

Big Rock Creek Riparian and Coho Habitat Enhancement Project

2016

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

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

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

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

Project Description:

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

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

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

Tasks:

- Task 1: Review, approve, and secure the Agreement and Subcontracts associated with this project.
- Task 2: Monthly reporting will include associated bookkeeping tasks and record keeping, project status update and monitoring reports.
- Task 3: Submit a Notification of Lake or Streambed Alteration to CDFW.
- Task 4: The Project Manager will schedule site visits and serve as guide for rare plant and archaeological surveys as required for California Environmental Quality Act (CEQA) compliance.
- Task 5: The Project Manager will solicit bids for the General Engineering Subcontractor. The Project Manager and the Conservation Program

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

- Task 6: The Solar Subcontractor will order and secure the parts and install the solar powered system to deliver water to the storage tank.
- Task 7: Draft and finalize subcontracts with Solar Subcontractor, Fencing Subcontractor and General Engineering Subcontractor.
- Task 8: Send the Notice to Proceed to the Solar Subcontractor, the Fencing Subcontractor and the General Engineering Subcontractor once approved by CDFW.
- Task 9: The Fencing Subcontractor will install the fence, water gaps, and gates on both sides of Big Rock Creek. Riparian fencing will be installed according to specifications published by the Natural Resources Conservation Service (NRCS) and CDFW which include set back of at least 35 feet from stream bank, and wildlife friendly top/bottom wires at defined heights to allow for safe passage. Fence corners and H-braces will be prefabricated units set in the ground with Post-crete. A pneumatic driver is necessary to install the 10-foot posts. Water gaps, where the fence crosses the creek, at the upstream and downstream ends of the treatment reach will follow a design approved by CDFW.

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

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

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

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

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

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

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

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

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

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

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

Deliverables: The project will include the following deliverables:

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

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

2016

July - August

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

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

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

October - December

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

2017

January - October

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

November - December

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

2018

January - April

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

May - October

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

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2016

November - December

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

2019

January - March

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

Additional Requirements:

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

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

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). When transporting traps out of the area, each numbered trap will be bagged in its own bag to avoid cross contamination during transport in and out of the work area. All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

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

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

The Grantee/landowner will maintain the livestock exclusion fence(s) for a period of 10 years and totally exclude livestock from the riparian zone. Maintenance will include repair of fences to a level that will effectively exclude livestock from the livestock exclusion project area. Maintenance will not include damage that exceeds 50 percent of the fence due to natural disaster.

California Department of Fish and Wildlife

Natural Diversity Database

Selected Elements by Common Name - Portrait

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

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 American badger <i>Taxidea taxus</i>	AMAJF04010			G5	S3	SC
2 Baker's meadowfoam <i>Limnanthes bakeri</i>	PDLIM02020		Rare	G1	S1	1B.1
3 Baker's navarretia <i>Navarretia leucocephala ssp. bakeri</i>	PDPLM0C0E1			G4T2	S2	1B.1
4 California floater <i>Anodonta californiensis</i>	IMBIV04020			G3Q	S2?	
5 Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
6 Crotch bumble bee <i>Bombus crotchii</i>	IHYM24480			G3G4	S1S2	
7 Humboldt milk-vetch <i>Astragalus agnicidus</i>	PDFAB0F080		Endangered	G3	S3	1B.1
8 Kellogg's buckwheat <i>Eriogonum kelloggii</i>	PDPGN083A0	Candidate	Endangered	G2	S2	1B.2
9 Konocti manzanita <i>Arctostaphylos manzanita ssp. elegans</i>	PDERI04271			G5T3	S3	1B.3
10 Methuselah's beard lichen <i>Usnea longissima</i>	NLLEC5P420			G4	S4	4.2
11 Milo Baker's lupine <i>Lupinus milo-bakeri</i>	PDFAB2B4E0		Threatened	G1Q	S1	1B.1
12 North Central Coast Fall-Run Steelhead Stream	CARA2631CA			GNR	SNR	
13 North Coast semaphore grass <i>Pleuropogon hooverianus</i>	PMPOA4Y070		Threatened	G2	S2	1B.1
14 Nuttall's ribbon-leaved pondweed <i>Potamogeton epihydrus</i>	PMPOT03080			G5	S2S3	2B.2
15 Oregon goldthread <i>Coptis laciniata</i>	PDRAN0A020			G4	S3	4.2
16 Pacific lamprey <i>Entosphenus tridentatus</i>	AFBAA02100			G4	S4	SC
17 Pacific tailed frog <i>Ascaphus truei</i>	AAABA01010			G4	S3S4	SC
18 Raiche's manzanita <i>Arctostaphylos stanfordiana ssp. raichei</i>	PDERI041G2			G3T1	S1	1B.1
19 Red Mountain catchfly <i>Silene campanulata ssp. campanulata</i>	PDCAR0U0A2		Endangered	G5T3Q	S3	4.2
20 Sonoma tree vole <i>Arborimus pomo</i>	AMAFF23030			G3	S3	SC
21 Townsend's big-eared bat <i>Corynorhinus townsendii</i>	AMACC08010		Candidate Threatened	G3G4	S2	SC
22 Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
23 Vine Hill ceanothus <i>Ceanothus foliosus var. vineatus</i>	PDRHA040D6			G3T1	S1	1B.1

