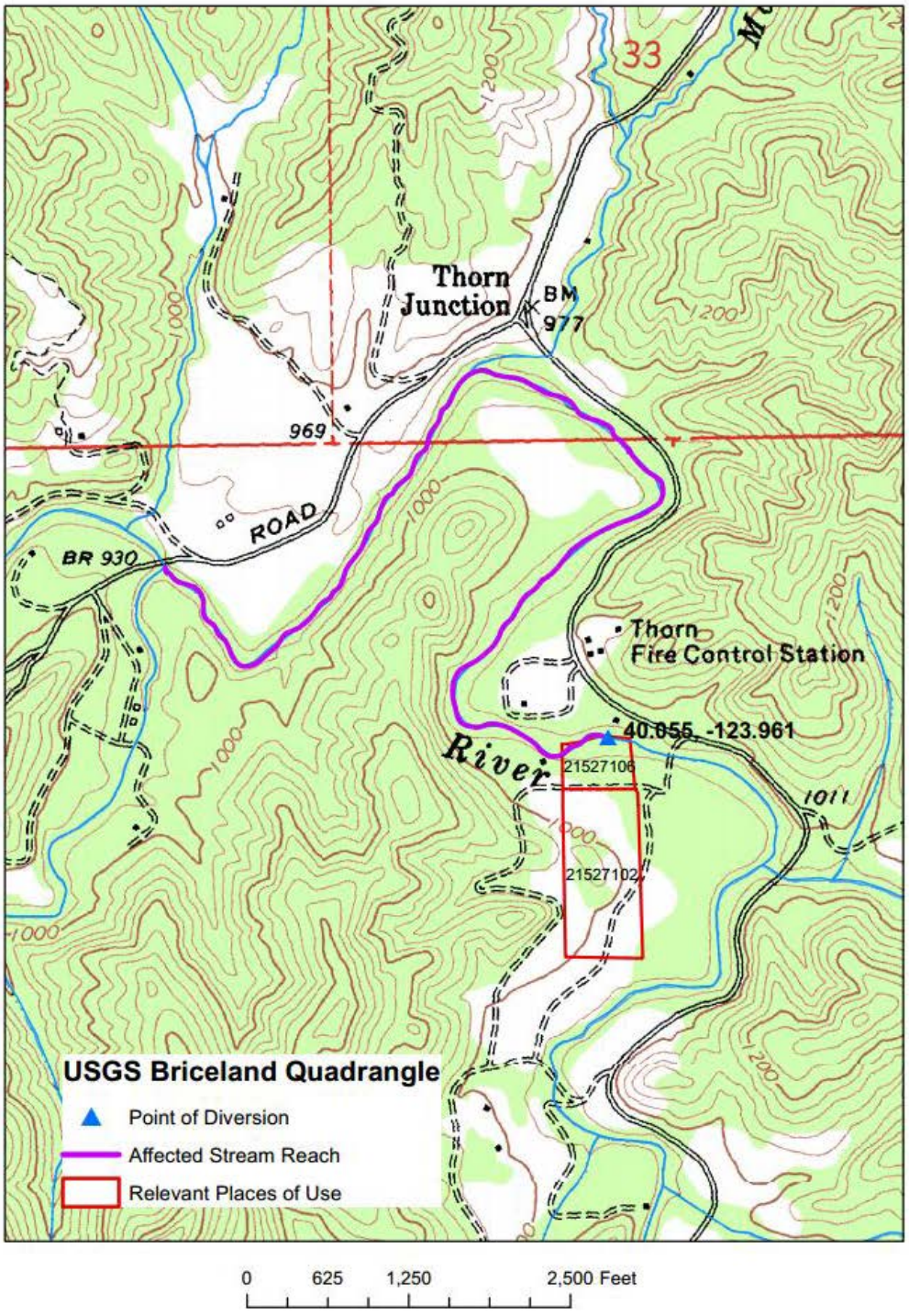
Possible species within the Briceland Quad and surrounding quads for 725246 Mattole Storage and Forbearance 2017-2020, T05S R02E S5, Humboldt County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
coast fawn lily *Erythronium revolutum*	PMLIL0U0F0	None	None	G4G5	S3	2B.2
coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	
Cooper's hawk *Accipiter cooperii*	ABNKC12040	None	None	G5	S4	WL
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC
giant fawn lily *Erythronium oregonum*	PMLIL0U0C0	None	None	G4G5	S2	2B.2
golden eagle *Aquila chrysaetos*	ABNKC22010	None	None	G5	S3	FP
Howell's montia *Montia howellii*	PDPOR05070	None	None	G3G4	S2	2B.2
Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080	None	Endangered	G2	S2	1B.1
leafy reed grass *Calamagrostis foliosa*	PMPOA170C0	None	Rare	G3	S3	4.2
leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020	None	None	G5	S4	4.2
little willow flycatcher *Empidonax traillii brewsteri*	ABPAE33041	None	Endangered	G5T3T4	S1S2	
maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0	None	None	G3	S3	4.2
marsh pea *Lathyrus palustris*	PDFAB250P0	None	None	G5	S2	2B.2
Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0	None	None	G2	S2	1B.2
Methuselah's beard lichen *Usnea longissima*	NLLEC5P420	None	None	G4	S4	4.2
mountain shoulderband *Helminthoglypta arrosa monticola*	IMGASC2035	None	None	G2G3T1	S1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012	None	None	G3	S3	2B.2
Oregon goldthread *Coptis laciniata*	PDRAN0A020	None	None	G4	S3	4.2
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6	None	None	G5T3	S2	1B.2
Pacific tailed frog *Ascaphus truei*	AAABA01010	None	None	G4	S3S4	SSC
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G5	S3	SSC
perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5	None	None	G3T2	S2	1B.2
small groundcone *Kopsiopsis hookeri*	PDORO01010	None	None	G4?	S1S2	2B.3
Sonoma tree vole *Arborimus pomo*	AMAFF23030	None	None	G3	S3	SSC
southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020	None	None	G3G4	S2S3	SSC
summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B	None	None	G5T4Q	S2	SSC
Ten Mile shoulderband *Noyo intersessa*	IMGASC5070	None	None	G2	S2	
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Upland Douglas Fir Forest *Upland Douglas Fir Forest*	CTT82420CA	None	None	G4	S3.1	
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
white-flowered rein orchid *Piperia candida*	PMORC1X050	None	None	G3	S3	1B.2
Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025	None	None	G5T1	S1	1B.1
northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC

Record Count: 38

Mattole Storage and Forbearance 2017-2020
Project Location Map
T05S R02E S5, Briceland Quad, Humboldt County



Woodman Creek (Eel River) Railroad Crossing Fish Passage Project 2016

Introduction: California Trout will remove the railroad crossing at Woodman Creek to restore fish passage access to approximately 14 miles of salmonid habitat. This project is necessary because the barrier at the mouth of Woodman Creek is a complete barrier to upstream migration. Woodman Creek is listed in the National Marine Fisheries Service Recovery Plan with high Intrinsic Potential (IP) (IP>0.66).

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

Objectives: The goal of this project is to remove the railroad barrier at the mouth of Woodman Creek and restore the historic channel-mouth configuration to allow unimpeded coho, Chinook, and steelhead access to 10 to14 miles of habitat. The specific objectives of this project include:

- Remove the Woodman Creek railroad crossing.
- Restore the lower-most 500 feet of Woodman Creek's historic stream channel at its confluence with the mainstem Eel River by partially backfilling the existing Woodman Creek channel confluence that flows across bedrock cascades forming the barrier.
- Permanently dispose of approximately 30,000 cubic yards of excavated fill material.

Project Description:

Location: The project is located on Woodman Creek, a tributary to the Mainstem Eel River, joining the Eel River approximately 5 miles downstream of the confluence of the Middle Fork Eel River and the town of Dos Rios. The confluence of Woodman Creek and the Mainstem of the Eel River is located at 39.77666200 north latitude, 123.39073450 west longitude.

Project Set Up: The Project Manager will provide all agreement oversight and administration including but not limited to obtaining permits, securing agreements (grantors, subcontractors, landowner, etc.), scheduling, invoicing, reporting, and agency and landowner communications. The Project Director will be available on a full time basis to manage this project. Support will also be provided by the Finance Director, Project Administrator and Direct Administrator.

The Heavy Equipment and Labor Subcontractor will provide all necessary heavy equipment, experienced operators, and skilled laborers required to complete the project as designed. This includes 1) mobilization and demobilization, 2) development of water management systems, 3) opening roads and rail for construction access, 4) the excavation of the railroad grade stream crossing and railroad grade and road fills, 5) removal, transport and storage of railroad tracks,

6) burying the rail ties in place, 7) construction of armored fill crossings and road drainage treatments along access roads, 8) developing spoil management areas, 9) construction and installation of the channel plug, 10) hauling and placing rip-rap for rock slope protection, 11) preparing bedrock abutments for a future rail line, and 12) final project stabilization including grading 10 miles of access roads to near highway 101, disassembling water management systems, and winterization of the project area with erosion control, seeding and mulching, and re-vegetation efforts. At least 10 pieces of heavy equipment are planned for construction elements including hydraulic excavators, bulldozers, dump trucks, water trucks, and front-end loaders. In addition, laborers will be used to spread straw and mulch, staff and monitor pumps and water lines during any necessary dewatering operations, and maintain and monitor equipment. Laborers will also conduct seeding, tree planting, straw and other material deliveries and mulching.

The Engineering Subcontractor (Michael Love and Associates) will serve as the project engineers. The Engineering Subcontractor (ES) will provide an ES Principal Engineer to serve as the responsible engineer for the project and will oversee project activities to ensure the project is built as intended, participate in project meetings, and assist with writing of the Final Project Report. The ES will provide an ES Project Engineer to participate in construction oversight and final reporting. The ES Project Engineer and an ES Staff Engineer will conduct the construction staking, grade checks and post construction surveys. An ES Engineering Geomorphologist will assist with construction oversight, construction documents and post construction testing.

The Geologic Subcontractor (Pacific Watershed Associates) (GS) will participate with the ES to provide on-site construction management from implementation activities to the final demobilization from the project (Tasks A, and D through I). All project elements will be under the direction of a GS Principal who is responsible for the successful completion of all construction activities. On-site day-to-day management of project elements will be performed by the GS Project Geologist and GS Technical Staff. A GS Certified Engineering Geologist will be on-site during the construction of the earthen plug within the bore hole.

The GS will provide technical oversight and supervision of material acquisition and transport to the project area, heavy equipment and labor operations, water management, post-project winterization and revegetation, etc. including 1) assisting with project permitting, and conducting pre-construction layout and pre-project monitoring; 2) Heavy Equipment and Labor Subcontractor show-me, selection and subcontracting, 3) heavy equipment implementation supervision and technical oversight, and 4) post-treatment data collection, photographic monitoring, data analysis and reporting.

In addition, the GS will maintain regular communications between California Trout, the Grantor's Project Manager, and the Heavy Equipment and Labor Subcontractor.

- The GS Technical Staff will perform project permitting, pre-construction layout, and pre-project monitoring for both the upslope and instream project elements. This includes laying out (flagging) specific treatments and extent of excavations, carrying out pre-treatment surveys of the railroad crossing and spoil areas, and pretreatment monitoring. Other layout steps include compiling the field information into a detailed set of construction maps, finalizing road logs, detailing treatment information, and providing copies of state and federal permits to the Heavy Equipment and Labor Subcontractor. The GS Geographic Information Systems (GIS) Staff will provide project support through development of GIS maps and products for the field, database interfaces, and Global Positioning System data organization and analysis.
- The GS Senior Geologist (a Professional Geologist) will supervise the heavy equipment implementation and provide technical oversight. The GS Senior Geologist will be charge of daily on-going activities including technical oversight and supervision of heavy equipment and labor operations. Duties will include materials coordination, project planning meetings, and communications with the landowner, Heavy Equipment and Labor Subcontractor, agencies, ES, and California Trout. For this task, the GS Technical Staff duties include field preparation, coordination, field vehicle maintenance, and field map creation and transfer for the GS GIS Staff. Photo downloading and file management, as well as data entry for annual report metrics, as built construction road logs, stream crossing surveys, and heavy equipment time logs for hours spent treating each feature within the project area are part of the GS Technical Staff duties. The GS Principal Geologist and GS Senior Geologist review the technical aspects of the implementation project and provide guidance for the GS Technical Staff as required in complex landform and construction issues. The GS Senior Geologist ensures compliance with the Geologist and Geophysicist Act (California Business and Professions Code 7800). In addition, the GS Principal Geologist and GS Senior Geologist ensure that the project is implemented as designed.
- The Engineering Subcontractor and GS Technical Staff will perform post-treatment data collection including topographic surveys, photographic monitoring, data analysis, and reporting. All required information will be compiled at the end of the project in a final summary report that includes post-construction metric tables, as-built construction road logs and maps, and photo monitoring pairs of pre- and post-treatments showing the condition of the project area. Quality assurance and quality control including final report technical editing and review will be by the GS Principal Geologist and GS Senior Geologist. For the final report, the GS GIS Staff will generate and provide final report maps.

Materials: The following materials will be used as part of the project:

Task B. Development of permits and California Environmental Quality Act (CEQA) compliance: office supplies.

Task C. Pre-construction Layout: Total Station Survey Equipment.

Task E. Mobilization and demobilization: A hot water pressure washer and generator.

Task F. Pre-construction erosion control and preparation of access roads: Flex pipe (6 inch diameter), silt fences.

Task G. Water management: Fire hoses (2 in and 4 in diameter), trash pumps (2 and 4 inch diameter), water tanks and float valves, and generator.

Task I: Channel restoration, plug construction and spoils management, and as-built topographic surveys and photographs: Total Station Survey Equipment, oxy-acetylene cutting torch, geotextile liner (10 mm thick), rock armor (armored fills), all-terrain vehicle, one-ton rock armor, rock slope protection (RSP) fabric, channel plug hardware, concrete, sheep's foot roller, portable sheep foot compactor, portable concrete hammer drill and impact driver, straw bales, native seed, tree seedlings, and field materials for stake out including flagging, wood stakes, field maps, and plastic film overlays for field maps.

Tasks: Secure permits and CEQA compliance, hire a Heavy Equipment and Labor Subcontractor, purchase materials and complete all elements of the project over a 20 week period in 2018. Restore approximately 550 feet of the historical channel alignment of Woodman Creek at its confluence with the Eel River to improve fish access to Woodman Creek for juvenile and adult, salmon and steelhead. The following tasks will be accomplished to complete the project goal.

Task A. Agreement management and oversight: Agreement oversight conducted by California Trout. The GS and Engineering Subcontractor will prepare invoices and progress reports to be submitted to California Trout during the course of the project.

Task B. Development of permits and CEQA compliance: The GS will assist California Trout in the development of permits and CEQA compliance field surveys with Humboldt State University Cultural Resources Department and Mendocino County.

Task C. Pre-construction project layout: Pre-construction project layout will be conducted by the GS and ES. The ES will provide construction layout. The layout will include establishment of elevation control, placement of stakes to denote the location and stationing of the proposed centerline of the stream channel and rough extents of excavation. Once layout is complete,

it will be the obligation of the Heavy Equipment and Labor Subcontractor and the GS to maintain the stake locations and to determine locations of non-staked items. Pre-implementation layout tasks by GS include:

1. Reevaluate and flag all work features and construction elements in the field;
2. Survey features and review pre- excavation profiles and cross sections and channel plug design plans and specifications;
3. Finalize lists of needed construction and erosion control materials including temporary water diversion pipes and hoses, rock armor, geotextile liner, plants, seed, and mulch; and
4. Photograph selected sites to gauge the success of final treatment plans throughout the project area. Base the final project layout for this project on the detailed 100% design plans finalized by the GS and ES.

Task D. Pre- construction Heavy Equipment and Labor Subcontractor show-me, subcontracting, and logistics: The ES will assist California Trout and GS with preparing construction documents and selection of a Heavy Equipment and Labor Subcontractor. Attend an on-site preconstruction meeting(s) to describe the project to perspective Heavy Equipment and Labor Subcontractors, prepare necessary addendums, and answer questions.

Task E. Mobilization and demobilization: Procure and deliver all materials and equipment to and from the project site. This includes but is not limited to; all heavy equipment, water trucks and tanks, portable toilets, generators, maintenance equipment, materials for water management (such as pumps, hoses and impermeable liners), erosion and sediment control materials, spill containment, and fire prevention materials, etc.

Task F. Pre-construction erosion control and preparation of access roads prior to heavy equipment operations: The Heavy Equipment and Labor Subcontractor will install temporary sediment and erosion control measures to prevent sediment delivery to streams along the access routes and at the project site. The Heavy Equipment and Labor Subcontractor will also grade and improve access and install temporary stream crossings, if necessary, to allow heavy equipment efficient access to the project area.

Task G. Water management:

Task G-1. Road fill compaction and dust management: Obtain permission to extract water from the Mainstem Eel River to be stored in temporary plastic tanks for project use. Use water for haul route construction, fill compaction, and dust management. Extract water using trash pumps and fire hose with a regulated draw rate and stored in 2,500 gallon plastic water tanks equipped with shut

off float valves. Using approximately 6,000 feet of fire hose, deliver water for compacting fills during the preparation of the railroad temporary haul road.

Task G-2. Dewatering project area: Dewater the active work area during the mid and later stages of daylighting the historic mouth of Woodman Creek. Pump clean stream flow around the work area. If necessary to control suspended sediment and turbid water within the work area, construct temporary coffer dams. Construct the coffer dams to be watertight dams with straw bales, plastic sheeting, and salvaged material from the project site. Use the coffer dams to impound turbid flowing water so it can be managed appropriately. Construct the coffer dams by excavating the alluvial streambed to capture both surface flow and inter-gravel flow. Where necessary, install temporary silt fences, straw bales or other flow-filtering measures in the channel to manage turbidity and suspended sediment. Convey diverted turbid water to off-site stable hill slopes or into on-site temporary sediment retention basins where it can infiltrate into the soil, or be used to wet spoil materials to be exported from the project area. Pump all turbid water off site to an area far away from the stream channel using gas powered 2 inch (or larger) diameter trash pumps and several hundred feet of hose, so that turbid water does not discharge back into the stream. On-site have a minimum of one full-time laborer to manage the clean and turbid water pumping system, as well as maintain the fish screens. The designated laborer will monitor and maintain the dewatering system so as to minimize the potential for construction-related sediment releases. Have backup pumps and hoses available on-site in case of equipment breakdown. Maintain dewatering activities until the work area is fully stabilized.

Task H. Channel restoration, plug construction, and spoils management:

Task H-1. Removal and storage of rail along the railroad alignment: Using heavy equipment, access the Woodman Creek barrier removal project site along 4,500 feet of the railroad alignment. Remove 4,500 feet of railroad track rails (9,000 feet of rail) and temporarily store along the alignment for future reuse. The railroad ties will remain in place along the 4,100 feet of railroad bed that will serve as the haul road access for construction. Both rails and ties will be removed along the 400 feet of rail alignment where the fish passage project will occur, and at the 5 locations where steep gradient ephemeral streams cross the rail haul route. Haul approximately 370 treated ties to Ukiah for proper disposal.

Task H-2. Railroad haul route construction (ingress): Once all the rail has been removed and set aside, front end loaders, the excavator,

a bulldozer and laborers will construct the railroad haul road, proceeding south to north along the right-of-way, utilizing embankment material obtained from the project site. Along the 4,100 foot of railroad access haul road leave the treated wooden railroad ties in place, and entomb them with geotextile liner over the ties, and utilize excavated railroad embankment fill from the project site to construct the spoil disposal railroad haul route. With the rails removed and temporarily set to the side, heavy equipment will convert the railroad right-of-way to a construction haul route that is suitable and safe for 20-cubic-yard off-highway dump trucks to end haul approximately 30,800 cubic yards of spoil material to Spoil Areas #1, #2 and #3 and to improve the haul road. The railroad haul route will be constructed with railroad embankment material excavated and removed from the project site. Prepare the railroad haul road for use.

- First, starting at the project site and proceeding north, labor crews will roll out and entomb the railroad ties with 10 millimeter, nonwoven geotextile liner to both protect the ties as well as separate the fill materials that will be placed over the railroad ties.
- Next, several front end loaders will begin to transport and place excavated railroad embankment material over the railroad ties and geotextile liner to form the roadbed.
- Finally, compact the spoils material using a bulldozer and piped water to moisten and compact the spoils material in 6" to 10" lifts, with a minimum 18" of fill over the geotextile liner.

Construct the final railroad haul road to have an average 15 - 20 foot wide driving surface. Excavate and remove approximately 8,300 cubic yards of embankment material from the project site to prepare the railroad for hauling. In addition to the 4,100 feet of railroad that will serve as a haul road, 2,320 feet of existing, very low standard road parallels the railroad tracks between Spoil Area #2 and the temporary staging area). Grade this section of road in order to make it suitable for off-highway hauling of excavated spoils from the project site. Finally install five small, steep ephemeral stream crossings (SC-6 through 10) along the railroad haul road. Temporarily fill the crossings to complete the railroad haul road, but excavate and convert each crossing to an armored fill crossing once the project is completed.

Task H-3. Haul route construction: The primary non-railroad access route to implement this project is located on private property. Between Spoil Areas #2 and #3, the haul route is 6,775 feet-long and can utilize approximately 3,200 cubic yards of embankment material to improve road drainage and make the haul route suitable

for end-hauling spoils with off-highway dump trucks. Starting at Spoil Area #2 and working uphill toward Spoil Area #3, dump trucks will deliver railroad embankment material from the project site to rock the road surface at five discrete locations. A D7 bulldozer will spread the materials, eliminate the inboard ditch to increase the road width, outslope the road and field compact the road surface working in conjunction with a water truck. Road segments that will be significantly improved range from 220 feet to 2,585 feet in length. Within the 6,775-foot-long haul road, there are five small ephemeral to intermittent streams (SC- 1 through 5) in need of upgrading in order to accommodate an off-highway dump truck. At each crossing the existing drainage structure will be removed and replaced with constructed armored fill crossings. Each armored fill will be constructed using 10 to 65 cubic yards of graded 0.5 to 1.5 foot diameter mixed rip rap that will be delivered from a local quarry located in Laytonville, California.

Task H-4. Excavate the historic bedrock channel and manage spoils: Dispose of approximately 44,000 cubic yards of excavated material at six designated sites. With the exception of the 1,700 cubic yards of embankment material used to construct the channel plug, all the remaining material must be disposed of away from the project site. Embankment materials utilized to construct the channel plug and upgrade the private haul road will be in permanent long term storage. However, the approximately 8,300 cubic yards of embankment materials used to entomb the rail ties is considered to be in long term but temporary storage, in the event that re-opening of the railroad is feasible in the future. The remaining volume of railroad embankment material and the entire volume of slackwater deposit will be end-hauled to 3 large stockpile and spoil areas. Approximately 30,800 cubic yards of spoils will be end-hauled to Spoil Areas #1, #2 and #3. All of the 14,700 cubic yards of slackwater deposits will be mixed and wetted with embankment materials and placed into permanent storage at Spoil Areas #2 and #3. Up to four 20 cubic yard off-highway dump trucks will be utilized to end-haul the railroad embankment material and slackwater deposits to Spoil Areas #2 and #3. As materials are delivered to the spoil areas, it will be mixed and wetted to obtain optimal field compaction. All spoil will be pushed into place and shaped by a D6 bulldozer with a maximum of 10 inch lifts to achieve compaction targets and specifications.

Task H-5. Construct the channel plug: The channel plug will consist of placement of compacted railroad embankment material. The top of the plug will be approximately 20 feet tall and 25 feet below the low cord of the existing railroad bridge. The top of the plug will be 10

feet wide. The Eel River side of the plug will have a side-slope of 2 horizontal (H):1 vertical (V). The Woodman Creek side will have a steeper side-slope, of 1.5H: 1V. The core of the plug will contain a Linear Low-Density Polyethylene geomembrane liner designed to prevent seepage and soil piping through the plug. The liner will be anchored to a new concrete footing across the bedrock bottom and the existing vertical concrete bridge abutments using an epoxy adhesive and a stainless steel flange. The top of the plug will be armored with minimum 1-foot diameter rock salvaged from the excavated embankment material. The faces of the plug will be armored with 1-Ton RSP. On the Eel River side of the plug the RSP will extend approximately half way up the face and will consist of one row thick of RSP. On the Woodman Creek side the RSP will be placed in front of the plug and extend up about 5.5 feet tall. The 1-Ton RSP will be approximately 10 feet thick, measured horizontally.

Task H-6. Final stabilization including:

Task H-6a. Planting: Plant 500 trees and plants in areas suitable for revegetation during the winter following construction. Include areas nearby watercourses and those that are suitable for vegetative regrowth.

Task H-6b. Railroad haul route winterization (egress): Following the end-hauling of all project spoil materials, replace each crossing with constructed armored fill stream crossings. Along the railroad right-of-way, water and grade the access haul road to obtain a 10% outsloped road bed with no inboard ditch or berms along the outboard edge of the road. Where bedrock is not present, construct each armored fill using 10 to 25 cubic yards of graded 0.5 to 1.5 foot diameter mixed rip rap that will be delivered from a local quarry located in Laytonville, California. At each of the 5 steep ephemeral stream crossings excavate all fill from the crossings down to bedrock with a broad, drivable rolling dip. Spoil the excavated fill on the road bed to improve the road outslope. Properly dispose of any treated wood waste at the Ukiah transfer station. If necessary to prevent post-implementation future erosion, construct armored fill crossings at each stream. If any potentially unstable fillslopes are present along the railroad haul road, pull the perched fill along the road and use the material to improve the road outslope with the excavator.

Task H-6c. Restoration and final grading of access routes: Rehabilitate the 14 miles of public and private access roads with a grader, water truck and backhoe. The Heavy Equipment and Labor Subcontractor, under the supervision

of the GS, will water and re-grade the road, clean plugged culverts and re-establish appropriately spaced and located drain points along the roads, where needed.

Task H-6d. Final stabilization (shape and groom spoil piles): Shape and groom spoils placed at Spoil Area #1, #2, and #3 to achieve stable slope angles. Upon completion of implementation activities and spoil site grading, either hand mulch and seed, or mulch with a trailer mounted straw blower by laborers, all bare soil areas to control erosion. Hydraulic excavators will perform the bulk of the excavation work on the railroad embankment and in the channel (both above and below the crossing), as well as opening access to the site, constructing the channel plug, improving the haul route and railroad haul route, removing several hundred feet of railroad tracks, grading and shaping the spoil material, seeding, straw mulching, and planting the site to achieve final stabilization and site completion. Heavy equipment needed to complete the excavation work includes one 325 DL CAT hydraulic excavators with quick release compactor and bull prick, one 319 DL CAT hydraulic excavator (or equivalent), two D7G bulldozers, four 730 CAT off-Highway dump trucks, 10 cubic yard dump trucks, two water trucks, two loaders, a backhoe, and a grader.

Task I. As-built surveys and photographs: The ES will prepare an as-built survey of the constructed project. The survey will include constructed channel thalweg profile and three or more cross sections. Elevations and extents of the channel plug will be surveyed, as will abutment preparations for future bridge placement. Survey of the spoils locations will be conducted using assumed datums at each location. The as-built survey will include a red-line markup of the construction documents with any changes that occurred during construction. A brief As-Built Memorandum will be prepared that provides a discussion of any differences between the construction documents and the as-built survey and any concerns arising from the difference. The GS will assist with pre and post construction surveys and photography. The GS will establish before and after photographs; permanent photo point stations will capture before, during, and after images of the construction elements, restoration activities and techniques. The stations will be flagged and mapped to develop a photo point map and described, and to provide for long term monitoring of channel changes at the project.

Task J. Post-construction high and low flow testing: Post-construction monitoring will be conducted by the ES at two different flows during the fall/winter following construction to evaluate the stream simulation project. The monitoring will occur during two typical life stage design flows. The channel thalweg and water depths will be surveyed through the realigned creek mouth and adjacent channel and throughout the project reference reach. Additionally, water depth and velocities will be measured across two cross sections within the project reference reach and two cross sections within the restored stream reach (4 cross sections total). Collected data will be evaluated for similar water depths, velocities, and hydraulic geometry as the reference reach. The evaluation will be documented as part of the final report.

Task K. Reporting:

Task K-1. general grant information,
Task K-2. location of work,
Task K-3. project access,
Task K-4. participating landowner's name and address,
Task K-5. a description and analysis of the design, planning and construction person hours expended,
Task K-6. a quantified description of the results of the project, including as-built road logs,
Task K-7. a topographic survey of the as-built channel and channel plug geometry, including spoil disposal areas,
Task K-8. dates of work and the number of person hours expended,
Task K-9. labeled before and after photos of selected restoration activities and techniques,
Task K-10. grant dollars spent and contributed and/or in kind services used to complete the project, and
Task K-11. GIS generated maps and shapefiles of project area.

Deliverables:

Task C: Pre-construction project layout

- Labelled pre-implementation photographs of project area and spoil locations.

Task I: As-built topographic surveys and photographs

- Labelled post-implementation photographs of project area and spoil locations.
- As-built surveys of treated channel reach, project area and spoil locations

Task K: Final Reporting and data analysis

- Miles of road treated (haul and spoil roads).
- Acres of upslope area treated (total).

- Miles or road treated for road drainage system improvements.
- Miles of road decommissioned.
- Miles of road upgraded.
- Types of upland erosion and sediment control.
- Species scientific names of plants planted.
- Number of trees and plants planted.
- Cubic yards of sediment prevented from entering the stream.
- Spoil volumes.
- Number of stream crossings treated.
- Number of stream crossings improved for fish passage
- Type of crossing treated.
- Miles of stream treated.
- Miles of stream made more accessible by treatment (to next barrier of upstream extent of anadromy).
- Number of culverts replaced/improved.
- Number of bridges replaced/improved.
- Number of rocked fords placed.
- Number of road crossings removed.
- Types of materials used for channel plug construction and anchoring.
- Miles of stream treated with channel structure placement.
- Project location map and as-built road map.
- As-built road logs.
- Results of dewatering, fish relocation data, and CDFW incidental take permit (where applicable).
- Heavy equipment hours organized by road segment, channel restoration activities, and channel plug installation.
- Annual and final project reports).
  - Annual report: Upon completion of each year of restoration activities, California Trout, the ES shall submit an annual report detailing the work completed that season. The annual report will include the following if applicable: (1) implementation start and end dates, (2) percentage of the project completed in total to date, (3) dewatering and fish relocation data on CDFW data sheet, (4) project start and end dates for work to be implemented the following season (if necessary), (5) road length segments upgraded and/or decommissioned, (6) sediment spoils volume estimate, (7) stream crossings treated to improve fish passage (number), (8), stream length opened for fish passage by improving stream crossings (miles), (9) sediment volume prevented from entering the stream, (10) upslope area treated (railroad grade fill slope failures), (11) amount of riparian area treated (acres), and (12) number and species of trees and plants planted.
  - Final report: Upon completion of the project, California Trout, GS and ES shall submit a written completion report which contains: (1) general

grant information, (2) location of work, (3) project access, (4) participating landowner's name and address, (5) a description and analysis of the restoration and planning person hours expended, (6) a quantified description of the results of the project, including as-built road logs, number of sites treated, miles of stream reach treated, and pre-construction and as-built topographic surveys of treated channel reach, project area and spoil locations, (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, (10) GIS and Computer-aided Design generated maps and shape files of the project area and as-built results, and (11) dewatering and fish relocation data on CDFW data sheet.

Quantifiable Expected Results:
The project will result in the following quantifiable expected results:

- 0.11 miles of stream treated
- 580 feet of aquatic habitat disturbed
- 0 square feet of instream features installed (footprint)
- 1 push-up dam treated
- 14 Miles of stream made accessible

Products to be Prepared and Delivered:
As described above, California Trout will provide regular progress reports and annual reports as requested by CDFW. In addition California Trout will deliver all required permits, pre and post restoration monitoring reports, finalized landowner access agreements and a Final Report upon project completion. The final report will include a detailed description of work completed, project area maps and photos.

As directed in the PSN, the following deliverables will be provided as a result of this project:

a. Final report which includes actual performance measures per site.
b. Post longitudinal profile for projects where channel grade is to be restored or otherwise modified by the project;
c. An incidental take permit submitted to the Grantor's Project Manager before each fish relocation activity, should any fish relocation activities occur
d. Project specific reporting metrics.

Timelines:

Task A. Agreement, management, and oversight. Upon receiving award and execution of the agreement, prior to receiving a final notice to proceed

from the Grantor's Project Manager. California Trout will oversee and coordinate the project through May 31, 2020.

Task B. Development of permits (including County Grading Permit, Lake and Streambed Alteration Agreement and CEQA compliance) - December 2017

Task C. Pre-construction project layout - February 2018

Task D Pre-construction Heavy Equipment and Labor Subcontractor project show-me/subcontracting/logistics - April 2018

Task E: Mobilization and demobilization - starting in May 2018

Task F. Pre-construction erosion control and preparation of access roads - May 2018

Task G. Water management - May 2018

Task H. Channel restoration - plug construction and spoils management - November 2018

Task I. As-built construction topographic surveys and photographs - November 2018

Task J. Post-construction high and low flow testing - December 2018 through April 2020

Task K. Final Reporting- May 2020

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 California Department of Fish and Wildlife (CDFW) Grant 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 CDFW.

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 CDFW Grant 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 CDFW 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 CDFW Grant 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 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.

Final structure design and placement will be determined by field consultation between the Grantee and the CDFW Grant Manager. 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 CDFW Grant 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 which are expected to erode and deliver sediment to the stream are the only locations where work will be authorized for reimbursement under the terms of this agreement. Reimbursement will not be authorized for work done to improve aesthetics only.

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 ensure the best chance of survival of the seedlings.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Bell Springs (3912385) OR Cahto Peak (3912365) OR Covelo West (3912373) OR Dos Rios (3912363) OR Iron Peak (3912374) OR Laytonville (3912364) OR Mina (3912383) OR Tan Oak Park (3912375) OR Updegraff Ridge (3912384))

Possible species within the Iron Peak Quad and surrounding quads for 725151 Woodman Creek (Eel River) Railroad Crossing Fish Passage Project, T22N R14W S11, Mendocino County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Baker's meadowfoam *Limnanthes bakeri*	PDLIM02020	None	Rare	G1	S1	1B.1
Butte County morning-glory *Calystegia atriplicifolia ssp. buttensis*	PDCON04012	None	None	G5T3	S3	4.2
coast fawn lily *Erythronium revolutum*	PMLIL0U0F0	None	None	G4G5	S3	2B.2
Crotch bumble bee *Bombus crotchii*	IIHYM24480	None	None	G3G4	S1S2	
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC
grass alisma *Alisma gramineum*	PMALI01010	None	None	G5	S3	2B.2
hoary bat *Lasiurus cinereus*	AMACC05030	None	None	G5	S4	
Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080	None	Endangered	G2	S2	1B.1
Konocti manzanita *Arctostaphylos manzanita ssp. elegans*	PDERI04271	None	None	G5T3	S3	1B.3
long-eared myotis *Myotis evotis*	AMACC01070	None	None	G5	S3	
marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
North Central Coast Fall-Run Steelhead Stream *North Central Coast Fall-Run Steelhead Stream*	CARA2631CA	None	None	GNR	SNR	
North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070	None	Threatened	G2	S2	1B.1
northern goshawk *Accipiter gentilis*	ABNKC12060	None	None	G5	S3	SSC
Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080	None	None	G5	S2S3	2B.2
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
Oregon goldthread *Coptis laciniata*	PDRAN0A020	None	None	G4	S3	4.2

Selected Elements by Common Name

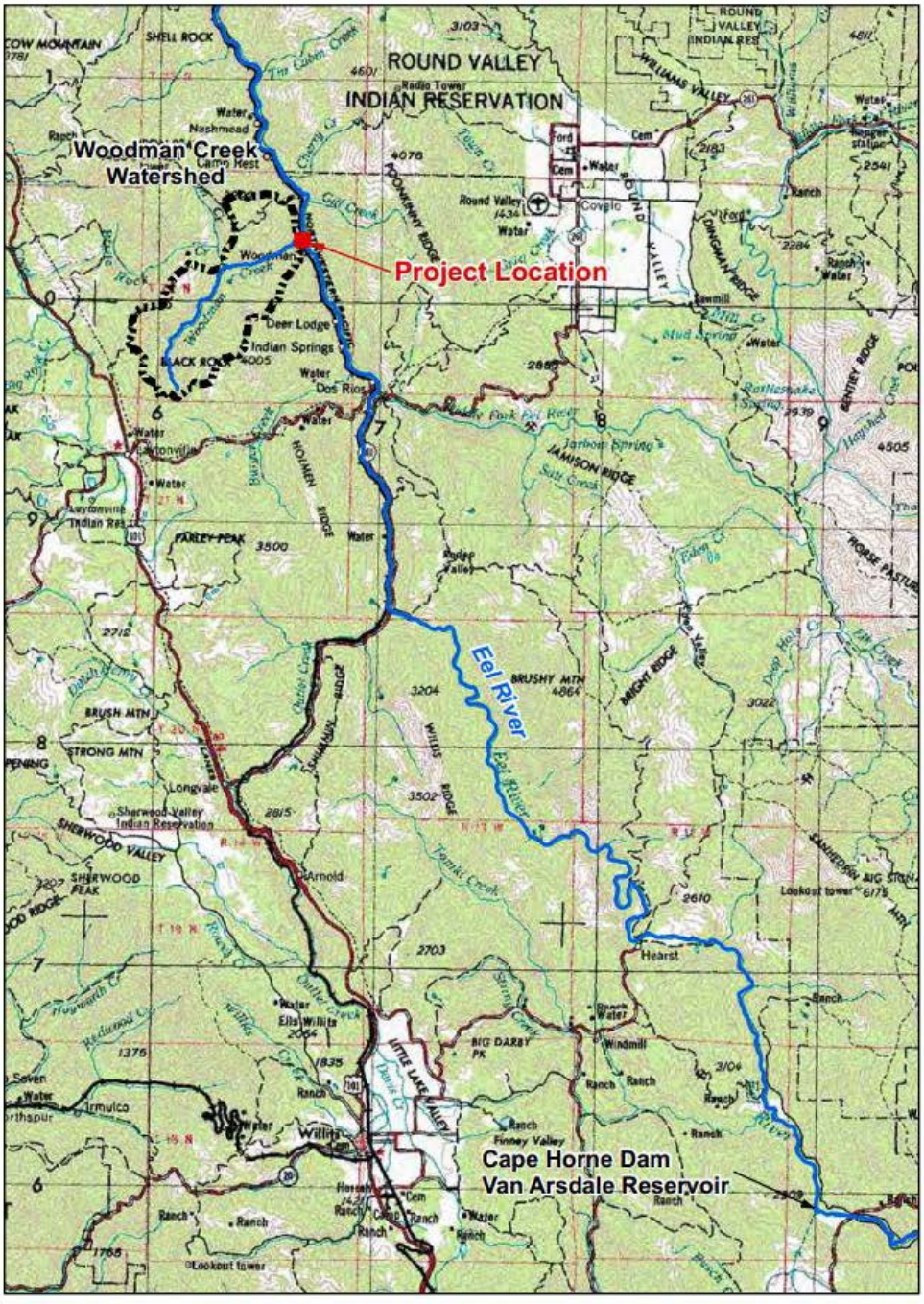
California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080	None	None	G4G5	S3?	2B.3
Pacific tailed frog *Ascaphus truei*	AAABA01010	None	None	G4	S3S4	SSC
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G5	S3	SSC
Sonoma tree vole *Arborimus pomo*	AMAFF23030	None	None	G3	S3	SSC
southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020	None	None	G3G4	S2S3	SSC
steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened	None	G5T2T3Q	S2S3	
thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0	None	None	G2	S2	1B.2
three-fingered morning-glory *Calystegia collina ssp. tridactylosa*	PDCON04036	None	None	G4T1	S1	1B.2
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Upland Douglas Fir Forest *Upland Douglas Fir Forest*	CTT82420CA	None	None	G4	S3.1	
Vine Hill ceanothus *Ceanothus foliosus var. vineatus*	PDRHA040D6	None	None	G3T1	S1	1B.1
watershield *Brasenia schreberi*	PDCAB01010	None	None	G5	S3	2B.3
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western red bat *Lasiurus blossevillii*	AMACC05060	None	None	G5	S3	SSC
white-flowered rein orchid *Piperia candida*	PMORC1X050	None	None	G3	S3	1B.2

Record Count: 34

Woodman Creek (Eel River) Railroad Crossing Fish Passage Project
Project Location Map
T22N R14W S11, Iron Peak Quad, Mendocino County



Introduction: Trout Unlimited, Inc. (TU) will remove two complete barriers to restore access and stream habitat to approximately 1,160 feet of Jack of Hearts Creek, and upgrade roads to prevent the direct delivery of 1,295 yards of sediment.

This project is necessary because the Jack of Hearts Creek coho population is identified in the *Recovery Strategy for California Coho Salmon* (CDFG 2004) as a key population to maintain or improve. The 2014 Jack of Hearts Creek Sediment Assessment and Erosion Prevention Planning project identified and prioritized road-related sediment source sites for treatment. The two sites on the Walton property were identified in the assessment as having moderate to high potential to fail and deliver sediment directly to Jack of Hearts Creek. The large earthen embankment at Site #33 has a high potential for catastrophic failure and sediment delivery during large storms or seismic shaking, and is also a barrier to juvenile and adult coho salmon migration.

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, XI, XI and XII (Flosi et al 1998 and 2002).

Objectives: The goal of this project is to restore access to approximately 1,160 feet of channel while preventing the direct delivery of 1,295 yards of sediment into coho habitat on the mainstem Jack of Hearts Creek. The objectives of this project include:

- Improve fish passage by removing two complete barriers that currently restrict passage to all life stages of salmonids.
- Treat four stream crossings including two culvert crossings, one currently diverted fill crossing, and an earthen embankment with a flow bypass channel.

Project Description:

Location: The project area is located approximately 3 miles upstream of the confluence of Jack of Hearts Creek and the South Fork Eel River. This site is west of the mainstem South Fork Eel River, downstream from Branscomb, California. The project is located at 39.71502000 north latitude: 123.68722300 west longitude.

Project Set Up: The Project Manager will provide all agreement and subcontracting oversight and administration including but not limited to obtaining permits; securing agreements (grantors, subcontractors, landowner); project scheduling; invoicing; report preparation; as well as facilitating agency and landowner communications. In addition to the Project Manager, the Grants Assistant will assist in processing invoices and vendor payments.

MICHAEL LOVE & ASSOCIATES, INC. (MLA). MLA will provide a Principal Engineer, Engineering Geomorphologist, Project Engineer, and Staff Engineer to support TU and Pacific Watershed Associates, Inc. with Heavy Equipment and

Labor Subcontractor selection, project implementation and post-construction as-built topographic survey and post-construction fish passage monitoring for the removal of the Walton Woods pond embankment and channel restoration.

PACIFIC WATERSHED ASSOCIATES, INC. (PWA). PWA will provide a Principal Earth Scientist, Project Manager, Geographic Information Systems Staff, and Clerical Staff to assist TU and MLA in bid document development and Heavy Equipment and Labor Subcontractor selection, technical oversight of Heavy Equipment and Labor Subcontractor activities during construction, pre- and post-construction photographic monitoring, evaluation and selection of earthen embankment construction materials, purchase of rock and culvert materials, and summary reporting.

ROSS TAYLOR & ASSOCIATES (RTA). RTA will provide a Principal Investigator and Field Staff to assist the Heavy Equipment and Labor Subcontractor with relocation of fish prior to dewatering. Services will include coordination with state and federal fishery agencies, capture and relocation of fish and amphibians, and completion of required state and federal reporting.

HEAVY EQUIPMENT AND LABOR CONTRACTOR. The Heavy Equipment and Labor Subcontractor will construct the project. Additionally, the Heavy Equipment and Labor Subcontractor will maintain temporary fish barriers and flow diversion during construction.

Materials: The following materials will be used to implement this project:
TU. Materials that are required for project management include mileage, streambed alteration agreement notification fee, and supplies. TU supplies may include meeting materials, field supplies, and external professional printer services for design plans and project reports.

SUBCONTRACTORS. 35 pieces of large woody material (LWM), one 114- inch diameter by 36 foot long culvert (with coupler), 35 tons of rock armor and 40 tons of road rock, approximately 80 native trees and 280 native shrubs, 3,000 square yards of seed and mulch, equipment related to fish relocation (.e.g. electrofishing gear, seine net, 3" centrifugal pump, hardware cloth, rebar, t-posts.).

Tasks:

Task 1: PROJECT MANAGEMENT: The Project Manager will provide all agreement oversight and administration including but not limited to obtaining permits, securing agreements (grantors, subcontractors, landowner), scheduling, implementation oversight, invoicing, reporting, and agency and landowner communications. Additionally, the Grants Assistant will assist with invoicing and vendor payment. MLA will coordinate staff and prepare

invoices and progress reports to be submitted to TU during the course of the project. PWA will prepare invoices for PWA services and expenses.

Task 2: HEAVY EQUIPMENT AND LABOR CONTRACTOR SELECTION: This task includes one telephone conference call meeting where Heavy Equipment and Labor Subcontractor specifications and requirements will be addressed. MLA and PWA will attend one on-site consultation meeting organized by TU to describe the stream-channel component of the project to prospective Heavy Equipment and Labor Subcontractors, and prepare a response to stream-related questions. PWA will also describe the road upgrading component (sites #30-32) to prospective Heavy Equipment and Labor Subcontractors. PWA Project Manager and PWA Principal will work with MLA to assist TU in the evaluation of contractor's experience and equipment, and selection of the contractor. Contract with a qualified Heavy Equipment and Labor Subcontractor and coordinate construction of the project.