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Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24 angel's hair lichen <i>Ramalina thrausta</i>	NLLEC3S340			G5	S2?	2B.1
25 coast fawn lily <i>Erythronium revolutum</i>	PMLIL0U0F0			G4	S3	2B.2
26 coho salmon - central California coast ESU <i>Oncorhynchus kisutch</i>	AFCHA02034	Endangered	Endangered	G4	S2?	
27 dark-eyed gilia <i>Gilia millefoliata</i>	PDPLM04130			G2	S2	1B.2
28 fisher - West Coast DPS <i>Pekania pennanti</i>	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
29 foothill yellow-legged frog <i>Rana boylei</i>	AAABH01050			G3	S3	SC
30 grass alisma <i>Alisma gramineum</i>	PMALI01010			G5	S3?	2B.2
31 hoary bat <i>Lasiurus cinereus</i>	AMACC05030			G5	S4	
32 leafy-stemmed mitrewort <i>Mitellastrum caulescens</i>	PDSAX0N020			G5	S4	4.2
33 maple-leaved checkerbloom <i>Sidalcea malachroides</i>	PDMAL110E0			G3	S3	4.2
34 northern goshawk <i>Accipiter gentilis</i>	ABNKC12060			G5	S3	SC
35 obscure bumble bee <i>Bombus caliginosus</i>	IHYM24380			G4?	S1S2	
36 oval-leaved viburnum <i>Viburnum ellipticum</i>	PDCPR07080			G4G5	S3?	2B.3
37 purple martin <i>Progne subis</i>	ABPAU01010			G5	S3	SC
38 robust false lupine <i>Thermopsis robusta</i>	PDFAB3Z0D0			G2	S2	1B.2
39 southern torrent salamander <i>Rhyacotriton variegatus</i>	AAAAJ01020			G3G4	S2S3	SC
40 steelhead - northern California DPS <i>Oncorhynchus mykiss irideus</i>	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	
41 swamp harebell <i>Campanula californica</i>	PDCAM02060			G3	S3	1B.2
42 tidewater goby <i>Eucyclogobius newberryi</i>	AFCQN04010	Endangered		G3	S3	SC
43 watershield <i>Brasenia schreberi</i>	PDCAB01010			G5	S3	2B.3
44 western pearlshell <i>Margaritifera falcata</i>	IMBIV27020			G4G5	S1S2	
45 western pond turtle <i>Emys marmorata</i>	ARAAD02030			G3G4	S3	SC