Task 3: CONSTRUCTION & CONSTRUCTION OVERSIGHT:

Task 3.1: CONSTRUCTION STAKEOUT: MLA will provide construction stakeout for the project. The stakeout will include establishment of elevation control and placement of stakes to denote the location and stationing of the proposed centerline of the stream channel. Once staking is complete, it will be the obligation of the Heavy Equipment and Labor Subcontractor to maintain the stake locations and to determine locations of non-staked items. PWA Project Manager and Technical Staff will layout Sites #30-32 for implementation and define the stockpile location for the Heavy Equipment and Labor Subcontractor at Site #33 utilizing flagging and/or paint.

Task 3.2: FISH RELOCATION: RTA will conduct all pre project fish relocation activities including a pre-construction site walk, pond draw down, fish relocation, and reporting. The RTA Principal Investigator will also be available for calls on an as needed basis during construction. Coordinate with the Grantor's Project Manager to manage the pond to minimize the number of fish to be relocated and to plan for relocation of larger fish or large quantities of fish to the South Fork Eel River.

Task 3.3: CONSTRUCTION:

- Oversight: PWA Project Manager, PWA Principal, and PWA Technical Staff will coordinate to provide daily construction operations management and oversight to ensure timeliness, completion, and conformance with restoration and land management goals of TU, the landowner, the project, and to resolve agreement and contractual

issues. PWA Project Manager and PWA Principal will evaluate and select suitable salvaged backfill material for streambank and floodplain construction, and ensure the materials are compacted to design standards. PWA Project Manager will order and schedule delivery of project culvert and rock materials. PWA Project Manager and Technical Staff will oversee materials stockpiling and evaluate and maintain the effectiveness of erosion control efforts throughout construction.

MLA will perform part-time oversight during the implementation phase to oversee grading operations and large wood structure placement in the restored channel. During the course of construction, MLA will check the constructed grades of the restored channel and be available to clarify the intent of the design plans, when necessary.

The project team will schedule and attend one construction kickoff meeting and up to five weekly construction progress meetings. During these meetings, MLA and PWA will be available to make recommendations for addressing unforeseen conditions that arise and for make field changes, if necessary.

- Implementation: It is expected that earthen embankment decommissioning and channel restoration at Site #33 will take approximately 5 weeks. Implementation of Sites #30 – 32 will take approximately 3 days. All project participants will adhere to invasive species prevention and equipment decontamination protocols.

Task 3.4: AS-BUILT SURVEY: MLA will prepare as-built drawings using the construction drawings with red-line markups of the construction documents of any changes that occurred during construction. Final elevations of the channel, if they differ from the design drawings, will be noted on the as-built drawings.

Task 4: SUMMARY REPORTING: MLA will prepare a brief As-Built Memorandum that provides a discussion of any differences between the construction documents and the as-built project and potential concerns arising from the difference. MLA will also conduct physical monitoring of the project reach at a lower and upper salmonid migration flow. Because the project is designed based on adjacent stream reference reaches, hydraulic conditions within the restored stream channel will be compared to those in the adjacent channel reaches. Water surface and thalweg profiles will be surveyed through the project reach and reference reach. Additionally, two or more velocity cross sections will be surveyed using a pygmy meter. Take multiple velocity measurements across each section to look at velocity magnitudes and

distributions. Compare the water surface profiles and velocity cross sections from the project reach to the reference reach at each evaluated flow to confirm that the project has similar hydraulic conditions as the reference reach. MLA will prepare a brief technical memorandum summarizing the methods, results, and findings from this monitoring effort.

PWA Project Manager and PWA Technical Staff will prepare a final summary report detailing project accomplishments, containing pre- and post-construction photographic documentation, and all summary reporting metrics. The MLA As-Built Memorandum and as-built drawings will be included in the final summary report. PWA Principal will be responsible for final editing of the summary report.

Deliverables:

Task 1:

- Copies of subcontract agreements
- Final Landowner Access Agreement
- Notification of Lake or Streambed Alteration with a check
- Progress Report submitted with each invoice
- Annual Reports, November 15.

Task 2:

- One on-site consultation meeting with perspective subcontractors.

Task 3:

- One construction kickoff meeting and up to five weekly construction progress meetings
- Treatment of 0.35 miles of road thereby saving 1,295 cubic yards of sediment from delivery to the Jack of Hearts Creek Watershed
- Treatment of 15 acres of upslope area including 3 stream crossing upgrades and one crossing decommission. The removal of one instream barrier allowing access for all life stages of salmonids to approximately 1,160 feet of Class I channel.
- Creation of 19 instream features within 0.1 miles of Jack of Hearts Creek, consisting of 35 pieces of LWM.

Task 4:

- As-Built Memorandum
- Technical memorandum summarizing the methods, results, and findings from the post project monitoring effort
- 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 logs and the As-Built Drawings and Memorandum, (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 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.

Timelines:

Task 1: PROJECT MANAGEMENT:

- Project management and coordination will begin once the Agreement is executed and continue through the life of the project, June 1, 2017, or upon agreement execution, through February 28, 2019.
- Prior to implementation in summer 2018, permits and final landowner access permission shall be attained. Pre-project photos and quantitative metrics which satisfy the reporting requirements will be collected.
- Following implementation summer 2018, post-project photos and quantitative metrics which can satisfy the reporting requirements will be collected.

Task 2: HEAVY EQUIPMENT AND LABOR SUBCONTRACTOR SELECTION: Heavy Equipment and Labor Subcontractor selection will take place between June 1, 2017, or upon agreement execuittion, and June 1, 2018.

Task 3: CONSTRUCTION AND CONSTRUCTION OVERSIGHT: Project construction will take place between June 15, 2017 and October 31, 2018. Erosion control will be installed as project features are completed.

Task 4: SUMMARY REPORTING:

- Summary reporting tasks will take place between October 2017 and January 31, 2019.
- November 15, 2017 and November 15, 2018 an annual report will be delivered to Grantor's Project Manager.
- December through March of each year of implementation, planting of seedlings will take place when sufficient rainfall has occurred to ensure the best chance of survival of the seedlings.
- January 31, 2019, a Final Report will be delivered to the Grantor's Project Manager.

Additional Requirements:

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.

Final structure design and placement will be determined by field consultation between the Grantee and the CDFW Grant Manager. 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 CDFW Grant 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 which are expected to erode and deliver sediment to the stream are the only locations where work will be authorized for reimbursement under the terms of this agreement. Reimbursement will not be authorized for work done to improve aesthetics only.

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.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Cahto Peak (3912365) OR Dutchmans Knoll (3912356) OR Hales Grove (3912377) OR Inglenook (3912357) OR Leggett (3912376) OR Lincoln Ridge (3912366) OR Sherwood Peak (3912355) OR Tan Oak Park (3912375) OR Westport (3912367))

Possible species within Lincoln Ridge Quad and surrounding quads for 725156 Upper Jack of Hearts Creek Coho Habitat Restoration Project, T22N R16W S31, Mendocino County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S3	SSC
Baker's goldfields *Lasthenia californica ssp. bakeri*	PDAST5L0C4	None	None	G3TH	SH	1B.2
Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1	None	None	G4T2	S2	1B.1
Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060	None	None	G2	S2	1B.2
bluff wallflower *Erysimum concinnum*	PDBRA160E3	None	None	G3	S2	1B.2
California floater *Anodonta californiensis*	IMBIV04020	None	None	G3Q	S2?	
coast fawn lily *Erythronium revolutum*	PMLIL0U0F0	None	None	G4G5	S3	2B.2
coast lily *Lilium maritimum*	PMLIL1A0C0	None	None	G2	S2	1B.1
Coastal and Valley Freshwater Marsh *Coastal and Valley Freshwater Marsh*	CTT52410CA	None	None	G3	S2.1	
Coastal Brackish Marsh *Coastal Brackish Marsh*	CTT52200CA	None	None	G2	S2.1	
coastal triquetrella *Triquetrella californica*	NBMUS7S010	None	None	G2	S2	1B.2
coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
Crotch bumble bee *Bombus crotchii*	IIHYM24480	None	None	G3G4	S1S2	
dark-eyed gilia *Gilia millefoliata*	PDPLM04130	None	None	G2	S2	1B.2
deceiving sedge *Carex saliniformis*	PMCYP03BY0	None	None	G2	S2	1B.2
Fen *Fen*	CTT51200CA	None	None	G2	S1.2	
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC

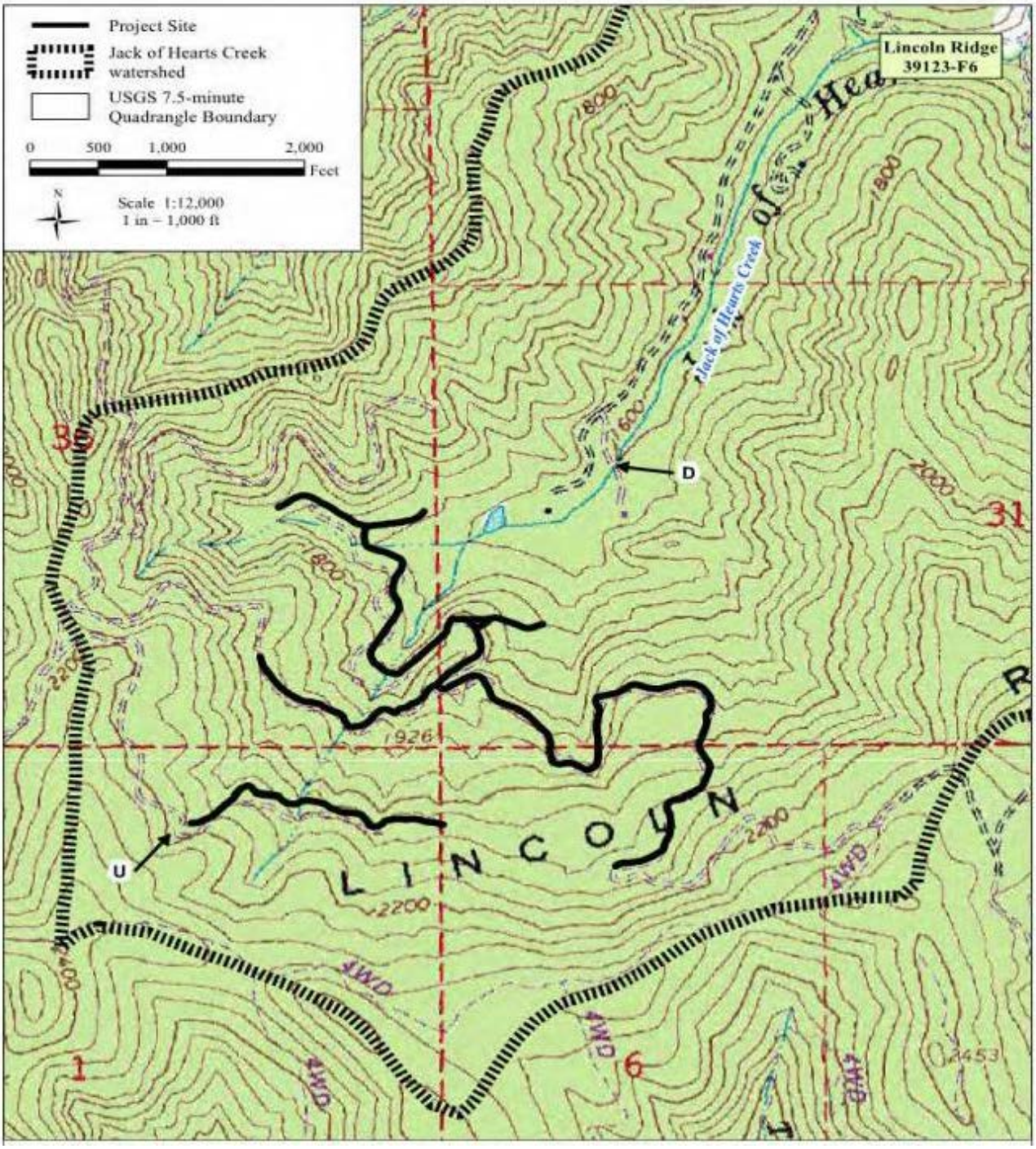
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
globose dune beetle *Coelus globosus*	IICOL4A010	None	None	G1G2	S1S2	
Grand Fir Forest *Grand Fir Forest*	CTT82120CA	None	None	G1	S1.1	
grass alisma *Alisma gramineum*	PMALI01010	None	None	G5	S3	2B.2
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
green yellow sedge *Carex viridula ssp. viridula*	PMCYP03EM5	None	None	G5T5	S2	2B.3
hoary bat *Lasiurus cinereus*	AMACC05030	None	None	G5	S4	
Howell's spineflower *Chorizanthe howellii*	PDPGN040C0	Endangered	Threatened	G1	S1	1B.2
Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080	None	Endangered	G2	S2	1B.1
Kellogg's buckwheat *Eriogonum kelloggii*	PDPGN083A0	None	Endangered	G2	S2	1B.2
Konocti manzanita *Arctostaphylos manzanita ssp. elegans*	PDERI04271	None	None	G5T3	S3	1B.3
leafy reed grass *Calamagrostis foliosa*	PMPOA170C0	None	Rare	G3	S3	4.2
leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020	None	None	G5	S4	4.2
Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0	None	None	G5	S3	2B.2
maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0	None	None	G3	S3	4.2
marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0	None	None	G2	S2	1B.2
Menzies' wallflower *Erysimum menziesii*	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
Methuselah's beard lichen *Usnea longissima*	NLLEC5P420	None	None	G4	S4	4.2
North Central Coast Fall-Run Steelhead Stream *North Central Coast Fall-Run Steelhead Stream*	CARA2631CA	None	None	GNR	SNR	
North Coast phacelia *Phacelia insularis var. continentis*	PDHYD0C2B1	None	None	G2T2	S2	1B.2
North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070	None	Threatened	G2	S2	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Northern Coastal Salt Marsh *Northern Coastal Salt Marsh*	CTT52110CA	None	None	G3	S3.2	
northern goshawk *Accipiter gentilis*	ABNKC12060	None	None	G5	S3	SSC
northern red-legged frog *Rana aurora*	AAABH01021	None	None	G4	S3	SSC
Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080	None	None	G5	S2S3	2B.2
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
Oregon goldthread *Coptis laciniata*	PDRAN0A020	None	None	G4	S3	4.2
oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080	None	None	G4G5	S3?	2B.3
Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6	None	None	G5T3	S2	1B.2
Pacific lamprey *Entosphenus tridentatus*	AFBAA02100	None	None	G4	S4	SSC
Pacific tailed frog *Ascaphus truei*	AAABA01010	None	None	G4	S3S4	SSC
perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5	None	None	G3T2	S2	1B.2
pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4	None	None	G4G5T2	S1	1B.1
Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0	None	None	G2	S2	1B.2
purple martin *Progne subis*	ABPAU01010	None	None	G5	S3	SSC
purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL	None	None	G5T1	S1	1B.2
Raiche's manzanita *Arctostaphylos stanfordiana ssp. raichei*	PDERI041G2	None	None	G3T2	S2	1B.1
Red Mountain catchfly *Silene campanulata ssp. campanulata*	PDCAR0U0A2	None	Endangered	G5T3Q	S3	4.2
robust false lupine *Thermopsis robusta*	PDFAB3Z0D0	None	None	G2	S2	1B.2
round-headed Chinese-houses *Collinsia corymbosa*	PDSCR0H060	None	None	G1	S1	1B.2
short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011	None	None	G4T3	S2	1B.2
Sonoma tree vole *Arborimus pomo*	AMAFF23030	None	None	G3	S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020	None	None	G3G4	S2S3	SSC
steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened	None	G5T2T3Q	S2S3	
swamp harebell *Campanula californica*	PDCAM02060	None	None	G3	S3	1B.2
Ten Mile shoulderband *Noyo intersessa*	IMGASC5070	None	None	G2	S2	
Thurber's reed grass *Calamagrostis crassiglumis*	PMPOA17070	None	None	G3Q	S2	2B.1
tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered	None	G3	S3	SSC
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Upland Douglas Fir Forest *Upland Douglas Fir Forest*	CTT82420CA	None	None	G4	S3.1	
Vine Hill ceanothus *Ceanothus foliosus var. vineatus*	PDRHA040D6	None	None	G3T1	S1	1B.1
watershield *Brasenia schreberi*	PDCAB01010	None	None	G5	S3	2B.3
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western pearlshell *Margaritifera falcata*	IMBIV27020	None	None	G4G5	S1S2	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
white beaked-rush *Rhynchospora alba*	PMCYP0N010	None	None	G5	S2	2B.2
white-flowered rein orchid *Piperia candida*	PMORC1X050	None	None	G3	S3	1B.2
Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025	None	None	G5T1	S1	1B.1
Wolf's evening-primrose *Oenothera wolfii*	PDONA0C1K0	None	None	G2	S1	1B.1
northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC

Record Count: 79

Upper Jack of Hearts Creek Coho Habitat Restoration Project
Project Location Map
T22N R16W S31, Lincoln Ridge Quad, Mendocino County



Introduction:

Trout Unlimited will implement the Little North Fork Big River Instream Coho Habitat Enhancement Project. The purpose of the project is to improve stream complexity, and increase pool depth and frequency by adding at least 43 individual large wood pieces at 21 locations along one mile of high priority coho salmon recovery habitat in the Little North Fork Big River. The project is necessary because stream habitat survey reports have shown low shelter rating in pools of the Little North fork Big River. A habitat survey within the project reach conducted by State Park staff in 2015 found only four pieces of large wood. It has been demonstrated that large wood can improve the quantity and quality of summer rearing habitat available to juvenile salmonids during drought and summer low flow conditions.

The Grantee shall not proceed with on the ground implementation until all necessary permits and consultations are secured and the Notice to Proceed has been issued.

All habitat improvement will follow techniques in the California Stream Habitat Restoration Manual, Parts VII and XI. Work in flowing streams is restricted to June 15 through October 31. Actual project start and end dates within this timeframe may be subject to other listed species restrictions and the discretion of the CDFW.

Objective(s):

The goal of this project is to improve habitat complexity, pool frequency, pool depth, and shelter values within the project reach. This goal will be achieved by installing at least 43 pieces of large wood and rootwads at 21 locations along a one mile reach of the Little North Fork Big River.

Project Description:

Location: The locations of the project boundaries are 39.33460º north latitude, 123.70046º west longitude at the upstream end; and 39.32335º north latitude, 123.69930º west longitude at the downstream end on the Little North Fork Big River in Mendocino County as depicted in the Project Location Map.

Project Set Up:

The Trout Unlimited (TU) Project Manager will provide all contracting oversight and administration including but not limited to obtaining permits; securing contracts (grantors, subcontractors, landowner); project scheduling; invoicing; report preparation; as well as facilitating agency and landowner communications. The TU Grants Assistant will assist in processing invoices and vendor payments. This task will occur throughout the life of the project.

The Blencowe Watershed Management (BWM) Project Manager will direct and oversee project implementation including developing structure designs, securing construction materials, and pre- and post-implementation surveys. The Project

Manager will also work closely with the California State Parks personnel in site layout, implementation and pre- and post-implementation surveys. The BWM Project Technician will assist with structure design development, implementation, and pre- and post-implementation surveys (including performance metrics, and As-Built diagrams/descriptions).

The Pacific Inland, Inc. (PII) Licensed Timber Operator will operate all equipment during implementation and the construction of structure designs.

The California State Parks (CSP) Senior Environmental Scientist will coordinate with TU for contract and access agreements and will assist in log allocations and procurement. The CSP Environmental Scientist will assist with pre- and post-implementation surveys, including performance measure data collection, taking representative longitudinal profile and cross section elevations, and photographic monitoring. The CSP Environmental Scientist will also provide final review of the final report prior to submittal to CDFW. The CSP Wildlife Biologist will conduct Northern Spotted Owl (NSO) surveys prior to project implementation and make results available to TU and CDFW.

Materials: Materials for this project include large tree logs, metal tags for identification of individual logs associated with project, chainsaw files, caps, and lubricants, heavy equipment hazmat supplies, heavy equipment decontamination supplies, gloves, earplugs, safety glasses, field measuring tapes and other survey supplies, and straw mulch.

Tasks:

Task 1. Grant Oversight: Grant oversight will be conducted by Grantee and will include obtaining permits, securing contracts and landowner access agreements, scheduling, implementation oversight, invoicing, reporting, and communications with Grantor, agency, and landowner(s). All reporting and billing will be pursuant to grant and regulatory guidelines. Upon final execution of the Grant and prior to receiving a Final Notice to Proceed, Grantee shall deliver the following items to the Grantor Project Manager identified in Section 6.04 – Contacts:

- Final Landowner Access Agreements as per the requirements of the 2016 Proposal Solicitation Notice, Appendix K, Funding Approval Submissions. Written permission must be obtained from landowners for access to perform grant work.

- Subcontractor Agreements. If a subcontractor is to be used, then a written copy of the sub agreement(s) shall be submitted to the Grantor Project Manager. The subcontract shall include specific language which establishes

the rights of the auditors of the State to examine the records of the subcontractor relative to the services and materials provided under the grant.

A Preliminary Notice to Proceed can be requested from the Grantor Project Manager, if necessary, to prepare for project implementation (e.g., obtain permits, secure subcontracts, purchase supplies, apply for a Streambed Alteration Agreement).

A Final Notice to Proceed will be delivered to the Grantee when Final Landowner Access Agreement(s) and subcontracts are delivered to Grantor Project Manager, and when all required permits have been finalized (e.g., 401 State Water Quality Control Board Permit, Streambed Alteration Agreement).

The Grantee shall notify the Grantor Project Manager a minimum of 10 business days prior to the beginning of project implementation.

Task 2. Final Feature Design and Pre-Project Surveys: Prepare site specific designs based on local channel characteristics, large wood availability and equipment access. Obtain design approval from landowner and Grantor Project Manager.
CSP will conduct follow-up NSO spot check surveys to determine NSO presence. CSP fisheries biologists and Blencowe Watershed Management (BWM) will perform a modified Level II habitat survey prior to implementation in order to establish baseline performance measure data. This survey will measure parameters related to the project's targeted habitat metrics (i.e. pool frequency, pool depth, and shelter rating). Additionally, pre-implementation photographs will be taken, and a pretreatment longitudinal profile with cross sections will be surveyed within a representative stream reach where Large Woody Debris (LWD) structures will be installed.

- Materials Required: Survey Supplies, Contractor Mileage
- Personnel: BWM, CSP, and TU

Task 3. Project Implementation:

Task 3A. Install Instream Habitat Features: Installation of 21 LWD features including 43 or more logs or large wood pieces will be completed over a one mile reach of Little North Fork Big River using rubber-tired skidder and/or backhoe for log placement. Immediately following log placement each piece will be measured, tagged, and photographed.

- Materials Required: Large wood pieces, Field Supplies, Metal tags, Chainsaw equipment, Contractor Mileage
- Personnel: BWM, PII, TU, CSP

Task 3B. Erosion Control: Mulching and seeding will take place as features are completed to avoid unforeseen erosion. Seeding and mulching will take place on all exposed soils which may deliver sediment to a stream. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years.

- Materials Required: Large wood pieces, Field Supplies, Metal tags, chainsaw equipment, Contractor Mileage
- Personnel: BWM

Task 4. Post Implementation Surveys

Task 4A. Post-Project Data and Photo Collection: Following implementation, post-project photos will be taken and performance metrics collected which satisfy the Grant Agreement Annual Progress Report(s) and Final Report.

- Materials Required: Survey Supplies, Contractor Mileage
- Personnel: BWM, TU, and CSP

Task 4B. Habitat and Channel Surveys: Following at least one post-implementation winter, a modified Level II habitat survey will occur under similar flow conditions as the pre-implementation survey to measure project performance. This survey will measure parameters related to the project's targeted habitat metrics (i.e. pool frequency, pool depth, and shelter rating). Additionally, a post-implementation longitudinal profile with cross sections will be completed at the same locations measured in the pre-implementation surveys. The post-implementation longitudinal profile will be included in the As-Builts with the Final Report.

- Materials Required: Survey Supplies, Contractor Mileage
- Personnel: BWM, TU, and CSP.

Task 5. Reporting: Write and deliver progress reports for invoicing and Annual Progress Report(s). Summarize and interpret instream wood and other survey information, and summarize performance measures and prepare Final Report and deliver to Grantor.

Deliverables:

1. Progress reports, annual reports, invoices, or other documents that are necessary pursuant to CDFW guidelines.
2. NSO Survey results, Pre-implementation longitudinal profile, performance metric data, and photos.
3. Installation of at least 43 pieces of wood at 21 locations along 1 mile of stream.
4. Performance measure metrics; post-implementation longitudinal profile, As-Built diagrams, and photos.

5. 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 (per site), (7) dates of work, (8) As-Built drawings that include structure placement and alignment, materials used (size and quantity), cross sections and longitudinal profiles, (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 with all pertinent project features and work site stations.

Timelines:

Contract timeline is expected to be June 1, 2017 through March 31, 2019.
Wood installation is expected to take 10-15 days.

Task 1. Grant Oversight: June 1, 2017 to March 31, 2019

Task 2. Final Feature Design and Pre-Project Surveys: Summer/Fall of 2017 or Spring 2018 (depending on subcontractor scheduling) to June 15, 2018.

Task 3. Project Implementation: August 1 to October 31, 2017 or August 1 to October 31, 2018 (depending on potential NSO work restrictions and subcontractor scheduling). Implementation is expected to take 10-15 days. All wood installation work will be completed during low-flow periods when impacts to water quality can be minimized or avoided.

Task 4. Post Implementation Surveys: August 15 to October 31, 2017 or August 15 to October 31, 2018 - Task 4A (photos, performance metrics, As-Built diagrams)
June 15, 2018 to January 31, 2019 – Task 4B Post-Implementation Level II Habitat Survey (at similar flow conditions as Pre-Implementation survey) and Longitudinal Profile completed (after structures have been through one winter flow season).

Task 5. Reporting:
December 1st 2017, December 3, 2018: Annual Reports Due
January 31, 2019 Draft Final Report Due
February 22, 2019 Final Report Due

Summer Season Work Time frame will be June 15 – October 31, unless additional restrictions are necessary based on NSO presence.

Additional Requirements:

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.*

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). 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 Grant Manager a minimum of five working days before any fish bearing stream reaches are dewatered and the stream flow diverted. The notification will provide a reasonable time for Department personnel to supervise the implementation of the water diversion plan and oversee the safe removal and relocation of salmonids and other aquatic species 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 Grant Manager on a form provided by CDFW.

- 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.

  The Grantee will seed and mulch all exposed soils which may deliver sediment to a stream. Mulching and seeding can occur at any time during construction but will need to be completed prior to Oct. 15. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Albion (3912327) OR Comptche (3912335) OR Elk (3912326) OR Fort Bragg (3912347) OR Mathison Peak (3912336) OR Mendocino (3912337) OR Navarro (3912325) OR Northspur (3912345) OR Noyo Hill (3912346))

Possible species within the Mathison Peak Quad and surrounding quads for 725158 Little North Fork Big River Instream Coho Habitat Enhancement Project, T17N R17W S13 Mendocino County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
alpine marsh violet *Viola palustris*	PDVIO041G0	None	None	G5	S1S2	2B.2
angel's hair lichen *Ramalina thrausta*	NLLEC3S340	None	None	G5	S2?	2B.1
ashy storm-petrel *Oceanodroma homochroa*	ABNDC04030	None	None	G2	S2	SSC
Baker's goldfields *Lasthenia californica ssp. bakeri*	PDAST5L0C4	None	None	G3TH	SH	1B.2
Behren's silverspot butterfly *Speyeria zerene behrensii*	IILEPJ6088	Endangered	None	G5T1	S1	
Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060	None	None	G2	S2	1B.2
bluff wallflower *Erysimum concinnum*	PDBRA160E3	None	None	G3	S2	1B.2
Bolander's beach pine *Pinus contorta ssp. bolanderi*	PGPIN04081	None	None	G5T2	S2	1B.2
bunchberry *Cornus canadensis*	PDCOR01040	None	None	G5	S2	2B.2
California red-legged frog *Rana draytonii*	AAABH01022	Threatened	None	G2G3	S2S3	SSC
California sedge *Carex californica*	PMCYP032D0	None	None	G5	S2	2B.3
coast fawn lily *Erythronium revolutum*	PMLIL0U0F0	None	None	G4G5	S3	2B.2
coast lily *Lilium maritimum*	PMLIL1A0C0	None	None	G2	S2	1B.1
Coastal and Valley Freshwater Marsh *Coastal and Valley Freshwater Marsh*	CTT52410CA	None	None	G3	S2.1	
coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2	None	None	G4T2T3	S2S3	1B.2
Coastal Brackish Marsh *Coastal Brackish Marsh*	CTT52200CA	None	None	G2	S2.1	
coastal triquetrella *Triquetrella californica*	NBMUS7S010	None	None	G2	S2	1B.2
coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
congested-headed hayfield tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065	None	None	G5T1T2	S1S2	1B.2
dark-eyed gilia *Gilia millefoliata*	PDPLM04130	None	None	G2	S2	1B.2
deceiving sedge *Carex saliniformis*	PMCYP03BY0	None	None	G2	S2	1B.2
dwarf alkali grass *Puccinellia pumila*	PMPOA531L0	None	None	G4?	SH	2B.2
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC
globose dune beetle *Coelus globosus*	IICOL4A010	None	None	G1G2	S1S2	
Grand Fir Forest *Grand Fir Forest*	CTT82120CA	None	None	G1	S1.1	
great burnet *Sanguisorba officinalis*	PDROS1L060	None	None	G5?	S2	2B.2
hair-leaved rush *Juncus supiniformis*	PMJUN012R0	None	None	G5	S1	2B.2
Howell's spineflower *Chorizanthe howellii*	PDPGN040C0	Endangered	Threatened	G1	S1	1B.2
Humboldt Bay owl's-clover *Castilleja ambigua var. humboldtiensis*	PDSCR0D402	None	None	G4T2	S2	1B.2
Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080	None	Endangered	G2	S2	1B.1
lagoon sedge *Carex lenticularis var. limnophila*	PMCYP037A7	None	None	G5T5	S1	2B.2
leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020	None	None	G5	S4	4.2
livid sedge *Carex livida*	PMCYP037L0	None	None	G5	SH	2A
lotis blue butterfly *Plebejus idas lotis*	IILEPG5013	Endangered	None	G5TH	SH	
Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0	None	None	G5	S3	2B.2
maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0	None	None	G3	S3	4.2
marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
marsh pea *Lathyrus palustris*	PDFAB250P0	None	None	G5	S2	2B.2
Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Mendocino dodder *Cuscuta pacifica var. papillata*	PDCUS011A2	None	None	G5T1	S1	1B.2
Mendocino leptonetid spider *Calileptoneta wapiti*	ILARAU6040	None	None	G1	S1	
Mendocino Pygmy Cypress Forest *Mendocino Pygmy Cypress Forest*	CTT83161CA	None	None	G2	S2.1	
Menzies' wallflower *Erysimum menziesii*	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
Methuselah's beard lichen *Usnea longissima*	NLLEC5P420	None	None	G4	S4	4.2
Monterey clover *Trifolium trichocalyx*	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
Navarro roach *Lavinia symmetricus navarroensis*	AFCJB19023	None	None	G4T1T2	S2S3	SSC
North Coast phacelia *Phacelia insularis var. continentis*	PDHYD0C2B1	None	None	G2T2	S2	1B.2
North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070	None	Threatened	G2	S2	1B.1
Northern Coastal Salt Marsh *Northern Coastal Salt Marsh*	CTT52110CA	None	None	G3	S3.2	
northern goshawk *Accipiter gentilis*	ABNKC12060	None	None	G5	S3	SSC
northern microseris *Microseris borealis*	PDAST6E030	None	None	G5	S1	2B.1
northern red-legged frog *Rana aurora*	AAABH01021	None	None	G4	S3	SSC
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012	None	None	G3	S3	2B.2
Oregon goldthread *Coptis laciniata*	PDRAN0A020	None	None	G4	S3	4.2
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6	None	None	G5T3	S2	1B.2
Pacific tailed frog *Ascaphus truei*	AAABA01010	None	None	G4	S3S4	SSC
perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5	None	None	G3T2	S2	1B.2
pink sand-verbena *Abronia umbellata var. breviflora*	PDNYC010N4	None	None	G4G5T2	S1	1B.1

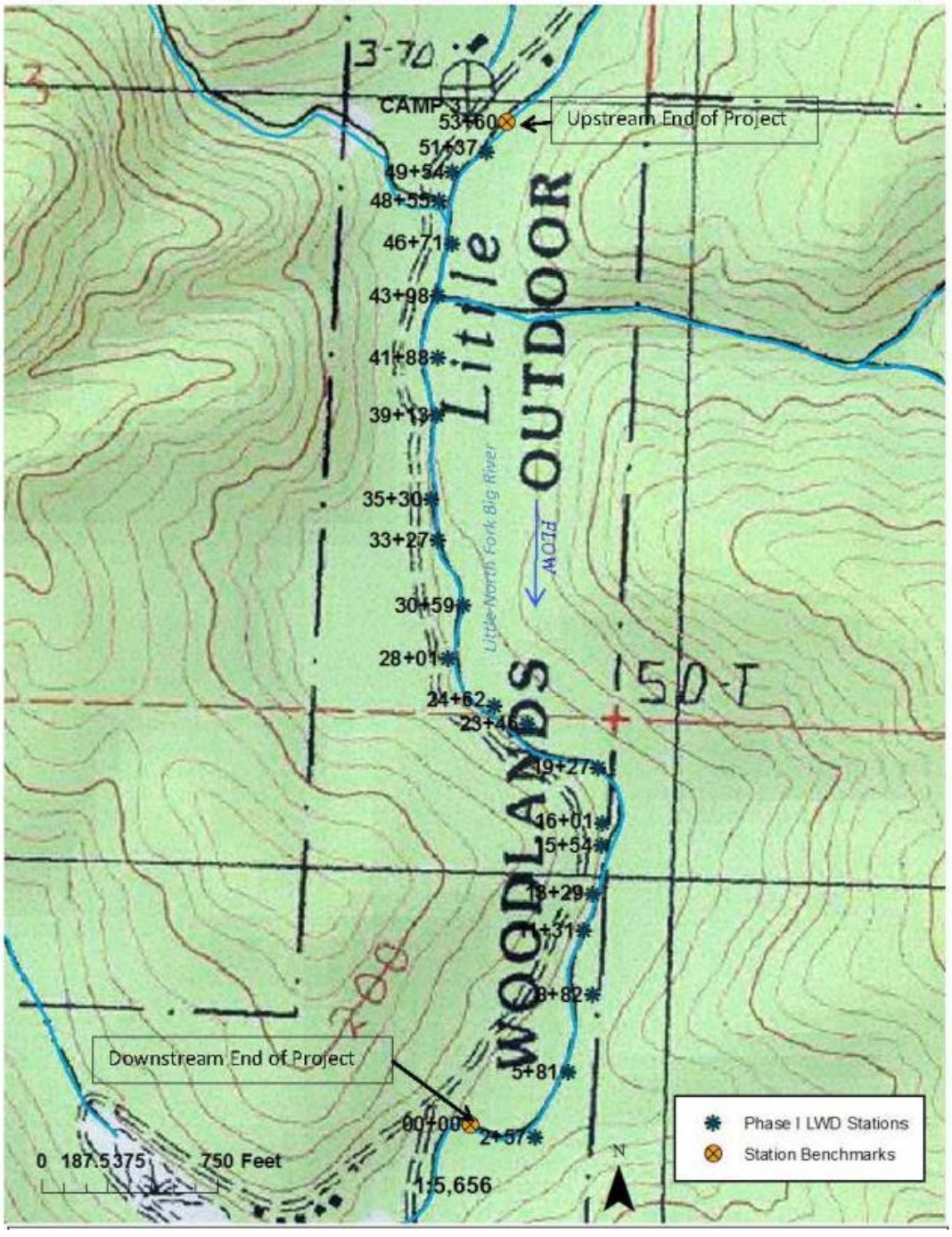
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Point Reyes blennosperma *Blennosperma nanum var. robustum*	PDAST1A022	None	Rare	G4T2	S2	1B.2
Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012	None	None	G5T2	S2	1B.2
Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0	None	None	G2	S2	1B.2
Pomo bronze shoulderband *Helminthoglypta arrosa pomoensis*	IMGASC2033	None	None	G2G3T1	S1	
purple martin *Progne subis*	ABPAU01010	None	None	G5	S3	SSC
purple-stemmed checkerbloom *Sidalcea malviflora ssp. purpurea*	PDMAL110FL	None	None	G5T1	S1	1B.2
pygmy cypress *Hesperocyparis pygmaea*	PGCUP04032	None	None	G1	S1	1B.2
pygmy manzanita *Arctostaphylos nummularia ssp. mendocinoensis*	PDERI04280	None	None	G3?THQ	SH	1B.2
round-headed Chinese-houses *Collinsia corymbosa*	PDSCR0H060	None	None	G1	S1	1B.2
running-pine *Lycopodium clavatum*	PPLYC01080	None	None	G5	S3	4.1
seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1	None	None	G4T4	S2S3	2B.2
short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011	None	None	G4T3	S2	1B.2
Siskiyou checkerbloom *Sidalcea malviflora ssp. patula*	PDMAL110F9	None	None	G5T2	S2	1B.2
small groundcone *Kopsiopsis hookeri*	PDORO01010	None	None	G4?	S1S2	2B.3
Sonoma tree vole *Arborimus pomo*	AMAFF23030	None	None	G3	S3	SSC
southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020	None	None	G3G4	S2S3	SSC
Sphagnum Bog *Sphagnum Bog*	CTT51110CA	None	None	G3	S1.2	
steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened	None	G5T2T3Q	S2S3	
supple daisy *Erigeron supplex*	PDAST3M3Z0	None	None	G2	S2	1B.2
swamp harebell *Campanula californica*	PDCAM02060	None	None	G3	S3	1B.2
Ten Mile shoulderband *Noyo intersessa*	IMGASC5070	None	None	G2	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Thurber's reed grass *Calamagrostis crassiglumis*	PMPOA17070	None	None	G3Q	S2	2B.1
tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered	None	G3	S3	SSC
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	None	G2G3	S1S2	SSC
tufted puffin *Fratercula cirrhata*	ABNNN12010	None	None	G5	S1S2	SSC
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
white beaked-rush *Rhynchospora alba*	PMCYP0N010	None	None	G5	S2	2B.2
white-flowered rein orchid *Piperia candida*	PMORC1X050	None	None	G3	S3	1B.2
white-tailed kite *Elanus leucurus*	ABNKC06010	None	None	G5	S3S4	FP
Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025	None	None	G5T1	S1	1B.1
northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC

Record Count: 93

Little North Fork Big River Instream Coho Habitat Enhancement Project
Project Location Map
T17N R17W S13, Mathison Peak Quad, Mendocino County

Project Location Topographic Map: LNF Big River Instream Coho Habitat Enhancement Project



Introduction: The California Conservation Corps will improve the complexity, frequency, and depth of pools in a 4,310 foot reach of James Creek by installing 29 structures containing 91 pieces of large woody debris (LWD).

This project is necessary to address the task listed in the National Oceanic and Atmospheric Administration (NOAA) Fisheries *Recovery Plan for California Central Coast Coho Salmon Evolutionarily Significant Unit* (ESU) (2012) and recommendations listed in other California Department of Fish and Wildlife and NOAA approved watershed plans and assessments. This project will also address the necessity for habitat preservation and restoration efforts due to climate change impacts as stated in the 2009 *California Climate Adaptation Strategy* (California Natural Resources Agency).

- 2010 California Department of Fish and Game (DFG) Stream Habitat Inventory Report 1. All segments of James Creek fish habitat assessment survey lacked in-stream cover and pool depth. "2. Increase woody cover in the pools and flatwater habitat units. Adding high quality complexity with woody cover in the pools is desirable. The relatively small amount of cover that now exists in James Creek is being provided primarily by small woody debris. 3. Where feasible, design and engineer pool enhancement structures to increase the number of pools. This must be done where the banks are stable or in conjunction with stream bank armor to prevent erosion."
- 2004 DFG *Recovery Strategy for California Coho Salmon.* 1) Listed as 5 (High Priority) as a Hydrologic sub-area priority watershed 2) Listed as 4 (High Priority) for Extinction Risk 3) Listed as 4 (High Priority) for Restoration and Management Potential 4) Recommends to retain and install LWD, boulders, and other structure-providing features for the Mendocino Coast Hydrologic Unit.
- 2006 NOAA Fisheries Report to Congress for the North-Central California Coast Recovery Domain 1. Limiting factor listed as lack of channel complexity.
- 2009 California Natural Resources Agency *California Climate Change Adaptation Strategy*. 1. "Give priority to adaptation strategies that initiate, foster, and enhance existing efforts that improve economic and social well-being, public safety and security, public health and environmental justice, species and habitat protection, and ecological function."

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

Objectives: The goal of this project is to construct 29 features containing 91 pieces of LWD in 4,310 feet of James Creek to improve the quality and quantity of spawning and rearing habitat for coho and steelhead. Specific objectives of this project include:

- Install properly sized large woody debris to meet targets specified in recovery plans.

- Improve the quality and quantity of spawning and rearing habitat for coho and steelhead by improving complexity, frequency and depth of pools, providing refugia for migrating salmonids, and sorting and collecting spawning gravels.
- Provide a 570-foot buffer around implementation activities of the James Creek Fish Barrier Modification Project from feature 180 feet to feature 750 feet to accommodate installation of rock band weirs and modification of a bedrock cascade by the Mendocino Land Trust.
- Increase existing habitat level to "Good 6-11 key pieces / 100 meters" per 2012 NOAA Fisheries Central California Coast Coho Salmon ESU Recovery Plan target metric.
- Maintain and utilize a Water Conservation and Efficiency Program.

Project Description:

Location: The James Creek reach begins 1,785 feet (0.34 miles) upstream of the confluence with North Fork Big River and continues upstream 4,880 feet (0.92 miles). The confluence of Big River and North Fork Big River is approximately 30.9 miles upstream of the mouth of Big River, tributary to the Pacific Ocean. The project reach is located at 39.35285000 north latitude, 123.51032000 west longitude at the downstream end, and 39.36217000 north latitude, 123.50918000 west longitude at the upstream end.

Project Set Up: The Fish Habitat Specialist and Technical Assistant will perform pre-project design, photo documentation, implementation oversight, and reporting; permit application completion and submission; Final Landowner Agreement acquisition and submission; and reservation of spike camp location. The Conservationist II oversees purchasing and delivery of project materials. The Conservationist I supervises Laborers crew operations. Laborers provide the hand labor for the in-stream LWD structure installation.

Materials: Materials necessary for this project include:

- Laborers Meals (food)
- Spike Supplies (briquettes, propane, etc.)
- Logs
- Root-wads
- Generator
- Threaded Rebar
- Nuts
- Washers
- 5/8” Galvanized Cable
- Cable clamps
- Epoxy Glue
- Wood Drill Bits

- Rock Drill Bits
- Hand Tools (gloves, hard hats, safety glasses, hacksaws, bit extensions, shear-pins, etc.), and
- Office Supplies (paper, printer supplies, etc.).

Tasks: The following tasks will be accomplished to complete the project:

Task1: The Fish Habitat Specialist and Technical Assistant will perform pre-project survey, design, pre-implementation preparation, implementation oversight, and photo documentation; permit application completion and submission; Final Landowner Agreement acquisition and submission; Reporting.

Task 2: The Conservationist II will oversee purchasing and delivery of project materials including nuts, washers, plates, cable, glue, rebar, drill bits, hand tools, and safety and office supplies.

Task 3: The Conservationist I will supervise Laborers crew operations. Over 5,760 hours the Laborers crews will utilize and provide the hand labor for construction of the in-stream LWD structures and completion of site rehabilitation/erosion control. Logs and root-wads will be moved and anchored, if needed, to living trees and/or stumps found along the stream banks or bedrock as applicable. The anchoring of LWD, if needed, will require holes to be drilled through both LWD and anchor trees. Threaded rebar will be inserted through the logs and anchor trees, and then attached with nuts and washers. Logs and/or root-wads may be secured to bedrock or boulders using cable and polyester resin adhesive as applicable. All LWD less than 1.5 times bank-full width in length will be anchored. Install available slash and smaller woody debris at each structure feature into structures after feature completion. Riparian disturbed during construction of structures will be rehabilitated using on-site forest materials.

Task 4: The Laborers crews will set-up and maintain spike camp operations throughout project implementation and breakdown and remove same at project completion.

Task 5: To address invasive species, all personal gear as well as equipment used in the field will be properly decontaminated before moving to a new location even within the same watershed.

Deliverables:

- A total of 29 features will be constructed within 4,310 feet of stream. Features will include a total of 80 logs and 11 root-wads, 46 pieces will be anchored and 45 pieces will be wedged without anchoring.
- The following items will be delivered to the Grantor's Project Manager: a) Final Landowner Access Agreements b) Grantor Notification of Lake or Streambed Alteration with payment c) Feature-specific plans for in-stream

habitat structures d) Progress Reports submitted with each invoice e) Annual Reports by November 15.

- A Final Report will be delivered which will contain: a) The grant agreement number b) Location of work, project location will be shown using a US Geological Survey 7.5 minute topographical map c) Specific project access using public and private roads and trails, and landowner name and addresses d) A description and analysis of the restoration and planning techniques used e) A description of the results of the project f) Dates of work and the number of person hours expended g) Before and after photographs of all restoration activities and techniques h) Grant dollars spent and contributed and/or in-kind services used to complete the project.

Timelines:

Upon agreement execution through January 2021, the Fish Habitat Specialist and Technical Assistant will implement, oversee and coordinate the project.

June 2017, the Conservationist II will coordinate the ordering and delivering of materials and staging of logs/root-wads. The Fish Habitat Specialist and Technical Assistant will perform pre-project survey, pre-implementation preparation, and photo documentation; permit application completion and submission; Final Landowner Agreement acquisition and submission, project implementation and implementation oversight.

June 15 – October 31, 2017; June 15 – October 31, 2018; June 15 – October 31, 2019; June 15 - October 31, 2020, Conservationist I will supervise Laborers work crews to construct in-stream LWD structures and complete site rehabilitation/erosion control as features are completed.

November 1–15, 2017; November 1-15, 2018; November 1-15, 2019; November 1-15, 2020, Fish Habitat Specialist and Technical Assistant will perform post-project photo documentation, quantitative metrics, and annual/progress report/billing development and submission.

January 31, 2021, Final Report/Billing will be delivered.

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 California Department of Fish and Wildlife (CDFW) Grant 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 CDFW.

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.

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

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Bailey Ridge (3912324) OR Burbeck (3912344) OR Comptche (3912335) OR Elk (3912326) OR Greenough Ridge (3912334) OR Mathison Peak (3912336) OR Navarro (3912325) OR Northspur (3912345) OR Noyo Hill (3912346))

Possible species within the Comptche Quad and surrounding quads for 725165 James Creek Coho Stream Habitat Enhancement Project, T17N R15W S2, Mendocino County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
angel's hair lichen *Ramalina thrausta*	NLLEC3S340	None	None	G5	S2?	2B.1
Behren's silverspot butterfly *Speyeria zerene behrensii*	IILEPJ6088	Endangered	None	G5T1	S1	
Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060	None	None	G2	S2	1B.2
bluff wallflower *Erysimum concinnum*	PDBRA160E3	None	None	G3	S2	1B.2
Bolander's beach pine *Pinus contorta ssp. bolanderi*	PGPIN04081	None	None	G5T2	S2	1B.2
California red-legged frog *Rana draytonii*	AAABH01022	Threatened	None	G2G3	S2S3	SSC
California sedge *Carex californica*	PMCYP032D0	None	None	G5	S2	2B.3
coast fawn lily *Erythronium revolutum*	PMLIL0U0F0	None	None	G4G5	S3	2B.2
coast lily *Lilium maritimum*	PMLIL1A0C0	None	None	G2	S2	1B.1
Coastal and Valley Freshwater Marsh *Coastal and Valley Freshwater Marsh*	CTT52410CA	None	None	G3	S2.1	
Coastal Brackish Marsh *Coastal Brackish Marsh*	CTT52200CA	None	None	G2	S2.1	
coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
congested-headed hayfield tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065	None	None	G5T1T2	S1S2	1B.2
deceiving sedge *Carex saliniformis*	PMCYP03BY0	None	None	G2	S2	1B.2
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC
glandular western flax *Hesperolinon adenophyllum*	PDLIN01010	None	None	G3	S3	1B.2

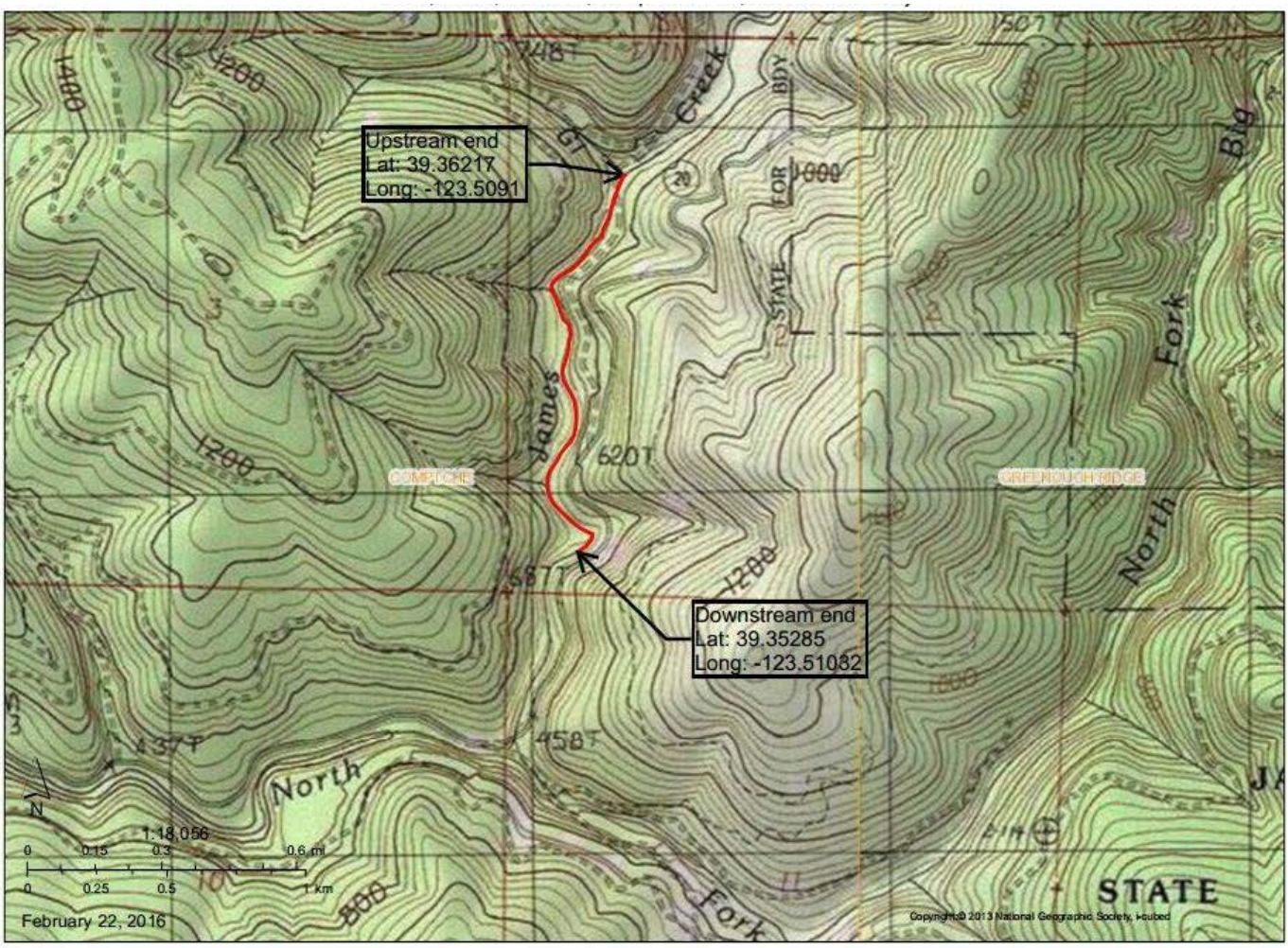
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Grand Fir Forest *Grand Fir Forest*	CTT82120CA	None	None	G1	S1.1	
grass alisma *Alisma gramineum*	PMALI01010	None	None	G5	S3	2B.2
great burnet *Sanguisorba officinalis*	PDROS1L060	None	None	G5?	S2	2B.2
Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080	None	Endangered	G2	S2	1B.1
lagoon sedge *Carex lenticularis var. limnophila*	PMCYP037A7	None	None	G5T5	S1	2B.2
leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020	None	None	G5	S4	4.2
Lyngbye's sedge *Carex lyngbyei*	PMCYP037Y0	None	None	G5	S3	2B.2
maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0	None	None	G3	S3	4.2
Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0	None	None	G2	S2	1B.2
Mendocino leptonetid spider *Calileptoneta wapiti*	ILARAU6040	None	None	G1	S1	
Mendocino Pygmy Cypress Forest *Mendocino Pygmy Cypress Forest*	CTT83161CA	None	None	G2	S2.1	
Methuselah's beard lichen *Usnea longissima*	NLLEC5P420	None	None	G4	S4	4.2
minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0	None	None	G3?	S2	1B.2
Monterey clover *Trifolium trichocalyx*	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
Navarro roach *Lavinia symmetricus navarroensis*	AFCJB19023	None	None	G4T1T2	S2S3	SSC
North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070	None	Threatened	G2	S2	1B.1
Northern Coastal Salt Marsh *Northern Coastal Salt Marsh*	CTT52110CA	None	None	G3	S3.2	
northern goshawk *Accipiter gentilis*	ABNKC12060	None	None	G5	S3	SSC
northern red-legged frog *Rana aurora*	AAABH01021	None	None	G4	S3	SSC
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
Oregon goldthread *Coptis laciniata*	PDRAN0A020	None	None	G4	S3	4.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6	None	None	G5T3	S2	1B.2
Pacific tailed frog *Ascaphus truei*	AAABA01010	None	None	G4	S3S4	SSC
Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	PDMAL11012	None	None	G5T2	S2	1B.2
Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0	None	None	G2	S2	1B.2
Pomo bronze shoulderband *Helminthoglypta arrosa pomoensis*	IMGASC2033	None	None	G2G3T1	S1	
purple martin *Progne subis*	ABPAU01010	None	None	G5	S3	SSC
pygmy cypress *Hesperocyparis pygmaea*	PGCUP04032	None	None	G1	S1	1B.2
pygmy manzanita *Arctostaphylos nummularia ssp. mendocinoensis*	PDERI04280	None	None	G3?THQ	SH	1B.2
running-pine *Lycopodium clavatum*	PPLYC01080	None	None	G5	S3	4.1
seacoast ragwort *Packera bolanderi var. bolanderi*	PDAST8H0H1	None	None	G4T4	S2S3	2B.2
sharp-shinned hawk *Accipiter striatus*	ABNKC12020	None	None	G5	S4	WL
small groundcone *Kopsiopsis hookeri*	PDORO01010	None	None	G4?	S1S2	2B.3
Sonoma tree vole *Arborimus pomo*	AMAFF23030	None	None	G3	S3	SSC
southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020	None	None	G3G4	S2S3	SSC
Sphagnum Bog *Sphagnum Bog*	CTT51110CA	None	None	G3	S1.2	
steelhead - northern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209Q	Threatened	None	G5T2T3Q	S2S3	
swamp harebell *Campanula californica*	PDCAM02060	None	None	G3	S3	1B.2
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	None	G2G3	S1S2	SSC
watershield *Brasenia schreberi*	PDCAB01010	None	None	G5	S3	2B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
white beaked-rush *Rhynchospora alba*	PMCYP0N010	None	None	G5	S2	2B.2
white-flowered rein orchid *Piperia candida*	PMORC1X050	None	None	G3	S3	1B.2
white-tailed kite *Elanus leucurus*	ABNKC06010	None	None	G5	S3S4	FP
northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC

Record Count: 66

James Creek Coho Stream Habitat Enhancement Project
Project Location Map
T17N R15W S2, Comptche Quad, Mendocino County



Introduction:

Trout Unlimited will implement the String Creek Instream Steelhead Habitat Enhancement Project. The purpose of the project is to improve habitat complexity, and pools within priority North Coast Steelhead recovery habitat. This will be accomplished through installing 11 large woody debris structures along 0.65 miles of String Creek and Tartar Creek.

The project is necessary because stream habitat reports have shown that the mean shelter rating for pools in String Creek was low. The relatively small amount of cover that now exists is being provided primarily by boulders in all habitat types. Additionally, small woody debris contributes a small amount. Log and root wad cover structures in the pool and flatwater habitats are needed to improve both summer and winter salmonid habitat (CDFG, 1995). Additionally, primary pool habitat is documented by CDFW as lacking in both Tomki and String Creek tributary. Habitat complexity, percent primary pools and pool/riffle/flatwater ratios have an overall rating of Poor for both winter and summer rearing juvenile steelhead (CDFG, 1995). String Creek has a high percentage of flatwater or run habitat which is generally unsuitable for rearing lifestages of salmonids due to lack of depth, complexity and velocity refuge. The lack of pools in the Tomki basin likely limits the space available for juvenile fish attempting to maintain territory for feeding and predator avoidance (NOAA, 2015). Lack of pool habitats within this basin likely stems from high instream sediment concentrations (pool filling) and loss of LWD recruitment from past land use practices (NOAA, 2015).

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. Work in flowing streams is restricted to June 15 through October 31. Actual project start and end dates, within this timeframe, are at the discretion of the CDFW

Objective(s):

The goal of this project is to improve habitat complexity, pool frequency, pool depth, and shelter values within the project reach. This goal will be achieved by installing at least 30 pieces of large wood, rootwads, and boulders, at 11 sites within 0.65 miles of String (0.5 miles) and Tartar Creek (0.15 miles).

Project Description:

Location: The Grantee will conduct work along a section of String Creek and Tatar Creek. The locations of the project boundaries are approximately 39.47438º north latitude, 123.27256º west longitude at the downstream end; and 39.47758º north latitude, 123.28186º west longitude at the upstream end as depicted in the Project Location Map.

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; report preparation; as well as facilitating agency and landowner communications. The TU Grants Assistant will assist in processing invoices and vendor payments. This task will occur throughout the life of the project.

The Blencowe Watershed Management (BWM) Project Manager will direct and oversee project implementation including construction of all structure designs and securing construction materials. The Project Manager will also work closely with the CCC Fisheries Habitat Specialist and other CCC staff during site layout and implementation. Additionally, the Project Manager will lead pre and post implementation survey efforts. The BWM Project Technician assists with implementation of structure designs and pre and post implementation survey efforts (e.g. photographs, performance metrics, and As-builts).

The Pacific Inland, Inc. (PII) Licensed Timber Operator will operate all equipment during implementation and the construction of structure designs.

The California Conservation Corps (CCC) Fish Habitat Specialist & Technical Assistant will perform worksite review with TU/BWM prior to initiating final adjustment and anchoring process as prescribed by TU/BWM. Both positions supervise CCC crew operations and in-stream structure final adjustment and anchoring as prescribed by TU/BWM for sites assigned to the CCC. Additionally, they will perform worksite review with TU/BWM prior to initiating final adjustment and anchoring process as prescribed by TU. CCC Conservationist I- supervises Corps Member crew operations. CCC Corps Member crews -provide hand labor for final adjustment and anchoring of in-stream structures as prescribed by TU/BWM.

Materials: Materials for this project include: boulders, whole tree materials, safety equipment (such as wading gear), heavy equipment hazmat supplies, heavy equipment decontamination supplies, straw mulch, conifer seedlings, chainsaw supplies, anchoring materials, and anchoring power tools.

Tasks:

Task 1. Grant Oversight: Grant oversight will be conducted by Grantee. All reporting and billing will be pursuant to grant and regulatory guidelines. Upon final execution of the Grant and prior to receiving a Final Notice to Proceed, Grantee shall deliver the following items to the Grantor Project Manager identified in Section 6.04 – Contacts:

- Final Landowner Access Agreements as per the requirements of the 2016 Proposal Solicitation Notice, Appendix K, Funding Approval Submissions. Written permission must be obtained from landowners for access to perform grant work.

- Subcontractor Agreements. If a subcontractor is to be used, then a written copy of the sub agreement(s) shall be submitted to the Grantor Project Manager. The subcontract shall include specific language which establishes the rights of the auditors of the State to examine the records of the subcontractor relative to the services and materials provided under the grant.

A Preliminary Notice to Proceed can be requested from the Grantor Project Manager, if necessary, to prepare for project implementation (e.g., obtain permits, secure subcontracts, purchase supplies, apply for a Streambed Alteration Agreement).

A Final Notice to Proceed will be delivered to the Grantee when Final Landowner Access Agreement(s) and subcontracts are delivered to Grantor Project Manager, and when all required permits have been finalized (e.g., 401 State Water Quality Control Board Permit, Streambed Alteration Agreement).

The Grantee shall notify the Grantor Project Manager a minimum of 10 business days prior to the beginning of project implementation.

Task 2. Final Feature Design: Prepare site specific designs based on local channel characteristics, large wood availability and equipment access. Obtain design approval from landowner and Grantor Project Manager. Design and label all features and conduct pre-project photo documentation.

Task 3. Project Implementation:

Task 3.01. Install Instream Habitat Features: Install 11 LWD features including 30 or more pieces of LWD will be installed along approximately 0.5 miles of String Creek and 0.15 miles of Tartar Creek. Work will consist of the following:

- Pre-implementation surveys.
- Large wood will be transported from nearby (onsite) locations utilizing a rubbertired 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 11 sites along 0.5 miles of String Creek and 0.15 miles of Tartar Creek. The RPF representing the landowner will be available for consultation when needed. Immediately following implementation each piece will be measured, tagged, and photographed.

Task 3.02. Erosion Control: Mulching and seeding will take place as features are completed to avoid unforeseen erosion. Seeding and mulching will take place on all exposed soils which may deliver sediment to a stream. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. Plant 250 mixed conifer trees to enhance the riparian zone.

Task 4. Post-Project Data and Photo Collection: 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: Write and deliver progress reports for invoicing, Annual Progress Report(s), and a Final Report to Grantor Project Manager.

Deliverables:

DELIVERABLE 1: Any progress reports, annual reports, invoices, or other documents that are necessary pursuant to CDFW guidelines.
DELIVERABLE 2: Pre-implementation longitudinal profile, performance metric data, and photos.
DELIVERABLE 3: Installation of at least 30 pieces of wood at 11 sites along 0.65 miles of stream, thus creating at least 3 pools.
DELIVERABLE 4: Performance measure metrics; post-implementation longitudinal profile, As-builts, and photos.
DELIVERABLE 5: 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 (per site), (7) dates of work, (8) As-Builts drawings that include structure placement and alignment , materials used (size and quantity), cross sections and longitudinal profiles, (9) labeled before and after photos of selected 18 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 with all pertinent project features and work site station.

Timelines:

Grant Oversight: June 1, 2017 to February 28, 2019.
Project Implementation: June 1, 2017 to October 30, 2017 and June 1, 2018 to October 31, 2018
Project documentation and report preparation. November 2018 to February 2019
Final report due February 28, 2019.

Additional Requirements:

The Grantee shall notify the Grant Manager a minimum of five working days before any fish bearing stream reaches are dewatered and the stream flow diverted. The notification will provide a reasonable time for Department personnel to supervise the implementation of the water diversion plan and oversee the safe removal and relocation of salmonids and other aquatic species 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 Grant Manager on a form provided by CDFW.
- 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.

The Grantee will seed and mulch all exposed soils which may deliver sediment to a stream. Mulching and seeding can occur at any time during construction but will need to be completed prior to Oct. 15. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. 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 standard for success is 80% survival of plantings, after a period of three years.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Brushy Mtn. (3912352) OR Burbeck (3912344) OR Foster Mtn. (3912342) OR Greenough Ridge (3912334) OR Laughlin Range (3912333) OR Longvale (3912354) OR Redwood Valley (3912332) OR Willis Ridge (3912353) OR Willits (3912343))

Possible species within the Willits Quad and surrounding quads for 725168 String Creek Instream Steelhead Habitat Enhancement Project, T19N R13W S26, Mendocino County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S3	SSC
angel's hair lichen *Ramalina thrausta*	NLLEC3S340	None	None	G5	S2?	2B.1
Baker's meadowfoam *Limnanthes bakeri*	PDLIM02020	None	Rare	G1	S1	1B.1
Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1	None	None	G4T2	S2	1B.1
deep-scarred cryptantha *Cryptantha excavata*	PDBOR0A0W0	None	None	G1	S1	1B.3
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC
glandular western flax *Hesperolinon adenophyllum*	PDLIN01010	None	None	G3	S3	1B.2
grass alisma *Alisma gramineum*	PMALI01010	None	None	G5	S3	2B.2
Humboldt marten *Martes caurina humboldtensis*	AMAJF01012	None	Candidate Endangered	G5T1	S1	SSC
Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080	None	Endangered	G2	S2	1B.1
Mayacamas popcornflower *Plagiobothrys lithocaryus*	PDBOR0V0P0	None	None	GH	SH	1A
Milo Baker's lupine *Lupinus milo-bakeri*	PDFAB2B4E0	None	Threatened	G1Q	S1	1B.1
North Coast semaphore grass *Pleuropogon hooverianus*	PMPOA4Y070	None	Threatened	G2	S2	1B.1
northern goshawk *Accipiter gentilis*	ABNKC12060	None	None	G5	S3	SSC
Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080	None	None	G5	S2S3	2B.2
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6	None	None	G5T3	S2	1B.2

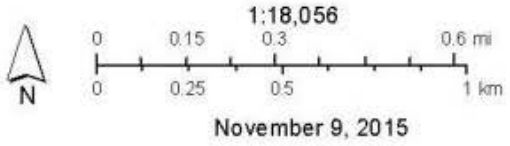
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Roderick's fritillary *Fritillaria roderickii*	PMLIL0V0M0	None	Endangered	G1Q	S1	1B.1
scabrid alpine tarplant *Anisocarpus scabridus*	PDASTDU020	None	None	G3	S3	1B.3
sharp-shinned hawk *Accipiter striatus*	ABNKC12020	None	None	G5	S4	WL
Sonoma tree vole *Arborimus pomo*	AMAFF23030	None	None	G3	S3	SSC
thin-lobed horkelia *Horkelia tenuiloba*	PDROS0W0E0	None	None	G2	S2	1B.2
three-fingered morning-glory *Calystegia collina ssp. tridactylosa*	PDCON04036	None	None	G4T1	S1	1B.2
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Valley Oak Woodland *Valley Oak Woodland*	CTT71130CA	None	None	G3	S2.1	
watershield *Brasenia schreberi*	PDCAB01010	None	None	G5	S3	2B.3
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
white-flowered rein orchid *Piperia candida*	PMORC1X050	None	None	G3	S3	1B.2
yellow warbler *Setophaga petechia*	ABPBX03010	None	None	G5	S3S4	SSC
yellow-breasted chat *Icteria virens*	ABPBX24010	None	None	G5	S3	SSC
northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC

Record Count: 33

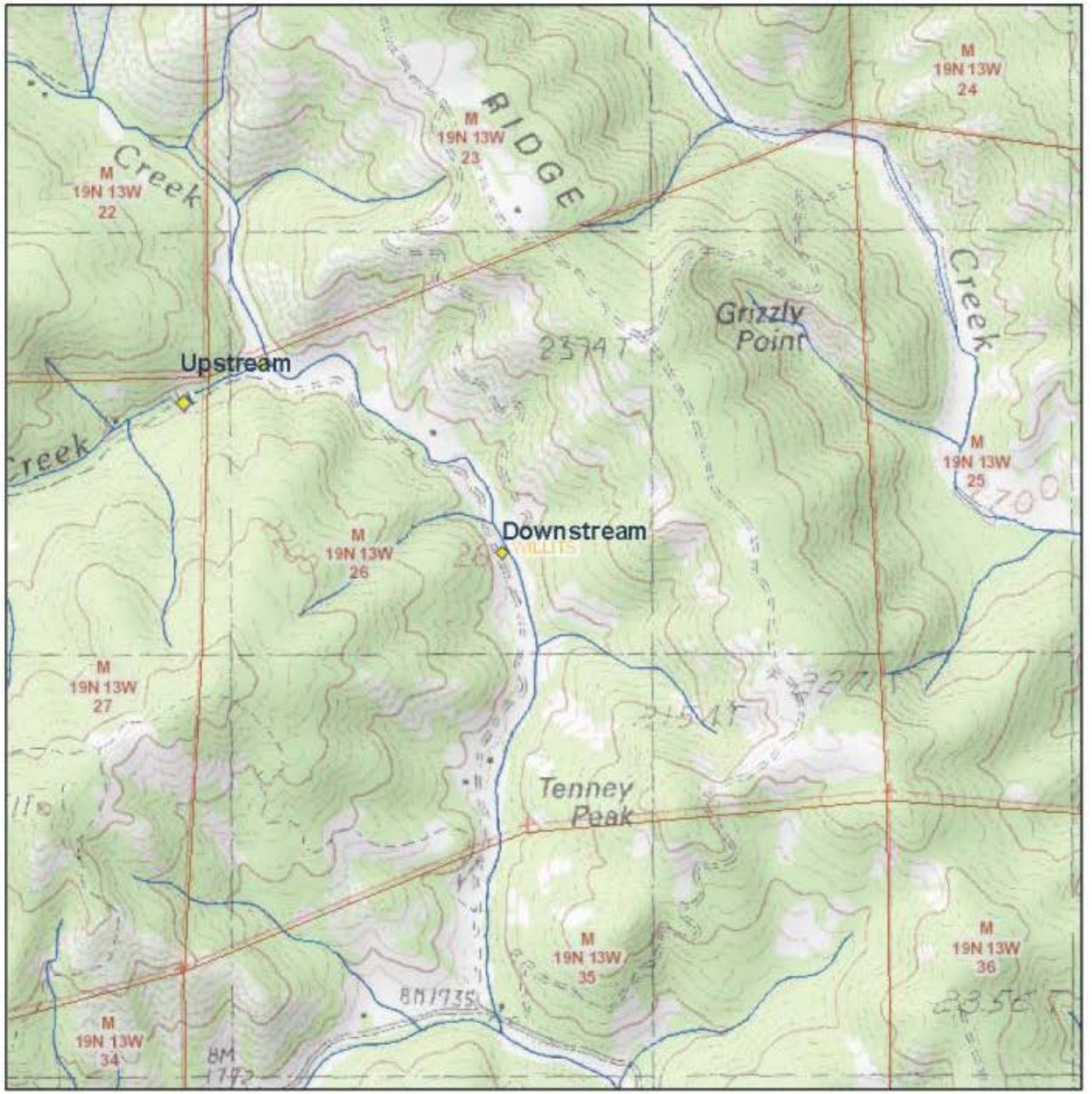
String Creek Instream Steelhead Habitat Enhancement Project
Project Location Map
T19N R13W S26, Willits Quad, Mendocino County

FRGP 2016 Proposal Application

Applicant: Trout Unlimited, NCCP



November 9, 2015



Introduction:
Eel River Watershed Improvement Group (Grantee) will implement the Anderson Creek Habitat Enhancement Project for Coho Recovery Phase III. 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 25 instream features consisting of 100 pieces of LWD within a 0.9-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 2.5 miles upstream of the confluence with Indian Creek, in the County of Mendocino, State of California. The project is located at approximately 39.93303700 north, 123.91298100 west (upstream extent) and 39.93250500 north, 123.90180200 west (downstream extent); 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:
The project administration will be done by a ERWIG Project Manager who shall provide all contracting oversight and administration including but not limited to obtaining permits, securing contracts (grantors, subcontractors, and landowner), scheduling, implementation oversight, invoicing, manage budgeting, reporting and agency and landowner communications. This task will occur throughout the life of the project. 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 100 pieces of LWD will be used to construct 25 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 25 locations including 100 pieces of LWD along 0.9 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:
Deliverable 1: Any progress reports, invoices, or other documents that are necessary according to CDFW guidelines.
Deliverable 2: Installation of 25 LWD jams over a 0.9 mile stream reach, containing approximately 100 pieces of wood. Wood will be woven, trenched, and anchored into the existing riparian corridor.
Deliverable 3: Upon completion of the project ERWIG and PWA shall submit a written completion report which contains: (1) general grant information, (2) location of work, (3) project access, (4) participating landowner's name and address, (5) a description and analysis of the restoration and planning person hours expended, (6) a quantified description of the results of the project, including as-built in-stream enhancement feature designs, (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. (11) Pre- and postmonitoring results of each of the constructed features.

Timelines:
ERWIG's project management will begin once award contract is finalized and continue through the life of the project - June 2017 through March 2019.

Project layout begins after the notice to proceed in 2017 once all contracting obligations have been fulfilled. - July 2017-August 2017

On-the-ground implementation (tree procurement and LWD jam installation) work during the late summer of 2017 and if necessary early summer 2018. All heavy equipment work will be completed during low-flow periods when impacts to water quality can be minimized or avoided. - August 2017 - October 31, 2018

Compile data and prepare a final report for CDFW to be submitted by February 28, 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.

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.*

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Bear Harbor (3912388) OR Briceland (4012318) OR Garberville (4012317) OR Hales Grove (3912377) OR Mistake Point (3912378) OR Piercy (3912387) OR Shelter Cove (4012411))

Possible species within the Bear Harbor Quad and surrounding quads for 725174 Anderson Creek Habitat Enhancement Project for Coho Recovery Phase III, T24N R18W S18, Humboldt County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
coast fawn lily *Erythronium revolutum*	PMLIL0U0F0	None	None	G4G5	S3	2B.2
coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	
Cooper's hawk *Accipiter cooperii*	ABNKC12040	None	None	G5	S4	WL
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC
Howell's montia *Montia howellii*	PDPOR05070	None	None	G3G4	S2	2B.2
Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080	None	Endangered	G2	S2	1B.1
leafy reed grass *Calamagrostis foliosa*	PMPOA170C0	None	Rare	G3	S3	4.2
leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020	None	None	G5	S4	4.2
maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0	None	None	G3	S3	4.2
marsh pea *Lathyrus palustris*	PDFAB250P0	None	None	G5	S2	2B.2
Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0	None	None	G2	S2	1B.2
Methuselah's beard lichen *Usnea longissima*	NLLEC5P420	None	None	G4	S4	4.2
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012	None	None	G3	S3	2B.2
Oregon goldthread *Coptis laciniata*	PDRAN0A020	None	None	G4	S3	4.2
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6	None	None	G5T3	S2	1B.2

Selected Elements by Common Name

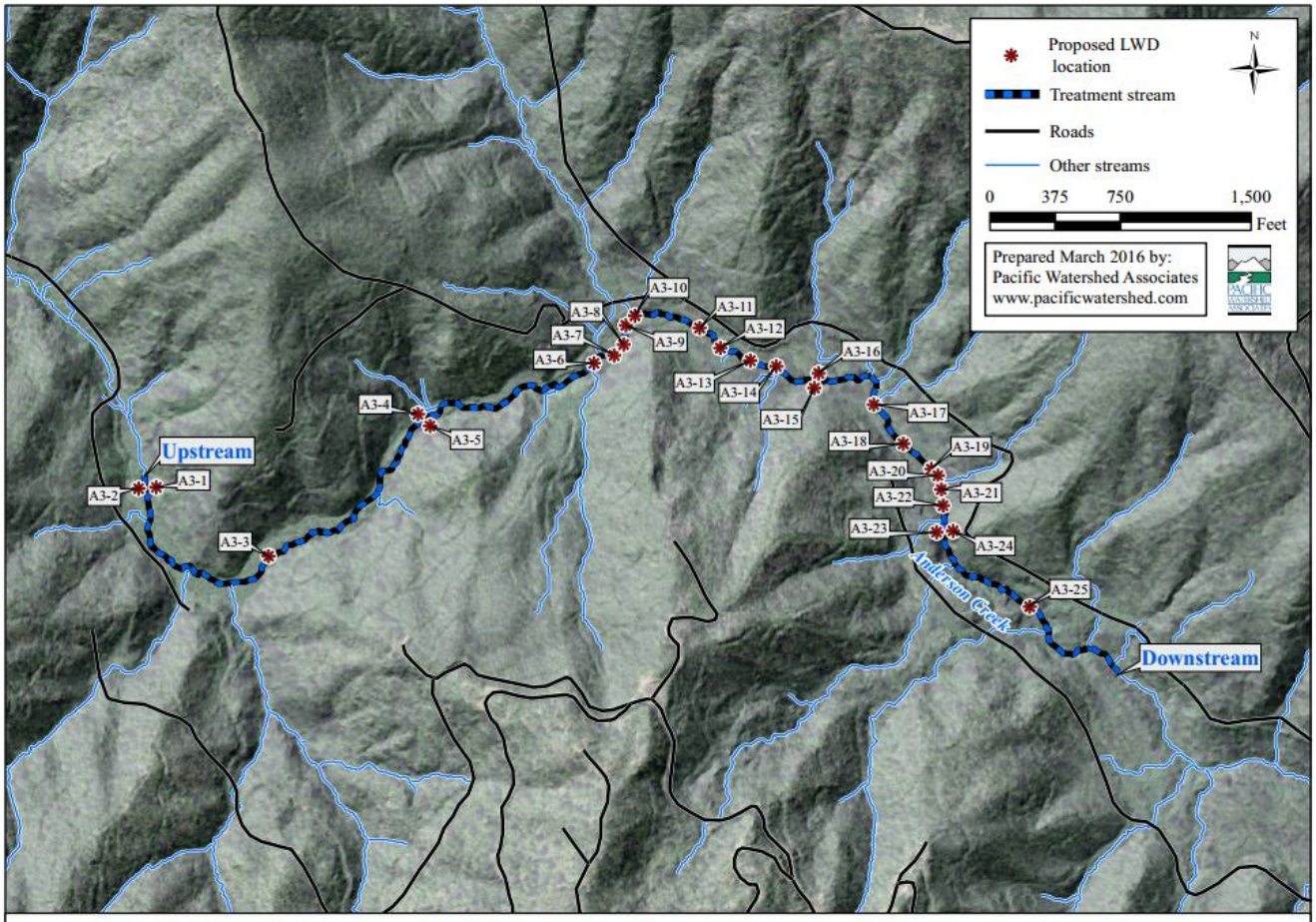
California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Pacific tailed frog *Ascaphus truei*	AAABA01010	None	None	G4	S3S4	SSC
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G5	S3	SSC
perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5	None	None	G3T2	S2	1B.2
Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0	None	None	G2	S2	1B.2
Sonoma tree vole *Arborimus pomo*	AMAFF23030	None	None	G3	S3	SSC
southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020	None	None	G3G4	S2S3	SSC
summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B	None	None	G5T4Q	S2	SSC
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
white-flowered rein orchid *Piperia candida*	PMORC1X050	None	None	G3	S3	1B.2
Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025	None	None	G5T1	S1	1B.1
northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC

Record Count: 30

Anderson Creek Habitat Enhancement Project for Coho Recovery Phase III
Project Location Map
T24N R18W S18, Bear Harbor Quad, Mendocino County



Map 2. Feature locations for conceptual plan, Anderson Creek Habitat Enhancement Project for Coho Recovery Phase III, Mendocino County, California (Bear Harbor 7.5' USGS quadrangle) Grantee: Eel River Watershed Improvement Group.

Grantee: Eel River Watershed Improvement Group

Introduction:
Grantee, through its North Coast Coho Project program, will implement the Anderson Creek Sediment Reduction and Coho Recovery Project Phase 2. 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 18 site specific road treatments for road decommissioning along 1.33 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: 39.93488400 north and 123.90641600 west (upstream) and 39.94149100 north and-123.89594000 west (downstream).

Project Set Up: Trout Unlimited will provide all contracting oversight and administration. The project administration will be done by a Trout Unlimited Project Manager who shall provide all contracting oversight and administration including but not limited to obtaining permits, securing contracts (grantors, subcontractors, and landowner), scheduling, implementation oversight, invoicing, manage budgeting, reporting and agency and landowner communications. In addition to the TU Project Manager, the TU Grants Assistant, will assist in processing invoices and vendor payments, grant tracking, and reporting. This task will occur throughout the life of the project..

- 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:

Trees (planting): Approximately 380 trees will be planted by specialized laborers. Native conifer saplings or 14 seedlings will be planted in the riparian zone, decommissioned stream crossings and at skid access points to stream reaches disturbed by heavy equipment. This will facilitate the restoration of existing riparian zones, in areas disturbed by restoration activities, to their historic conifer composition, and will be consistent with riparian vegetation and succession. It will also manage alders, blackberries, and other competitors.

Straw: Approximately 65 bales of straw mulch will be used to protect and promote growth of native seedlings used in re-planting areas disturbed by restoration activities but not covered by tree slash. Straw will also be used for short term erosion control. Straw and tree mulch will be critical to reducing post-decommissioning surface erosion until groundcover vegetation is naturally reestablished.

Seed: Approximately 45 pounds of native seed will be used to re-plant bare earth areas and reduce surface erosion in areas that have been disturbed by restoration activities. Seed is the fastest and most efficient way to provide medium-term erosion control on disturbed areas, and it has a relatively short life span of one or two years before being shaded out by native, woody species.

Debris/Trash Pump: Implementation of the ACSRCRP2 project is estimated to require the use/rental of one pump for most of the work season. Pumps are used during construction to pump clean stream flow around the construction features

and manage turbidity. They are critical to protecting water quality and are required as part of the permit to operate in the stream channels.

Pressure washer: A (hot water) pressure washer is used to decontaminate heavy equipment between each use in different waterbodies and watersheds to prevent the spread of invasive species as per the equipment decontamination methods stated in the CDFW decontamination protocol. It will be the responsibility of the equipment sub-contractor to decontaminate all heavy equipment prior to entering the project area.

Rip-rap: Approximately 90 yd3 of clean rip-rap will be used to stabilize locations that are prone to erosion or failure. It will be used to prevent the upstream migration of headcuts or other erosional features and to prevent sediment delivery to streams.

Culvert: A 24 inch by 30 foot plastic culvert is required for the temporary stream crossing at Anderson Creek.

Miscellaneous field and office supplies: Many small field and office supplies will be used to complete the project including: photographic supplies, flagging, wood stakes, field maps, mylar overlays for field maps, photo duplication for final reports, copying/binding for final reports, report maps, phone, fax, and postage.

Tasks: Decommission 1.33 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 1.33 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 15 stream crossings to save approximately 2,635 cubic yards of road-related sediment from delivery to local streams.

- Treat 2 potential or existing fillslope landslide features saving approximately 445 cubic yards of future sediment delivery. Treat by direct excavation, sediment removal, and proper spoils disposal.
- Treat 1 swale site saving approximately 10 cubic yards of sediment from delivery to stream channels.
- Permanently decommission 1.33 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, 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 1.33 miles of inner gorge and streamside road in Anderson Creek; direct treatment of 18 site specific erosional features along the decommission road alignment; prevention of 4,220 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 2017 to March 31, 2019.
- June 1, 2017 Pre-construction project permitting, pre-construction layout, and pre-project monitoring tasks are planned to occur.
- June 2017 - October 2018 Heavy equipment implementation
- Fall 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.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Bear Harbor (3912388) OR Briceland (4012318) OR Garberville (4012317) OR Hales Grove (3912377) OR Mistake Point (3912378) OR Piercy (3912387) OR Shelter Cove (4012411))

Possible species within the Bear Harbor Quad and surrounding quads for 725182 Anderson Creek Sediment Reduction and Coho Recovery Project Phase 2, T24N R18W S18, Humboldt County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
coast fawn lily *Erythronium revolutum*	PMLIL0U0F0	None	None	G4G5	S3	2B.2
coho salmon - southern Oregon / northern California ESU *Oncorhynchus kisutch*	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	
Cooper's hawk *Accipiter cooperii*	ABNKC12040	None	None	G5	S4	WL
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC
Howell's montia *Montia howellii*	PDPOR05070	None	None	G3G4	S2	2B.2
Humboldt milk-vetch *Astragalus agnicidus*	PDFAB0F080	None	Endangered	G2	S2	1B.1
leafy reed grass *Calamagrostis foliosa*	PMPOA170C0	None	Rare	G3	S3	4.2
leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020	None	None	G5	S4	4.2
maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0	None	None	G3	S3	4.2
marsh pea *Lathyrus palustris*	PDFAB250P0	None	None	G5	S2	2B.2
Mendocino Coast paintbrush *Castilleja mendocinensis*	PDSCR0D3N0	None	None	G2	S2	1B.2
Methuselah's beard lichen *Usnea longissima*	NLLEC5P420	None	None	G4	S4	4.2
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
Oregon coast paintbrush *Castilleja litoralis*	PDSCR0D012	None	None	G3	S3	2B.2
Oregon goldthread *Coptis laciniata*	PDRAN0A020	None	None	G4	S3	4.2
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
Pacific gilia *Gilia capitata ssp. pacifica*	PDPLM040B6	None	None	G5T3	S2	1B.2

Selected Elements by Common Name

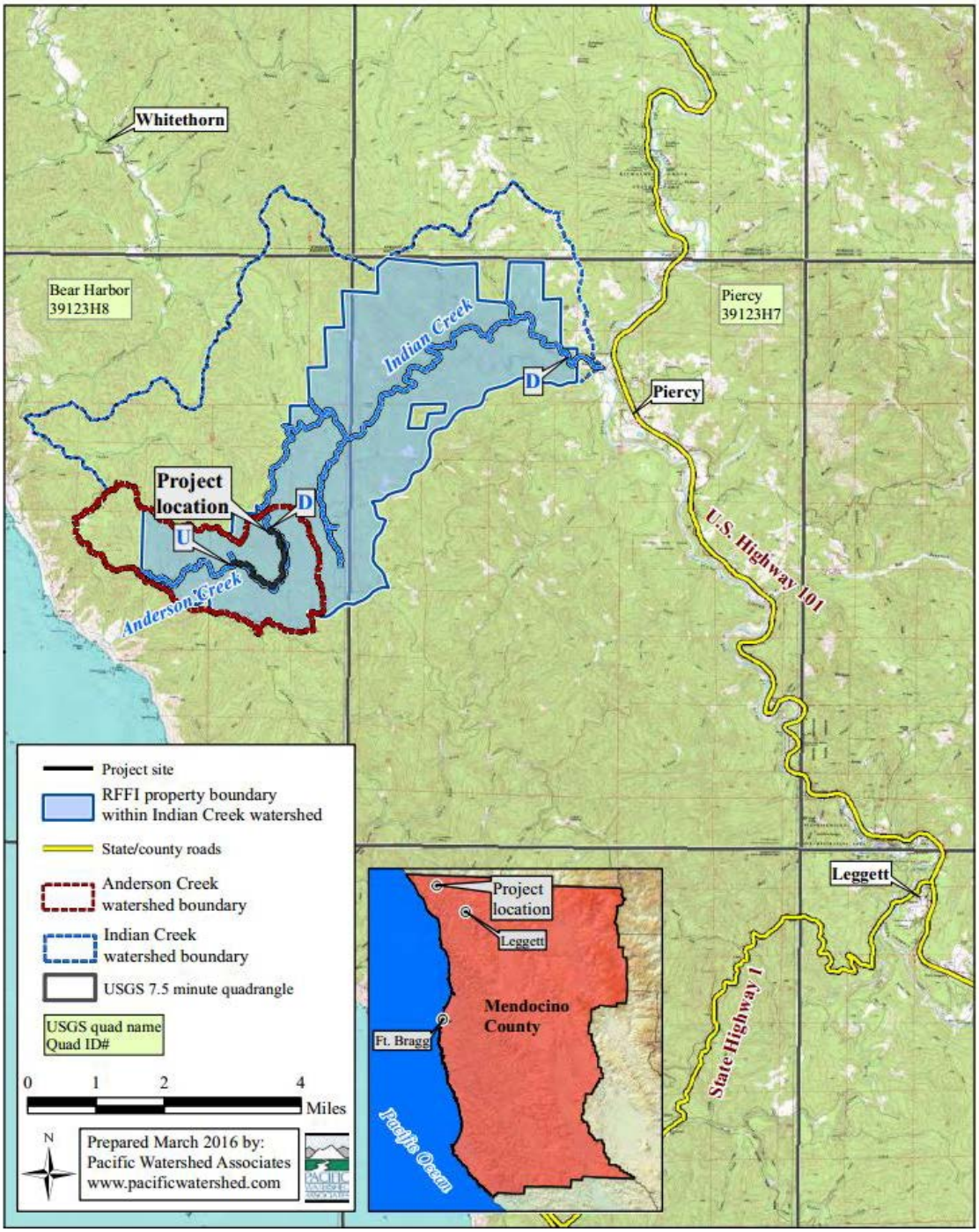
California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Pacific tailed frog *Ascaphus truei*	AAABA01010	None	None	G4	S3S4	SSC
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G5	S3	SSC
perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5	None	None	G3T2	S2	1B.2
Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0	None	None	G2	S2	1B.2
Sonoma tree vole *Arborimus pomo*	AMAFF23030	None	None	G3	S3	SSC
southern torrent salamander *Rhyacotriton variegatus*	AAAAJ01020	None	None	G3G4	S2S3	SSC
summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B	None	None	G5T4Q	S2	SSC
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
white-flowered rein orchid *Piperia candida*	PMORC1X050	None	None	G3	S3	1B.2
Whitney's farewell-to-spring *Clarkia amoena ssp. whitneyi*	PDONA05025	None	None	G5T1	S1	1B.1
northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC

Record Count: 30

Anderson Creek Sediment Reduction and Coho Recovery Project Phase 2
Project Location Map
T24N R18W S18, Bear Harbor Quad, Mendocino County



Introduction:

Cachuma Operation and Maintenance Board (COMB) will implement the Quiota Creek Fish Passage Improvement at Crossing 5 project. The purpose of the project is replace an existing Arizona (fair weather) crossing that contains a blocked 16-inch diameter corrugated metal pipe culvert in the center and a concrete apron on the downstream side with a 59-foot free span bridge. This effort will 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 in Santa Barbara County.

This project is necessary because by removing the impediment at Crossing 5 on Quiota Creek, 3.17 miles of stream with high-quality critical habitat will be opened up for southern steelhead spawning, rearing and over-summering. In its current state the crossing acts as a barrier to fish in low flow conditions and any steelhead found below the crossing are subject to stranding and desiccation in the summer months.

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).

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.

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).

Objectives:

The specific objective of this project is to provide access to 3.17 miles of spawning and rearing habitat for southern steelhead by removing the passage migration barrier at Crossing 5 on Quiota Creek, and replacing it with a 59-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 5 is located 2.6 miles upstream of the confluence of Quiota Creek with Santa Ynez River. The project is located at Latitude 34.56013000, Longitude -120.08518000 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 110 feet upstream and 65 feet downstream of the fifth road crossing on South Refugio Road. The proposed road work will extend approximately 200 feet east and 150 feet west of the stream crossing. Total length of stream treated will be 0.4 miles.

Project Set Up: The Project Manager will provide oversight and administration (secure permits, hire subcontractors (geotechnical specialists, construction oversight engineers arborist), 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. The construction subcontractor will also be responsible for subcontracting for materials testing, hydro mulch/hydroseeding, guardrail and bridge railing fabrication and installation and the ranch fence installation.

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 and planting material, 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. Construction subcontractor bid package development and selection
e. Set up photo monitoring sites
f. Fish and invertebrate surveys 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 59-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: As part of the preparation of the project construction bid package, 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 and root wads 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, 1b and 4: January–August 2017;
Task 1c-f and Task 2: August to October 30 in 2017 and in 2018;
Task 3: November 1 to December 31, 2017;
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 and Margie Caisley, (916) 445-3162, CDFW Engineer 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.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Dos Pueblos Canyon (3411948) OR Figueroa Mtn. (3411968) OR Gaviota (3412042) OR Lake Cachuma (3411958) OR Los Olivos (3412061) OR Santa Ynez (3412051) OR Solvang (3412052) OR Tajiguas (3412041) OR Zaca Creek (3412062))

Possible species within the Santa Ynez Quad and surrounding quads for 725147 Fish Passage Improvement at Crossing 5, Quiota Creek project, T06N R30W S31, Santa Barbara County.