California Department of Fish and Wildlife

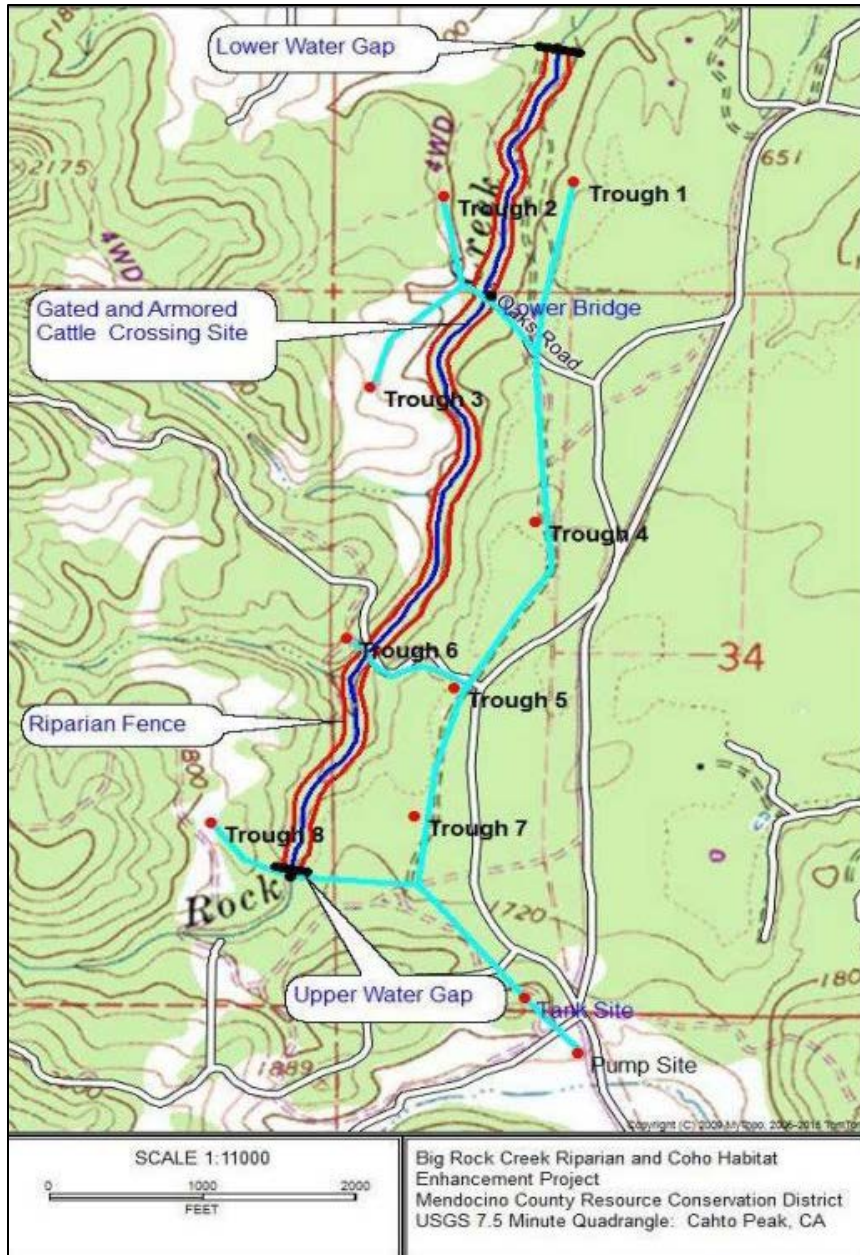
Natural Diversity Database

Selected Elements by Common Name - Portrait

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

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

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



Noyo Headwaters Instream Habitat Enhancement Project

2016

Introduction:

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

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

Objective(s):

The specific objective of this project is to create 30 instream features consisting of 70 pieces of LWD within a 3,389-foot section of Noyo River and a 491-foot section of Burbeck Creek. The addition of these structures will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels, increasing the quality and quantity of rearing habitat within the project reach, and by providing velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids.

Project Description:

Location:

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

Project Set Up:

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

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

Materials:

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

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

Tasks:

Task 1. Install Instream Habitat Features:

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

- Approximately 30 logs will be created through the felling of 15 nearby trees using a chainsaw. Approximately 40 logs will be salvaged from nearby areas and placed in the creek with a rubber-tired tractor (equipment) or CCC crews. Trees will be felled directly into the stream channel or away from the channel and delivered and placed with a rubber-tired tractor. CCC crews will provide assistance at some sites to relocate and/or reposition logs to optimize placement in areas where equipment cannot access the stream. Salvage logs may be transported to the site from cull piles 3.25 miles distant.
- Heavy equipment and hand labor crewmembers will construct instream log structures according to the site-specific plans to be provided, using locally available logs or logs from other locations.
- Nuts, washers, plates, cable, glue and rebar will be ordered as applicable.
- Location of all project LWD will be documented.
- Various anchoring techniques, which will be approved by the Grantor Project Manager prior to the initiation of work, may be used to hold multiple logs together to form complex structures. Anchoring techniques will include wedging logs into existing rocks and logs along the riparian banks; anchoring to live mature trees growing on riparian banks; or anchoring to existing boulders and bedrock. Anchoring

materials will consist of 1" threaded rebar, cable, nuts and washers, and waterproof epoxy.