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Abrams' oxytheca *Acanthoscyphus parishii var. abramsii*	PDPGN0J041	None	None	G4?T1T2	S1S2	1B.2
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S3	SSC
bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S3	FP
black-flowered figwort *Scrophularia atrata*	PDSCR1S010	None	None	G2G3	S2S3	1B.2
California red-legged frog *Rana draytonii*	AAABH01022	Threatened	None	G2G3	S2S3	SSC
California tiger salamander *Ambystoma californiense*	AAAAA01180	Threatened	Threatened	G2G3	S2S3	WL
chaparral ragwort *Senecio aphanactis*	PDAST8H060	None	None	G3	S2	2B.2
coast horned lizard *Phrynosoma blainvillii*	ARACF12100	None	None	G3G4	S3S4	SSC
Contra Costa goldfields *Lasthenia conjugens*	PDAST5L040	Endangered	None	G1	S1	1B.1
Cooper's hawk *Accipiter cooperii*	ABNKC12040	None	None	G5	S4	WL
Coulter's goldfields *Lasthenia glabrata ssp. coulteri*	PDAST5L0A1	None	None	G4T2	S2	1B.1
Crotch bumble bee *Bombus crotchii*	IIHYM24480	None	None	G3G4	S1S2	
Davidson's saltscale *Atriplex serenana var. davidsonii*	PDCHE041T1	None	None	G5T1	S1	1B.2
ferruginous hawk *Buteo regalis*	ABNKC19120	None	None	G4	S3S4	WL
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC
Gaviota tarplant *Deinandra increscens ssp. villosa*	PDAST4R0U3	Endangered	Endangered	G4G5T2	S2	1B.1
globose dune beetle *Coelus globosus*	IICOL4A010	None	None	G1G2	S1S2	
Hoover's bent grass *Agrostis hooveri*	PMPOA040M0	None	None	G2	S2	1B.2

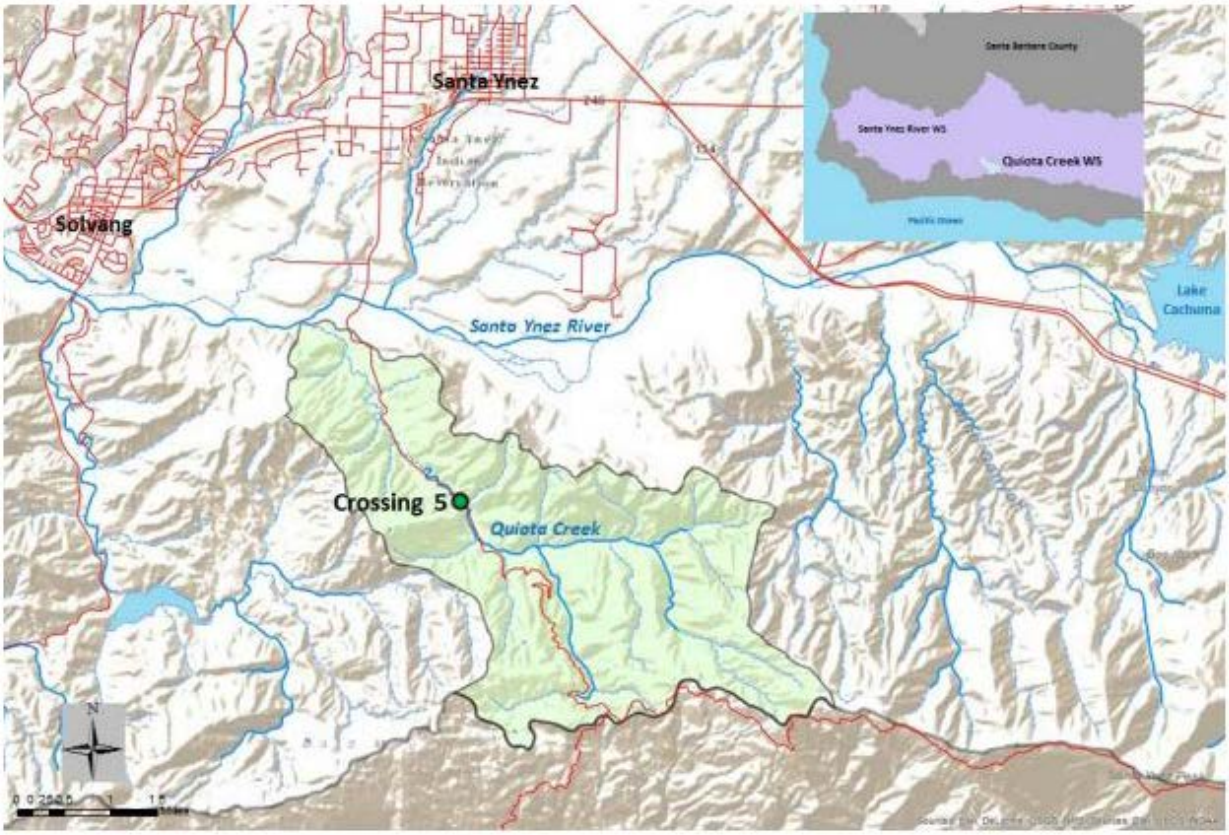
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
La Purisima manzanita *Arctostaphylos purissima*	PDERI041A0	None	None	G2	S2	1B.1
late-flowered mariposa-lily *Calochortus fimbriatus*	PMLIL0D1J2	None	None	G3	S3	1B.3
least Bell's vireo *Vireo bellii pusillus*	ABPBW01114	Endangered	Endangered	G5T2	S2	
mesa horkelia *Horkelia cuneata var. puberula*	PDROS0W045	None	None	G4T1	S1	1B.1
Miles' milk-vetch *Astragalus didymocarpus var. milesianus*	PDFAB0F2X3	None	None	G5T2	S2	1B.2
monarch - California overwintering population *Danaus plexippus pop. 1*	IILEPP2012	None	None	G4T2T3	S2S3	
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
Ojai fritillary *Fritillaria ojaiensis*	PMLIL0V0N0	None	None	G2?	S2?	1B.2
pale-yellow layia *Layia heterotricha*	PDAST5N070	None	None	G2	S2	1B.1
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G5	S3	SSC
Palmer's mariposa-lily *Calochortus palmeri var. palmeri*	PMLIL0D122	None	None	G3T3?	S3?	1B.2
Refugio manzanita *Arctostaphylos refugioensis*	PDERI041B0	None	None	G2	S2	1B.2
round-leaved filaree *California macrophylla*	PDGER01070	None	None	G3?	S3?	1B.2
San Diego desert woodrat *Neotoma lepida intermedia*	AMAFF08041	None	None	G5T3T4	S3S4	SSC
sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101	None	None	G5T2	S2	
Santa Barbara honeysuckle *Lonicera subspicata var. subspicata*	PDCPR030R3	None	None	G5T2?	S2?	1B.2
Santa Barbara jewelflower *Caulanthus amplexicaulis var. barbarae*	PDBRA0M012	None	None	G4T2	S2	1B.1
Santa Ynez false lupine *Thermopsis macrophylla*	PDFAB3Z0E0	None	Rare	G1	S1	1B.3
seaside bird's-beak *Cordylanthus rigidus ssp. littoralis*	PDSCR0J0P2	None	Endangered	G5T2	S2	1B.1
silvery legless lizard *Anniella pulchra pulchra*	ARACC01012	None	None	G3G4T3T4Q	S3	SSC
Sonoran maiden fern *Thelypteris puberula var. sonorensis*	PPTHE05192	None	None	G5T3	S2	2B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	ABPBX91091	None	None	G5T3	S2S3	WL
Southern California Steelhead Stream *Southern California Steelhead Stream*	CARE2310CA	None	None	GNR	SNR	
Southern Coast Live Oak Riparian Forest *Southern Coast Live Oak Riparian Forest*	CTT61310CA	None	None	G4	S4	
Southern Cottonwood Willow Riparian Forest *Southern Cottonwood Willow Riparian Forest*	CTT61330CA	None	None	G3	S3.2	
southern curly-leaved monardella *Monardella sinuata ssp. sinuata*	PDLAM18161	None	None	G3T2	S2	1B.2
southern tarplant *Centromadia parryi ssp. australis*	PDAST4R0P4	None	None	G3T2	S2	1B.1
Southern Vernal Pool *Southern Vernal Pool*	CTT44300CA	None	None	GNR	SNR	
Southern Willow Scrub *Southern Willow Scrub*	CTT63320CA	None	None	G3	S2.1	
southwestern willow flycatcher *Empidonax traillii extimus*	ABPAE33043	Endangered	Endangered	G5T2	S1	
steelhead - southern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209J	Endangered	None	G5T1Q	S1	
tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered	None	G3	S3	SSC
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	Candidate Threatened	G2G3	S1S2	SSC
two-striped gartersnake *Thamnophis hammondii*	ARADB36160	None	None	G4	S3S4	SSC
umbrella larkspur *Delphinium umbraculorum*	PDRAN0B1W0	None	None	G3	S3	1B.3
Valley Needlegrass Grassland *Valley Needlegrass Grassland*	CTT42110CA	None	None	G3	S3.1	
vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened	None	G3	S3	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
western spadefoot *Spea hammondii*	AAABF02020	None	None	G3	S3	SSC
white-tailed kite *Elanus leucurus*	ABNKC06010	None	None	G5	S3S4	FP

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
white-veined monardella	PDLAM180A3	None	None	G4T2T3	S2S3	1B.3
Monardella hypoleuca ssp. hypoleuca						

Record Count: 61

Fish Passage Improvement at Crossing 5, Quiota Creek
Project Location Map
T06N R30W S31, Santa Ynez Quad, Santa Barbara County



2016 RE 010 CEQA SOW

Southern Coho Salmon Captive Broodstock Prorgam (UCSC-NOAA)

Introduction:

The University of California at Santa Cruz/NOAA Southwest Fisheries Science Center (SWFSC) will implement the 2016 Coho Salmon Captive Broodstock Program by continuing the captive rearing of approx. 380 annually to maturity for the three years 2017-2020. The project will help to preserve the remaining genetic and phenotypic characteristics of Scott Creek Coho Salmon, thereby reducing the risk of extirpation of this population of endangered Coho Salmon.

The Grantee shall not proceed with implementation of the project until all necessary permits and the Notice to Proceed are secured.

Objective(s):

The objective of the project is to maintain a breeding population of endangered Coho Salmon in captivity to ensure that adequate numbers of mature spawning Coho Salmon will be available each year (winters of 2017/18, 2018/19, 2019/20) to spawn at the Monterey Bay Salmon and Trout Project (MBSTP). Natural production of Coho Salmon in Scott Creek (Santa Cruz Co.) has been extremely low in almost all of the last several years, with only a few (<10) adult Coho Salmon returning to Scott Creek each winter.

Project Description:

Location:

The SWFSC is located at 36.95166700 NL, 122.06500000 WL. It is a stand-alone saltwater hatchery facility on the University of California at Santa Cruz Marine Science Campus at 110 Shaffer Road, Santa Cruz. The MBSTP is located at 37.08972200 NL, 122.23055600 WL. The Kingfisher Flat Conservation Hatchery of the MBSTP is situated on Big Creek, tributary to Scott Creek, approx. 1.5 river-km upstream of the confluence of Big Creek and the mainstem of Scott Creek, and approx. 4.8 river-km from the Pacific Ocean.

Project Set Up:

All fish husbandry and other associated hatchery work, as well as project management, will be carried out by NOAA Fisheries staff. Project coordination, planning, administration and reporting will be done by a staff research associate. In addition, two UCSC contract employees and one UCSC undergraduate assistant will assist with husbandry, sampling and tagging of Coho Salmon, as well as genetic sample preparation, processing and analysis.

Materials:

Equipment and materials needed for this project are as follows:

- Fish feed, including bulk pellet food, fresh/frozen krill and various nutritional supplements such as vitamins and cod liver oil.
- Expendable tagging and marking supplies, including external floy tags, PIT tags, coded wire tags (CWT) and the rental of two CWT tagging units for two months annually
- Miscellaneous fish husbandry supplies as needed, including nets, netting, belt feeders, air stones, batteries, thermometers, waders, boots and a portable waterproof PIT tag reader
- Reagents and consumable laboratory supplies for genetic analysis of broodstock fish and preparation of the annual genetic breeding matrix.

Tasks:

Task 1: Daily Husbandry of Coho Salmon Captive Broodstock

Daily husbandry and feeding of Coho Salmon throughout the funding period will be managed by the same NOAA SWFSC Research Fishery Biologist who has overseen the captive broodstock program for the past 15 years. This task will include feeding of fish, maintenance of water and air systems, cleaning of tanks and equipment, fish health maintenance and periodic travel to the MBSTP and Warm Springs Hatchery satellite rearing facilities.

Task 2: Tagging and Release of Captive Broodstock Program Fish

During January/February of each grant year, NOAA SWFSC staff will implant a CWT in each program fish, and a PIT tag in a sub-sample of the program fish (up to 20,000 annually, depending on production levels). For tagging, fish are anesthetized, the CWT and PIT tags are inserted, and fish are then allowed to recover in a holding tank until release (March-May).

Task 3: Development of a Genetic Spawning Matrix

To create a spawning matrix, permanent NOAA SWFSC staff each year collect a small tissue sample (usually from the caudal fin) from each captive broodstock Coho Salmon and any natural-origin Coho Salmon captured in Scott Creek. Tissue samples are then processed in the laboratory for DNA extraction and analysis. Results of the analysis are used to create a matrix that prioritizes potential mating partners according to their level of relatedness.

Task 4: Reporting

NOAA SWFSC permanent staff will produce annual and final project reports.

Deliverables:

1. For each year throughout the grant period, delivery of a cohort of up to 380 mature Coho Salmon of the highest possible physical and genetic quality to the MBSTP for spawning.

2. Implantation of a coded wire tag (CWT) into each program Coho Salmon, and implantation of a passive integrated transponder (PIT) tag into a subset of program Coho Salmon (up to 20,000) before release of these fish into the natural environment.

3. Genotypic analysis of each broodstock Coho Salmon and creation of an annual spawning matrix based on relatedness.

4. Periodic progress reports, annual reports and final report (hard copy and Compact Disc). The Final Report shall include the following:
   - Demonstrated fish survival at each of the three rearing facility (NOAA SWFSC, MBSTP and WSH).
   - rates of adult return
   - broodyear-specific data on all fish in the captive broodstock program
   - key metrics of performance at each facility (e.g., size, fecundity, survival)
   - numbers of fish tagged annually
   - data on the date, number, life stage and release location of program fish released in regional Coho Salmon recovery watersheds
   - any pertinent Geographic Information System (GIS) data

Timelines:

Task 1: Year-round, 365 days per year, throughout the grant period.

Task 2: Each year of the grant period. October: Order CWTs and rent CWT injector unit. December – March: Execute batch tagging of program fish. March – May: Assist MBSTP with release of MBSTP program Coho Salmon.

Task 3: Each year of the grant period. November – March: Production and regular update of the spawning matrix. March: PIT tagging and tissue sampling of candidate broodstock Coho Salmon for potential inclusion in the spawning matrix. March – August: Genotyping and sex determination of each potential broodstock fish for potential inclusion in the spawning matrix.

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Additional Requirements:

There are no additional requirements for this project.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Davenport (3712212) OR Felton (3712211) OR Laurel (3712118) OR Santa Cruz (3612281) OR Soquel (3612188))

Possible species within the Santa Cruz Quad and surrounding quads for 725239 Southern Coho Salmon Captive Broodstock Program (UCSC-NOAA), T11S R02W S22, Santa Cruz County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S3	SSC
Anderson's manzanita *Arctostaphylos andersonii*	PDERI04030	None	None	G2	S2	1B.2
Antioch specid wasp *Philanthus nasalis*	IIHYM20010	None	None	G1	S1	
arcuate bush-mallow *Malacothamnus arcuatus*	PDMAL0Q0E0	None	None	G2Q	S2	1B.2
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S2	
Ben Lomond buckwheat *Eriogonum nudum var. decurrens*	PDPGN08492	None	None	G5T1	S1	1B.1
Ben Lomond spineflower *Chorizanthe pungens var. hartwegiana*	PDPGN040M1	Endangered	None	G2T1	S1	1B.1
bent-flowered fiddleneck *Amsinckia lunaris*	PDBOR01070	None	None	G2G3	S2S3	1B.2
black swift *Cypseloides niger*	ABNUA01010	None	None	G4	S2	SSC
Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060	None	None	G2	S2	1B.2
Bonny Doon manzanita *Arctostaphylos silvicola*	PDERI041F0	None	None	G1	S1	1B.2
bristly sedge *Carex comosa*	PMCYP032Y0	None	None	G5	S2	2B.1
burrowing owl *Athene cunicularia*	ABNSB10010	None	None	G4	S3	SSC
California giant salamander *Dicamptodon ensatus*	AAAAH01020	None	None	G3	S2S3	SSC
California linderiella *Linderiella occidentalis*	ICBRA06010	None	None	G2G3	S2S3	
California red-legged frog *Rana draytonii*	AAABH01022	Threatened	None	G2G3	S2S3	SSC
chaparral ragwort *Senecio aphanactis*	PDAST8H060	None	None	G3	S2	2B.2
Choris' popcornflower *Plagiobothrys chorisianus var. chorisianus*	PDBOR0V061	None	None	G3T2Q	S2	1B.2
coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Cooper's hawk *Accipiter cooperii*	ABNKC12040	None	None	G5	S4	WL
deceiving sedge *Carex saliniformis*	PMCYP03BY0	None	None	G2	S2	1B.2
Dolloff Cave spider *Meta dolloff*	ILARA17010	None	None	G1	S1	
Dudley's lousewort *Pedicularis dudleyi*	PDSCR1K0D0	None	Rare	G2	S2	1B.2
elongate copper moss *Mielichhoferia elongata*	NBMUS4Q022	None	None	G5	S4	4.3
Empire Cave pseudoscorpion *Fissilicreagris imperialis*	ILARAE5010	None	None	G1	S1	
Empire Cave pseudoscorpion *Neochthonius imperialis*	ILARAD1010	None	None	G1	S1	
eulachon *Thaleichthys pacificus*	AFCHB04010	Threatened	None	G5	S3	
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC
globose dune beetle *Coelus globosus*	IICOL4A010	None	None	G1G2	S1S2	
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
hoary bat *Lasiurus cinereus*	AMACC05030	None	None	G5	S4	
Kellogg's horkelia *Horkelia cuneata var. sericea*	PDROS0W043	None	None	G4T1?	S1?	1B.1
Mackenzie's Cave amphipod *Stygobromus mackenziei*	ICMAL05530	None	None	G1	S1	
maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0	None	None	G3	S3	4.2
marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
Maritime Coast Range Ponderosa Pine Forest *Maritime Coast Range Ponderosa Pine Forest*	CTT84132CA	None	None	G1	S1.1	
marsh microseris *Microseris paludosa*	PDAST6E0D0	None	None	G2	S2	1B.2
marsh sandwort *Arenaria paludicola*	PDCAR040L0	Endangered	Endangered	G1	S1	1B.1
mimic tryonia (=California brackishwater snail) *Tryonia imitator*	IMGASJ7040	None	None	G2	S2	
minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0	None	None	G3?	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
moestan blister beetle *Lytta moesta*	IICOL4C020	None	None	G2	S2	
monarch - California overwintering population *Danaus plexippus pop. 1*	IILEPP2012	None	None	G4T2T3	S2S3	
Monterey pine *Pinus radiata*	PGPIN040V0	None	None	G1	S1	1B.1
Monterey Pine Forest *Monterey Pine Forest*	CTT83130CA	None	None	G1	S1.1	
Mount Hermon (=barbate) June beetle *Polyphylla barbata*	IICOL68030	Endangered	None	G1	S1	
North Central Coast Drainage Sacramento Sucker/Roach River *North Central Coast Drainage Sacramento Sucker/Roach River*	CARA2623CA	None	None	GNR	SNR	
North Central Coast Short-Run Coho Stream *North Central Coast Short-Run Coho Stream*	CARA2632CA	None	None	GNR	SNR	
Northern Coastal Salt Marsh *Northern Coastal Salt Marsh*	CTT52110CA	None	None	G3	S3.2	
northern curly-leaved monardella *Monardella sinuata ssp. nigrescens*	PDLAM18162	None	None	G3T2	S2	1B.2
Northern Interior Cypress Forest *Northern Interior Cypress Forest*	CTT83220CA	None	None	G2	S2.2	
Northern Maritime Chaparral *Northern Maritime Chaparral*	CTT37C10CA	None	None	G1	S1.2	
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
Ohlone manzanita *Arctostaphylos ohloneana*	PDERI042Y0	None	None	G1	S1	1B.1
Ohlone tiger beetle *Cicindela ohlone*	IICOL026L0	Endangered	None	G1	S1	
Opler's longhorn moth *Adela oplerella*	IILEE0G040	None	None	G2	S2	
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G5	S3	SSC
perennial goldfields *Lasthenia californica ssp. macrantha*	PDAST5L0C5	None	None	G3T2	S2	1B.2
Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0	None	None	G2	S2	1B.2
robust spineflower *Chorizanthe robusta var. robusta*	PDPGN040Q2	Endangered	None	G2T1	S1	1B.1
saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A	None	None	G5T3	S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
San Francisco collinsia *Collinsia multicolor*	PDSCR0H0B0	None	None	G2	S2	1B.2
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	AMAFF08082	None	None	G5T2T3	S2S3	SSC
San Francisco popcornflower *Plagiobothrys diffusus*	PDBOR0V080	None	Endangered	G1Q	S1	1B.1
sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101	None	None	G5T2	S2	
Santa Cruz black salamander *Aneides niger*	AAAAD01070	None	None	G3	S3	SSC
Santa Cruz clover *Trifolium buckwestiorum*	PDFAB402W0	None	None	G2	S2	1B.1
Santa Cruz cypress *Hesperocyparis abramsiana var. abramsiana*	PGCUP04081	Threatened	Endangered	G1T1	S1	1B.2
Santa Cruz kangaroo rat *Dipodomys venustus venustus*	AMAFD03042	None	None	G4T1	S1	
Santa Cruz long-toed salamander *Ambystoma macrodactylum croceum*	AAAAA01082	Endangered	Endangered	G5T1T2	S1S2	FP
Santa Cruz microseris *Stebbinsoseris decipiens*	PDAST6E050	None	None	G2	S2	1B.2
Santa Cruz Mountains beardtongue *Penstemon rattanii var. kleei*	PDSCR1L5B1	None	None	G4T2	S2	1B.2
Santa Cruz Mountains pussypaws *Calyptridium parryi var. hesseae*	PDPOR09052	None	None	G3G4T2	S2	1B.1
Santa Cruz tarplant *Holocarpha macradenia*	PDAST4X020	Threatened	Endangered	G1	S1	1B.1
Santa Cruz wallflower *Erysimum teretifolium*	PDBRA160N0	Endangered	Endangered	G1	S1	1B.1
Schreiber's manzanita *Arctostaphylos glutinosa*	PDERI040G0	None	None	G1	S1	1B.2
Scotts Valley polygonum *Polygonum hickmanii*	PDPGN0L310	Endangered	Endangered	G1	S1	1B.1
Scotts Valley spineflower *Chorizanthe robusta var. hartwegii*	PDPGN040Q1	Endangered	None	G2T1	S1	1B.1
slender silver moss *Anomobryum julaceum*	NBMUS80010	None	None	G5?	S2	4.2
Smith's blue butterfly *Euphilotes enoptes smithi*	IILEPG2026	Endangered	None	G5T1T2	S1S2	
steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened	None	G5T2T3Q	S2S3	
swamp harebell *Campanula californica*	PDCAM02060	None	None	G3	S3	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
tear drop moss *Dacryophyllum falcifolium*	NBMUS8Z010	None	None	G2	S2	1B.3
tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered	None	G3	S3	SSC
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	None	G2G3	S1S2	SSC
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western pearlshell *Margaritifera falcata*	IMBIV27020	None	None	G4G5	S1S2	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
white-flowered rein orchid *Piperia candida*	PMORC1X050	None	None	G3	S3	1B.2
white-rayed pentachaeta *Pentachaeta bellidiflora*	PDAST6X030	Endangered	Endangered	G1	S1	1B.1
white-tailed kite *Elanus leucurus*	ABNKC06010	None	None	G5	S3S4	FP
woodland woollythreads *Monolopia gracilens*	PDAST6G010	None	None	G3	S3	1B.2
Zayante band-winged grasshopper *Trimerotropis infantilis*	IIORT36030	Endangered	None	G1	S1	

Record Count: 95

Southern Coho Salmon Captive Broodstock Program (UCSC-NOAA)
Project Location Map
T11S R02W S22, Santa Cruz Quad, Santa Cruz County

2016 RE 041 CEQA SOW

MBSTP Coho Captive Broodstock and Recovery Program

Introduction:

The Monterey Bay Salmon & Trout Project (MBSTP) will implement the 2016 MBSTP Coho Salmon Broodstock and Recovery Program. The program is the continued operation of the Kingfisher Flat Conservation Hatchery (KFH) and consists of the spawning, rearing and release of Coho Salmon in Scott Creek and possibly other regional streams. The MBSTP has been instrumental in preserving the Scott Creek (Santa Cruz Co.) Coho Salmon population for several decades. Without the MBSTP Coho Salmon program at KFH, it is likely that Coho Salmon would have become completely extirpated from Santa Cruz County streams, and the continued operation of the program will reduce the risk of extirpation of endangered Coho Salmon in Santa Cruz County.

The Grantee shall not proceed with implementation of the project until all necessary permits and the Notice to Proceed are secured.

Objective(s):

The objective of the project is to preserve and augment the Scott Creek (Santa Cruz Co.) Coho Salmon population through artificial spawning of mature Coho Salmon, captive rearing of progeny at KFH, and release of juvenile Coho Salmon in Scott Creek and possibly other regional streams, thereby reducing the risk of population extirpation. Natural production of Coho Salmon in Scott Creek has been extremely low in almost all of the last several years, with only a few (<10) adult Coho Salmon returning to Scott Creek each winter. This project will be implemented in coordination with the Southern Coho Salmon Captive Broodstock Program at the NOAA Southwest Fisheries Science Center (SWFSC) in Santa Cruz.

Project Description:

Location:

The MBSTP is located at 37.08972200 NL, 122.23055600 WL. The Kingfisher Flat Conservation Hatchery of the MBSTP is situated on Big Creek, tributary to Scott Creek, approx. 1.5 river-km upstream of the confluence of Big Creek and the mainstem of Scott Creek, and approx. 4.8 river-km from the Pacific Ocean. The SWFSC is located at 36.95166700 NL, 122.06500000 WL on the University of California at Santa Cruz Marine Science Campus at 110 Shaffer Road, Santa Cruz.

Project Set Up:

All fish husbandry work at the MBSTP KFH will be performed by the MBSTP Hatchery Manager and Fish Culturist, including spawning of broodstock, egg incubation, fish rearing through the smolt (age 1+) stage, and fish health

maintenance and treatment. Hatchery maintenance, repair and improvements will be implemented and overseen by the MBSTP Facility Manager. The MBSTP Executive Director will oversee all operations and administer grants.

Materials:

Equipment and materials needed for this project are as follows:

- Fish feed, including various pellets and crumble, fresh/frozen krill and various nutritional supplements such as vitamins and cod liver oil.
- Fish culture supplies, including various chemicals, therapeutics such as iodine, hydrogen peroxide, erythromycin, vibrio vaccine and ovaplant, and other materials such as pipettes, water filters, photoperiod light bulbs, oxygen, and basic laboratory supplies.
- Miscellaneous fish husbandry supplies as needed, including nets, netting, air stones, batteries and thermometers.

Tasks:

Task 1: Maintenance, repair and updating of the Kingfisher Flat Conservation Hatchery

This task includes hatchery building maintenance, equipment and systems maintenance, and grounds and vegetation maintenance. This task will be implemented by permanent MBSTP staff year-round, subcontractors and volunteers as appropriate.

Task 2: Inventory of captive broodstock to be spawned during spawning season.

This task will be implemented by permanent MBSTP staff, in coordination with staff at the SWFSC and Warm Springs Hatchery where part of the Coho Salmon Broodstock are reared for the MBSTP.

Task 3: Spawning of broodstock.

This task will be implemented by permanent MBSTP staff with assistance from contractors and volunteers as appropriate. Broodstock are spawned each year in January/February.

Task 4: Chemotherapeutic treatment of broodstock.

Each winter, MBSTP staff will treat broodstock Coho Salmon with hydrogen peroxide as prophylaxis against fungal infection as prescribed by CDFW Pathology staff.

Task 5: Rearing of young-of-the-year program Coho Salmon.

Following spawning each year, MBSTP staff, with help from subcontractors and volunteers as appropriate, will rear newly spawned Coho Salmon in a Moist Air Incubator, vertical tray incubators, troughs, and circular rearing tanks to the smolt stage.

Task 6: Release of program Coho Salmon.

Each year during spring (March-May) MBSTP staff, with help from subcontractors and volunteers as appropriate, will release program Coho Salmon smolts in Scott Creek and possibly other regional streams as advised by the program's Technical Advisory Committee whose members include NOAA and CDFW staff. In years where sufficient numbers of juvenile program Coho Salmon are available and loading densities in the rearing vessels exceed desirable levels, juvenile (age 0+) Coho Salmon will be released in Scott Creek in late fall.

Task 6: Reporting

MBSTP permanent staff will produce annual and final project reports.

Deliverables:

1. Throughout the grant period, maintenance of a fully operational Coho Salmon conservation hatchery facility.

2. Rearing of approx.. 120 adult broodstock Coho Salmon for spawning annually.

3. Each year of the grant period, production of a cohort of juvenile Coho Salmon from mature adult broodstock under the guidance of a genetic spawning matrix supplied by SWFSC Genetics Laboratory.

4. Each year, production of a cohort of Coho Salmon smolts of the highest possible physical quality for release in Scott Creek.

5. Periodic progress reports, annual reports and final report (hard copy and Compact Disc). The Final Report shall include the following:
   - Demonstrated fish survival at the KFH conservation hatchery facility.
   - broodyear-specific data on all fish in the program
   - key metrics of performance during and following annual spawning (e.g., size, fecundity, survival)
   - numbers of fish produced annually
   - data on the date, number, life stage and release location of program fish released in regional Coho Salmon recovery watersheds
   - any pertinent Geographic Information System (GIS) data

Timelines:

Task 1: Year-round, 365 days per year, throughout the grant period.

Task 2: Each year of the grant period, November – December.

Task 3: Each year of the grant period, December-March.

Task 4: Each year of the grant period, primarily December – May, but as needed and as prescribed by CDFW Pathology staff.

Task 5: Year-round throughout the grant period. Each new Coho Salmon cohort is reared for approx. 15 months, from spawning in winter through spring of the following year.

Task 6: Each year of the grant period, March – June.

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Additional Requirements:

There are no additional requirements for this project.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Ano Nuevo (3712213) OR Big Basin (3712222) OR Castle Rock Ridge (3712221) OR Davenport (3712212) OR Felton (3712211) OR Franklin Point (3712223) OR Santa Cruz (3612281))

Possible species within the Davenport Quad and surrounding quads for 725240 MBSTP Coho Captive Broodstock and Recovery Program, T10S R03W S8, Santa Cruz and San Mateo Counties

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S3	SSC
American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
An isopod *Calasellus californicus*	ICMAL34010	None	None	G2	S2	
Anderson's manzanita *Arctostaphylos andersonii*	PDERI04030	None	None	G2	S2	1B.2
Antioch specid wasp *Philanthus nasalis*	IIHYM20010	None	None	G1	S1	
arcuate bush-mallow *Malacothamnus arcuatus*	PDMAL0Q0E0	None	None	G2Q	S2	1B.2
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S2	
Ben Lomond buckwheat *Eriogonum nudum var. decurrens*	PDPGN08492	None	None	G5T1	S1	1B.1
Ben Lomond spineflower *Chorizanthe pungens var. hartwegiana*	PDPGN040M1	Endangered	None	G2T1	S1	1B.1
bent-flowered fiddleneck *Amsinckia lunaris*	PDBOR01070	None	None	G2G3	S2S3	1B.2
black swift *Cypseloides niger*	ABNUA01010	None	None	G4	S2	SSC
Blasdale's bent grass *Agrostis blasdalei*	PMPOA04060	None	None	G2	S2	1B.2
Bonny Doon manzanita *Arctostaphylos silvicola*	PDERI041F0	None	None	G1	S1	1B.2
burrowing owl *Athene cunicularia*	ABNSB10010	None	None	G4	S3	SSC
Butano Ridge cypress *Hesperocyparis abramsiana var. butanoensis*	PGCUP04082	Threatened	Endangered	G1T1	S1	1B.2
California black rail *Laterallus jamaicensis coturniculus*	ABNME03041	None	Threatened	G3G4T1	S1	FP
California giant salamander *Dicamptodon ensatus*	AAAAH01020	None	None	G3	S2S3	SSC
California red-legged frog *Rana draytonii*	AAABH01022	Threatened	None	G2G3	S2S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
chaparral ragwort *Senecio aphanactis*	PDAST8H060	None	None	G3	S2	2B.2
Choris' popcornflower *Plagiobothrys chorisianus var. chorisianus*	PDBOR0V061	None	None	G3T2Q	S2	1B.2
Coastal Brackish Marsh *Coastal Brackish Marsh*	CTT52200CA	None	None	G2	S2.1	
coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
Cooper's hawk *Accipiter cooperii*	ABNKC12040	None	None	G5	S4	WL
deceiving sedge *Carex saliniformis*	PMCYP03BY0	None	None	G2	S2	1B.2
Dolloff Cave spider *Meta dolloff*	ILARA17010	None	None	G1	S1	
Dudley's lousewort *Pedicularis dudleyi*	PDSCR1K0D0	None	Rare	G2	S2	1B.2
elongate copper moss *Mielichhoferia elongata*	NBMUS4Q022	None	None	G5	S4	4.3
Empire Cave pseudoscorpion *Fissilicreagris imperialis*	ILARAE5010	None	None	G1	S1	
Empire Cave pseudoscorpion *Neochthonius imperialis*	ILARAD1010	None	None	G1	S1	
fragrant fritillary *Fritillaria liliacea*	PMLIL0V0C0	None	None	G2	S2	1B.2
Franciscan thistle *Cirsium andrewsii*	PDAST2E050	None	None	G3	S3	1B.2
globose dune beetle *Coelus globosus*	IICOL4A010	None	None	G1G2	S1S2	
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
hoary bat *Lasiurus cinereus*	AMACC05030	None	None	G5	S4	
Kellman's bristle moss *Orthotrichum kellmanii*	NBMUS56190	None	None	G2	S2	1B.2
Kellogg's horkelia *Horkelia cuneata var. sericea*	PDROS0W043	None	None	G4T1?	S1?	1B.1
Kings Mountain manzanita *Arctostaphylos regismontana*	PDERI041C0	None	None	G2	S2	1B.2
Loma Prieta hoita *Hoita strobilina*	PDFAB5Z030	None	None	G2	S2	1B.1
longfin smelt *Spirinchus thaleichthys*	AFCHB03010	Candidate	Threatened	G5	S1	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Mackenzie's Cave amphipod *Stygobromus mackenziei*	ICMAL05530	None	None	G1	S1	
maple-leaved checkerbloom *Sidalcea malachroides*	PDMAL110E0	None	None	G3	S3	4.2
marbled murrelet *Brachyramphus marmoratus*	ABNNN06010	Threatened	Endangered	G3G4	S1	
Maritime Coast Range Ponderosa Pine Forest *Maritime Coast Range Ponderosa Pine Forest*	CTT84132CA	None	None	G1	S1.1	
marsh microseris *Microseris paludosa*	PDAST6E0D0	None	None	G2	S2	1B.2
marsh sandwort *Arenaria paludicola*	PDCAR040L0	Endangered	Endangered	G1	S1	1B.1
Methuselah's beard lichen *Usnea longissima*	NLLEC5P420	None	None	G4	S4	4.2
mimic tryonia (=California brackishwater snail) *Tryonia imitator*	IMGASJ7040	None	None	G2	S2	
minute pocket moss *Fissidens pauperculus*	NBMUS2W0U0	None	None	G3?	S2	1B.2
moestan blister beetle *Lytta moesta*	IICOL4C020	None	None	G2	S2	
monarch - California overwintering population *Danaus plexippus pop. 1*	IILEPP2012	None	None	G4T2T3	S2S3	
Monterey pine *Pinus radiata*	PGPIN040V0	None	None	G1	S1	1B.1
Monterey Pine Forest *Monterey Pine Forest*	CTT83130CA	None	None	G1	S1.1	
Mount Hermon (=barbate) June beetle *Polyphylla barbata*	IICOL68030	Endangered	None	G1	S1	
Myrtle's silverspot butterfly *Speyeria zerene myrtleae*	IILEPJ608C	Endangered	None	G5T1	S1	
N. Central Coast Calif. Roach/Stickleback/Steelhead Stream *N. Central Coast Calif. Roach/Stickleback/Steelhead Stream*	CARA2633CA	None	None	GNR	SNR	
North Central Coast Drainage Sacramento Sucker/Roach River *North Central Coast Drainage Sacramento Sucker/Roach River*	CARA2623CA	None	None	GNR	SNR	
North Central Coast Short-Run Coho Stream *North Central Coast Short-Run Coho Stream*	CARA2632CA	None	None	GNR	SNR	
Northern Coastal Salt Marsh *Northern Coastal Salt Marsh*	CTT52110CA	None	None	G3	S3.2	
northern curly-leaved monardella *Monardella sinuata ssp. nigrescens*	PDLAM18162	None	None	G3T2	S2	1B.2

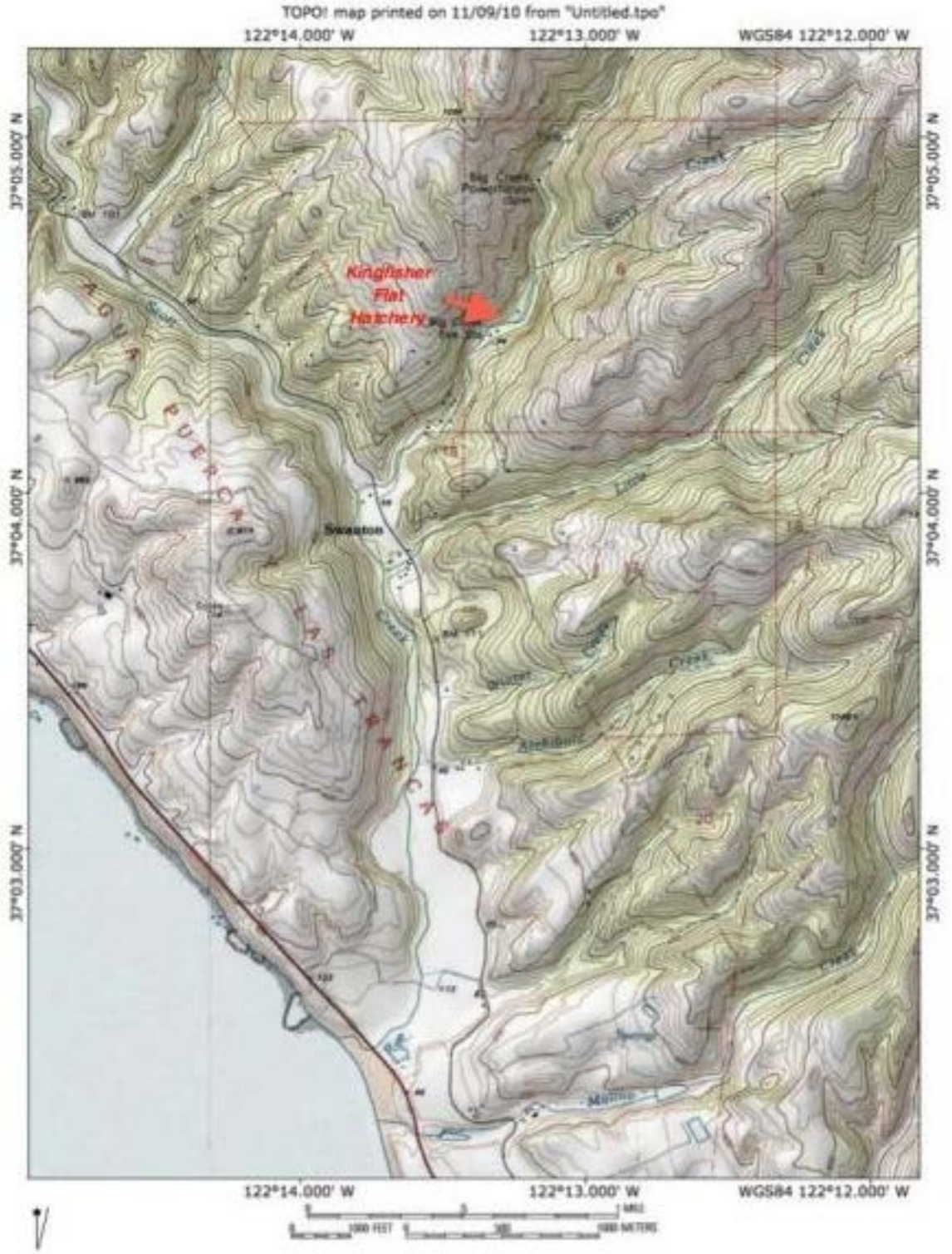
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Northern Interior Cypress Forest *Northern Interior Cypress Forest*	CTT83220CA	None	None	G2	S2.2	
Northern Maritime Chaparral *Northern Maritime Chaparral*	CTT37C10CA	None	None	G1	S1.2	
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
Ohlone manzanita *Arctostaphylos ohloneana*	PDERI042Y0	None	None	G1	S1	1B.1
Ohlone tiger beetle *Cicindela ohlone*	IICOL026L0	Endangered	None	G1	S1	
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G5	S3	SSC
pine rose *Rosa pinetorum*	PDROS1J0W0	None	None	G2	S2	1B.2
Point Reyes horkelia *Horkelia marinensis*	PDROS0W0B0	None	None	G2	S2	1B.2
Point Reyes meadowfoam *Limnanthes douglasii ssp. sulphurea*	PDLIM02038	None	Endangered	G4T1	S1	1B.2
robust spineflower *Chorizanthe robusta var. robusta*	PDPGN040Q2	Endangered	None	G2T1	S1	1B.1
round-leaved filaree *California macrophylla*	PDGER01070	None	None	G3?	S3?	1B.2
saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	ABPBX1201A	None	None	G5T3	S3	SSC
San Francisco campion *Silene verecunda ssp. verecunda*	PDCAR0U213	None	None	G5T2	S2	1B.2
San Francisco collinsia *Collinsia multicolor*	PDSCR0H0B0	None	None	G2	S2	1B.2
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	AMAFF08082	None	None	G5T2T3	S2S3	SSC
San Francisco gartersnake *Thamnophis sirtalis tetrataenia*	ARADB3613B	Endangered	Endangered	G5T2Q	S2	FP
San Francisco popcornflower *Plagiobothrys diffusus*	PDBOR0V080	None	Endangered	G1Q	S1	1B.1
sand-loving wallflower *Erysimum ammophilum*	PDBRA16010	None	None	G2	S2	1B.2
sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101	None	None	G5T2	S2	
Santa Clara red ribbons *Clarkia concinna ssp. automixa*	PDONA050A1	None	None	G5?T3	S3	4.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Santa Cruz black salamander *Aneides niger*	AAAAD01070	None	None	G3	S3	SSC
Santa Cruz clover *Trifolium buckwestiorum*	PDFAB402W0	None	None	G2	S2	1B.1
Santa Cruz cypress *Hesperocyparis abramsiana var. abramsiana*	PGCUP04081	Threatened	Endangered	G1T1	S1	1B.2
Santa Cruz kangaroo rat *Dipodomys venustus venustus*	AMAFD03042	None	None	G4T1	S1	
Santa Cruz microseris *Stebbinsoseris decipiens*	PDAST6E050	None	None	G2	S2	1B.2
Santa Cruz Mountains beardtongue *Penstemon rattanii var. kleei*	PDSCR1L5B1	None	None	G4T2	S2	1B.2
Santa Cruz Mountains pussypaws *Calyptridium parryi var. hesseae*	PDPOR09052	None	None	G3G4T2	S2	1B.1
Santa Cruz tarplant *Holocarpha macradenia*	PDAST4X020	Threatened	Endangered	G1	S1	1B.1
Santa Cruz wallflower *Erysimum teretifolium*	PDBRA160N0	Endangered	Endangered	G1	S1	1B.1
Schreiber's manzanita *Arctostaphylos glutinosa*	PDERI040G0	None	None	G1	S1	1B.2
Scotts Valley polygonum *Polygonum hickmanii*	PDPGN0L310	Endangered	Endangered	G1	S1	1B.1
Scotts Valley spineflower *Chorizanthe robusta var. hartwegii*	PDPGN040Q1	Endangered	None	G2T1	S1	1B.1
short-leaved evax *Hesperevax sparsiflora var. brevifolia*	PDASTE5011	None	None	G4T3	S2	1B.2
slender silver moss *Anomobryum julaceum*	NBMUS80010	None	None	G5?	S2	4.2
slender-leaved pondweed *Stuckenia filiformis ssp. alpina*	PMPOT03091	None	None	G5T5	S3	2B.2
Smith's blue butterfly *Euphilotes enoptes smithi*	IILEPG2026	Endangered	None	G5T1T2	S1S2	
steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened	None	G5T2T3Q	S2S3	
Steller (=northern) sea-lion *Eumetopias jubatus*	AMAJC03010	Delisted	None	G3	S2	
stinkbells *Fritillaria agrestis*	PMLIL0V010	None	None	G3	S3	4.2
swamp harebell *Campanula californica*	PDCAM02060	None	None	G3	S3	1B.2
tear drop moss *Dacryophyllum falcifolium*	NBMUS8Z010	None	None	G2	S2	1B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered	None	G3	S3	SSC
Toren's grimmia *Grimmia torenii*	NBMUS32330	None	None	G2	S2	1B.3
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	None	G2G3	S1S2	SSC
unsilvered fritillary *Speyeria adiaste adiaste*	IILEPJ6143	None	None	G1G2T1	S1	
vaginulate grimmia *Grimmia vaginulata*	NBMUS32340	None	None	G2G3	S1	1B.1
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western pearlshell *Margaritifera falcata*	IMBIV27020	None	None	G4G5	S1S2	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
white-flowered rein orchid *Piperia candida*	PMORC1X050	None	None	G3	S3	1B.2
white-rayed pentachaeta *Pentachaeta bellidiflora*	PDAST6X030	Endangered	Endangered	G1	S1	1B.1
white-tailed kite *Elanus leucurus*	ABNKC06010	None	None	G5	S3S4	FP
woodland woollythreads *Monolopia gracilens*	PDAST6G010	None	None	G3	S3	1B.2
Zayante band-winged grasshopper *Trimerotropis infantilis*	IIORT36030	Endangered	None	G1	S1	

Record Count: 116

MBSTP Coho Captive Broodstock and Recovery Program
Project Location Map
T10S R03W S8, Davenport Quad, Santa Cruz County



Introduction: The Salmon River Restoration Council (SRRC) will implement The Kelly Gulch Off-Channel Fisheries and Riparian Habitat Enhancement Project Phase II of the approved construction-ready design to enhance off-channel habitat at the mouth of Kelly Gulch on the North Fork Salmon River by improving connectivity to and enhancing side channels, creating an alcove and an off-channel pond. Enhancing such habitat will create high quality winter rearing habitat and cold water summer refugia for coho salmon.