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

Task 2. Erosion Control:

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

Deliverables:

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

Timelines:

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

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

Additional Requirements:

The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured and a "notice to proceed" letter has been received from the Grantor Project Manager. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

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

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

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

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

California Department of Fish and Game

Natural Diversity Database

Selected Elements by Common Name - Portrait

Possible species within the Burbeck Quad and surrounding quads for Noyo Headwaters Instream Habitat Enhancement Project, T18N R14W S17, Mendocino County

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 American badger <i>Taxidea taxus</i>	AMAJF04010			G5	S3	SC
2 Baker's meadowfoam <i>Limnanthes bakeri</i>	PDLIM02020		Rare	G1	S1	1B.1
3 Baker's navarretia <i>Navarretia leucocephala ssp. bakeri</i>	PDPLM0C0E1			G4T2	S2	1B.1
4 Behren's silverspot butterfly <i>Speyeria zerene behrensii</i>	IILEPJ6088	Endangered		G5T1	S1	
5 Humboldt milk-vetch <i>Astragalus agnicidus</i>	PDFAB0F080		Endangered	G3	S3	1B.1
6 Milo Baker's lupine <i>Lupinus milo-bakeri</i>	PDFAB2B4E0		Threatened	G1Q	S1	1B.1
7 North Coast semaphore grass <i>Pleuropogon hooverianus</i>	PMPOA4Y070		Threatened	G2	S2	1B.1
8 Nuttall's ribbon-leaved pondweed <i>Potamogeton epihydrus</i>	PMPOT03080			G5	S2S3	2B.2
9 Oregon goldthread <i>Coptis laciniata</i>	PDRAN0A020			G4	S3	4.2
10 Pacific gilia <i>Gilia capitata ssp. pacifica</i>	PDPLM040B6			G5T3T4	S2	1B.2
11 Pacific tailed frog <i>Ascaphus truei</i>	AAABA01010			G4	S3S4	SC
12 Roderick's fritillary <i>Fritillaria roderickii</i>	PMLILOV0M0		Endangered	G1Q	S1	1B.1
13 Sonoma tree vole <i>Arborimus pomo</i>	AMAFF23030			G3	S3	SC
14 Valley Oak Woodland	CTT71130CA			G3	S2.1	
15 angel's hair lichen <i>Ramalina thrausta</i>	NLLEC3S340			G5	S2?	2B.1
16 coast fawn lily <i>Erythronium revolutum</i>	PMLILOU0F0			G4	S3	2B.2
17 coho salmon - central California coast ESU <i>Oncorhynchus kisutch</i>	AFCHA02034	Endangered	Endangered	G4	S2?	
18 fisher - West Coast DPS <i>Pekania pennanti</i>	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
19 foothill yellow-legged frog <i>Rana boylei</i>	AAABH01050			G3	S3	SC
20 glandular western flax <i>Hesperolinon adenophyllum</i>	PDLIN01010			G3	S3	1B.2
21 grass alisma <i>Alisma gramineum</i>	PMALI01010			G5	S3?	2B.2
22 hoary bat <i>Lasiurus cinereus</i>	AMACC05030			G5	S4	
23 maple-leaved checkerbloom <i>Sidalcea malachroides</i>	PDMAL110E0			G3	S3	4.2

California Department of Fish and Game

Natural Diversity Database

Selected Elements by Common Name - Portrait

Possible species within the Burbeck Quad and surrounding quads for Noyo Headwaters Instream Habitat Enhancement Project, T18N R14W S17, Mendocino County

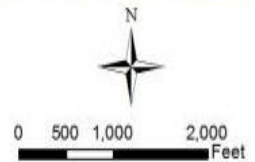
Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24 marbled murrelet <i>Brachyramphus marmoratus</i>	ABNNN06010	Threatened	Endangered	G3G4	S1	
25 northern goshawk <i>Accipiter gentilis</i>	ABNKC12060			G5	S3	SC
26 northern red-legged frog <i>Rana aurora</i>	AAABH01021			G4	S2?	SC
27 northern spotted owl <i>Strix occidentalis caurina</i>	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
28 obscure bumble bee <i>Bombus caliginosus</i>	IIHYM24380			G4?	S1S2	
29 sharp-shinned hawk <i>Accipiter striatus</i>	ABNKC12020			G5	S4	
30 southern torrent salamander <i>Rhyacotriton variegatus</i>	AAAAJ01020			G3G4	S2S3	SC
31 steelhead - northern California DPS <i>Oncorhynchus mykiss irideus</i>	AFCHA0209Q	Threatened		G5T2T3Q	S2S3	
32 thin-lobed horkelia <i>Horkelia tenuiloba</i>	PDROS0W0E0			G2	S2	1B.2
33 tricolored blackbird <i>Agelaius tricolor</i>	ABPBXB0020			G2G3	S1S2	SC
34 watershield <i>Brasenia schreberi</i>	PDCAB01010			G5	S3	2B.3
35 western pond turtle <i>Emys marmorata</i>	ARAAD02030			G3G4	S3	SC
36 white-flowered rein orchid <i>Piperia candida</i>	PMORC1X050			G3	S3	1B.2
37 yellow warbler <i>Setophaga petechia</i>	ABPBX03010			G5	S3S4	SC
38 yellow-breasted chat <i>Icteria virens</i>	ABPBX24010			G5	S3	SC