Phase II is the restoration of the Kelly Gulch river bar, with plans to:
1) Enhance the river bar overflow channel by installing a large wood apex jam at the inlet
2) Excavate the overflow channel and create an alcove at the outlet
3) Enhance the most up-river pond on the bar, known as Willow Pond, and the seasonal outlet of the pond.

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, and Volume Two. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s): The objectives of this project are:
The project will address four critical elements of long-term restoration and maintenance of both water quality and coho habitat on the Salmon River including:
1) Access to slow water habitat where migrating smolts can take refuge from the strong hydraulics of the mainstem, increasing winter rearing habitat for juveniles;
2) Provide low gradient, off-channel spawning habitat;
3) Restore riparian vegetation that provides shade and subsequent cooler water temperatures during warm summer/fall months and future large woody debris recruitment; and
4) Restore large woody debris into barren side channels to provide increased cover and rearing habitat for adult and juvenile salmonids.

SONCC-SalR.2.1.8.2 Implement restoration projects that improve off channel habitats as guided by assessment results. The SONCC Coho Recovery Plan states that summertime temperatures and lack of winter rearing habitat are the greatest stressors for juvenile coho in the Salmon River.

Engineered design/construction ready plans for Kelly Gulch Off-Channel Fisheries and Riparian Habitat Enhancement Project Phase II will be implemented to restore the floodplain function and increase off-channel 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
- Restore critical habitat for winter and summer refugia.

Project Description:

Location: Kelly Gulch is located on the North Fork of the Salmon River 14 miles upstream from its confluence with the South Fork of the Salmon River, and approximately 28.5 miles from the mouth of the Salmon River.
Access is by county roads from Somes Bar, Etna, and Callahan. The project is located between the 11 and 12 mile markers on Sawyers Bar Road, at the intersection with Forest Service Route 40N42.

Kelly Gulch - 41.31532400 : -123.16852700 - Sawyers Bar Rd, 11.5MP

Project Set Up:

SRRC Director: (Task 1) Provides project oversite and grant management. Will participate in project tracking, invoicing and reporting, and assist in completion of NEPA.

SRRC Program Coordinator: (Tasks 1 and 3) Provides overall project management. Will manage subcontractors, and assist with project tracking and reporting. Responsible for coordinating procurement of materials; overseeing layout and construction; compiling NEPA specialist report and writing NEPA document; assisting with project monitoring tasks.

SRRC Program Staff: (Tasks 2 and 3) Provides project support. Will assist with fish relocation and revegetation tasks. Will perform before and after effectiveness monitoring tasks.

USFS Specialists: (Task 1) USFS resource specialists will assist in completing NEPA and perform final NEPA review and approval. As the landowner for the project site they will also have specialists on the ground during project construction.

Karuk Tribe Fisheries Biologist: (Tasks 1, 2 and 3) The Karuk Tribe fisheries biologist will provide consultation during project construction, assistance with fish removal during implementation, and pit tag fish using the project features during post project monitoring.

Michael Love & Associates, Inc. (MLA): Will serve as the project engineers and will participate in Tasks 1 and 3.

MLA Principal Engineer: (Tasks 1 and 3) Will be the "responsible engineer" for the project and will oversee project activities to ensure the project is built as intended, participate in project meetings, and assist with addressing any unforeseen field conditions.

MLA Sr. Project Engineer and Engineering Geomorphologist: (Tasks 1 and 3): Will participate in pre-implementation coordination, implementation oversight, and post-implementation documentation.

MLA Project Engineer and Staff Hydrologist: (Tasks 1 and 3): Will conduct the construction staking, grade checks as part of construction preparation and the as-built survey and part of project management. The Staff Hydrologist will also participate in construction oversight.

Heavy Equipment Contractor: (Task 2) The Selected Contractor will perform all heavy equipment work and material installation, including excavation, backfill, installation of log and rock structures, erosion and sediment control, water management and dewatering, installation of temporary stream crossings, and fencing installation. Contractor selection will follow SRCC's procurement protocol. The equipment required will include but not be limited to:

- Excavator
- Dump truck
- Tractor/dozer
- Water truck
- Field laborer

NEPA Permitting Contractor: (Task 1.2) Will complete specialist reports for NEPA:

- Fisheries Biologist
- Archeologist
- Botanist
- Wildlife Biologist
- Professional Geologist

Materials:

Office and Field Supplies: Materials required to complete the project include field and office-related supplies. Field supplies include items such as flagging,

sharpies, pencils, write-in-the-rain paper, measuring tapes, total station, kinematic GPS, digital camera, necessary construction supplies, etc. Office-related supplies include copy paper, report binding materials, large format printer paper, map lamination materials, ink, etc.

Log Structures: Project total 70, 30-40 foot long, 18-36" DBH, with attached root masses.
Boulder Rock: 55 tons of ¼ ton rock used for ballast.

Small woody vegetation: Material will be buried into the banks to provide vegetation microsites and fish habitat as small woody debris structures (Total 111 cubic yards).

Revegetation/Site Stabilization: Revegetation will consist of planting 920 riparian plants along the stream and pond banks of the entire project area.

Native wood mulch will also be applied on up to 1.8 acres of disturbance from construction and spoil disposal. 1,900 willow stakes will be planted along the banks of the channels, alcove, and pond.

Approximately 490 more stakes, used in the brush baffles will be placed along the banks to provide channel stabilization and riparian shade.

SRRC will work with a local nursery to develop plant materials for the project, preferred species include: coyote willow (Salix exigua), black cottonwood (Populus balsamifera ssp. trichocarpa), redbud (Cercis orbiculata), white alder (Alnus rhombifolia), blueblossom ceonothus (Ceanothus thyrsiflorus), golden currant (Ribes aureum), flowering currant (Ribes sanguineum), ponderosa pine (Pinus ponderosa), sugar pine (Pinus lambertiana) and incense cedar (Calocedrus decurrens).

Riparian Fencing: The project site will have 1,800-feet of fence to exclude cattle along Sawyers Bar Road, the only access location for cattle. A 12-foot galvanized steel access gate will be installed to maintain Kelly Bar River Access. Materials used in the fence will be T-posts, barbed wire and necessary hardware.

Tasks:

Task 1. Project Management, Meetings and Permitting: (HI)

- 1.1 SRRC will oversee the entire project. MLA, the project designers, will provide construction and project management. MLA will be available throughout implementation to clarify the intent of the design plans. MLA, the project designers, will provide assistance with oversight of the project construction. MLA will perform part-time oversight during the

implementation phase, including clarifying the intent of the design plans when necessary, checking grades, overseeing the channel grading and structure placement, installation of new crossing and water control devices and support with development of a final punch-list for the contractor. As part of project management, MLA will prepare invoices and progress reports to be submitted to SRRC during the course of the project. SRCC will contract with a qualified heavy equipment contractor and coordinate construction of the project. SRRC will provide daily construction management and oversight, and resolution of contractual issues. SRRC will photo-document all aspects of the project. MLA staff, including the Principal Engineer, Sr. Project Engineer, Project Engineer, Engineering Geomorphologist, and Staff Hydrologist will provide oversight of excavation and backfill, installation of the rock and large wood structures, and grade checks to verify constructed elevations. 15 MLA staff, including the Project Engineer and Staff Hydrologist will also provide construction stakeout. The stakeout will include establishment of elevation control, placement of stakes to denote the location and stationing of the proposed centerline of the channels, pond geometries, and structure locations. Once staking is complete, it will be the obligation of the contractor to maintain the stake locations and to determine locations of non-staked items. MLA will attend one construction kickoff meeting and up to three (3) weekly construction progress meetings. MLA will be available to make recommendations for addressing unforeseen conditions that arise and for making field changes, if necessary.

- 1.2 SRRC will contract required NEPA documentation including Specialist Reports for Fisheries, Archeology, Botany, Wildlife Biology, Geology and Hydrology disciplines. SRRC will coordinate with local agencies to support any project review or approvals, if necessary. MLA will assist SRRC with local agency coordination and provide necessary documents for local agencies for review. USFS Specialists will provide support and review for the NEPA process.

- 1.3 SRRC and subcontractors will track their work during this project and prepare invoices and progress reports to be submitted to CDFW during the course of this project.

Task 2 Implementation Habitat Enhancement: (HI) The selected contractor will provide maintenance of traffic, erosion and sediment control, water management and dewatering, all construction work and provide all material certifications.

- 2.1 Mobilization/Demobilization: Procurement and delivery of all materials and equipment to the site, contractor will finalize contracts and insurance requirements.

- 2.2 Clearing/Grubbing/Construction Access/Site Preparation: Areas for equipment storage, re-fueling and equipment maintenance will be flagged and established for use by the contractor. Areas for material storage will be established and prepared with pre-construction erosion control measures. Installation of sediment control as needed within work area. Ground preparation for construction activities including preparation for dust control and other best management practices for protection of water quality. Contractor will prepare the work area by removing brush and trees marked for clearing to provide ingress and egress to the channel and pond areas. When construction has been completed and each site has been reconnected to the channel the isolation measures will be removed allowing free flow, if any, into the work site. Removal of equipment and all excess materials.

- 2.3 Fish Relocation: Work areas in the Salmon River will have fish removal by a qualified biologist provided by 16 the Karuk Tribe assisted by SRRC Program Staff. It is expected that the inlet to the side-channel will be the only potentially wetted area of the project during the construction window. Fish will be removed from the wetted work areas and then fish exclusion screens will be placed a minimum of 30-feet upstream and downstream of dewatered areas as an isolation measure.

- 2.4 Temporary Stream Crossing: A temporary stream crossing will be used as necessary, if the seasonal outlet to Kelly Pond is wet.

- 2.5 Dewatering: Appropriate measures will be taken to dewater construction areas as necessary depending on current sites conditions at the time of implementation. Water isolation measures may be necessary to contain turbid waters during removal of the earthen berm separating the alcove or inlet from the Salmon River. Dikes, cofferdams or other suitable measures shall be employed.

- 2.6 Excavation/Spoil Placement: The overflow and seasonal channel, Willow Pond and Alcove area will be excavated to the depths and side slopes indicated in the plans. An earthen plug will remain at the confluence with Salmon River to maintain separation and dewatered areas. Spoil material will be delivered and spread to designated areas as shown on the plans. Material suitable for rock ballast or structure enhancement will be separated and stockpiled.

- 2.7 Apex Bar Jam/Abutment Jam: Log structures composed of minimum 30 foot long logs and boulders or ballast will be placed and anchored according to the construction details and specifications.

- 2.8 Log Constrictors: Log structures and boulders or ballast will be placed and anchored according to the construction details and specifications.

- 2.9 Large Wood Pond Cover Structures: Log structures and boulders or ballast will be placed and anchored according to the construction details and specifications.

- 2.10 Small Woody Debris Structures. Log structures and boulders or ballast will be placed and anchored according to the construction details and specifications.

- 2.11 Live Willow Stakes: Revegetation of riparian species will follow the planting plan as described in Final Design. Willows and cottonwoods will be planted during construction, dormant redbud and Ceanothus will be planted in the fall following construction and all other species will be planted in the following fall. Wood chipped weed mulch will be applied around plantings.

- 2.12 Live Brush Baffles: Revegetation of riparian species will follow the planting plan as described in Final Design. Willows and cottonwoods will be planted during construction, dormant redbud and Ceanothus will be planted in the fall following construction and all other species will be planted in the following fall. Wood chipped weed mulch will be applied around plantings.

- 2.13 Diverse Riparian Planting: Revegetation of riparian species will follow the planting plan as described in Final Design. Willows and cottonwoods will be planted during construction, dormant redbud and Ceanothus will be planted in the fall following construction and all other species will be planted in the following fall. Wood chipped weed mulch will be applied around plantings.

- 2.14 Temporary Site Stabilization. Areas disturbed by construction will be stabilized and planted with diverse riparian trees and shrubs. The project area has very little soil, the substrate is primarily gravel and cobble. Erosion control BMPs for disturbed areas will be implemented including stabilizing the site with wood-chipped mulch, if necessary. Revegetation of riparian species will follow the planting plan as described in Final Design. Willows and cottonwoods will be planted

  during construction, dormant redbud and Ceanothus will be planted in the fall following construction and all other species will be planted in the

following fall. Wood chipped weed mulch will be applied around plantings.

- 2.15 Cattle Exclusion Fencing: Revegetation, site stabilization and natural regeneration will be protected by cattle exclusion fencing with an access gate to maintain Kelly Bar river access. The fence will be anchored into natural anchor sites up and downstream of the project area

- 2.16 Gate Installation: Access gate to maintain Kelly Bar river access

Task 3 Before/After Effectiveness Monitoring: (MO) Post implementation Monitoring. Post-implementation monitoring will be conducted in accordance with requirements presented in the 2016 FRGP Proposal Solicitation Notice (PSN) and as described in the project's Draft Monitoring and Maintenance Plan (see attached plan). Post-construction monitoring requirements 17 include physical, biological and water quality monitoring for two years after implementation. Post implementation physical monitoring will be conducted by staff from SRRC and will include the following:

- 3.1 Biological Monitoring: SRRC will lead the biological monitoring. Biological (fish) monitoring will be conducted for two years by SRRC using snorkel surveys and will include sampling for juvenile salmonids. Although the period when utilization by juvenile coho salmon is most anticipated runs from November through May; biological sampling will occur monthly throughout the year to best assess when fish use occurs. The Salmonid Field Protocols Handbook: Techniques for Assessing Status and Trends in Salmon and Trout Populations (Johnson et al. 2007), will be used as a guide to conduct fish population estimate snorkel surveys. SRRC and CDFW will work collaboratively, sharing resources and information in determining fish population, use, and migration patterns of juveniles using the project site. Data collected by SRRC will be made directly available to CDFW fish biologists monitoring salmonid movements in the Salmon River.

- 3.2 Vegetation monitoring will be conducted by SRRC and will consist of photo monitoring to document the growth of re-vegetated areas over the monitoring period. Photo points will be established and monitoring will be conducted once annually for two years. Native plants installed in the riparian zone will be monitored in the early summer each year to determine overall establishment, health, and vigor. Encroachment of non-native species will be noted and recorded. If target non-native invasive species, such as spotted knapweed, begins growing within the project area, the vegetation will be removed.

- 3.3 Water Quality Monitoring: SRRC will compare conditions in the main channel before and after reconnecting the side channels and pond to the river. Monitoring will be used to evaluate when water quality conditions in the two ponds are adequate to support juvenile salmonids. Water quality monitoring will be conducted by SRRC in the Willow Pond and Alcove once a month for 24 months following construction. Parameters to be measured include: temperature and dissolved oxygen. Measurements will be conducted using a handheld water quality meter. Results will be included in the annual report.

- 3.4 Pre-and Post-Project Photo Monitoring: SRRC will perform this task. Photo monitoring will be conducted to document physical and vegetative response to the project and identify any issues of concern that may require maintenance. Photo monitoring will be conducted using photo-points. Photo-points will be established as part of pre-construction activities from established locations that are located with GPS coordinates to ensure consistent and comparable views. Photo locations will include the mouth of the alcove, connecting channel, log structures, the Willow Pond, and areas that receive vegetation treatments. During the first two years after construction the photo-point monitoring will be conducted twice a year: once during focus period for fish usage (late fall through mid-spring) and once during the dry season. The Photo Point Monitoring Handbook, General Technical Report PNW-GTR-526 (Hall 2002), will be used as a guide to conduct photo monitoring. Observations based on the photo documentation will be summarized in the annual post-construction reports. 18 Observed changes at each site will be noted in the report, with particular focus on: • Functionality and stability of log structures, • Sedimentation patterns channel confluence, • Overall bank stability along the channel, • Sedimentation within the pond and alcove, • Overall revegetation plant success, and, • Encroachment into the project area by invasive riparian vegetation.

- 3.5 Longitudinal Profiles and Cross Sections, and Water Depth Surveys: SRRC will conduct these surveys once per year for two years after implementation. Surveys will be conducted during the focus period for fish usage. SRRC will survey cross sections along the pond and alcove, longitudinal profiles of the connecting channel/alcove thalweg, and water surface. These surveys will be referenced to survey benchmarks will use equipment with the minimum accuracy of an engineer's level or total station. The profiles will be presented in context with the as-built and design drawings to evaluate changes to channel and assess potential sedimentation. The survey will also be used to evaluate water depths during the time of survey to ensure passage criteria are satisfied.

Conditions permitting, a flow measurement in the connecting channels may also be taken during the time of survey.

- 3.6 As-Built Survey and Memorandum: After implementation is complete, MLA will conduct an as-built survey of the project, including longitudinal profiles of the Overflow and Seasonal Channels, locations of log and rock structures, and cross sections of the channels and ponds. Elevations will be surveyed at critical locations to verify the project was built as designed. As-Built elevations will be included on the red-line markup. Based on the results of the survey, MLA will prepare as-built plans using red-line markups of the construction documents with any changes that occurred during implementation. A brief technical memorandum will accompany the As-built plans.

- 3.7 Data Analysis: Analysis will be completed by SRRC and provided to CDFW in an Annual Monitoring Memoranda which will be prepared each year for the two years following construction and will be provided to CDFW by March 31st of the year following monitoring. The report will summarize monitoring activities, findings, and recommendations. The annual report will also identify any issues identified by the annual Inspection that may warrant maintenance or other types of treatment. In the event that items of concern arise, the report will recommend actions to be initiated to further characterize its impact on project objectives and/or consultation with the appropriate resource agencies, including CDFW, to determine if a maintenance action is warranted.

Deliverables:

Task 1 Deliverables: Progress reports, invoices, annual reports and final report, according to CDFW agreement, as well as the NEPA permitting. Construction management and site stakeout. The stakeout will include establishment of elevation control, placement of stakes to denote the location and stationing of the proposed centerline of the channels, pond geometries, and structure locations.

Task 2 Deliverables: This task will result in the implementation of the engineered design plan to include the following:

- Equipment Mobilization/Material Delivery
- Site Preparation
- Excavation for Off Channel Features, Grading
- Wood Structure Installation
- Riparian Planting and Vegetation Enhancements
- Erosion Control/Site Stabilization
- Cattle Exclusion Fencing/Gate Installation

Task 3 Deliverables: Effectiveness Monitoring. Pre/Post implementation monitoring will be conducted in accordance with requirements presented in the 2016 FRGP Proposal Solicitation Notice (PSN) and as described in the project's Draft Monitoring and Maintenance Plan.

Post-construction monitoring will include physical, biological and water quality monitoring for two years after implementation. Post implementation physical monitoring will include the following:

- Biological Monitoring
- Vegetation Monitoring
- Water Quality Monitoring
- Pre-and Post-Project Photo Monitoring
- Longitudinal Profiles and Cross Sections, and Water Depth Surveys
- As-Built Survey and Memorandum
- Data Analysis

Timelines:

Task 1: Project Management July 1st, 2017 – April 30th, 2021. SRRC's project management will begin once grant agreement is finalized and continue through the life of the project. SRCC will contract with a qualified heavy equipment contractor and coordinate construction of the project. SRRC will provide daily construction management and oversight, and resolution of contractual issues. Prepare invoices and progress reports. NEPA July 1, 2017 – December 2017. Complete environmental documents with specialist reports for Fisheries, Archeology, Botany, Wildlife Biology, Geology and Hydrology disciplines.

Task 2: Construction July 1 – October 15th, 2018. Implementation of off channel features, installation of wood structures. Riparian planting and Cattle Exclusion fencing will proceed after construction activities are completed.

Task 3: Monitoring/Reporting November 2018 – March 2021. Will prepare two brief Memoranda after each cycle of annual monitoring. The Memoranda will present methods and a discussion of findings for that year's monitoring. The Memoranda will also include recommendations for any maintenance.
2019 Annual Monitoring Memoranda to be submitted by April 30th, 2020.
2020 Annual Monitoring Memoranda to be submitted by March 31th, 2021.

As-Built Memorandum November 30th, 2018, will prepare as-built plans using red-line markups of the construction documents with any changes that occurred during implementation. A brief technical memorandum will accompany the As-built plans.

Final Grant Report March 31th, 2021. Upon completion of the project, SRRC will photograph the constructed project and develop a written final completion report for submission to CDFW. The final report will contain:

- General grant information
- Location of work
- Project access
- Participating landowners contact information
- A description and analysis of the restoration and planning techniques used
- A description of the results of the project
- Dates of work and the number of person hours expended
- Labeled before and after photos of selected restoration activities and techniques
- Grant dollars spent and contributed and/or in kind services used to complete the project.

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).

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Cecilville (4112322) OR English Peak (4112342) OR Forks of Salmon (4112333) OR Grasshopper Ridge (4112321) OR Medicine Mtn. (4112343) OR Sawyers Bar (4112332) OR Tanners Peak (4112331) OR Yellow Dog Peak (4112341) OR Youngs Peak (4112323))

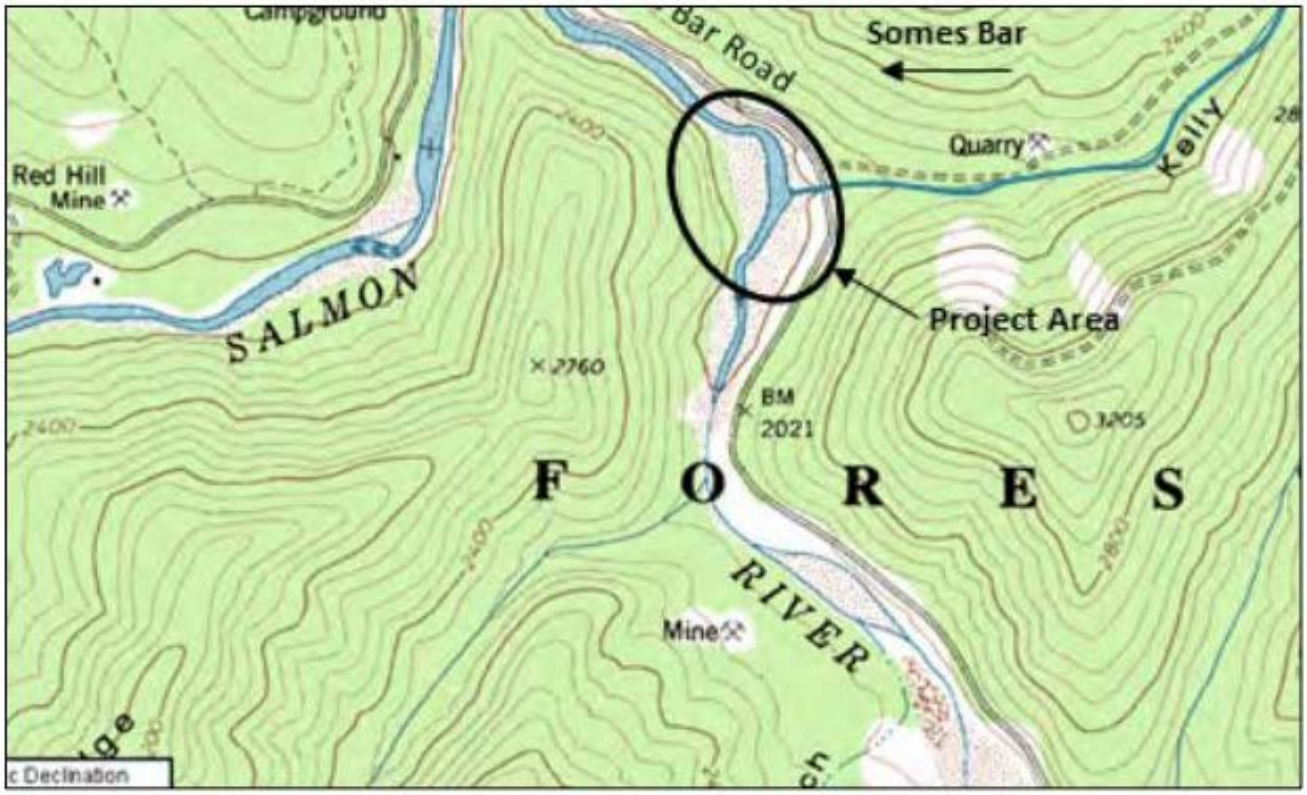
Possible species within the Sawyers Bar Quad and surrounding quads for 725164 Kelly Gulch Fisheries and Riparian Habitat Enhancement Phase II, T40N R12W S24, Siskiyou County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
buttercup-leaf suksdorfia *Hemieva ranunculifolia*	PDSAX0W010	None	None	G5	S2	2B.2
California wolverine *Gulo gulo*	AMAJF03010	None	Threatened	G4	S1	FP
Cascades frog *Rana cascadae*	AAABH01060	None	None	G3G4	S3	SSC
chinook salmon - upper Klamath and Trinity Rivers ESU. *Oncorhynchus tshawytscha*	AFCHA02056	None	None	G5	S1S2	SSC
Del Norte salamander *Plethodon elongatus*	AAAAD12050	None	None	G4	S3	WL
English Peak greenbrier *Smilax jamesii*	PMSMI010D0	None	None	G3G4	S3S4	4.2
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC
giant fawn lily *Erythronium oregonum*	PMLIL0U0C0	None	None	G4G5	S2	2B.2
Henderson's fawn lily *Erythronium hendersonii*	PMLIL0U070	None	None	G4	S2	2B.3
Howell's tauschia *Tauschia howellii*	PDAPI27050	None	None	G2G3	S2S3	1B.3
Humboldt marten *Martes caurina humboldtensis*	AMAJF01012	None	Candidate Endangered	G5T1	S1	SSC
Jaynes Canyon buckwheat *Eriogonum diclinum*	PDPGN081S0	None	None	G3	S3	2B.3
Klamath gentian *Gentiana plurisetosa*	PDGEN060V0	None	None	G2G3	S2	1B.3
Klamath/No Coast Spring Run Chinook/Summer Steelhead Stream *Klamath/No Coast Spring Run Chinook/Summer Steelhead Stream*	CARB2333CA	None	None	GNR	SNR	
Klamath/North Coast Rainbow Trout Stream *Klamath/North Coast Rainbow Trout Stream*	CARB2312CA	None	None	GNR	SNR	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
little-leaved huckleberry *Vaccinium scoparium*	PDERI180Y0	None	None	G5	S3	2B.2
Marble Mountain campion *Silene marmorensis*	PDCAR0U0Z0	None	None	G2	S2	1B.2
northern goshawk *Accipiter gentilis*	ABNKC12060	None	None	G5	S3	SSC
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
Pacific fuzzwort *Ptilidium californicum*	NBHEP2U010	None	None	G4G5	S3S4	4.3
Pacific silver fir *Abies amabilis*	PGPIN01010	None	None	G5	S2	2B.3
Pacific tailed frog *Ascaphus truei*	AAABA01010	None	None	G4	S3S4	SSC
Robbins' pondweed *Potamogeton robbinsii*	PMPOT030Z0	None	None	G5	S3	2B.3
Shasta chaenactis *Chaenactis suffrutescens*	PDAST200H0	None	None	G3	S3	1B.3
snow dwarf bramble *Rubus nivalis*	PDROS1K4S0	None	None	G4?	S1	2B.3
subalpine fir *Abies lasiocarpa var. lasiocarpa*	PGPIN01072	None	None	G5T5	S3	2B.3
summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B	None	None	G5T4Q	S2	SSC
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Trinity Mountains rockcress *Arabis rigidissima var. rigidissima*	PDBRA061R2	None	None	G3T3	S3	1B.3
Trinity shoulderband *Helminthoglypta talmadgei*	IMGASC2630	None	None	G2	S2	
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
white-flowered rein orchid *Piperia candida*	PMORC1X050	None	None	G3	S3	1B.2
northern spotted owl *Strix occidentalis caurina*	ASNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC

Record Count: 35

Kelly Gulch Fisheries and Riparian Habitat Enhancement Phase II
Project Location Map
T40N R12W S24, Sawyers Bar Quad, Siskiyou County



Introduction:

California Trout will completely remove a partial barrier for juvenile coho salmon caused by a seasonal low water ford crossing structure used for logging as wells as emergency fire vehicles and local residents accessing private property.
The partial barrier blocks access for juvenile coho salmon to 1.5 miles of critical rearing habitat during summer months. The low water crossing and unimproved ford also negatively impacts water quality (excessive sedimentation) and floodplain function.

The project will replace the unimproved ford and low water crossing structure with a 66-foot prefabricated, free span, weathered steel, heavy-load, vehicle bridge. The new bridge meets the requirements of landowner and the California Department of Forestry and Fire Protection, has been designed to pass the 100-year peak discharge flow.

Following installation of the new bridge, removal of the existing ford crossing will include decommissioning of approximately 1,050 linear feet of dirt road. Road decommissioning will include ripping of the existing road surface, planting of native upland and riparian vegetation, and removal of fill within impacted floodplain areas to restore secondary channel continuity. Removal of the ford crossing and associated approach roads within the floodplain of Mill Creek is expected to significantly improve channel-floodplain connectivity.

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 XI and XII. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):

Eliminate a significant partial barrier (road crossing) to juvenile coho salmon providing unimpeded passage for all life stages at all flows. In addition 1,050 feet of forest road connected to the road crossing will be decommissioned preventing road related impacts of mobilized sediment, substrate embeddedness.

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)

Removal of this barrier and associated decommissioned road segment will enable unimpeded fish passage through all seasons, eliminate chronic source of excessive sediment to critical spawning habitat from vehicle usage. The project objectives will

improve instream channel conditions, floodplain connectivity and enhance riparian shading/wood recruitment.

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 bridge abutments and placement 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:

From Fort Jones drive south on Highway 3 for 4.9 miles, turn right to Quartz Valley Road and drive 1.9 miles, turn left onto Emigrant Creek Road and keep right on Mill Creek Road at 1.7 miles, turn left at 2.3 miles to go up Mill Creek and arrive at project site in 0.10 miles.

Latitude: 41.56042000, Longitude: 122.98706000.

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, and construction, monitoring and reporting.

The Technical Subcontractors; Cascade Stream Solutions and Waterways Consulting will finalize the 100% design and prepare construction ready plans and specifications. Senior Engineer will oversee all implementation elements including bridge construction and road decommissioning. Provide technical oversight with contractor bid packages, and selection. Project monitoring, reporting and maintenance planning.

The Bridge Installation Subcontractor will be contracted to implement the finalized construction plans for the bridge installation. The bridge contractor will install a prefabricated bridge deck as specified in the finalized plans. Other tasks would include mobilization, access preparation, site preparation and dewatering plan, excavation, grading.

The Road Decommission Subcontractor: The contractor will remove ford stream crossing and decommission roadway with heavy equipment. Plant decommissioned area as specified in the Riparian planting Plan. Regrade roadway for new bridge crossing.

Materials:

Material includes; prefabricated steel bridge, concrete, Rock- boulders and road aggregate, engineered fill for bridge abutments. Riparian trees, straw mulch and grass seed.

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:

Task 1: Project Management: A Senior Engineer, with support from CalTrout's Project Manager and the Siskiyou RCD's Program Manager, will manage project components including partnership coordination, permitting, construction, engineering oversight, reporting and monitoring, bridge installation, and road and ford decommissioning and revegetation.

Task 2: Permitting A Senior Engineer, with support from CalTrout's Project Manager and the Siskiyou RCD's Project Manager and CDFW, will complete all necessary permitting for bridge construction and road decommissioning.

Task 3: Construction Activities: CalTrout's Regional Director and Project Manager will partner with the Siskiyou RCD's Project Manager to oversee all construction activities related to the project. As described in final plans approved by CalTrout, landowners and CDFW and all necessary permits are in place, qualified contractors will be solicited for construction bids.

- Bridge Installation: A 66 foot long by 14 feet wide, clear width, pre-fabricated, steel, vehicle bridge will be placed and secured on the cured concrete abutments. All detailed specifications, including road grading, topographic mapping, slope protection, silt fences, engineered fill, and drainage improvements will be in accordance as specified in the approved 100% construction ready plans.
- Ford and Road Decommission: Completely decommission low water stream crossing structure, unimproved ford, and approximately 1,050 feet of forest road with hydrologic connectivity to the stream. Road decommissioning includes

ripping of road surface to a depth of 1-foot and revegetating with native plants. Other erosion control protection measures may be employed to reduce sediment from entering Mill Creek during and post construction as specified by engineering in 100% design drawings.

Task 4: Monitoring and Reporting: The subcontractor technician in coordination with CalTrout will complete Effectiveness Monitoring for all project components as outlined by CDFW in the FLAR 2015 guidelines. Final 100% Construction Drawings will include a detailed monitoring plan made up of physical and biological monitoring with a complete set of photo monitoring points. As part of 100% designs, the project area has been fully surveyed, photographed, and hydraulic analysis of the stream reach completed. Existing Lidar data of the project area were used in preliminary designs: these data will be utilized again to measure the impact of the project over time. Final construction drawings will include a 10 year monitoring and maintenance plan that integrates with the landowners Access Agreement.

Deliverables:
Final design plan set, as-built construction plan set in PDF.
Steel Vehicle Bridge,
Riparian management plan
Monitoring plan and data
Final Report.

Timelines:
June 2017-December 2019: Task 1- Project Management and Coordination

June 2017-December 2017: Task 2- Permitting December 2017 - Final Permits Submitted

Fall 2017- Winter 2018: Task 3- Construction Activities

June 2017 - Bid documents prepared

June 2017- Solicitation proposal to qualified bidders

July 2017- Pre-Bid Walk Through and Bids Due

July 2017- Award subcontractor bids August 2017- December 2018

August 2017- December 2018- Construction Implementation Activities

Fall 2017-Winter 2018- Task 4- Monitoring

May 2018 - Project Effectiveness Monitoring Report submitted

May 2018- Pre and Post Project Photos will be submitted

December 2019nal- Final 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.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Boulder Peak (4112351) OR Etna (4112248) OR Fort Jones (4112257) OR Greenview (4112258) OR Indian Creek Baldy (4112267) OR McConaughy Gulch (4112247) OR Russell Peak (4112268) OR Scott Bar (4112361) OR Yellow Dog Peak (4112341))

Possible species within Greenview Quad and surrounding quads for 725150 Scott River, Mill-Shackelford Creek Bridge, T43N R10W S22, Siskiyou County

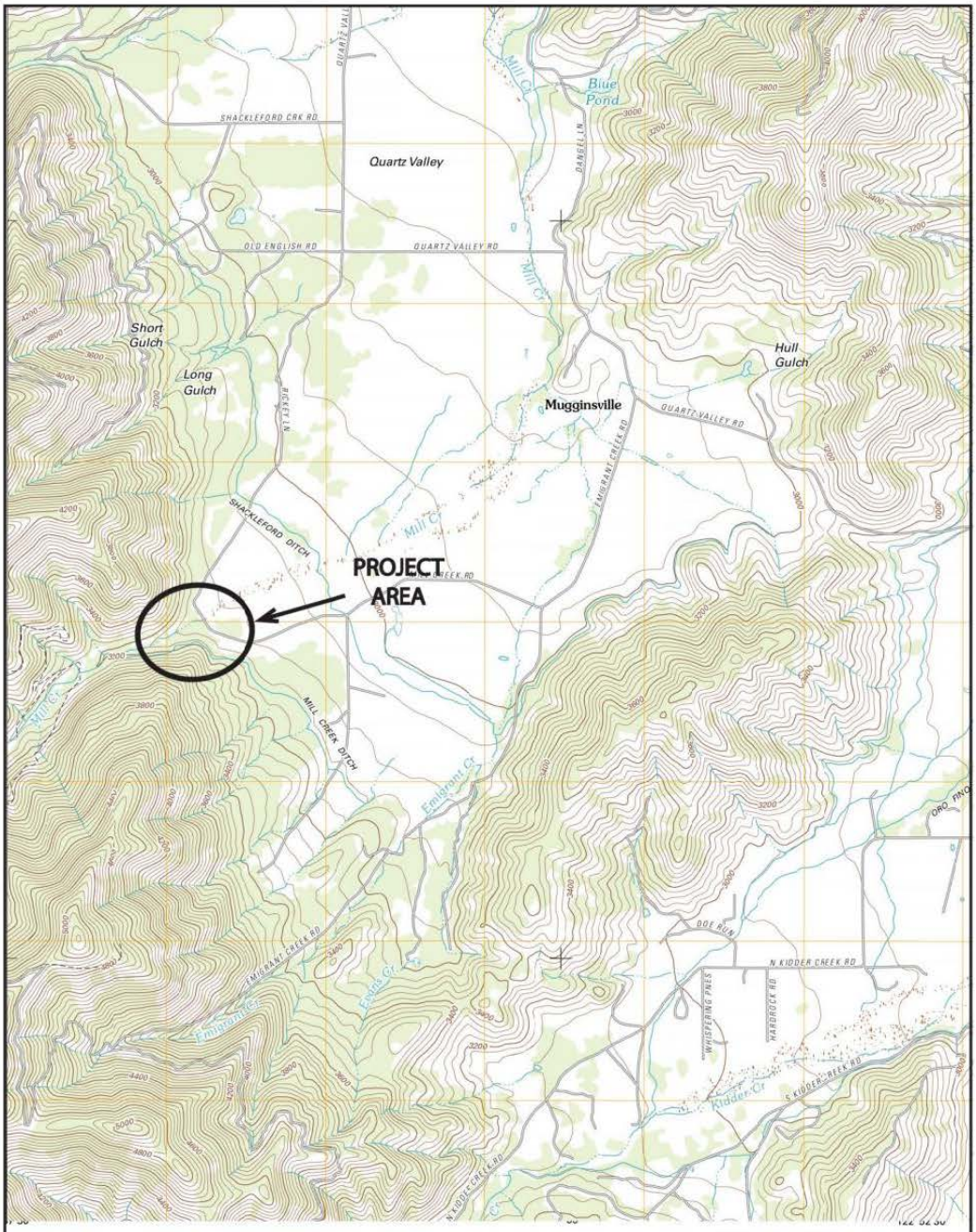
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S2	
blushing wild buckwheat *Eriogonum ursinum var. erubescens*	PDPGN08632	None	None	G3G4T2	S2	1B.3
coast checkerbloom *Sidalcea oregana ssp. eximia*	PDMAL110K9	None	None	G5T1	S1	1B.2
crested potentilla *Potentilla cristae*	PDROS1B2F0	None	None	G2	S2	1B.3
Crotch bumble bee *Bombus crotchii*	IIHYM24480	None	None	G3G4	S1S2	
downy sideband *Monadenia callipeplus*	IMGASC7110	None	None	G1G2	S1S2	
English Peak greenbrier *Smilax jamesii*	PMSMI010D0	None	None	G3G4	S3S4	4.2
English sundew *Drosera anglica*	PDDRO02010	None	None	G5	S2	2B.3
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
Franklin's bumble bee *Bombus franklini*	IIHYM24010	None	None	G1	S1	
golden eagle *Aquila chrysaetos*	ABNKC22010	None	None	G5	S3	FP
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
greater sandhill crane *Grus canadensis tabida*	ABNMK01014	None	Threatened	G5T4	S2	FP
Heckner's lewisia *Lewisia cotyledon var. heckneri*	PDPOR04052	None	None	G4T3	S3	1B.2
Henderson's fawn lily *Erythronium hendersonii*	PMLIL0U070	None	None	G4	S2	2B.3
Howell's sandwort *Sabulina howellii*	PDCAR0G0F0	None	None	G4	S3	1B.3
Jaynes Canyon buckwheat *Eriogonum diclinum*	PDPGN081S0	None	None	G3	S3	2B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Klamath gentian *Gentiana plurisetosa*	PDGEN060V0	None	None	G2G3	S2	1B.3
Klamath Mountain buckwheat *Eriogonum hirtellum*	PDPGN082T0	None	None	G2G3	S2S3	1B.3
leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020	None	None	G5	S4	4.2
long seta hump moss *Meesia longiseta*	NBMUS4L010	None	None	G5	S2	2B.3
Morrison bumble bee *Bombus morrisoni*	IIHYM24460	None	None	G4G5	S1S2	
northwestern moonwort *Botrychium pinnatum*	PPOPH010V0	None	None	G4?	S2	2B.3
Oregon polemonium *Polemonium carneum*	PDPLM0E050	None	None	G3G4	S2	2B.2
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
Pacific fuzzwort *Ptilidium californicum*	NBHEP2U010	None	None	G4G5	S3S4	4.3
Pacific marten *Martes caurina*	AMAJF01030	None	None	G5	S3	
Pacific silver fir *Abies amabilis*	PGPIN01010	None	None	G5	S2	2B.3
prairie falcon *Falco mexicanus*	ABNKD06090	None	None	G5	S4	WL
Scott Bar salamander *Plethodon asupak*	AAAAD12560	None	Threatened	G1G2	S1S2	
Scott Mountain bedstraw *Galium serpenticum ssp. scotticum*	PDRUB0N1Y6	None	None	G4G5T2	S2	1B.2
Scott Valley buckwheat *Eriogonum umbellatum var. lautum*	PDPGN086UX	None	None	G5T1	S1	1B.1
Scott Valley phacelia *Phacelia greenei*	PDHYD0C1V0	None	None	G2	S2	1B.2
Shasta chaenactis *Chaenactis suffrutescens*	PDAST200H0	None	None	G3	S3	1B.3
Siskiyou clover *Trifolium siskiyouense*	PDFAB402S0	None	None	GH	SH	1B.1
Siskiyou fireweed *Epilobium siskiyouense*	PDONA06100	None	None	G3	S3	1B.3
Siskiyou ground beetle *Nebria gebleri siskiyouensis*	IICOL6L091	None	None	G4G5T4	S1S2	
Siskiyou mariposa-lily *Calochortus persistens*	PMLIL0D140	None	Rare	G2	S1	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
southern long-toed salamander *Ambystoma macrodactylum sigillatum*	AAAAA01085	None	None	G5T4	S3	SSC
subalpine fir *Abies lasiocarpa var. lasiocarpa*	PGPIN01072	None	None	G5T5	S3	2B.3
Tehama chaparral *Trilobopsis tehamana*	IMGASA2040	None	None	G1	S1	
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Warner Mountains buckwheat *Eriogonum umbellatum var. glaberrimum*	PDPGN086U2	None	None	G5T2?	S2	1B.3
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western pearlshell *Margaritifera falcata*	IMBIV27020	None	None	G4G5	S1S2	
Wilkin's harebell *Campanula wilkinsiana*	PDCAM020Z0	None	None	G2	S2	1B.2
woolly balsamroot *Balsamorhiza lanata*	PDAST11047	None	None	G3	S3	1B.2
yellow-based sideband *Monadenia infumata ochromphalus*	IMGASC7051	None	None	G2T1	S1	

Record Count: 49

Scott River, Mill-Shackelford Creek Bridge
Project Location Map
T43 R10W S22, Greenview Quad, Siskiyou County



French Creek Main Channel and Off Channel Habitat Improvement and Monitoring 2016

Introduction: The Scott River Watershed Council (SRWC) will implement the French Creek Main Channel and Off Channel Habitat Improvement and Monitoring Project for the restoration of juvenile coho rearing habitat. An engineered, construction ready design was completed though the Fisheries Restoration Grants Program (FRGP) Grant P1310305 French Creek Instream Habitat Enhancement Design Project. This project will implement the approved design.

Low surface flows in French Creek during the summer and fall limit the amount of suitable rearing habitat for coho. The project will improve instream rearing habitat with the installation of wood log structures for velocity controls, pool formation, and cover habitat. Augmentation of coarse gravel will occur for increased spawning habitat.
A secondary channel will be created to provide slow water habitat for juvenile coho salmon throughout the year. During summer months when flows are low, the secondary channel will provide slow water habitat with depths of 0.5 to 4 feet where juveniles can seek refuge from shallow main channel stream conditions. In storm events or high flow conditions the secondary channel will provide velocity refuge. In addition large wood pieces will be placed in the secondary channel to provide complex structure.

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, and Volume Two. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s): The objective to this project is to create a total of 4 instream features and one 350 foot side channel within a 650 foot reach of French Creek. Instream features consist of 100 logs, boulder rocks, and 80 cubic yards of spawning gravel.
These structures will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels. The project will also provide velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids. In addition 320 native trees will be planted to enhance riparian cover, and for future wood recruitment.

The objectives are consistent with goals identified in:
Recovery Strategy for California Coho Salmon (DFW 2004)
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.

Project Description:

Location: From Etna California; Travel south on Hwy 3 approximately 5 miles to French Creek Road. Turn right on French Creek road and travel 1 mile until Miners Creek Rd on the left. Approximately 500 feet past the turn off for Miners Creek Road will be driveway 3 on the left which leads to the project site.

Latitude- 41.40000000, Longitude- -122.90000000

Project Set Up: SRWC and administrative staff will oversee and coordinate all project components including design, implementation, and monitoring. They will also be responsible for all direct project administration, invoicing, cost tracking, grant reporting, environmental reporting/permitting, coordination, and project outreach/media. Tasks 1, 3

The Project Coordinator will manage project task implementation, will coordinate on-site project planning including scheduling with contractors and will ensure permitting compliance requirements are met.
Tasks 2, 3

The Technical Subcontractor: Cascade Stream Solutions will oversee implementation to ensure designs are followed and specifications are met. Cascade Stream Solutions will lead construction oversight and participate in selecting qualified contractors. Tasks 1, 2

The Heavy Equipment Subcontractor will be contracted to implement the finalized construction plans. The equipment contractor will complete the excavation, grading, gravel augmentation and wood structure placement. Other tasks would include mobilization, access preparation, site preparation, dewatering plan and riparian treatments. Task 2

Materials: The materials for this project will include whole tree material (logs with and without root wads, and associated small woody material), rock boulders, spawning gravel, riparian trees, planting material (soil & fencing), anchoring materials, H2O data loggers, and field, monitoring and office supplies (flagging, field notebooks, wooden lath stakes, rebar, marking paint, printer paper, and writing utensils).
Selected subcontractors will provide the necessary materials to complete the contracted tasks, and include these costs with their quote.

Tasks: Construct 4 instream LWD structures and 1 off channel habitat feature. Monitor restoration effectiveness to improve coho spawning and rearing habitat in French Creek by completing the following tasks:

Task 1: Project Management, Meetings, and Permitting

- SRWC and administration staff will conduct agreement oversight and project management. All reporting and billing will be pursuant to agreement and regulatory guidelines.

- Subcontracting. The SWRC will prepare, solicit bid proposals and conduct bid tour. Select qualified subcontractors.

- 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.

- Riparian Planting and Effectiveness Monitoring. SRWC will develop planting and monitoring plans, implement approved plans, and install vegetation caging, conduct post construction surveys, effectiveness monitoring report.

Task 2: Instream Habitat Restoration

- Clearing, Grubbing, Construction and Access, Site Preparation: SRWC will identify and flag equipment access trails to each of the site locations, setting up pre-project photo documentation, and finalizing the site designs for approval by the CDFW grant manager. Prepare sites for implementation. Areas for equipment storage, re-fueling and equipment maintenance will be flagged and established for use by the contractor. Areas for material storage will be established and prepared with pre-construction erosion control measures. When construction has been completed, equipment and all excess materials will be removed and the channel will be allowed to flow freely into the work site.

- Dewatering: Appropriate measures will be taken to dewater construction areas as necessary depending on current site conditions at the time of implementation. Water isolation measures may be necessary to contain turbid waters during removal of the earthen berm separating the alcove.

- Fish Relocation: Fish and other aquatic animals will be removed from the wetted work areas and then fish exclusion screens will be placed a minimum of 30-feet upstream and downstream of dewatered areas as an isolation measure.

- Excavation/Spoil Placement: Spoil material will be delivered and spread to designated areas as shown on the plans. Material suitable for rock ballast or structure enhancement will be separated and stockpiled.

- Log Wood Structures: Log structures and boulders or ballast will be placed and anchored according to the construction details and specifications.

- Spawning Gravel Placement: Clean, washed gravel will be placed according to the construction details and specifications.

- Off Channel Habitat Enhancement: Area will be excavated to the depths and side slopes indicated in the plans. An earthen plug will remain at the inlet and outlet with French Creek to maintain separation and dewatered areas. Spoil material will be delivered and spread to designated areas as shown on the plans.

- Large Wood Pond Cover Structures: Log structures and boulders or ballast will be placed and anchored according to the construction details and specifications.

- Riparian Planting: Revegetation of riparian species will follow the planting plan as described in Final Design.

Task 3: Pre and Post Effectiveness Monitoring

- Implementation monitoring will be conducted in accordance with requirements presented in the 2016 FRGP Proposal Solicitation Notice (PSN) and as described in the project's French Creek Off-Channel Monitoring Plan.

- Water Quality Monitoring: Assess water quality in the off channel feature by monitoring water temperature, water level, and

dissolved oxygen. Data will be collected by Onset HOBO data loggers as identified in the monitoring plan.

- Geomorphic Monitoring: Establish 5 photo point sites to document annual site changes to the instream and off channel habitat features. Photo monitoring will be conducted to document physical and vegetative response to the project and identify any issues of concern that may require maintenance. Photo monitoring will be conducted using photo points. Photo-points will be established as part of pre-construction activities from established locations that are located with GPS coordinates to ensure consistent and comparable views. Photo locations will include the inlet and outlet of the off channel feature, log structures, and areas that receive vegetation treatments.

- Fish Presence and Usage: Fish presence will be assessed by direct observation a minimum of twice a season (eight times a year) to evaluate usage of the pond and constructed habitat features (i.e. rootwad and woody material cover).

- Passive Integrated Transponder (PIT) Monitoring: Under the direction of California Department of Fish and Wildlife (CDFW) staff, the Grantee will install and maintain PIT Tag station and PIT antenna stations located at the inlet to the off channel habitat as well as upstream and downstream to collect data on coho movement and utilization with the restored habitat. All monitoring protocols will be in accordance with The French Creek Off Channel Monitoring Plan.

- SRWC Quality Assurance and Quality Control (QA/QC) Plan: SRWC will work under the guidance of CDFW Fishery staff to implement the QA/QC plan. All monitoring protocols will be in accordance with Quality Assurance and Quality Control (QA/QC) Plan and approved by CDFW.

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 2017 through August 2017- Permitting and subcontractor bid/selection, site preparation, and pre-implementation monitoring.

August 2017 through October 2017- Implement design plans, implementation monitoring. Install PIT array station.

November 2017 through December 2017- Post construction surveys, PIT station installation. Construction Technical Report submittal. Project Technical Report submittal. Riparian planting/management plan submittal

January 2018 through May 2018- Riparian planting. Implement tasks approved from the Riparian Management Plan. Pre-monitoring riparian planting.

June 2018 through October 2018- Riparian vegetation management. Irrigate, inspection plantings. Post-riparian planting monitoring.

June 2019 through October 2019- Riparian vegetation management. Irrigate, inspection plantings. Post-riparian planting monitoring.

June 2020 through October 2020- Riparian vegetation management. Irrigate, inspection plantings. Post-riparian planting monitoring.

Annual Reports - November 2017, 2018, 2019, 2020.

Final Report- March 2021

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 floodplain 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.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Boulder Peak (4112351) OR Callahan (4112237) OR Eaton Peak (4112238) OR Etna (4112248) OR Fort Jones (4112257) OR Greenview (4112258) OR McConaughy Gulch (4112247) OR Tanners Peak (4112331) OR Yellow Dog Peak (4112341))

Possible species within the Etna Quad and surrounding quads for 725160 French Creek Main Channel & Off Channel Habitat Improvement & Monitoring, T41N R09W, S17, Siskiyou County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S2	
brook pocket moss *Fissidens aphelotaxifolius*	NBMUS2W290	None	None	G3G4	S1	2B.2
bunchberry *Cornus canadensis*	PDCOR01040	None	None	G5	S2	2B.2
California wolverine *Gulo gulo*	AMAJF03010	None	Threatened	G4	S1	FP
Cascades frog *Rana cascadae*	AAABH01060	None	None	G3G4	S3	SSC
coast checkerbloom *Sidalcea oregana ssp. eximia*	PDMAL110K9	None	None	G5T1	S1	1B.2
crested potentilla *Potentilla cristae*	PDROS1B2F0	None	None	G2	S2	1B.3
Crotch bumble bee *Bombus crotchii*	IIHYM24480	None	None	G3G4	S1S2	
Darlingtonia Seep *Darlingtonia Seep*	CTT51120CA	None	None	G4	S3.2	
Del Norte salamander *Plethodon elongatus*	AAAAD12050	None	None	G4	S3	WL
Engelmann spruce *Picea engelmannii*	PGPIN03030	None	None	G5	S2	2B.2
English Peak greenbrier *Smilax jamesii*	PMSMI010D0	None	None	G3G4	S3S4	4.2
English sundew *Drosera anglica*	PDDRO02010	None	None	G5	S2	2B.3
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
Franklin's bumble bee *Bombus franklini*	IIHYM24010	None	None	G1	S1	
golden eagle *Aquila chrysaetos*	ABNKC22010	None	None	G5	S3	FP
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
greater sandhill crane *Grus canadensis tabida*	ABNMK01014	None	Threatened	G5T4	S2	FP
Heckner's lewisia *Lewisia cotyledon var. heckneri*	PDPOR04052	None	None	G4T3	S3	1B.2
Henderson's fawn lily *Erythronium hendersonii*	PMLIL0U070	None	None	G4	S2	2B.3
Jaynes Canyon buckwheat *Eriogonum diclinum*	PDPGN081S0	None	None	G3	S3	2B.3
Klamath gentian *Gentiana plurisetosa*	PDGEN060V0	None	None	G2G3	S2	1B.3
leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020	None	None	G5	S4	4.2
little-leaved huckleberry *Vaccinium scoparium*	PDERI180Y0	None	None	G5	S3	2B.2
long seta hump moss *Meesia longiseta*	NBMUS4L010	None	None	G5	S2	2B.3
Mt. Shasta sky pilot *Polemonium pulcherrimum var. shastense*	PDPLM0E0J4	None	None	G5T2	S2	1B.2
northwestern moonwort *Botrychium pinnatum*	PPOPH010V0	None	None	G4?	S2	2B.3
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
Oregon polemonium *Polemonium carneum*	PDPLM0E050	None	None	G3G4	S2	2B.2
Pacific fuzzwort *Ptilidium californicum*	NBHEP2U010	None	None	G4G5	S3S4	4.3
Pacific marten *Martes caurina*	AMAJF01030	None	None	G5	S3	
Pacific silver fir *Abies amabilis*	PGPIN01010	None	None	G5	S2	2B.3
Pacific tailed frog *Ascaphus truei*	AAABA01010	None	None	G4	S3S4	SSC
Pickering's ivesia *Ivesia pickeringii*	PDROS0X0D0	None	None	G2	S2	1B.2
prairie falcon *Falco mexicanus*	ABNKD06090	None	None	G5	S4	WL
rattlesnake fern *Botrypus virginianus*	PPOPH010H0	None	None	G5	S2	2B.2
Scott Mountain bedstraw *Galium serpenticum ssp. scotticum*	PDRUB0N1Y6	None	None	G4G5T2	S2	1B.2
Scott Mountain sandwort *Sabulina stolonifera*	PDCAR0G110	None	None	G2	S2	1B.3

Selected Elements by Common Name

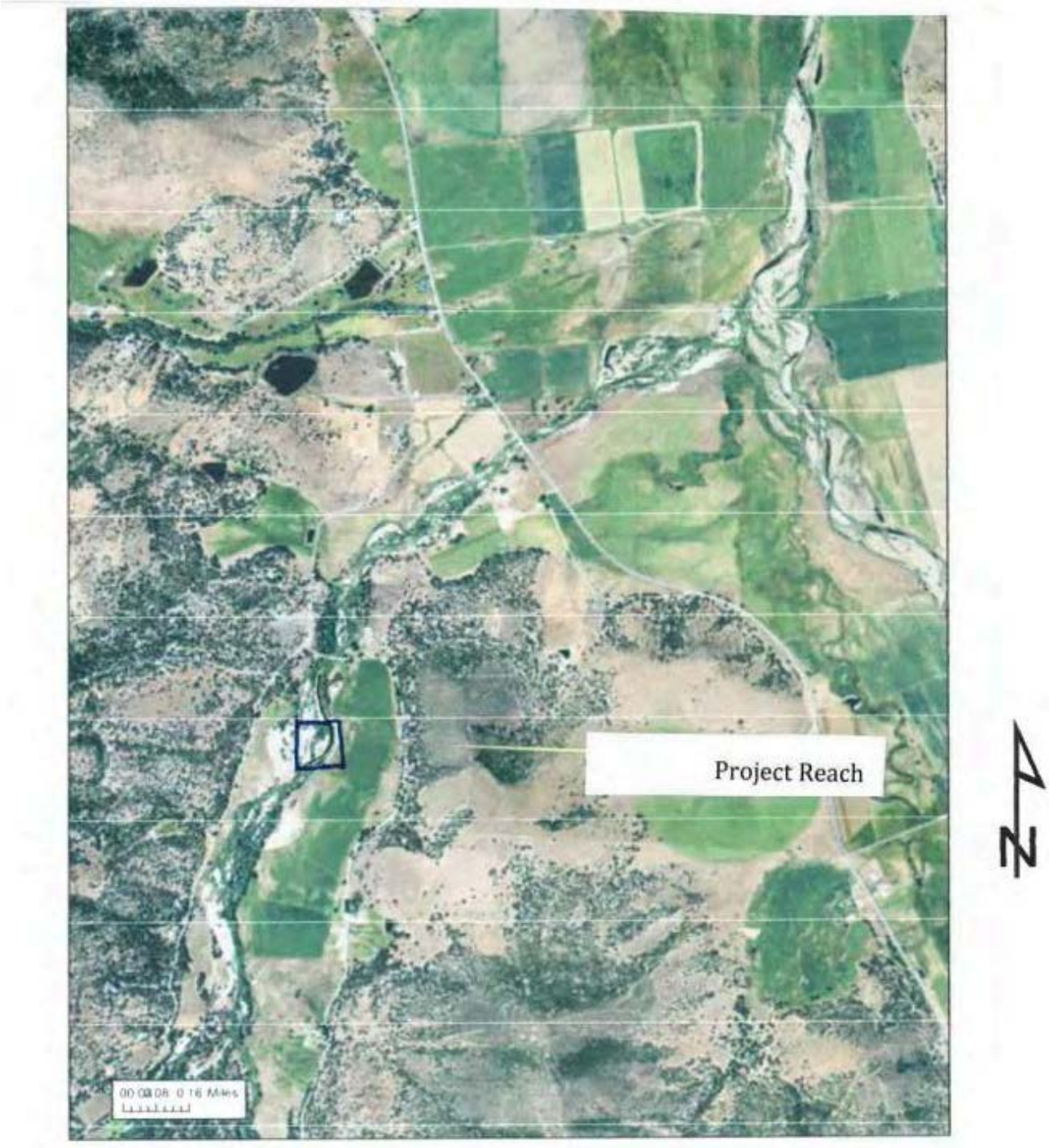
California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Scott Valley buckwheat *Eriogonum umbellatum var. lautum*	PDPGN086UX	None	None	G5T1	S1	1B.1
Scott Valley phacelia *Phacelia greenei*	PDHYD0C1V0	None	None	G2	S2	1B.2
Shasta chaenactis *Chaenactis suffrutescens*	PDAST200H0	None	None	G3	S3	1B.3
silky balsamroot *Balsamorhiza sericea*	PDAST110C0	None	None	G4Q	S3	1B.3
Siskiyou clover *Trifolium siskiyouense*	PDFAB402S0	None	None	GH	SH	1B.1
Siskiyou fireweed *Epilobium siskiyouense*	PDONA06100	None	None	G3	S3	1B.3
Siskiyou ground beetle *Nebria gebleri siskiyouensis*	IICOL6L091	None	None	G4G5T4	S1S2	
southern long-toed salamander *Ambystoma macrodactylum sigillatum*	AAAAA01085	None	None	G5T4	S3	SSC
subalpine fir *Abies lasiocarpa var. lasiocarpa*	PGPIN01072	None	None	G5T5	S3	2B.3
summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B	None	None	G5T4Q	S2	SSC
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Trinity Mountains rockcress *Arabis rigidissima var. rigidissima*	PDBRA061R2	None	None	G3T3	S3	1B.3
tundra thread moss *Pohlia tundrae*	NBMUS5S1B0	None	None	G3	S3	2B.3
Warner Mountains buckwheat *Eriogonum umbellatum var. glaberrimum*	PDPGN086U2	None	None	G5T2?	S2	1B.3
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
Wilkin's harebell *Campanula wilkinsiana*	PDCAM020Z0	None	None	G2	S2	1B.2
woolly balsamroot *Balsamorhiza lanata*	PDAST11047	None	None	G3	S3	1B.2
yellow-based sideband *Monadenia infumata ochromphalus*	IMGASC7051	None	None	G2T1	S1	
northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC

Record Count: 58

French Creek Main Channel & Off Channel Habitat Improvement & Monitoring
Project Location Map
T41N R09W S17, Etna Quad, Siskiyou County



Introduction:

The Montague Water Conservation District (MWCD) will implement the Montague Water Conservation District – Dwinnell Enhancement Project. The Shasta River watershed identify reduced flows and limited over-summering rearing habitat as major limiting factors for the Shasta River coho population.

The Shasta River is a key inland tributary to the Klamath River that supports Chinook, coho, steelhead and lamprey. The Shasta River population of Coho salmon is identified as a core population in the NOAA SONCC Coho Recovery Plan.

Recovery options for the Klamath Basin highlighted the Shasta River as the primary stream to provide recovery to salmonid species. The components of this project have been developed to enhance flow and habitat conditions in the upper Shasta River where coho salmon are present through the year. This project contains critical elements that will permanently improve water quality and quantity in the Shasta River.

Expanding capacity of the Cross Canal will provide increased flow volumes that allow controlled releases to the Shasta River from Dwinnell Reservoir.

The Cross Canal delivers stored water from Dwinnell Dam to the Shasta River. The project will increase the flow capacity of the Cross Canal from its current maximum of 23 cfs to 110 cfs. This will allow release of significant pulse flows and flushing flows, improve passage and aid in limiting uncontrolled reservoir spills.

Additional component is a 6.5 cfs cold water (12.8° C) source delivered from the Flying L Pumps to the base of Dwinnell Dam. This dependable cold water source provides thermal refugia to juvenile coho salmon during periods of elevated water temperatures in the Shasta River.

The project includes a low velocity backwater channel and habitat feature located immediately downstream of the Cross Canal
The habitat feature will consist of approximately 0.4 acres total of riverine, freshwater emergent wetland, seasonal wetland or riparian, and ecotone habitat types. The backwater channel is approximately 400 feet long, and has varying water depths to allow for open water and vegetated areas dependent on wetland type. Depths will generally vary between 0.5 – 2 feet maximum depth for riparian and freshwater emergent wetlands, and 2-4 feet for the distributary channels and open water areas.

The ecological benefits of the three infrastructure components described will be included in the current monitoring program. New temperature and flow data loggers will be installed at locations in the cross canal, Shasta River.

With the capacity to measure water temperatures and stream flows throughout the system, MWCD will promptly understand thermal trends in the water supply and can therefore make needed adjustments to maximize habitat benefits for coho salmon.

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, and Volume Two.* Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

Objective(s):
The objectives to this project are:
NOAA Recovery Plan for So. OR/No. CA Coast Coho Salmon.

SONCC-ShaR.3.1.4.3 Relocate or redesign the diversion structure to Dwinnell Dam Reservoir guided by assessment results.

The proposed improvements provide the necessary infrastructure to manage flow volumes and timing from Dwinnell Dam based on habitat monitoring and fish responses.

Water quality and quantity will be addressed though this project by the development of cold water source delivered to critical rearing habitat for juvenile salmonids. This action will enhance and expand the over-summering rearing habitat for coho salmon in the stream reach below Dwinnell Dam.

Project Description:
This project improves MWCD's Infrastructure to allow for increased release rates from Dwinnell Reservoir to the Shasta River, improve water quality and temperature of water released to the Shasta River below Dwinnell Dam by incorporating cold groundwater and develop a dependable cold water habitat fed by MWCDs seeps.

Location:
Drive south on Interstate 5 to Grenada Exit. Turn Left over freeway (East) on Hwy A-12 and continue on Hwy A-12 for approximately 8 miles. Turn right on Big Spring Road and continue driving south for 7 miles. Turn Right on Lake Shore Drive and continue 0.5 miles to locked gate on right hand side of road.

Latitude: 41.54187800 Longitudes: 122.37429200

Project Set Up:

MWCD 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 Technical Subcontractors; will oversee all technical and engineering elements of the Shasta River Enhancement Dwinnell Dam Cross Channel Implementation Design.

The Heavy Equipment Subcontractor will implement construction activities.

Materials:

Concrete vault box, concrete, quarry rock, gravel base rock, 18" PVC pipe, 24" HDPE pipe, 24" & 30" headgates, cellular control package, trees w/attached root mass. H2O temperature and flow data loggers.

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:

Habitat improvements will be accomplished by:

Task 1: Project Management:

- Contract oversight will be MWCD. All reporting, contracting and billing will be pursuant to contract and regulatory guidelines.

Task 2: Implementation. Cross Canal Modifications

- Implement project permitting, pre-construction layout, and pre-project monitoring.
- Implement construction activities, provide technical/engineering oversight and field reviews.
- Installation of head gates and piping
- Install instream features as design to increase floodplain connectivity
- Install rock slope protection and riparian planting
- Implement monitoring plan, install water temperature and flow data loggers

Task 3: Cold Water Habitat

- Install concrete junction box and electrical generator for cold water supply pipeline. Flying L Pumps
- As design construct backwater alcove feature
- As design install 10 wood log structures
- Implement riparian planting plan

Task 4: Monitoring
- Install stream flow and water temperature monitors at crested weir location of Cross Canal
- Install stream flow and water temperature monitors in cold water supply junction box
- Install flow monitors to sluice gates on the Main Canal.
- Implement monitoring plan

Deliverables:

Task 1 Deliverables: Progress reports, invoices, annual reports and final report, according to CDFW agreement.

Task 2 Deliverables: This task will result in the implementation of the engineered design plan.
- Equipment Mobilization/Material Delivery
- Site Preparation
- Excavation for Off Channel Features, Grading
- Wood Structure Installation
- Riparian Planting and Vegetation Enhancements
- Erosion Control/Site Stabilization

Task 3 Deliverables: Effectiveness Monitoring. Pre/Post implementation monitoring will be conducted in accordance with requirements presented in the 2016 FRGP Proposal Solicitation Notice (PSN) and as described in the project's Draft Monitoring and Maintenance Plan.

Post-construction monitoring include physical, biological and water quality monitoring for two years after implementation. Post implementation physical monitoring will include the following:
- Biological Monitoring
- Vegetation Monitoring
- Water Quality Monitoring
- Pre-and Post-Project Photo Monitoring
- Longitudinal Profiles and Cross Sections, and Water Depth Surveys
- As-Built Survey and Memorandum
- Data Analysis

Timelines:

Project Management and Coordination: Task 1- 06/2017 through 03/2019

Complete 100% Engineered Design: Task 1- 08/2017

Project Staking, Pre-Construction Monitoring, Site Reviews: Task 2- 09/2017

Habitat and Cross Canal Implementation, Construction/Excavation, Riparian Planting: Task 2- 09/2017 through 04/2018

Cold Water Supply, Flying L Pipeline: Task 3- 02/2018

Post Construction/Project Monitoring: Task 4- 10/2017 through 03/2019

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 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.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Grass Lake (4112262) OR Hotlum (4112243) OR Juniper Flat (4112253) OR Lake Shastina (4112254) OR Little Shasta (4112264) OR Mt. Shasta (4112242) OR Solomons Temple (4112263) OR The Whaleback (4112252) OR Weed (4112244))

Possible species within the Juniper Flat Quad and surrounding quads for 725245 Montague Water Conservation District- Dwinnell Enhancement, T43N R05W S25, Siskiyou County

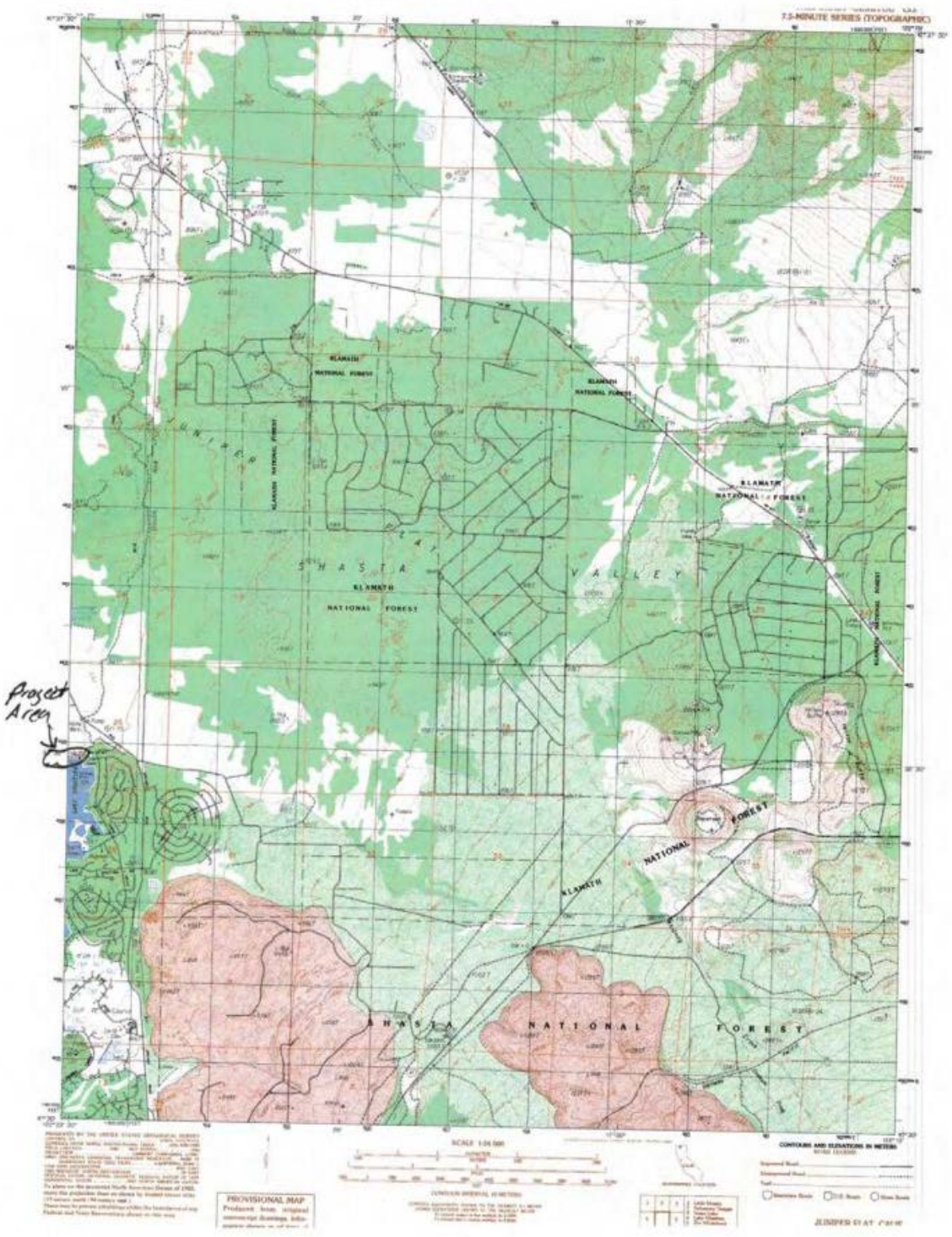
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
alkali hymenoxys *Hymenoxys lemmonii*	PDAST530C0	None	None	G4?	S2S3	2B.2
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S3	SSC
Baker's globe mallow *Iliamna bakeri*	PDMAL0K010	None	None	G4	S3	4.2
bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S3	FP
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S2	
brittle prickly-pear *Opuntia fragilis*	PDCAC0D0H0	None	None	G4G5	S1	2B.1
broad-nerved hump moss *Meesia uliginosa*	NBMUS4L030	None	None	G5	S3	2B.2
California gull *Larus californicus*	ABNNM03110	None	None	G5	S4	WL
California wolverine *Gulo gulo*	AMAJF03010	None	Threatened	G4	S1	FP
Cascades frog *Rana cascadae*	AAABH01060	None	None	G3G4	S3	SSC
coast fawn lily *Erythronium revolutum*	PMLIL0U0F0	None	None	G4G5	S3	2B.2
Cooke's phacelia *Phacelia cookei*	PDHYD0C0Y0	None	None	G1	S1	1B.1
golden eagle *Aquila chrysaetos*	ABNKC22010	None	None	G5	S3	FP
grass alisma *Alisma gramineum*	PMALI01010	None	None	G5	S3	2B.2
gray-headed pika *Ochotona princeps schisticeps*	AMAEA0102H	None	None	G5T2T4	S2S4	
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
greater sandhill crane *Grus canadensis tabida*	ABNMK01014	None	Threatened	G5T4	S2	FP
Greene's mariposa-lily *Calochortus greenei*	PMLIL0D0H0	None	None	G3	S2S3	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
hairy marsh hedge-nettle *Stachys pilosa*	PDLAM1X1A0	None	None	G5	S2	2B.3
Jepson's dodder *Cuscuta jepsonii*	PDCUS011T0	None	None	GH	SH	1B.2
Klamath Spring Stream *Klamath Spring Stream*	CARB2325CA	None	None	GNR	SNR	
large-flowered triteleia *Triteleia grandiflora*	PMLIL21060	None	None	G4G5	S1	2B.1
little hulsea *Hulsea nana*	PDAST4Z060	None	None	G4	S3	2B.3
Mt. Eddy draba *Draba carnosula*	PDBRA112T0	None	None	G2	S2	1B.3
Mt. Shasta sky pilot *Polemonium pulcherrimum var. shastense*	PDPLM0E0J4	None	None	G5T2	S2	1B.2
Newberry's cinquefoil *Potentilla newberryi*	PDROS1B130	None	None	G3G4	S2S3	2B.3
northern goshawk *Accipiter gentilis*	ABNKC12060	None	None	G5	S3	SSC
Northern Interior Cypress Forest *Northern Interior Cypress Forest*	CTT83220CA	None	None	G2	S2.2	
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
pallid bird's-beak *Cordylanthus tenuis ssp. pallescens*	PDSCR0J0S3	None	None	G4G5T1	S1	1B.2
Peck's lomatium *Lomatium peckianum*	PDAPI1B1G0	None	None	G4	S1	2B.2
Pickering's ivesia *Ivesia pickeringii*	PDROS0X0D0	None	None	G2	S2	1B.2
prairie falcon *Falco mexicanus*	ABNKD06090	None	None	G5	S4	WL
pumice moonwort *Botrychium pumicola*	PPOPH010D0	None	None	G3	S1	2B.2
pyrola-leaved buckwheat *Eriogonum pyrolifolium var. pyrolifolium*	PDPGN084Z2	None	None	G4T4	S3	2B.3
Shasta chaenactis *Chaenactis suffrutescens*	PDAST200H0	None	None	G3	S3	1B.3
Shasta orthocarpus *Orthocarpus pachystachyus*	PDSCR1H0L0	None	None	G1	S1	1B.1
Sierra Nevada mountain beaver *Aplodontia rufa californica*	AMAFA01013	None	None	G5T3T4	S2S3	SSC
Sierra Nevada red fox *Vulpes vulpes necator*	AMAJA03012	Candidate	Threatened	G5T1T2	S1	

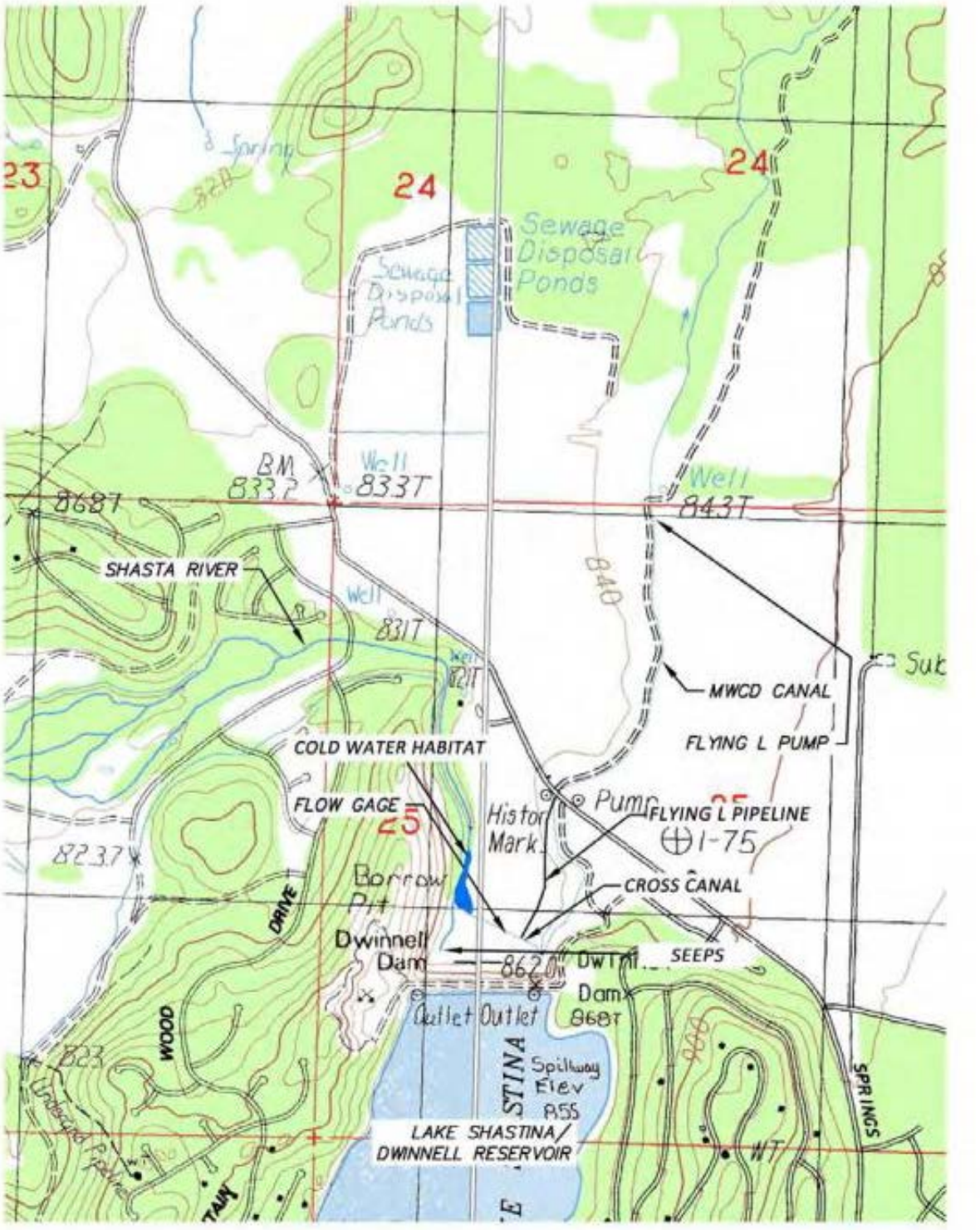
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
silver-haired bat *Lasionycteris noctivagans*	AMACC02010	None	None	G5	S3S4	
Siskiyou hesperian *Vespericola sierranus*	IMGASA4080	None	None	G2	S1S2	
snow fleabane daisy *Erigeron nivalis*	PDASTE1060	None	None	G4G5	S3	2B.3
subalpine aster *Eurybia merita*	PDASTEB030	None	None	G5	SH	2B.3
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Wilkin's harebell *Campanula wilkinsiana*	PDCAM020Z0	None	None	G2	S2	1B.2
willow flycatcher *Empidonax traillii*	ABPAE33040	None	Endangered	G5	S1S2	
woolly balsamroot *Balsamorhiza lanata*	PDAST11047	None	None	G3	S3	1B.2

Record Count: 49

Montague Water Conservation District- Dwinnell Enhancement
Project Location Map 1
T43N R05W S25, Juniper Flat Quad, Siskiyou County



Montague Water Conservation District- Dwinnell Enhancement
Project Location Map 2
T43N R05W S25, Juniper Flat Quad, Siskiyou County



Introduction:

The Grantee, Trout Unlimited Incorporated, proposes to achieve the goal of improving the Yellowjacket Creek Fish Passage Improvement Project by modifying an existing concrete diversion weir on Yellowjacket Creek which is a migration barrier to anadromous salmonids. The project will improve fish passage by constructing a series of boulder step-pools, and installing a new fish screen on the diversion at existing concrete weir structure. The project is needed to restore access to 1.9 miles of high quality spawning and rearing habitat upstream of the barrier.

The project will restore salmonid passage at the existing concrete diversion weir and spillway apron structure, which was built in 1902. Given its approximately 40% slope, largely smooth cement surface, and 17 foot elevation drop, the weir structure is considered a total barrier to upstream salmonid passage. The intact portion of the weir structure forms a gradient control that drives the gravity flow diversion system. Immediately downstream of the weir is a very steep concrete spillway apron that drops approximately twenty feet in elevation from the weir crest to the invert of a large scour pool downstream. The project will construct a boulder step-pool structure designed to achieve fish passage criteria, preserve existing aquatic and riparian habitat, increase the thalweg elevation of the incised channel downstream of the structure, and blend with the channel morphology of the intact upstream and downstream reaches.

Permit Disclosure: The Grantee shall not proceed with on-the-ground implementation until all necessary permits, consultations, and Notice to Proceed have been obtained.

Objective(s):

The specific objective of this project is to restore juvenile and adult coho salmon and steelhead trout access to 1.9 miles of spawning and rearing habitat on Yellowjacket Creek by modifying a concrete weir structure, constructing a series of boulder step-pools, and installing a fish screen.

The design includes the following key elements, proceeding from the upstream project extent to the downstream project extent:

A spaced boulder field extending from the left bank (looking downstream) upstream of the flow diversion point and extending parallel to the left bank downstream to the existing weir. This boulder field will protect the new fish screen from damage caused by floating debris and large bed load sediments.

A cone screen system designed to meet required fish screening criteria and maintain permitted water diversion rates.

A fine sediment clean-out area adjacent to the new cone screen along the margin of the channel.

A six inch high, anchored boulder weir installed on the existing concrete weir to provide improved fish screen performance at low flows.

A system of boulder weirs and step pools constructed on compacted native fill and a layer of impervious clay and filled with engineered streambed material (ESM) along Yellowjacket Creek. Keystone elements of boulder weirs will be composed of two- to four-foot diameter boulders placed on footer boulders of similar diameter. Boulder step height will be a maximum of one foot above the downstream pool water surface elevation. Typical pool lengths of 20 feet will be interspersed with larger refuge pools 30 feet in length that incorporate anchored large wood to provide resting and rearing locations for both adult and juvenile salmonids.

Project Description:

Location:

The Yellowjacket Creek Fish Passage Improvement Project is located on Yellow Jacket Creek at 38.63440800^0 north latitude : -122.66333900^0 west longitude, in Section 8 of Township 9 north, Range 7 west, Mount Diablo Base and Meridian. The project is located approximately 1/2 mile above the confluence of Kellogg and Yellowjacket creeks and 9.6 miles above the confluence of Maacama Creek and the Russian River. The project is located near Calistoga, California near Yellowjacket Ranch Road, which is off of the intersection of Clegg Road and State Route 128.

From Calistoga take State Route 128 west for about 6.8 miles. Turn right onto Clegg Road., which becomes Yellowjacket Ranch Road. From Geyserville, head northeast on State Route 128 east toward Railroad Avenue for 4.5 miles., turn right on State Route 128 and travel for 12.6 miles, turn left on Clegg Road. Advance permission is required from the landowner. For site access, contact Bo Bennett at (707) 481-2019 or Bo.Bennett@jfwmail.com.

Project Set Up:

Grantee Project Manager will provide all contracting oversight and administration including but not limited to obtaining permits, securing contracts with grantors, subcontractors, and landowner, scheduling, implementation oversight, invoicing, reporting and agency communication, and outreach. Grantee Grants Assistant will assist in processing invoices and vendor payments, grant tracking, and reporting. (Tasks 1, 2)

The FlowWest team includes a principal fluvial geomorphologist (Mark Tompkins, P.E., Ph.D.), principal engineer (Paul Frank, P.E., C.E.D) and a senior engineer (Colin Hanley, P.E.) who will provide the necessary interdisciplinary construction contractor selection services and construction oversight/management and support (including field engineering required to optimize final placement of boulder weirs and pools to take advantage of existing riparian vegetation). In addition, Mr. Hanley will oversee construction stakeout to ensure that project features are built to achieve the criteria required for a successful fish passage and fish screen system. Finally, Mr. Frank and Dr. Tompkins will provide post-construction documentation of as-built step-pool structure grades and condition, and conduct post-project fish passage structure performance monitoring. (Tasks 2, 3, 4)

Jackson Family Wines Vice President, External Affairs and Sustainability, Sr. Vice President, Government Relations and Sustainability Coordinator will assist with contracting, scheduling, and project coordination, communication, and outreach. (Tasks 1, 2) Asset Manager and head of Kellogg Ranch Operations will complete a portion of the construction work required for this project (e.g. material selection, sorting, and stockpiling, clearing and grubbing, and coffer dam installation). (Task 3)

Installation of the boulder step-pool structures will require an experienced instream construction subcontractor. The construction contractor (to be selected) will be required to implement the dewatering system, conduct rough and finished grading, install footer and step boulders, install engineered stream bed material and impervious streambed material (as needed), install rock and large wood habitat elements, implement bioengineered bank protection measures, and install the new fish screen structure (including all associated demolition and concrete anchoring work). (Task 3)

Mike Podlech, a permitted professional fisheries biologist, will perform all fish removal and exclusion. He will be onsite during cofferdam installation and dewatering to relocate any aquatic species that may have eluded the initial relocation efforts and will monitor the removal of the cofferdams and re-watering of the channel to ensure downstream disturbances (e.g., turbidity) are minimized. (Task 3)

<u>Materials</u>:
1-foot to 4-foot diameter boulders will be used to form the 32 weirs to improve fish passage by stabilizing the channel profile and dissipating energy over the length of the project reach.
Engineered streambed material (ESM) will be placed to protect the channel bed from excessive scour. This is a mix of fine soil, gravel, cobbles, and small

boulders that will be mixed on site and placed in accordance with the recommendations in the California Department of Fish and Wildlife Salmonid Habitat Restoration Manual to provide a natural, stable streambed through the project reach.
Compacted native fill will be placed over the existing incised channel bed to raise the channel through the reach as the bottom layer of the profile reconstruction. The native fill will be placed under the clay layer and the engineered streambed material and boulder weirs. It would be cost prohibitive to place engineered streambed material through the full depth of the channel profile reconstruction.
An 18-inch layer of compacted clay will serve as the base for the engineered streambed material. The purpose of the clay layer is to maintain surface flow throughout the project reach because engineered streambed material can be subject to allow sub-surface flows.
A series of compacted clay aquitards will be placed at every fifth weir to provide redundancy in limiting subsurface flow through the engineered streambed material. This is required to ensure flow stays on the creek surface through the constructed channel reach.
Large woody debris will be placed in the deep pools to improve habitat diversity and cover for fish, and to provide some energy dissipation. This is required to improve habitat for juvenile fish.
Concrete grout will be placed under the most upstream boulder weir to hold the boulder weir in place at the relatively thin layer over the existing concrete diversion weir apron, and to prevent flow from going subsurface at this location where it might otherwise be subject to this risk. This is required to keep flow on the surface adjacent to the existing weir.
Willow-staked coir bank stabilization fabric will be placed to protect the streambanks in areas where they are at risk of erosion. The fabric will be staked with live willow stakes at 9 feet on-center to add strength to the bank and provide fish cover. This is required to protect the banks and improve habitat.
A temporary sandbag dam and diversion pipe will be installed at the upstream end of the site to divert flow around the work area, and it will be removed upon completion of construction. This is required to prove a safe working environment and protect water quality during construction.

Tasks:
The Grantee will complete the following tasks:

Task 1: Project Management and Grant Administration.
Grantee will provide contracting oversight and administration including but not limited to obtaining permits, securing contracts (grantors, subcontractors, landowner), scheduling, invoicing, reporting and agency communication, and outreach. Jackson Family Wines (JFW) will assist with contracting, scheduling, and project coordination, communication, and outreach (these services are provided as cost share). Project Management and Grant Administration will occur

throughout the life of the Grant.

Task 2: Construction Contractor Selection
This task is to be completed prior to start date of the grant and no Grant funds will be used to completet this task. Grantee and JFW, in consultation with FlowWest, will select a qualified construction contractor for project implementation based upon their work experience, qualifications, cost efficiency, and ability to comply with permit and Grant provisions. It is anticipated that some of the construction work required for this project such as material selection, sorting, and stockpiling, clearing and grubbing, water management system installation, and temporary erosion control will be completed by JFW. However, installation of the boulder step-pool structures will require an experienced instream construction contractor. Grantee, JFW, and FlowWest will attend one on-site consultation meeting to describe the project to prospective contractors, and prepare a response to questions, necessary addendums, and review of budgets. FlowWest will work with Grantee and JFW in the evaluation of contractor's equipment and experience with mobilization, construction access, erosion and sediment control, water management and dewatering, furnishing materials, construction work, and material testing. In addition, FlowWest, in consultation with National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS), will develop detailed contractor selection criteria pertaining to instream construction works, specifically construction of boulder step-pool structures, installation of engineered streambed material (ESM), installation of large wood structures, construction of bioengineered bank stabilization measures, and construction of fish screen facilities. This task will occur prior to the start date of the grant with private funding; it is included only for informational purposes here and is not included in the project budget.

Task 3: Project Construction
Fish removal and exclusion:
All fish removal and exclusion will be performed in accordance with FRGP 2015 PSN Part V, Stream Dewatering and Fish Exclusion or Relocation. JFW consulting fisheries biologist, Mike Podlech has evaluated the entire project site and documented fish presence in the large scour pool downstream of the existing 17 ft. elevation drop at the diversion structure. In consultation with CDFW and NOAA NMFS fisheries biologists, JFW will finalize a fish exclusion plan, anticipated to include the following prior to site dewatering, block nets will be placed upstream and downstream of the large scour pool and the upstream and downstream limits of disturbance. Areas outside of the large scour pool will be seined and all aquatic species present, which may include coho and steelhead, will be relocated at least 500 feet outside of the limit of disturbance. The large scour pool will be electrofished, and all aquatic species present will also be relocated at least 500 feet outside of the limit of disturbance. Fish relocation will be performed by agency approved and permitted biologists. The fisheries biologist will also be

onsite during cofferdam installation and dewatering to relocate any aquatic species that may have eluded the initial relocation efforts. At the completion of instream construction activities, the fisheries biologist will monitor the removal of the cofferdams and re-watering of the channel to ensure downstream disturbances are minimized.

Water diversion and bypass:
A small earthen coffer sand bag dam, will be constructed approximately fifty feet upstream of the existing diversion control structure and all streamflow will be diverted into the existing diversion canal on river left (looking downstream). At the downstream end of the canal, a pump will be installed to lift diverted flow out of the diversion canal through a pipe to the downstream end of the construction zone. Temporary erosion control and silt retention Best Management Practices (BMPs) will be installed where diverted flow re-enters the channel.

Clearing and Grubbing:
Construction staging areas, access routes, and the channel will be prepared for work. Staging areas and access routes will simply be cleared of tall vegetation to minimize risk of fire from vehicle contact with dry vegetation. In the channel, small trees in the channel will be removed. In addition, boulders suitable for use in the boulder weirs will be harvested and stockpiled. Between Station 3+00 and 4+80 at the downstream extent of the project, boulder weir and pool locations will be identified and marked to minimize disturbance where proposed finished grades are close or equal to existing grades.

Incised Channel Fill:
Where required to achieve design grades, the incised channel will be filled with a series of lifts. The lower most lifts will be composed of compacted native soil. On top of this layer will be lifts composed of impervious clay. On top of the impervious clay, engineered streambed material (ESM) will be placed. Finally, spaced approximately 100 feet apart, an impervious clay "aquatards" will be placed in lifts from immediately below the ESM to the bottom of the fill prism. The aquatards are designed to prevent longitudinal subsurface flow that could cause loss of low flows from surface water to groundwater.

Grade Control:
Construction of a series of boulder step-pool structures with 12-inch vertical steps and pools ranging in length from 20 to 30 feet as specified in the plans. Once the site is completely dewatered and the incised channel has been filled as described in the previous section, boulder weir steps will be constructed to create the hydraulic control step design elevations. The boulder weirs will consist of a row of "footer" rocks installed below finished grade and step rocks at finished grade in an upstream oriented chevron pattern. Boulder weirs will also have a slightly lower elevation "notch" in the middle to direct high flows into the

downstream pool and maintain self-scoured pools. Lateral ends of footer and step boulders will be keyed into the channel banks. Construction of boulder weirs will proceed from downstream to upstream until the entire finished grade elevations have been established. Channel fill and boulder weir construction will result in some disturbance of existing channel banks and riparian vegetation. However, the locations of all mature riparian trees with diameters greater than ten inches have been surveyed, and the design plans either incorporates these trees into the weir and pool designs or protects them from impacts during construction.

Installation of large wood in refuge pools:
After the boulder weirs bounding each of the large refuge pools is complete, large wood for rearing and refuge habitat will be installed. Most of the large wood will be downed redwood harvested from the Kellogg Ranch property. Large wood anchoring details are shown in the design plans.

Streambank bioengineering and revegetation:
Where construction activities decrease streambank stability or remove existing riparian vegetation, bioengineered bank protection measures will be implemented to provide sufficient initial shear stress and velocity resistance and long term channel bank dynamic equilibrium with the establishment of vegetative erosion control components. Bioengineering approaches are detailed in the design plans and include installation of biodegradable erosion control fabric, hydroseeding, and live staking, as appropriate for each disturbed area.

Retrofit of weir structure:
To improve both fish screen performance and pool habitat conditions immediately upstream of the existing diversion weir, small boulders will be embedded using concrete and attached with steel anchors to increase the water surface elevation upstream of the weir by six inches.

Install new fish screen:
A new cone fish screen and supporting concrete framework will be installed at the location of the existing diversion. Upon completion of channel fill, boulder weir construction, and temporary streambank protection measures, the upstream flow block will be removed slowly with a series of small notches and the new boulder weir step-pool channel will be re-watered. Next, a second small flow block will be constructed to divert all flow away from the existing diversion structure and canal. The existing diversion structure will then be demolished and the site prepared for the new cone screen system. New concrete anchoring work will be completed and the screen installed and tested. After successful screen operation has been confirmed in the dry, the system of open boulder debris deflectors and the fine sediment clean out area will be installed. Finally, the second flow block will be removed and the screen settings will be tuned to

achieve design fish screening criteria. Finally, all remaining disturbed areas will be seeded with an appropriate native riparian seed mix.

Task 4: Monitoring.
The project will be tested during post project performance monitoring at low and high design flow depth and velocity. Monitoring will consist of measurement of step flow heights and pool depths at design flows and measurement of average flow velocities downstream of steps.

Deliverables:

Task 1: Project Management and Grant Administration
Grantee shall deliver: all contracts with subcontractors, Work summaries with invoices, Annual Progress Reports, outreach materials, Final Progress Report, including post-project longitudinal profile survey and asbuilt plans. The Grantee shall also submit full project records and a project summary to the Clearinghouse for Dam Removal Information.

Task 2: Construction Contractor Selection
No Grant deliverables for Task 2. This task will be accomplished before the Grant is fully executed. No Grant funds will be used to complete this task.

Task 3: Construction
Activities for project construction will include: on-site material selection and stockpiling, clearing and grubbing and site preparation, channel fill with compacted native soil, impervious clay, and Engineered Stream Material (ESM), installation of 0.17 miles of step-pool fish passage structures, refuge pool large wood and boulder habitat enhancement, bioengineered bank stabilization where specified in project plans, riparian revegetation where specified in project plans. diversion structure retrofit to increase water surface elevation, and new cone fish screen system, including boulder debris deflector and fine sediment cleanout area.

Task 4: Monitoring
Grantee shall report on the low and high design flow depth and velocity monitoring measurements in the post-project performance monitoring report.

Timelines:
This timeline assumes a Notice to Proceed (NTP) has been issued by July 1, 2017.
Task 1: Project Management and Grant Administration will begin upon receiving a fully-executed Grant Agreement and continue through October 31, 2019.
Task 2: Construction Contractor Selection will occur prior to May 1, 2017. This

task will occur prior to project start date and is not included in the project budget; it is included here for informational purposes only.
Task 3: Construction will occur from July 1, 2017 through October 31, 2017.
Task 4: Monitoring will occur from October 1, 2017 through October 31, 2019 as needed to capture low and high design flow conditions.
Compliance: Grantee shall provide verification of CEQA and permit compliance to the Grantor Project Manager before project work begins. Written permission must be obtained from landowner(s) for access to perform grant work. As may be necessary, the Grantee shall be responsible for obtaining the services of appropriately licensed professionals to comply with the applicable requirements of the Business and Professions Code including but not limited to section 6700 et seq. (Professional Engineers Act) and/or section 7800 et seq. (Geologists and Geophysicists Act).

If the Grantee fails to perform in accordance with the provisions of this Agreement, the Grantor retains the right, at its sole discretion, to delay, interrupt, or suspend the work for which the grant monies are supplied.

<u>Additional Requirements</u>:
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 or 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.

The Grantee shall deliver from the landowner, to the Grantor Project Manager, an executed 10-year Lake and Streambed Alteration Agreement (1600 Agreement) defining the design, construction, operation, and maintenance of the fish screen according to design standards before initiating construction of the fish screen and associated diversion facilities.

The 1600 Agreement shall identify the party responsible for maintaining the

screen to ensure that it is functioning as designed.

The responsible party must operate and maintain the fish screen project for a period not less than 10 years.

Notwithstanding Fish and Game code Section 6027, the 1600 Agreement must state that the fish screen will be operated whenever water is being diverted.

The responsible party shall operate the fish screen to effectively prevent the entrainment of fish whenever water is being diverted.

The responsible party will maintain the fish screen and bypass return so that they are functioning as designed and are meeting NMFS criteria for fish screens (criteria at time of construction).

This shall include regular inspection during operating periods (at least bi-weekly), cleaning, lubrication, replacement of worn parts, and removal of debris which may affect the operation of the screen.

The Grantee shall be required to test the screen, diversion and associated fish passage structures at no less than two life stage design flows (e.g., fall or winter flows for adult salmonids, and summer flows for juveniles).

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 or landowner will maintain the new fish passage structure, inspect the crossing in a timely manner and remove debris as necessary during the storm season.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Calistoga (3812255) OR Detert Reservoir (3812265) OR Healdsburg (3812257) OR Jimtown (3812267) OR Mark West Springs (3812256) OR Middletown (3812275) OR Mount St. Helena (3812266) OR The Geysers (3812277) OR Whispering Pines (3812276))

Possible species within the Mount St. Helena Quad and surrounding quads for 725154 Yellowjacket Creek Fish Passage Improvement Project, T09N R07W S17, Sonoma County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
adobe-lily *Fritillaria pluriflora*	PMLIL0V0F0	None	None	G2G3	S2S3	1B.2
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S3	SSC
American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
Baker's navarretia *Navarretia leucocephala ssp. bakeri*	PDPLM0C0E1	None	None	G4T2	S2	1B.1
bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S3	FP
Barr's amphipod *Stygobromus cherylae*	ICMAL05D60	None	None	G1	S1	
bent-flowered fiddleneck *Amsinckia lunaris*	PDBOR01070	None	None	G2G3	S2S3	1B.2
Boggs Lake hedge-hyssop *Gratiola heterosepala*	PDSCR0R060	None	Endangered	G2	S2	1B.2
Bolander's horkelia *Horkelia bolanderi*	PDROS0W010	None	None	G1	S1	1B.2
Brandegee's eriastrum *Eriastrum brandegeeae*	PDPLM03020	None	None	G1Q	S1	1B.1
Burke's goldfields *Lasthenia burkei*	PDAST5L010	Endangered	Endangered	G1	S1	1B.1
burrowing owl *Athene cunicularia*	ABNSB10010	None	None	G4	S3	SSC
California alkali grass *Puccinellia simplex*	PMPOA53110	None	None	G3	S2	1B.2
California freshwater shrimp *Syncaris pacifica*	ICMAL27010	Endangered	Endangered	G1	S1	
California giant salamander *Dicamptodon ensatus*	AAAAH01020	None	None	G3	S2S3	SSC
California linderiella *Linderiella occidentalis*	ICBRA06010	None	None	G2G3	S2S3	
California satintail *Imperata brevifolia*	PMPOA3D020	None	None	G3	S3	2B.1
Calistoga ceanothus *Ceanothus divergens*	PDRHA04240	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Calistoga popcornflower *Plagiobothrys strictus*	PDBOR0V120	Endangered	Threatened	G1	S1	1B.1
Central Valley Drainage Rainbow Trout/Cyprinid Stream *Central Valley Drainage Rainbow Trout/Cyprinid Stream*	CARA2422CA	None	None	GNR	SNR	
Clara Hunt's milk-vetch *Astragalus claranus*	PDFAB0F240	Endangered	Threatened	G1	S1	1B.1
Clear Lake Drainage Resident Trout Stream *Clear Lake Drainage Resident Trout Stream*	CARA2520CA	None	None	GNR	SNR	
Coastal and Valley Freshwater Marsh *Coastal and Valley Freshwater Marsh*	CTT52410CA	None	None	G3	S2.1	
coastal bluff morning-glory *Calystegia purpurata ssp. saxicola*	PDCON040D2	None	None	G4T2T3	S2S3	1B.2
Cobb Mountain lupine *Lupinus sericatus*	PDFAB2B3J0	None	None	G2	S2	1B.2
coho salmon - central California coast ESU *Oncorhynchus kisutch*	AFCHA02034	Endangered	Endangered	G4	S2?	
Colusa layia *Layia septentrionalis*	PDAST5N0F0	None	None	G2	S2	1B.2
congested-headed hayfield tarplant *Hemizonia congesta ssp. congesta*	PDAST4R065	None	None	G5T1T2	S1S2	1B.2
dimorphic snapdragon *Antirrhinum subcordatum*	PDSCR2S070	None	None	G3	S3	4.3
dwarf downingia *Downingia pusilla*	PDCAM060C0	None	None	GU	S2	2B.2
dwarf soaproot *Chlorogalum pomeridianum var. minus*	PMLIL0G042	None	None	G5T2T3	S2S3	1B.2
early jewelflower *Streptanthus vernalis*	PDBRA2G120	None	None	G1	S1	1B.2
elongate copper moss *Mielichhoferia elongata*	NBMUS4Q022	None	None	G5	S4	4.3
few-flowered navarretia *Navarretia leucocephala ssp. pauciflora*	PDPLM0C0E4	Endangered	Threatened	G4T1	S1	1B.1
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC
Freed's jewelflower *Streptanthus brachiatus ssp. hoffmanii*	PDBRA2G071	None	None	G2T2	S2	1B.2
fringed myotis *Myotis thysanodes*	AMACC01090	None	None	G4	S3	
Geysers panicum *Panicum acuminatum var. thermale*	PMPOA24028	None	Endangered	G5T2Q	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
glandular western flax *Hesperolinon adenophyllum*	PDLIN01010	None	None	G3	S3	1B.2
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
green jewelflower *Streptanthus hesperidis*	PDBRA2G510	None	None	G2	S2	1B.2
Greene's narrow-leaved daisy *Erigeron greenei*	PDAST3M5G0	None	None	G3	S3	1B.2
Hall's harmonia *Harmonia hallii*	PDAST650A0	None	None	G2	S2	1B.2
hardhead *Mylopharodon conocephalus*	AFCJB25010	None	None	G3	S3	SSC
hoary bat *Lasiurus cinereus*	AMACC05030	None	None	G5	S4	
Hoffman's bristly jewelflower *Streptanthus glandulosus ssp. hoffmanii*	PDBRA2G0J4	None	None	G4T2	S2	1B.3
holly-leaved ceanothus *Ceanothus purpureus*	PDRHA04160	None	None	G2	S2	1B.2
Jepson's leptosiphon *Leptosiphon jepsonii*	PDPLM09140	None	None	G3	S3	1B.2
Jepson's milk-vetch *Astragalus rattanii var. jepsonianus*	PDFAB0F7E1	None	None	G4T3	S3	1B.2
Kenwood Marsh checkerbloom *Sidalcea oregana ssp. valida*	PDMAL110K5	Endangered	Endangered	G5T1	S1	1B.1
Konocti manzanita *Arctostaphylos manzanita ssp. elegans*	PDERI04271	None	None	G5T3	S3	1B.3
Lake County stonecrop *Sedella leiocarpa*	PDCRA0F020	Endangered	Endangered	G1	S1	1B.1
Lake County western flax *Hesperolinon didymocarpum*	PDLIN01070	None	Endangered	G1	S1	1B.2
legenere *Legenere limosa*	PDCAM0C010	None	None	G2	S2	1B.1
Loch Lomond button-celery *Eryngium constancei*	PDAPI0Z0W0	Endangered	Endangered	G1	S1	1B.1
long-eared myotis *Myotis evotis*	AMACC01070	None	None	G5	S3	
many-flowered navarretia *Navarretia leucocephala ssp. plieantha*	PDPLM0C0E5	Endangered	Endangered	G4T1	S1	1B.2
marsh checkerbloom *Sidalcea oregana ssp. hydrophila*	PDMAL110K2	None	None	G5T3	S3	1B.2
marsh microseris *Microseris paludosa*	PDAST6E0D0	None	None	G2	S2	1B.2

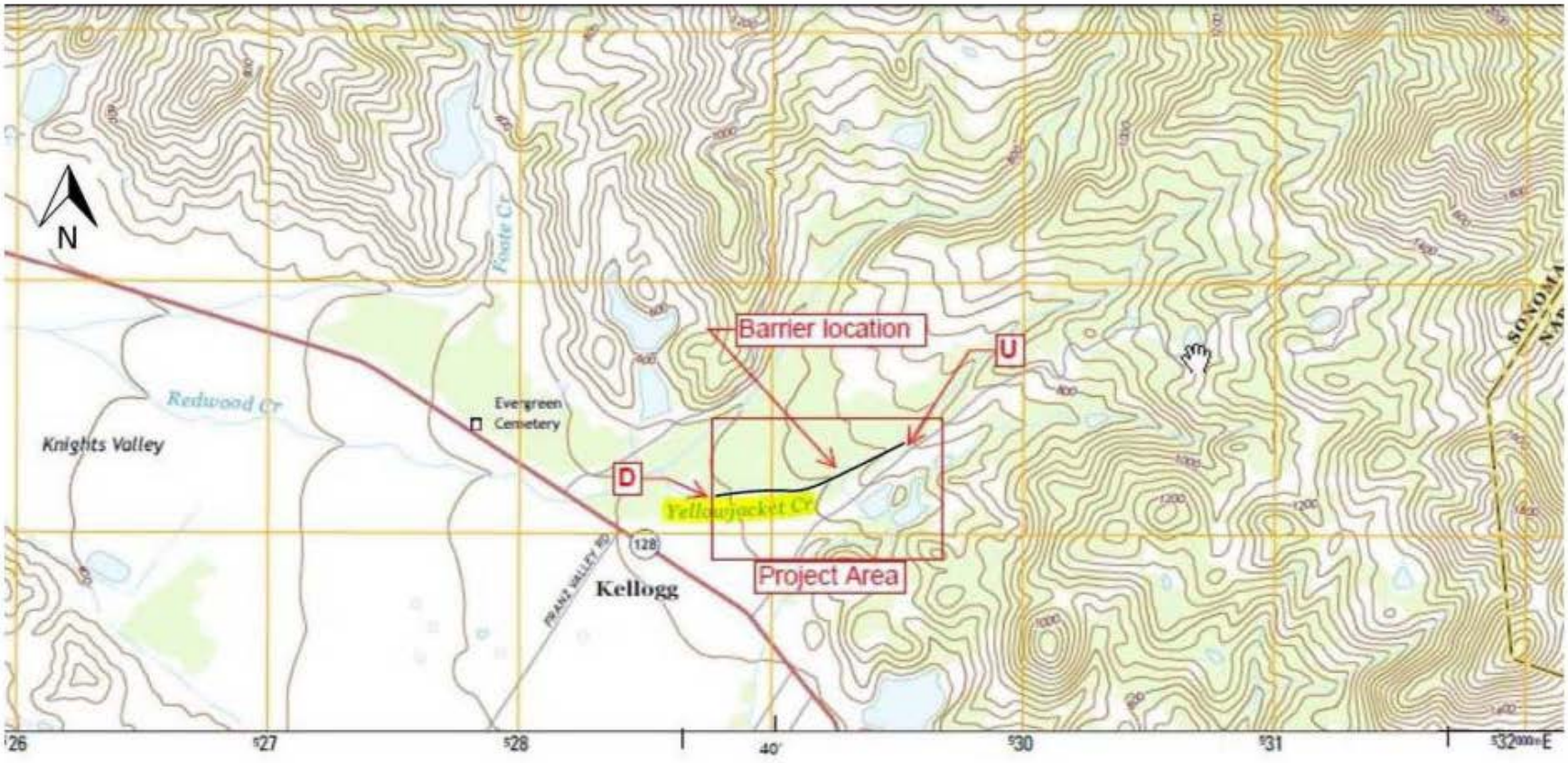
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Mt. Saint Helena morning-glory *Calystegia collina ssp. oxyphylla*	PDCON04032	None	None	G4T3	S3	4.2
Napa blue grass *Poa napensis*	PMPOA4Z1R0	Endangered	Endangered	G1	S1	1B.1
Napa bluecurls *Trichostema ruygtii*	PDLAM220H0	None	None	G1G2	S1S2	1B.2
Napa checkerbloom *Sidalcea hickmanii ssp. napensis*	PDMAL110A6	None	None	G3T1	S1	1B.1
Napa false indigo *Amorpha californica var. napensis*	PDFAB08012	None	None	G4T2	S2	1B.2
narrow-anthered brodiaea *Brodiaea leptandra*	PMLIL0C022	None	None	G3?	S3?	1B.2
Navarro roach *Lavinia symmetricus navarroensis*	AFCJB19023	None	None	G4T1T2	S2S3	SSC
Northern Basalt Flow Vernal Pool *Northern Basalt Flow Vernal Pool*	CTT44131CA	None	None	G3	S2.2	
Northern Hardpan Vernal Pool *Northern Hardpan Vernal Pool*	CTT44110CA	None	None	G3	S3.1	
northern meadow sedge *Carex praticola*	PMCYP03B20	None	None	G5	S2	2B.2
Northern Vernal Pool *Northern Vernal Pool*	CTT44100CA	None	None	G2	S2.1	
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080	None	None	G4G5	S3?	2B.3
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G5	S3	SSC
pappose tarplant *Centromadia parryi ssp. parryi*	PDAST4R0P2	None	None	G3T2	S2	1B.2
prairie falcon *Falco mexicanus*	ABNKD06090	None	None	G5	S4	WL
purple martin *Progne subis*	ABPAU01010	None	None	G5	S3	SSC
Raiche's manzanita *Arctostaphylos stanfordiana ssp. raichei*	PDERI041G2	None	None	G3T2	S2	1B.1
Ricksecker's water scavenger beetle *Hydrochara rickseckeri*	IICOL5V010	None	None	G2?	S2?	
Rincon Ridge ceanothus *Ceanothus confusus*	PDRHA04220	None	None	G1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Rincon Ridge manzanita *Arctostaphylos stanfordiana ssp. decumbens*	PDERI041G4	None	None	G3T1	S1	1B.1
Russian River tule perch *Hysterocarpus traski pomo*	AFCQK02011	None	None	G5T4	S4	SSC
saline clover *Trifolium hydrophilum*	PDFAB400R5	None	None	G2	S2	1B.2
Santa Lucia dwarf rush *Juncus luciensis*	PMJUN013J0	None	None	G3	S3	1B.2
Sebastopol meadowfoam *Limnanthes vinculans*	PDLIM02090	Endangered	Endangered	G1	S1	1B.1
serpentine cryptantha *Cryptantha dissita*	PDBOR0A0H2	None	None	G2	S2	1B.2
serpentine cypress wood-boring beetle *Trachykele hartmani*	IICOLX6010	None	None	G1	S1	
sharp-shinned hawk *Accipiter striatus*	ABNKC12020	None	None	G5	S4	WL
Sharsmith's western flax *Hesperolinon sharsmithiae*	PDLIN010E0	None	None	G2Q	S2	1B.2
silver-haired bat *Lasionycteris noctivagans*	AMACC02010	None	None	G5	S3S4	
slender Orcutt grass *Orcuttia tenuis*	PMPOA4G050	Threatened	Endangered	G2	S2	1B.1
slender silver moss *Anomobryum julaceum*	NBMUS80010	None	None	G5?	S2	4.2
slender-leaved pondweed *Stuckenia filiformis ssp. alpina*	PMPOT03091	None	None	G5T5	S3	2B.2
small pincushion navarretia *Navarretia myersii ssp. deminuta*	PDPLM0C0X2	None	None	G2T1	S1	1B.1
Snow Mountain buckwheat *Eriogonum nervulosum*	PDPGN08440	None	None	G2	S2	1B.2
Socrates Mine jewelflower *Streptanthus brachiatus ssp. brachiatus*	PDBRA2G072	None	None	G2T1	S1	1B.2
Sonoma beardtongue *Penstemon newberryi var. sonomensis*	PDSCR1L483	None	None	G4T2	S2	1B.3
Sonoma ceanothus *Ceanothus sonomensis*	PDRHA04420	None	None	G2	S2	1B.2
Sonoma sunshine *Blennosperma bakeri*	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
steelhead - central California coast DPS *Oncorhynchus mykiss irideus*	AFCHA0209G	Threatened	None	G5T2T3Q	S2S3	
Three Peaks jewelflower *Streptanthus morrisonii ssp. elatus*	PDBRA2G0S1	None	None	G2T2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Toren's grimmia *Grimmia torenii*	NBMUS32330	None	None	G2	S2	1B.3
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	None	G2G3	S1S2	SSC
two-carpellate western flax *Hesperolinon bicarpellatum*	PDLIN01020	None	None	G3	S3	1B.2
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western red bat *Lasiurus blossevillii*	AMACC05060	None	None	G5	S3	SSC
white-tailed kite *Elanus leucurus*	ABNKC06010	None	None	G5	S3S4	FP
woolly meadowfoam *Limnanthes floccosa ssp. floccosa*	PDLIM02043	None	None	G4T4	S3	4.2
California red-legged frog *Rana draytonii*	AAABH01022	Threatened	None	G2G3	S2S3	SSC

Record Count: 112

Yellowjacket Creek Fish Passage Improvement Project
Project Location Map
T09R07W S17, Mount St. Helena Quad, Sonoma County



Project Title: Lower San Antonio Creek Arundo Eradication.

Introduction:

The Ojai Valley Land Conservancy (OVLC) will implement the Lower San Antonio Creek Arundo Eradication project. The project will achieve the removal and ongoing herbicide treatments of 16 acres of invasive Arundo donax (Arundo) and restoration of 10 acres of riparian habitat along lower San Antonio Creek, a tributary of the Ventura River in Ventura County.

An invasive plant Arundo reduces habitat value by utilizing large quantities of water, reduces habitat quality by outcompeting native plants and by impairing the natural stream hydrology resulting in excessive bank failure and erosion. San Antonio Creek is critical habitat for southern steelhead, a federally listed endangered species. Arundo is an invasive non-native plant that has formed large infestations in watersheds throughout southern California, including San Antonio Creek. The project is part of a larger effort to eradicate Arundo from the Ventura River Watershed. Biological monitoring for sensitive species will occur during Arundo removal and herbicide treatments as required by state and federal permits. Once Arundo has been removed, 10 of the 16 acres will be replanted with native riparian vegetation. The restoration efforts will address habitat needs of fish and wildlife, and will re-establish habitats that are more resistant to infestation by other non-native species.

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

All habitat improvements will follow techniques in the California Stream Habitat Restoration Manual Volume I and Volume II, Chapter XI.

Objective(s):

The specific objective of this project is to eradicate Arundo and re-vegetate 10 acres of riparian habitat along lower San Antonio Creek, a tributary of the Ventura River, in Southern California. Three methods will be used for Arundo removal and herbicide treatment: cut and daub, foliar application, and mastication. Arundo biomass will be mulched onsite or properly disposed of at a waste facility. Arundo re-sprouts will be treated with herbicide for a minimum of three years. This project is part of a larger multi-agency effort to eradicate Arundo from the Ventura River Watershed as a top-down approach.

The goal of this priority action eradication of Arundo from all of San Antonio creek, which is important spawning and rearing stream for southern California steelhead and other listed species. This project will address limiting factors for steelhead in San Antonio Creek as called out in the National Marine Fisheries Service (NMFS) recovery plan for Southern California steelhead. Additionally, the newly released “Ventura River Watershed Management Plan” lists Arundo removal as a tier 1 project for the watershed

(Walter, 2015). This project will remove an estimated 95% of Arundo from of San Antonio Creek, and a multi-agency effort is underway to complete the removal of Arundo in the creek.

Location:

The proposed project site boundary extends within the San Antonio Creek floodplain at the downstream extent of Camp Comfort in Ojai and follows Creek Road south to Casitas Springs to the confluence with the Ventura River. The project site encompasses 4.75 miles from the San Antonio Creek Confluence to the upstream end of the San Antonio Creek Preserve. The downstream extent of the project site is 955 feet from the Highway 33 bridge, which is just south of Old Creek Road. The upstream extent of the project site is 1,792 feet downstream from the Creek Road bridge located at the upstream end of Camp Comfort. The river mouth of the Ventura River is 7.96 miles from the San Antonio Creek Confluence, 34.42496400 latitude, -119.26104800 longitude at the upstream; and 34.38073200 latitude - 119.30747400 longitude at the downstream of the Quad Name 7.5 Minute U.S. Geological Survey (USGS) Quadrangle map as depicted in the Project Location Map, Attachment 1, which is attached hereto and made a part of this agreement by this reference.

Project Set Up:

The Grantee's Executive Director and Project Manager will provide project management including acquisition of all permits, contracting, rentals, reporting and invoicing. Grantee will oversee the work performed by the subcontractor and crew, the purchase of herbicide to eradicate invasive weeds and all other operational crew materials; Additionally the Project Manager Stewardship Director, and Restoration Field Crew (Labor I and Labor II) will implement the revegetation component of the project. This includes maintaining re-vegetated sites and implementing remedial actions in areas where site success standards are not being met.

The Grantee will hire subcontractors to perform the Arundo removal, biological monitoring, a photographer and nursery manager to oversee all nursery operations necessary to grow plants for this project.

The Arundo removal subcontractor (supervisor and laborers) will implement the removal of the Arundo biomass, apply herbicide and chip the arundo on-site.

The photographer will photo document the removal efforts as part of the Grantee's effort to educate the public about the impacts of non-native species on San Antonio Creek as well as document the recovery of the riparian plants.

Biological monitor will conduct pre-project monitoring, provide sensitive species and permit compliance training for staff removing Arundo, perform implementation and sensitive species monitoring, submit monthly monitoring/permit compliance reports, and a final report.

Materials: Materials required for subcontracted Arundo removal and herbicide treatment include chain saws, loppers, ropes, portable restrooms, Tyvek/safety gear, herbicide, backpack sprayers, surfactant, dye, trucks, tractors, masticator, and chipper. Materials required for revegetation are those typically used for riparian planting and may include shovels, loppers, mulch, irrigation supplies, and weed whackers. Approximately half of the plants used for revegetation will be grown in the OVLC plant nursery, which will require the acquisition of dirt, pots, and fertilizer.

Tasks: The Grantee will complete the following tasks:

Task 1 - Landowner Coordination
OVLC Restoration Program Manager will notify all landowners of pre-project surveys, Arundo removal activities, herbicide retreatment activities, and revegetation activities at least one week in advance.

Task 2 - Project Documentation
OVLC Restoration Program Manager will establish photo points in at least five locations along the project site to provide pre- and post- project photos. Photos will be taken once a year for five years after project implementation. Photo point photography will be included in annual and final reports.

Task 3 – Request for Proposals (RFP)
OVLC Restoration Program Manager and the Executive Director will develop and release two RFPs on a yearly basis (1-year contracts); one RFP for biological monitoring and a second RFP for Arundo removal and herbicide treatment.

Task 4 – Pre-project Implementation
A subcontracted biological firm will conduct pre-project biological surveys for sensitive species within the project area. The subcontracted biological firm will provide sensitive species and permit condition training to the employees of the subcontracted firm hired for removal and herbicide treatment of Arundo. The training will include sensitive species awareness, how to report the presence of sensitive species, and a briefing concerning the conditions of federal, state, and local permit conditions. The subcontractor will be responsible for submitting a pre-project sensitive species report as per federal and state permits.

Task 5 – Arundo Eradication
A subcontractor will be hired for Arundo removal and herbicide treatment. The subcontractor will have appropriate experience and permits to monitor and perform herbicide application. The subcontractor will be given the option of cut and daub, foliar application, and/or mastication. Mastication will only be allowed in areas where Arundo density exceeds 50% relative cover or as described in the Federal 404 permit. The subcontractor will, prior to any herbicide application, provide to the OVLC and the Ventura County Agricultural Commissioner, a written pesticide recommendation signed by a currently licensed Pest Control Advisor. The written recommendation will include, but not be limited to, all herbicide and chemical names, application rates, equipment

utilized, and detailed treatment procedures and locations where applications will occur. Arundo biomass will either be mulched onsite, relocated to a staging area to be mulched, or brought to a refuse facility for appropriate disposal. After the initial biomass removal, new Arundo growth will be treated with herbicide by foliar application or cut and daub. Herbicide treatments will occur over a span of four years after the initial biomass removal. Arundo regrowth will be monitored by the OVLC. Herbicide retreatment will occur when Arundo has reached 3 to 4 feet in height. The subcontractor will be responsible for monthly progress reports and a final construction report.

The OVLC will hire a subcontractor with appropriate experience and permits to perform biological monitoring and permit compliance for sensitive species during Arundo removal and herbicide treatment. The subcontracted biological monitoring firm will be responsible for pre-project monitoring, sensitive species training for staff removing Arundo, implementation monitoring, sensitive species monitoring, monthly biological monitoring/permit compliance reports, and final biological monitoring report. Sensitive species include southern steelhead (Oncorhynchus mykiss), least Bell's vireo (Vireo bellii pusillus), southwestern willow flycatcher (Empidonax traillii extimus), California red-legged frog (Rana draytonii), western pond turtle (Actinemys marmorata), and two-striped garter snake (Thamnophis hammondii). The subcontracted biological firm will ensure and monitor for permit compliance during Arundo removal and herbicide treatments.

All subcontractors will be required to follow CDFW Aquatic Invasive Species Decontamination protocol throughout the duration of the project. The Restoration Program Manager will make site visits every one to four weeks to assess project progress, productivity, and monitor for Arundo regrowth. OVLC Executive Director will make quarterly site visits to provide project oversight to the Restoration Program Manager.

Task 6 – Revegetation

The Grantee's Program Manager, Stewardship Director, and Restoration Field Crew (Labor I and Labor II) will implement the revegetation component of the project. Ten acres of the 16 acres of Arundo will be revegetated with willow species (Salix spp.), mulefat (Baccharis salicifolia), California sycamore (Platanus racemosa), coyote brush (Baccharis pilularis), black cottonwood (Populus trichocarpa), blue elderberry (Sambucus nigra), mugwort (Artemisia douglasiana), bush mallow (Malacothamus fasciculatus), Buckwheat (Eriogonum fasciculatum), wild rose (Rosa californica), and giant wild rye (Elymus condensata). The planted native species will consist of 1 gallon nursery stock and cuttings. Approximately 3,000 plants will be grown at the OVLC Native Plant Nursery by the subcontracted Native Plant Nursery Manager. 1,000 plants will be purchased from a local native plant nursery. Revegetation sites will occur throughout the project area where removed Arundo leaves large open areas void of any vegetation. The planting sites will be prepared by OVLC staff by controlling non-native species, installing irrigation systems, and trucking in mulch in the form of wood chips. Weed management will occur in all revegetated areas. Irrigation will be accomplished by hand watering. Water will be provided by private landowners and in some cases

where municipal water is unavailable, trucked in by the OVLC. Temporary irrigation infrastructure (PVC line with hoses) will be installed where necessary. All planted stock will be mulched to improve soil moisture retention and suppress weed growth. The planted stock will be watered and maintained for at least 3 years by the OVLC. The planted stock will be monitored annually. Remedial actions will occur if the project is not performing to the standard of success of 80% survival of plantings. Funding for the 3 years of maintenance that extends past the FRGP award period will be covered by an IRWM Prop 84 Drought Round Grant that has been awarded to the OVLC.

Task 7 – Grant administration and Reporting
Grantee's Program Manager and Executive Director will provide administration of the grant including, but not limited, to personnel oversight, preparing and submission of invoices, progress reports, and the draft and Final Grant Report to the Grantor's Project Manager.

Deliverables:

- Project Documentation: Photo points will be submitted with annual and final reports. Time-lapse documentation (digital) will be submitted with the final report.
- Pre-project Implementation: A pre-project biological survey report will be submitted in October or November 2017.
- Arundo Eradication: Monthly progress reports from both the biological firm and firm removing and treating Arundo. Quantifiable result: 16 acres of Arundo removed and treated with approved herbicide for 3 years.
- Revegetation Quantifiable result: 10 acres of revegetation of native riparian plants maintained for 3 years. 4,000 native riparian plants planted.
- Submission of invoices with progress reports, and final billing and grant report.

Timelines:

Task 1: June 1, 2017- May 31, 2020

Task 2: Photo points will be taken May-June of each calendar year (2017, 2018, 2019, 2020). Time-lapse cameras will be gathering photos for the duration of the project term. Time-lapse cameras will be maintained quarterly.

Task 3: July - September of each calendar year (2017, 2018, 2019)

Task 4: September – December of each calendar year (2017, 2018, 2019)

Task 5: September 2017- May 2020. Initial biomass removal will be complete by February 2018. Herbicide treatments will occur throughout each calendar year.

Task 6: October 2017- May 2020. Initial revegetation efforts will between October through February of 2017 and 2018. Maintenance of the site will occur throughout the project term. Annual vegetation monitoring will occur in May or June of each calendar year after the site has been planted for at least one year.

Task 7: Monthly: submission of Invoices and progress reports;
February 1, 2020 (Draft Grant Report) and
February 28, 2020 (Final Grant Report).

Additional Requirements:

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

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

3. New Zealand Mudsnails (NZM) has been documented to be present in the Ventura River watershed. As a consequence all equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of NZM. When transporting traps out of the area, each numbered trap will be bagged in its own bag to avoid cross contamination during transport in and out of the work area. All crew members will decontaminate equipment and shoes for NZM according to the standards detailed in the pamphlet “New Zealand Mudsnails – How to Prevent the Spread of New Zealand Mudsnails through Field Gear” Second Edition (Feb. 2010) by Oregon State University.

4. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings. Unless otherwise specified by permits and irrigation will be provided by the Grantee.

5. The Grantee will acknowledge the participation of the Department of Fish and Wildlife, Fisheries Restoration Grant Program and NOAA fisheries funds on any signs, flyers, or other types of written communication or notice to advertise or explain the Project.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Lion Canyon (3411952) OR Matilija (3411943) OR Ojai (3411942) OR Old Man Mountain (3411954) OR Pitas Point (3411934) OR Saticoy (3411932) OR Ventura (3411933) OR Wheeler Springs (3411953) OR White Ledge Peak (3411944))

Possible species within the Matilija Quad and surrounding quads for 725178 Lower San Antonio Creek Arundo Eradication, T04N R23W S14, Ventura County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Abrams' oxytheca	PDPGN0J041	None	None	G4?T1T2	S1S2	1B.2
Acanthoscyphus parishii var. abramsii						
American badger	AMAJF04010	None	None	G5	S3	SSC
Taxidea taxus						
aphanisma	PDCHE02010	None	None	G3G4	S2	1B.2
Aphanisma blitoides						
arroyo chub	AFCJB13120	None	None	G2	S2	SSC
Gila orcuttii						
arroyo toad	AAABB01230	Endangered	None	G2G3	S2S3	SSC
Anaxyrus californicus						
Baja navarretia	PDPLM0C0L0	None	None	G3	S2	1B.2
Navarretia peninsularis						
burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Athene cunicularia						
California condor	ABNKA03010	Endangered	Endangered	G1	S1	FP
Gymnogyps californianus						
California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Rana draytonii						
California satintail	PMPOA3D020	None	None	G3	S3	2B.1
Imperata brevifolia						
California Walnut Woodland	CTT71210CA	None	None	G2	S2.1	
California Walnut Woodland						
chaparral nolina	PMAGA080E0	None	None	G3	S3	1B.2
Nolina cismontana						
coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
Phrynosoma blainvillii						
Coast Range newt	AAAAF02032	None	None	G4	S4	SSC
Taricha torosa						
coastal whiptail	ARACJ02143	None	None	G5T5	S3	SSC
Aspidoscelis tigris stejnegeri						
Coulter's goldfields	PDAST5L0A1	None	None	G4T2	S2	1B.1
Lasthenia glabrata ssp. coulteri						
Coulter's saltbush	PDCHE040E0	None	None	G3	S1S2	1B.2
Atriplex coulteri						
Crotch bumble bee	IIHYM24480	None	None	G3G4	S1S2	
Bombus crotchii						

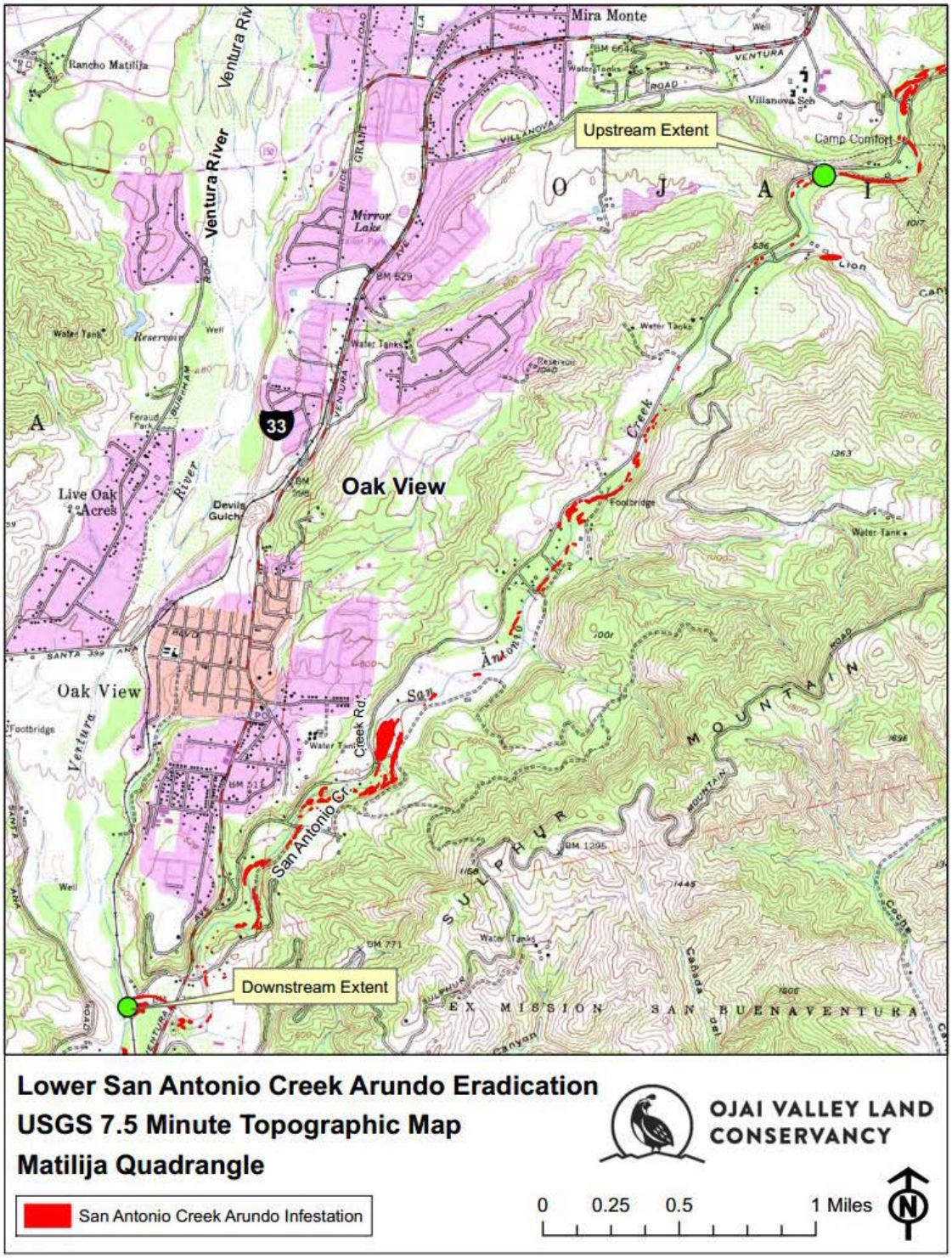
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Davidson's bush-mallow *Malacothamnus davidsonii*	PDMAL0Q040	None	None	G2	S2	1B.2
Davidson's saltscale *Atriplex serenana var. davidsonii*	PDCHE041T1	None	None	G5T1	S1	1B.2
Dulzura pocket mouse *Chaetodipus californicus femoralis*	AMAFD05021	None	None	G5T3	S3	SSC
foothill yellow-legged frog *Rana boylii*	AAABH01050	None	None	G3	S3	SSC
globose dune beetle *Coelus globosus*	IICOL4A010	None	None	G1G2	S1S2	
hoary bat *Lasiurus cinereus*	AMACC05030	None	None	G5	S4	
late-flowered mariposa-lily *Calochortus fimbriatus*	PMLIL0D1J2	None	None	G3	S3	1B.3
least Bell's vireo *Vireo bellii pusillus*	ABPBW01114	Endangered	Endangered	G5T2	S2	
Lemmon's jewelflower *Caulanthus lemmonii*	PDBRA0M0E0	None	None	G3	S3	1B.2
mesa horkelia *Horkelia cuneata var. puberula*	PDROS0W045	None	None	G4T1	S1	1B.1
Mexican long-tongued bat *Choeronycteris mexicana*	AMACB02010	None	None	G4	S1	SSC
Miles' milk-vetch *Astragalus didymocarpus var. milesianus*	PDFAB0F2X3	None	None	G5T2	S2	1B.2
monarch - California overwintering population *Danaus plexippus pop. 1*	IILEPP2012	None	None	G4T2T3	S2S3	
Nuttall's scrub oak *Quercus dumosa*	PDFAG050D0	None	None	G3	S3	1B.1
Ojai fritillary *Fritillaria ojaiensis*	PMLIL0V0N0	None	None	G2?	S2?	1B.2
Ojai navarretia *Navarretia ojaiensis*	PDPLM0C130	None	None	G1	S1	1B.1
Orcutt's pincushion *Chaenactis glabriuscula var. orcuttiana*	PDAST20095	None	None	G5T1T2	S1	1B.1
pale-yellow layia *Layia heterotricha*	PDAST5N070	None	None	G2	S2	1B.1
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G5	S3	SSC
Palmer's mariposa-lily *Calochortus palmeri var. palmeri*	PMLIL0D122	None	None	G3T3?	S3?	1B.2
Plummer's mariposa-lily *Calochortus plummerae*	PMLIL0D150	None	None	G4	S4	4.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Robinson's pepper-grass *Lepidium virginicum var. robinsonii*	PDBRA1M114	None	None	G5T3	S3	4.3
Salt Spring checkerbloom *Sidalcea neomexicana*	PDMAL110J0	None	None	G4	S2	2B.2
San Bernardino ringneck snake *Diadophis punctatus modestus*	ARADB10015	None	None	G5T2T3Q	S2?	
San Diego desert woodrat *Neotoma lepida intermedia*	AMAFF08041	None	None	G5T3T4	S3S4	SSC
Sanford's arrowhead *Sagittaria sanfordii*	PMALI040Q0	None	None	G3	S3	1B.2
silvery legless lizard *Anniella pulchra pulchra*	ARACC01012	None	None	G3G4T3T4Q	S3	SSC
south coast saltscale *Atriplex pacifica*	PDCHE041C0	None	None	G4	S2	1B.2
Southern California Coastal Lagoon *Southern California Coastal Lagoon*	CALE1220CA	None	None	GNR	SNR	
Southern California Steelhead Stream *Southern California Steelhead Stream*	CARE2310CA	None	None	GNR	SNR	
Southern Coast Live Oak Riparian Forest *Southern Coast Live Oak Riparian Forest*	CTT61310CA	None	None	G4	S4	
southern jewelflower *Streptanthus campestris*	PDBRA2G0B0	None	None	G3	S3	1B.3
Southern Riparian Scrub *Southern Riparian Scrub*	CTT63300CA	None	None	G3	S3.2	
Southern Sycamore Alder Riparian Woodland *Southern Sycamore Alder Riparian Woodland*	CTT62400CA	None	None	G4	S4	
southern tarplant *Centromadia parryi ssp. australis*	PDAST4R0P4	None	None	G3T2	S2	1B.1
steelhead - southern California DPS *Oncorhynchus mykiss irideus*	AFCHA0209J	Endangered	None	G5T1Q	S1	
tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered	None	G3	S3	SSC
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	None	G2G3	S1S2	SSC
two-striped gartersnake *Thamnophis hammondii*	ARADB36160	None	None	G4	S3S4	SSC
umbrella larkspur *Delphinium umbraculorum*	PDRAN0B1W0	None	None	G3	S3	1B.3
unarmored threespine stickleback *Gasterosteus aculeatus williamsoni*	AFCPA03011	Endangered	Endangered	G5T1	S1	FP
Ventura Marsh milk-vetch *Astragalus pycnostachyus var. lanosissimus*	PDFAB0F7B1	Endangered	Endangered	G2T1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
western mastiff bat *Eumops perotis californicus*	AMACD02011	None	None	G5T4	S3S4	SSC
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
white rabbit-tobacco *Pseudognaphalium leucocephalum*	PDAST440C0	None	None	G4	S2	2B.2
white-veined monardella *Monardella hypoleuca ssp. hypoleuca*	PDLAM180A3	None	None	G4T2T3	S2S3	1B.3
yellow warbler *Setophaga petechia*	ABPBX03010	None	None	G5	S3S4	SSC

Record Count: 67

Lower San Antonio Creek Arundo Eradication
Project Location Map
T04N R23W S14, Matilija Quad, Ventura County



APPENDIX B

MITIGATION MEASURES, MONITORING AND REPORTING PROGRAM FOR THE 2016 FISH HABITAT RESTORATION PROJECT

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.

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 FHR project 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 FHR project, 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 grant 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 FHR project, 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, or

iii. Redesign of proposed work to avoid disturbance of rare plants.

c) Plant surveys will also include any host plants for butterflies identified as occurring in the area either in the CNDDB or the official species list. These host plants are as follows for each butterfly:

Butterfly	Host plant
Mission blue butterfly (*Icaricia icarioides missionensis*) - Endnagered	Silver Bush Lupine (*Lupinus albifrons*)
San Bruno elfin butterfly (*Callophrys mossii bayensis*) - Endangered	stonecrop (*Sedum spathulifolium*)
Callippe silverspot butterfly (*Speyeria callippe callippe*) - Endangered	Johnny jump up (*Viola pedunculata*)
Myrtle's silverspot (*Speyeria zerene myrtleae*) - Endangered	hookedspur violet (*Viola adunca*)
Bay checkerspot butterfly (*Euphydryas editha bayensis*) - Threatened	native plantain (*Plantago erecta*)

i. If any host 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:

(a) Fencing to prevent accidental disturbance of larval host plants during construction,

(b) On-site monitoring by a qualified biologist during construction to assure that larval host plants are not disturbed, and

(c) Redesign of proposed work to avoid disturbance of larval host plants.

ii. If it becomes impossible to implement the project at a work site without impacts to larval host plants, then activity at that work site shall not proceed. 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.

iii. 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 23 work sites proposed as part of the 2016 FHR project, none of the sites shows the Arroyo Toad listed on the corresponding species list in Appendix A.

3) California freshwater shrimp (*Syncaris pacifica*)

None of the 23 work sites proposed as part of the 2016 FHR project occurs within the range of California freshwater shrimp (CFS). 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:

4) California red-legged frog (*Rana draytonii*)

Of the 23 work sites proposed as part of the 2016 FHR project, four occur within the range of the California red-legged frog (CRLF). Activities proposed for (725239 Southern Coho Salmon Captive Broodstock Program (UCSC-NOAA), 725240 MBSTP Coho Captive Broodstock and Recovery Program, 725154 Yellowjacket Creek Fish Passage Improvement Project, and 725178 Lower San Antonio Creek Arundo Eradication) (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 23 proposed projects in the 2016 FHR project, one project is within the range of the California tiger salamander (725239 Southern Coho Salmon Captive Broodstock Program (UCSC-NOAA)) (Appendix A). This project will not impact the species since it is a cooperative rearing project located in a hatchery. The species uses ponds and vernal pools for breeding and grassland habitat for

estivation, both of which are usually not in proximity to anadromous fish bearing streams.

6) 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 FHR project 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 23 projects proposed as part of the 2016 FHR project, none are within the range of the least Bell's vireo.

8) Marbled murrelet (*Brachyrampus marmoratus*)

Five of the 23 work sites proposed as part of the 2016 FHR project are in potentially suitable habitat for the marbled murrelet. Activities proposed for the sites (725159 Rowdy Creek Instream Habitat Enhancement Project Reach III, 725170 Supply Creek Restoration Project Phase II, 725153 Mid-Klamath Tributary Fish Passage Improvement Project, 725239 Southern Coho Salmon Captive Broodstock Program (UCSC-NOAA), and 725240 MBSTP Coho Captive Broodstock and Recovery Program) (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 23 work sites proposed as part of the 2016 FHR project, 15 are in potentially suitable habitat for the northern spotted owl (725159 Rowdy Creek Instream Habitat Enhancement Project Reach III, 725149 Dinner Creek Fish Passage Barrier Removal Project, 725246 Mattole Storage and Forbearance 2017-2020, 725170 Supply Creek Restoration Project Phase II, 725179 Miller Riparian Restoration Project, 725153 Mid-Klamath Tributary Fish Passage Improvement Project, 725156 Upper Jack of Hearts Creek Coho Habitat Restoration Project, 725182 Anderson Creek Sediment Reduction and Coho Recovery Project Phase 2, 725174 Anderson Creek Habitat Enhancement Project for Coho Recovery Phase III, 725165 James Creek Coho Stream Habitat Enhancement Project, 725158 Little North Fork Big River Instream Coho Habitat Enhancement Project, 725168 String Creek Instream Steelhead Habitat Enhancement Project, 725160 French Creek Main Channel & Off Channel Habitat Improvement & Monitoring, 725164 Kelly Gulch Fisheries and Riparian Habitat Enhancement Phase II, and 725185 Morrison Gulch Sediment Reduction Project) (Appendix A). None of the activities will remove, degrade, or downgrade northern spotted owl habitat. As a result, direct injury or mortality of owls is not likely. The potential exists for heavy equipment work at these sites to disturb spotted owl nesting. To avoid this potential effect, the following mitigation measures will be implemented:

a) Work with heavy equipment at any site within 0.25 miles of suitable habitat for the northern spotted owl shall not occur from November 1 to July 31 for projects in areas under the jurisdiction of the Sacramento USFWS Office and from November 1 to July 9 for projects in areas under the jurisdiction of the Arcata USFWS Office.

b) The work window at individual work sites may be advanced prior to July 9 or July 31 (corresponding to the different time constraints of the Sacramento and Arcata USFWS office), if protocol surveys determine that suitable habitat is unoccupied.

c) If these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to northern spotted owls or their habitat, then activity at that work site shall be discontinued and CDFW must reinitiate consultation with USFWS.

d) For projects contained within streams and watersheds included in a USFWS Habitat Conservation Plan the mitigation measures contained within those Habitat Conservation Plans shall be followed.

10) Point Arena mountain beaver (*Aplodontia rufa nigra*)

Of the 23 projects proposed in the 2016 FHR project, none are within the range of the Point Arena mountain beaver.

11) San Francisco Garter snake (*Thamnophis sirtalis tetrataenia*)

Of the 23 projects proposed in the 2016 FHR project, none are located within the range of the San Francisco garter snake.

12) Southwestern Willow flycatcher (*Empidonax traillii extimus*)

Of the 23 work sites proposed as part of the 2016 FHR project, none are in potentially suitable habitat for the southwestern willow flycatcher.

13) Tidewater goby (*Eucyclogobius newberryi*)

Of the 23 work sites proposed as part of the 2016 FHR project, none are in potentially suitable habitat for the tidewater goby.

14) Willow flycatcher (*Empidonax traillii)*

Of the 23 work sites proposed as part of the 2016 FHR project, none are in potentially suitable habitat for the Willow flycatcher.

C. Riparian and re-vegetation

1) Planting of seedlings shall begin after December 1, or when sufficient rainfall has occurred to ensure the best chance of survival of the seedlings, but in no case after April 1.

2) Any disturbed banks shall be fully restored upon completion of construction. Revegetation shall be done using native species. Planting techniques can include seed casting, hydroseeding, or live planting methods using the techniques in Part XI of the *California Salmonid Stream Habitat Restoration Manual*.

3) Disturbed and compacted areas shall be re-vegetated with native plant species. The species shall be comprised of a diverse community structure that mimics the native riparian corridor. Planting ratio shall be 2:1 (two plants to every one removed).

4) Unless otherwise specified, the standard for success is 80 percent survival of plantings or 80 percent ground cover for broadcast planting of seed after a period of 3 years.

5) To ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible, equipment shall be cleaned of all dirt, mud, and plant material prior to entering a work site. When possible, invasive exotic plants at the work site shall be removed. Areas disturbed by project activities will be restored and planted with native plants.

6) Mulching and seeding shall be done on all exposed soil which may deliver sediment to a stream. Soils exposed by project operations shall be mulched to prevent sediment runoff and transport. Mulches shall be applied so that not less than 90% of the disturbed areas are covered. All mulches, except hydro-mulch, shall be applied in a layer not less than two (2) inches deep. Where feasible, all mulches shall be kneaded or tracked-in with track marks parallel to the contour, and tackified as necessary to prevent excessive movement. All exposed soils and fills, including the downstream face of the road prism adjacent to the outlet of culverts, shall be reseeded with a mix of native grasses common to the area, free from seeds of noxious or invasive weed species, and applied at a rate which will ensure establishment.

7) If erosion control mats are used in re-vegetation, they shall be made of material that decomposes. Erosion control mats made of nylon plastic, or other non-decomposing material shall not be used.

8) CDFW shall retain as many trees and brush as feasible, emphasizing shade producing and bank stabilizing trees and brush to minimize impacts to the riparian corridor.

9) If riparian vegetation is to be removed with chainsaws, the grantee shall use saws that operate with vegetable-based bar oil when possible.

10) Disturbed and decompacted areas shall be re-vegetated with native species specific to the project location that comprise a diverse community of woody and herbaceous species.

V. CULTURAL RESOURCES

Ground-disturbance will be required to implement the project at certain locations that, despite efforts to identify cultural resources, have the potential to affect these resources. The procedure for a programmatic evaluation of archeological resources is provided in Appendix E. Potential for inadvertent impacts will be avoided through implementation of the following mitigation measures:

1) CDFW shall contract with an archaeologist(s) or other historic preservation professional that meets The Secretary of the Interior's Professional Qualifications Standards (36 CFR Part 61, and 48 FR 44716) to complete cultural resource surveys at any sites with the potential to be impacted prior to any ground disturbing activities. This work may be augmented with the aid of a Native American cultural resources specialist that is culturally affiliated with the project area. Cultural and paleontological resource surveys shall be conducted using standard protocols to meet CEQA Guideline requirements. Paleontological survey protocols are listed in Appendix D.

2) If cultural and/or paleontological resource sites are identified at a project location, CDFW will require one or more of the following protective measures to be implemented before work can proceed: a) fencing to prevent accidental disturbance of cultural resources during construction, b) on-site monitoring by cultural and/or paleontological resource professionals during construction to assure that cultural resources are not disturbed, c) redesign of proposed work to avoid disturbance of cultural resources.

3) CDFW shall report any previously unknown historic, archeological, and paleontological remains discovered at a project location to the USACE as required in the RGP.

4) CDFW shall ensure that the grantee or responsible party is aware of these site-specific conditions, and shall inspect the work site before, during, and after completion of the action item.

5) Inadvertent Discovery of Cultural Resources - If cultural resources, such as lithic debitage, ground stone, historic debris, building foundations, or bone, are discovered during ground-disturbance activities, work shall be stopped within 20 meters (66 feet) of the discovery, per the requirements of CEQA (January 1999 Revised Guidelines, Title 14 CCR 15064.5 (f)). Work near the archaeological finds shall not resume until an archaeologist that meets the Secretary of the Interior's Standards and Guidelines suited to the discovery, has evaluated the materials and offered recommendations for further action. Cultural materials not associated with human interments shall be documented and curated in place.

6) Inadvertent Discovery of Human Remains - If human remains are discovered during project construction, work shall stop at the discovery location, within 20 meters (66 feet), and any nearby area reasonably suspected to overlie adjacent to human remains (Public Resources Code, Section 7050.5). The county coroner shall be contacted to determine if the cause of death must be investigated. If the coroner determines that the remains are of Native American origin, it is necessary to comply with state laws relating to the disposition of Native American burials, which fall within the jurisdiction of the Native American heritage Commission (NAHC) (Public Resources Code, Section 5097). The coroner will contact the NAHC. The descendants or most likely descendants of the deceased will be contacted, and work shall not resume until they have made a recommendation to the landowner or the person responsible for the excavation work for means of treatment and disposition, with appropriate dignity, of the human remains and any associated grave goods, as provided in Public Resources Code, Section 5097.98.

7) Procedures for treatment of an inadvertent discovery of human remains:

a) Immediately following discovery of known or potential human remains all ground-disturbing activities at the point of discovery shall be halted.

b) No material remains shall be removed from the discovery site, a reasonable exclusion zone shall be cordoned off.

c) The CDFW Grant Manager and property owner shall be notified and the CDFW Grant Manager shall contact the county coroner.

d) CDFW shall retain the services of a professional archaeologist to immediately examine the find and assist the process.

e) All ground-disturbing construction activities in the discovery site exclusion area shall be suspended.

f) The discovery site shall be secured to protect the remains from desecration or disturbance, with 24-hour surveillance, if prudent.

g) Discovery of Native American remains is a very sensitive issue, and all project personnel shall hold any information about such a discovery in confidence and divulge it only on a need-to-know basis, as determined by the CDFW.

h) The coroner has two working days to examine the remains after being notified. If the remains are Native American, the coroner has 24 hours to notify the NAHC in Sacramento (telephone 916/653-4082).

i) The NAHC is responsible for identifying and immediately notifying the Most Likely Descendant (MLD) of the deceased Native American.

j) The MLD may, with the permission of the landowner, or their representative, inspect the site of the discovered Native American remains and may recommend to the landowner and CDFW Grant Manager means for treating or disposing, with appropriate dignity, the human remains and any associated grave goods. The descendants shall complete their inspection and make

recommendations or preferences for treatment with 48 hours of being granted access to the site (Public Resource Code, Section 5097.98(a)). The recommendation may include the scientific removal and non-destructive or destructive analysis of human remains and items associated with Native American burials.

k) Whenever the NAHC is unable to identify a MLD, or the MLD identified fails to make a recommendation, or the landowner or his/her authorized representative rejects the recommendation of the MLD and mediation between the parties by the NAHC fails to provide measures acceptable to the landowner, the landowner or his/her authorized representatives shall re-inter the human remains and associated grave offerings with appropriate dignity on the property in a location not subject to further subsurface disturbance in accordance with Public Resource Code, Section 5097.98(e).

l) Following final treatment measures, the CDFW shall ensure that a report is prepared that describes the circumstances, nature and location of the discovery, its treatment, including results of analysis (if permitted), and final disposition, including a confidential map showing the reburial location. Appended to the report shall be a formal record about the discovery site prepared to current California standards on DPR 523 form(s). CDFW shall ensure that report copies are distributed to the appropriate California Historic Information Center, NAHC, and MLD.

8) Pursuant to RGP78 and in accordance to 36 C.F.R. Section 800.13, in the event of any discovery during construction of human remains, archeological deposits, or any other type of historic property, the CDFW shall notify the USACE archeological staff (Steve Dibble at 213-452-3849 or John Killeen at 213-452-3861) within 24 hours. Construction work shall be suspended immediately and shall not resume until USACE re-authorizes project construction.

9) If it becomes impossible to implement the project at a work site without disturbing cultural or paleontological resources, then activity at that work site shall be discontinued.

VI. GEOLOGY AND SOILS

There is no potential for a significant adverse impact to geology and soils; implementation of the restoration project will contribute to an overall reduction in erosion and sedimentation. Existing roads will be used to access work sites. Ground disturbance at most work sites will be minimal, except for road improvements or decommissioning. Road improvements and decommissioning will involve moving large quantities of soil from road fills and stream crossings to restore historic land surface profiles and prevent chronic erosion and sediment delivery to streams. In order to avoid temporary increases in surface erosion, the following mitigation measures will be implemented:

1) CDFW will implement the following measures to minimize harm to listed salmonids resulting from culvert replacement activities and other instream construction work:

   a) All stream crossing replacement or modification designs, involving fish passage, shall be reviewed and approved by NOAA (or CDFW) engineers prior to onset of work.

   b) If the stream in the project location was not passable to, or was not utilized by all life stages of, all covered salmonids prior to the existence of the road crossing, the project shall pass the life stages and covered salmonid species that historically did pass there. Retrofit culverts shall meet the fish passage criteria for the passage needs of the listed species and life stages historically passing through the site prior to the existence of the road crossing.

2) CDFW shall implement the following measures to minimize harm to listed salmonids resulting from road decommissioning activities:

   a) Woody debris will be concentrated on finished slopes of decommissioned roads adjacent to stream crossings to reduce surface erosion; contribute to amounts of organic debris in the soil; encourage fungi; provide immediate cover for small terrestrial species; and to speed recovery of native forest vegetation.

   b) Work sites shall be winterized at the end of each day to minimize the eroding of unfinished excavations when significant rains are forecasted. Winterization procedures shall be supervised by a professional trained in erosion control techniques and involve taking necessary measures to minimize erosion on unfinished work surfaces. Winterization includes the following: smoothing unfinished surfaces to allow water to freely drain across them without concentration or ponding; compacting unfinished surfaces where concentrated runoff may flow with an excavator bucket or similar tool, to minimize surface erosion and the formation of rills; and installation of culverts, silt fences, and other erosion control devices where necessary to convey concentrated water across unfinished surfaces, and trap exposed sediment before it leaves the work site.

3) Effective erosion control measures shall be in-place at all times during construction. Construction within the 5-year flood plain shall not begin until all temporary erosion controls (i.e., straw bales or silt fences that are effectively keyed-in) are in place down slope or down stream of project activities within the riparian area. Erosion control measures shall be maintained throughout the construction period. If continued erosion is likely to occur after construction is completed, then appropriate erosion prevention measures shall be implemented and maintained until erosion has subsided.

4) An adequate supply of erosion control materials (gravel, straw bales, shovels, etc.) shall be maintained onsite to facilitate a quick response to unanticipated storm events or emergencies.

5) Use erosion controls that protect and stabilize stockpiles and exposed soils to prevent movement of materials. Use devices such as plastic sheeting held down with rocks or sandbags over stockpiles, silt fences, or berms of hay bales, to minimize movement of exposed or stockpiled soils.

6) When needed, instream grade control structures shall be utilized to control channel scour, sediment routing, and headwall cutting.

7) Temporary stockpiling of excavated material shall be minimized. However, excavated material shall be stockpiled in areas where it cannot enter the stream channel. Available sites at or near the project location shall be determined prior to the start of construction. If feasible, topsoil shall be conserved for reuse at project location or use in other areas.

8) For projects located within the USACE San Francisco District, an annual limit on the number of sediment-producing projects per HUC 10 watershed shall be implemented to ensure that potential sediment impacts will remain spatially isolated, thus minimizing cumulative turbidity effects. Sediment producing projects include instream habitat improvement, instream barrier removal, stream bank stabilization, fish passage improvement, upslope road work, and fish screen construction (unless the screen is located in a diversion ditch and is disconnected from the waterway). The limit of projects shall be as follows:

Square mile of HUC 10 watershed	Maximum number of instream and upslope projects per year
<50	2
51-100	3
101-150	4
151-250	5
251-350	6
351-500	9
>500	12

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."

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 found in the California Salmonid Stream Habitat Restoration Manual. 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 red-legged frogs killed, injured, and handled during each FHR project that utilizes the USACE authorization.

b) A summary of how the terms and conditions of the biological opinions (file no. 08ESMF00-2016-F-0874) 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 FHR project that utilizes the USACE authorization.

b) A summary of how the terms and conditions of the biological opinions (file no. 08EVEN00-2016-F-0093 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 brief description;

c) Name(s) of affected water body(ies);

d) Latitude/longitude in decimal degrees to at least four decimals;

e) For ongoing projects:

i. Project progress and schedule including initial ground disturbance, site clearing and grubbing, road construction, site construction, and the implementation status of construction storm water best management practices (BMPs).

a. If construction has not started, provide estimated start date and reasons for delay.

ii. Map showing general project progress.

iii. Mitigation for temporary impact status

a. Planned date of initiation and map showing locations of mitigation for temporary impacts to waters of the state and all upland areas of temporary disturbance which could result in a discharge to waters of the state.

b. If mitigation for temporary impacts has already commenced, provide a map and information concerning attainment of performance standards contained in the restoration plan.

iv. Restoration and enhancement status

a. Planned date of initiation of vegetation installation.

b. If installation is in progress, a map of what has been completed to date.

c. If the restoration site has been installed, provide a final map and information concerning attainment of performance standards contained in the individual project specifications.

f) 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;

iii. Pre- and post-photo documentation of all restoration sites, including revegetation sites.

iv. A report establishing that the performance standards outlined in the individual project specifications have been met.

v. Final map of all restoration areas.

vi. A report establishing that the performance standards outlined in the restoration plan have been met for each project site upland areas and/or waters of temporary disturbance.

g) 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;

h) Actual construction start and end-dates;

i) Whether the project is on-going or completed.

j) Copies of reports documenting the following monitoring activities:

i. Post-project monitoring immediately after the activity is completed to ensure that projects are completed as designed; and

ii. Effectiveness monitoring on a random subset of 10% of the projects, within one to three years after project completion.

11) CDFW shall report any previously unknown historic archeological and paleontological remains discovered at a site to the USACE as required in the RGP. This information will also be provided to the Native American Heritage Commission, 915 Capitol Mall, Sacramento, CA 95814.

12) Pursuant to RGP78, CDFW shall monitor and maintain the structures or work conducted at a given site for at least three years after construction to ensure the integrity of the structure and successful growth of the planted vegetation.

13) CDFW shall allow representatives of USACE to inspect the authorized activities at any time deemed necessary to ensure that they are being or have been accomplished with the terms and conditions of the RGP.

14) Pursuant to RGP78, CDFW shall notify the USACE annually of the year's projects. If the USACE has not issued a Notice to Proceed (NTP) or identified any issues (verbal or written) within 60 days of receive the notifications, CDFW can proceed with project. The NTP may include site specific special conditions to avoid and minimize adverse impacts to waters of the U.S and shall be valid for the duration of the RGP78 unless there is a change in the project's scope of work.

Appendix C

Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities

State of California
CALIFORNIA NATURAL RESOURCES AGENCY
California Department of Fish and Wildlife
November 24, 2009[1]

INTRODUCTION AND PURPOSE

The conservation of special status native plants and their habitats, as well as natural communities, is integral to maintaining biological diversity. The purpose of these protocols is to facilitate a consistent and systematic approach to the survey and assessment of special status native plants and natural communities so that reliable information is produced and the potential of locating a special status plant species or natural community is maximized. They may also help those who prepare and review environmental documents determine when a botanical survey is needed, how field surveys may be conducted, what information to include in a survey report, and what qualifications to consider for surveyors. The protocols may help avoid delays caused when inadequate biological information is provided during the environmental review process; assist lead, trustee and responsible reviewing agencies to make an informed decision regarding the direct, indirect, and cumulative effects of a proposed development, activity, or action on special status native plants and natural communities; meet California Environmental Quality Act (CEQA)[2] requirements for adequate disclosure of potential impacts; and conserve public trust resources.

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE TRUSTEE AND RESPONSIBLE AGENCY MISSION

The mission of the California Department of Fish and Wildlife (CDFW) is to manage California's diverse wildlife and native plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. CDFW has jurisdiction over the conservation, protection, and management of wildlife, native plants, and habitat necessary to maintain biologically sustainable populations (Fish and Game Code §1802). CDFW, as trustee agency under CEQA §15386, provides expertise in reviewing and commenting on environmental documents and makes protocols regarding

[1] This document replaces the CDFW document entitled "Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened and Endangered Plants and Natural Communities."
[2] http://ceres.ca.gov/ceqa/

potential negative impacts to those resources held in trust for the people of California.

Certain species are in danger of extinction because their habitats have been severely reduced in acreage, are threatened with destruction or adverse modification, or because of a combination of these and other factors. The California Endangered Species Act (CESA) provides additional protections for such species, including take prohibitions (Fish and Game Code §2050 *et seq.*). As a responsible agency, CDFW has the authority to issue permits for the take of species listed under CESA if the take is incidental to an otherwise lawful activity; CDFW has determined that the impacts of the take have been minimized and fully mitigated; and, the take would not jeopardize the continued existence of the species (Fish and Game Code §2081). Surveys are one of the preliminary steps to detect a listed or special status plant species or natural community that may be impacted significantly by a project.

DEFINITIONS

Botanical surveys provide information used to determine the potential environmental effects of proposed projects on all special status plants and natural communities as required by law (i.e., CEQA, CESA, and Federal Endangered Species Act (ESA)). Some key terms in this document appear in **bold font** for assistance in use of the document.

For the purposes of this document, **special status plants** include all plant species that meet one or more of the following criteria[3]:

- Listed or proposed for listing as threatened or endangered under ESA or candidates for possible future listing as threatened or endangered under the ESA (50 CFR §17.12).

- Listed[4] or candidates for listing by the State of California as threatened or endangered under CESA (Fish and Game Code §2050 *et seq.*). A species, subspecies, or variety of plant is **endangered** when the prospects of its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, disease, or other factors (Fish and Game Code §2062). A plant is **threatened** when it is likely to become endangered in the foreseeable future in the absence of special protection and management measures (Fish and Game Code §2067).

[3] Adapted from the East Alameda County Conservation Strategy available at http://www.fws.gov/sacramento/EACCS/Documents/080228_Species_Evaluation_EACCS.pdf

[4] Refer to current online published lists available at: http://www.dfg.ca.gov/biogeodata.

- Listed as rare under the California Native Plant Protection Act (Fish and Game Code §1900 *et seq*.). A plant is **rare** when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens (Fish and Game Code §1901).

- Meet the definition of rare or endangered under CEQA §15380(b) and (d). Species that may meet the definition of rare or endangered include the following:

  - Species considered by the California Native Plant Society (CNPS) to be "rare, threatened or endangered in California" (Lists 1A, 1B and 2);

  - Species that may warrant consideration on the basis of local significance or recent biological information[5];

  - Some species included on the California Natural Diversity Database's (CNDDB) *Special Plants, Bryophytes, and Lichens List* (California Department of Fish and Game 2008)[6].

- Considered a **locally significant species,** that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA §15125 (c)) or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G). Examples include a species at the outer limits of its known range or a species occurring on an uncommon soil type.

Special status natural communities are communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. These communities may or may not contain special status species or their habitat. The most current version of the Department's *List of California Terrestrial Natural Communities*[7] indicates which natural communities are of special status given the current state of the California classification.

Most types of wetlands and riparian communities are considered special status natural communities due to their limited distribution in California. These natural

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[5] In general, CNPS List 3 plants (plants about which more information is needed) and List 4 plants (plants of limited distribution) may not warrant consideration under CEQA §15380. These plants may be included on special status plant lists such as those developed by counties where they would be addressed under CEQA §15380. List 3 plants may be analyzed under CEQA §15380 if sufficient information is available to assess potential impacts to such plants. Factors such as regional rarity vs. statewide rarity should be considered in determining whether cumulative impacts to a List 4 plant are significant even if individual project impacts are not. List 3 and 4 plants are also included in the California Natural Diversity Database's (CNDDB) *Special Plants, Bryophytes, and Lichens List.* [Refer to the current online published list available at: http://www.dfg.ca.gov/biogeodata.] Data on Lists 3 and 4 plants should be submitted to CNDDB. Such data aids in determining or revising priority ranking.

[6] Refer to current online published lists available at: http://www.dfg.ca.gov/biogeodata.

[7] http://www.dfg.ca.gov/biogeodata/vegcamp/pdfs/natcomlist.pdf. The rare natural communities are asterisked on this list.

communities often contain special status plants such as those described above. These protocols may be used in conjunction with protocols formulated by other agencies, for example, those developed by the U.S. Army Corps of Engineers to delineate jurisdictional wetlands[8] or by the U.S. Fish and Wildlife Service to survey for the presence of special status plants[9].

BOTANICAL SURVEYS

Conduct botanical surveys prior to the commencement of any activities that may modify vegetation, such as clearing, mowing, or ground-breaking activities. It is appropriate to conduct a botanical field survey when:

- Natural (or naturalized) vegetation occurs on the site, and it is unknown if special status plant species or natural communities occur on the site, and the project has the potential for direct or indirect effects on vegetation; or

- Special status plants or natural communities have historically been identified on the project site; or

- Special status plants or natural communities occur on sites with similar physical and biological properties as the project site.

SURVEY OBJECTIVES

Conduct field surveys in a manner which maximizes the likelihood of locating special status plant species or special status natural communities that may be present. Surveys should be **floristic in nature**, meaning that every plant taxon that occurs on site is identified to the taxonomic level necessary to determine rarity and listing status. “Focused surveys” that are limited to habitats known to support special status species or are restricted to lists of likely potential species are not considered floristic in nature and are not adequate to identify all plant taxa on site to the level necessary to determine rarity and listing status. Include a list of plants and natural communities detected on the site for each botanical survey conducted. More than one field visit may be necessary to adequately capture the floristic diversity of a site. An indication of the prevalence (estimated total numbers, percent cover, density, etc.) of the species and communities on the site is also useful to assess the significance of a particular population.

[8] http://www.wetlands.com/regs/tlpge02e.htm

[9] U.S. Fish and Wildlife Service Survey Guidelines available at http://www.fws.gov/sacramento/es/survey-protocols-guidelines/es_survey.htm

SURVEY PREPARATION

Before field surveys are conducted, compile relevant botanical information in the general project area to provide a regional context for the investigators. Consult the CNDDB[10] and BIOS[11] for known occurrences of special status plants and natural communities in the project area prior to field surveys. Generally, identify vegetation and habitat types potentially occurring in the project area based on biological and physical properties of the site and surrounding ecoregion[12], unless a larger assessment area is appropriate. Then, develop a list of special status plants with the potential to occur within these vegetation types. This list can serve as a tool for the investigators and facilitate the use of reference sites; however, special status plants on site might not be limited to those on the list. Field surveys and subsequent reporting should be comprehensive and floristic in nature and not restricted to or focused only on this list. Include in the survey report the list of potential special status species and natural communities, and the list of references used to compile the background botanical information for the site.

SURVEY EXTENT

Surveys should be comprehensive over the entire site, including areas that will be directly or indirectly impacted by the project. Adjoining properties should also be surveyed where direct or indirect project effects, such as those from fuel modification or herbicide application, could potentially extend offsite. Pre-project surveys restricted to known CNDDB rare plant locations may not identify all special status plants and communities present and do not provide a sufficient level of information to determine potential impacts.

FIELD SURVEY METHOD

Conduct surveys using **systematic field techniques** in all habitats of the site to ensure thorough coverage of potential impact areas. The level of effort required per given area and habitat is dependent upon the vegetation and its overall diversity and structural complexity, which determines the distance at which plants can be identified. Conduct surveys by walking over the entire site to ensure thorough coverage, noting all plant taxa observed. The level of effort should be sufficient to provide comprehensive reporting. For example, one person-hour per eight acres per survey date is needed for a comprehensive field survey in grassland with medium diversity and moderate terrain[13], with additional time allocated for species identification.

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[10] Available at http://www.dfg.ca.gov/biogeodata/cnddb

[11] http://www.bios.dfg.ca.gov/

[12] Ecological Subregions of California, available at http://www.fs.fed.us/r5/projects/ecoregions/toc.htm

[13] Adapted from U.S. Fish and Wildlife Service kit fox survey guidelines available at http://www.fws.gov/sacramento/es/survey-protocols-guidelines/es_survey.htm

TIMING AND NUMBER OF VISITS

Conduct surveys in the field at the time of year when species are both evident and identifiable. Usually this is during flowering or fruiting. Space visits throughout the growing season to accurately determine what plants exist on site. Many times this may involve multiple visits to the same site (e.g. in early, mid, and late-season for flowering plants) to capture the floristic diversity at a level necessary to determine if special status plants are present[14]. The timing and number of visits are determined by geographic location, the natural communities present, and the weather patterns of the year(s) in which the surveys are conducted.

REFERENCE SITES

When special status plants are known to occur in the type(s) of habitat present in the project area, observe reference sites (nearby accessible occurrences of the plants) to determine whether those species are identifiable at the time of the survey and to obtain a visual image of the target species, associated habitat, and associated natural community.

USE OF EXISTING SURVEYS

For some sites, floristic inventories or special status plant surveys may already exist. Additional surveys may be necessary for the following reasons:

- Surveys are not current[15]; or
- Surveys were conducted in natural systems that commonly experience year to year fluctuations such as periods of drought or flooding (e.g. vernal pool habitats or riverine systems); or
- Surveys are not comprehensive in nature; or fire history, land use, physical conditions of the site, or climatic conditions have changed since the last survey was conducted[16]; or
- Surveys were conducted in natural systems where special status plants may not be observed if an annual above ground phase is not visible (e.g. flowers from a bulb); or

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[14] U.S. Fish and Wildlife Service Survey Guidelines available at http://www.fws.gov/sacramento/es/survey-protocols-guidelines/es_survey.htm

[15] Habitats, such as grasslands or desert plant communities that have annual and short-lived perennial plants as major floristic components may require yearly surveys to accurately document baseline conditions for purposes of impact assessment. In forested areas, however, surveys at intervals of five years may adequately represent current conditions. For forested areas, refer to "Guidelines for Conservation of Sensitive Plant Resources Within the Timber Harvest Review Process and During Timber Harvesting Operations", available at https://r1.dfg.ca.gov/Portal/LinkClick.aspx?fileticket=iPKkfYqe5i0=&tabid=949

[16] U.S. Fish and Wildlife Service Survey Guidelines available at http://www.fws.gov/sacramento/es/survey-protocols-guidelines/es_survey.htm

- Changes in vegetation or species distribution may have occurred since the last survey was conducted, due to habitat alteration, fluctuations in species abundance and/or seed bank dynamics.

NEGATIVE SURVEYS

Adverse conditions may prevent investigators from determining the presence of, or accurately identifying, some species in potential habitat of target species. Disease, drought, predation, or herbivory may preclude the presence or identification of target species in any given year. Discuss such conditions in the report.

The failure to locate a known special status plant occurrence during one field season does not constitute evidence that this plant occurrence no longer exists at this location, particularly if adverse conditions are present. For example, surveys over a number of years may be necessary if the species is an annual plant having a persistent, long-lived seed bank and is known not to germinate every year. Visits to the site in more than one year increase the likelihood of detection of a special status plant especially if conditions change. To further substantiate negative findings for a known occurrence, a visit to a nearby reference site may ensure that the timing of the survey was appropriate.

REPORTING AND DATA COLLECTION

Adequate information about special status plants and natural communities present in a project area will enable reviewing agencies and the public to effectively assess potential impacts to special status plants or natural communities[17] and will guide the development of minimization and mitigation measures. The next section describes necessary information to assess impacts. For comprehensive, systematic surveys where no special status species or natural communities were found, reporting and data collection responsibilities for investigators remain as described below, excluding specific occurrence information.

SPECIAL STATUS PLANT OR NATURAL COMMUNITY OBSERVATIONS

Record the following information for locations of each special status plant or natural community detected during a field survey of a project site.

[17] Refer to current online published lists available at: http://www.dfg.ca.gov/biogeodata. For Timber Harvest Plans (THPs) please refer to the "Guidelines for Conservation of Sensitive Plant Resources Within the Timber Harvest Review Process and During Timber Harvesting Operations", available at https://r1.dfg.ca.gov/Portal/LinkClick.aspx?fileticket=iPKkfYqe5i0=&tabid=949

- A detailed map (1:24,000 or larger) showing locations and boundaries of each special status species occurrence or natural community found as related to the proposed project. Mark occurrences and boundaries as accurately as possible. Locations documented by use of global positioning system (GPS) coordinates must include the datum[18] in which they were collected;

- The site-specific characteristics of occurrences, such as associated species, habitat and microhabitat, structure of vegetation, topographic features, soil type, texture, and soil parent material. If the species is associated with a wetland, provide a description of the direction of flow and integrity of surface or subsurface hydrology and adjacent off-site hydrological influences as appropriate;

- The number of individuals in each special status plant population as counted (if population is small) or estimated (if population is large);

- If applicable, information about the percentage of individuals in each life stage such as seedlings vs. reproductive individuals;

- The number of individuals of the species per unit area, identifying areas of relatively high, medium and low density of the species over the project site; and

- Digital images of the target species and representative habitats to support information and descriptions.

FIELD SURVEY FORMS

When a special status plant or natural community is located, complete and submit to the CNDDB a California Native Species (or Community) Field Survey Form[19] or equivalent written report, accompanied by a copy of the relevant portion of a 7.5 minute topographic map with the occurrence mapped. Present locations documented by use of GPS coordinates in map and digital form. Data submitted in digital form must include the datum[20] in which it was collected. If a potentially undescribed special status natural community is found on the site, document it with a Rapid Assessment or Relevé form[21] and submit it with the CNDDB form.

[18] NAD83, NAD27 or WGS84
[19] http://www.dfg.ca.gov/biogeodata
[20] NAD83, NAD27 or WGS84
[21] http://www.dfg.ca.gov/biogeodata/vegcamp/veg_publications_protocols.asp

VOUCHER COLLECTION

Voucher specimens provide verifiable documentation of species presence and identification as well as a public record of conditions. This information is vital to all conservation efforts. Collection of voucher specimens should be conducted in a manner that is consistent with conservation ethics, and is in accordance with applicable state and federal permit requirements (e.g. incidental take permit, scientific collection permit). Voucher collections of special status species (or suspected special status species) should be made only when such actions would not jeopardize the continued existence of the population or species.

Deposit voucher specimens with an indexed regional herbarium[22] no later than 60 days after the collections have been made. Digital imagery can be used to supplement plant identification and document habitat. Record all relevant permittee names and permit numbers on specimen labels. A collecting permit is required prior to the collection of State-listed plant species[23].

BOTANICAL SURVEY REPORTS

Include reports of botanical field surveys containing the following information with project environmental documents:

- **Project and site description**
  - o A description of the proposed project;
  - o A detailed map of the project location and study area that identifies topographic and landscape features and includes a north arrow and bar scale; and,
  - o A written description of the biological setting, including vegetation[24] and structure of the vegetation; geological and hydrological characteristics; and land use or management history.

[22] For a complete list of indexed herbaria, see: Holmgren, P., N. Holmgren and L. Barnett. 1990. Index Herbariorum, Part 1: Herbaria of the World. New York Botanic Garden, Bronx, New York. 693 pp. Or: http://www.nybg.org/bsci/ih/ih.html

[23] Refer to current online published lists available at: http://www.dfg.ca.gov/biogeodata.

[24] A vegetation map that uses the National Vegetation Classification System (http://biology.usgs.gov/npsveg/nvcs.html), for example *A Manual of California Vegetation*, and highlights any special status natural communities. If another vegetation classification system is used, the report should reference the system, provide the reason for its use, and provide a crosswalk to the National Vegetation Classification System.

- **Detailed description of survey methodology and results**

  - Dates of field surveys (indicating which areas were surveyed on which dates), name of field investigator(s), and total person-hours spent on field surveys;

  - A discussion of how the timing of the surveys affects the comprehensiveness of the survey;

  - A list of potential special status species or natural communities;

  - A description of the area surveyed relative to the project area;

  - References cited, persons contacted, and herbaria visited;

  - Description of reference site(s), if visited, and phenological development of special status plant(s);

  - A list of all taxa occurring on the project site. Identify plants to the taxonomic level necessary to determine whether or not they are a special status species;

  - Any use of existing surveys and a discussion of applicability to this project;

  - A discussion of the potential for a false negative survey;

  - Provide detailed data and maps for all special plants detected. Information specified above under the headings “Special Status Plant or Natural Community Observations,” and “Field Survey Forms,” should be provided for locations of each special status plant detected;

  - Copies of all California Native Species Field Survey Forms or Natural Community Field Survey Forms should be sent to the CNDDB and included in the environmental document as an Appendix. It is not necessary to submit entire environmental documents to the CNDDB; and,

  - The location of voucher specimens, if collected.

- **Assessment of potential impacts**

  - A discussion of the significance of special status plant populations in the project area considering nearby populations and total species distribution;

  - A discussion of the significance of special status natural communities in the project area considering nearby occurrences and natural community distribution;

- A discussion of direct, indirect, and cumulative impacts to the plants and natural communities;
- A discussion of threats, including those from invasive species, to the plants and natural communities;
- A discussion of the degree of impact, if any, of the proposed project on unoccupied, potential habitat of the species;
- A discussion of the immediacy of potential impacts; and,
- Recommended measures to avoid, minimize, or mitigate impacts.

QUALIFICATIONS

Botanical consultants should possess the following qualifications:

- Knowledge of plant taxonomy and natural community ecology;
- Familiarity with the plants of the area, including special status species;
- Familiarity with natural communities of the area, including special status natural communities;
- Experience conducting floristic field surveys or experience with floristic surveys conducted under the direction of an experienced surveyor;
- Familiarity with the appropriate state and federal statutes related to plants and plant collecting; and,
- Experience with analyzing impacts of development on native plant species and natural communities.

SUGGESTED REFERENCES

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APPENDIX D

Procedure for the Programmatic Evaluation of Paleontological Resources for the Fish Habitat Restoration Project

There shall be three phases to the process of investigating paleontological resources: 1) project initiation where basic data will be compiled, reviewed and sorted to determine the next steps that need to be taken on any given project; 2) evaluation of individual projects that may encounter paleontological resources; and 3) mitigation planning to develop mitigation strategies for projects that have identified paleontological resources. The three phases are summarized below.

Project Initiation

The logistics and time needs for conducting paleontological evaluations shall be assessed in the project initiation phase. The guidelines outlined below will facilitate rapid evaluation of individual projects and ensure cooperation among evaluators, pertinent agencies, and landowners. Landowner cooperation is through property access and local area information. The evaluation procedure generally follows standards implemented by other agencies conducting ground disturbance activities such as CalTrans.

Evaluation of the likelihood of encountering paleontological resources and land management issues shall be assessed by adhering to the following guidelines and the corresponding actions:

1. If the project does not involve ground disturbing work, then a negative declaration report shall be prepared.

2. If the project involves ground disturbing work and there is no likelihood of encountering paleontological resources, then a negative declaration report shall be prepared. However, if there is a likelihood of encountering paleontological resources at the project site, then the evaluator schedules a field investigation by contacting the CDFW grant manager and having them arrange landowner access for the paleontological resource field staff; and if necessary, arrange a meeting with the landowners and the paleontological resources investigation field staff.

3. If the project involves land administered by the US Forest Service, the Bureau of Land Management, the National Park Service, the US Army Corps of Engineers, the Native American tribal lands, or the California Department of Parks and Recreation, then the paleontology report containing site forms, site significance, and mitigation measures shall be coordinated with the involved entities. However, if those agencies are not involved, then the paleontology report with all pertinent information (site forms, site significance, mitigation measures or negative declarations) will be provided to the CDFW and to the CDFW grant manager

Individual Project Evaluation
The appropriate regional archaeological information center shall be contacted for a record search and the Native American Heritage Commission shall also be contacted for a Sacred Lands File Check. If paleontological resources are likely to be present, then qualified staff shall evaluate the paleontological resources in coordination with any affected agencies including any affected Native American tribe. If paleontological resources are present, then the evaluator will (1) delineate the extent and type of resources present, (2) discuss any issues with pertinent agencies, Native American tribes, project managers, and local experts with regards to potential mitigation planning, and (3) develop a mitigation plan designed to protect sensitive paleontological resources. However, if no resources are present, then a negative declaration report shall be prepared.

Mitigation Planning
Mitigation plans shall be developed to avoid or lessen impacts to the resource if paleontological resources are discovered at any project site. These mitigation plans shall be consistent with current mitigation strategies employed by other entities conducting CEQA investigations. The initial investigation report, along with mitigation recommendations, shall be compiled and delivered to the appropriate CDFW grant/contract manager and the project manager of the proposed project in question. Minimum report elements shall include:

1) Project description and location.
2) Results of the investigation.
3) Mitigation recommendations and plans.
4) Maps depicting project location and paleontological resource locations.

APPENDIX E

Procedure for the Programmatic Evaluation of
Archeological Resources for the Fish Habitat Restoration Project

Cultural resource investigations are used to identify archaeological resources in the California Department of Fish and Wildlife's (CDFW) funded action items Fish Habitat Restoration (FHR) 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 action items, an intensive archaeological field survey that covers the entire project area will be completed.

The California Office of Historical Preservation has established regional information centers as local repositories for all archaeological reports that are prepared under cultural resource management regulations. For each of the action items, 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 action items 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.