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



- Burbeck Creek Reach
- Upper Noyo Reach

Mendocino Land Trust
Upper Noyo River/Burbeck Creek Large Wood Enhancement Project
Burbeck Quad, Mendocino County



Introduction:

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

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

Objective(s):

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

Project Description:

Location:

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

Project Set Up:

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

Materials:

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

Tasks:

Task 1. Accessing Project Site and Material Salvaging:

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

Task 2. Bedrock Cascade Modification:

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

Task 3. Construction of Rock Bank Weirs:

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

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

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

Deliverables:

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

Timelines:

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

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

Additional Requirements:

The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured and a “notice to proceed” letter has been received from the Grantor Project Manager. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

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

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

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

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

- Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
- The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the Grantor Project Manager and pursuant to conditions in the USACE Regional General Permit, NMFS Biological Opinion, and project’s Lake and Streambed Alteration Agreement (1600 permit).

- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.
- Only qualified fisheries biologist that are approved by USFWS and permitted by CDFW under a California Endangered Species Act (CESA) Memorandum of Understanding (MOU) shall handle and relocate CESA listed species.
- All electrofishing shall be performed by a qualified fisheries biologist under the supervision of CDFW and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
- USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the Grantor Project Manager on a form provided by Grantor.

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

Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

California Department of Fish and Game

Natural Diversity Database

Selected Elements by Common Name - Portrait

Possible species within the Comptche Quad and surrounding quads for James Creek Fish Barrier Modification Project, T17N R15W S02, Mendocino County

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 American peregrine falcon <i>Falco peregrinus anatum</i>	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
2 Behren's silverspot butterfly <i>Speyeria zerene behrensii</i>	IILEPJ6088	Endangered		G5T1	S1	
3 Blasdale's bent grass <i>Agrostis blasdalei</i>	PMPOA04060			G2	S2	1B.2
4 Bolander's beach pine <i>Pinus contorta ssp. bolanderi</i>	PGPIN04081			G5T2	S2	1B.2
5 California red-legged frog <i>Rana draytonii</i>	AAABH01022	Threatened		G2G3	S2S3	SC
6 California sedge <i>Carex californica</i>	PMCYP032D0			G5	S2	2B.3
7 Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
8 Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
9 Grand Fir Forest	CTT82120CA			G1	S1.1	
10 Humboldt milk-vetch <i>Astragalus agnicidus</i>	PDFAB0F080		Endangered	G3	S3	1B.1
11 Lyngbye's sedge <i>Carex lyngbyei</i>	PMCYP037Y0			G5	S2	2B.2
12 Mendocino Coast paintbrush <i>Castilleja mendocinensis</i>	PDSCR0D3N0			G2	S2	1B.2
13 Mendocino Pygmy Cypress Forest	CTT83161CA			G2	S2.1	
14 Mendocino leptonetid spider <i>Calileptoneta wapiti</i>	ILARAU6040			G1	S1	
15 Methuselah's beard lichen <i>Usnea longissima</i>	NLLEC5P420			G4	S4	4.2
16 Monterey clover <i>Trifolium trichocalyx</i>	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
17 Navarro roach <i>Lavinia symmetricus navarroensis</i>	AFCJB19023			G4T1T2	S1S2	SC
18 North Coast semaphore grass <i>Pleuropogon hooverianus</i>	PMPOA4Y070		Threatened	G2	S2	1B.1
19 Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
20 Oregon goldthread <i>Coptis laciniata</i>	PDRAN0A020			G4	S3	4.2
21 Pacific gilia <i>Gilia capitata ssp. pacifica</i>	PDPLM040B6			G5T3T4	S2	1B.2
22 Pacific tailed frog <i>Ascaphus truei</i>	AAABA01010			G4	S3S4	SC
23 Point Reyes checkerbloom <i>Sidalcea calycosa ssp. rhizomata</i>	PDMAL11012			G5T2	S2	1B.2
24 Point Reyes horkelia <i>Horkelia marinensis</i>	PDROS0W0B0			G2	S2	1B.2

California Department of Fish and Game

Natural Diversity Database

Selected Elements by Common Name - Portrait

Possible species within the Comptche Quad and surrounding quads for James Creek Fish Barrier Modification Project, T17N R15W S02, Mendocino County

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

California Department of Fish and Game

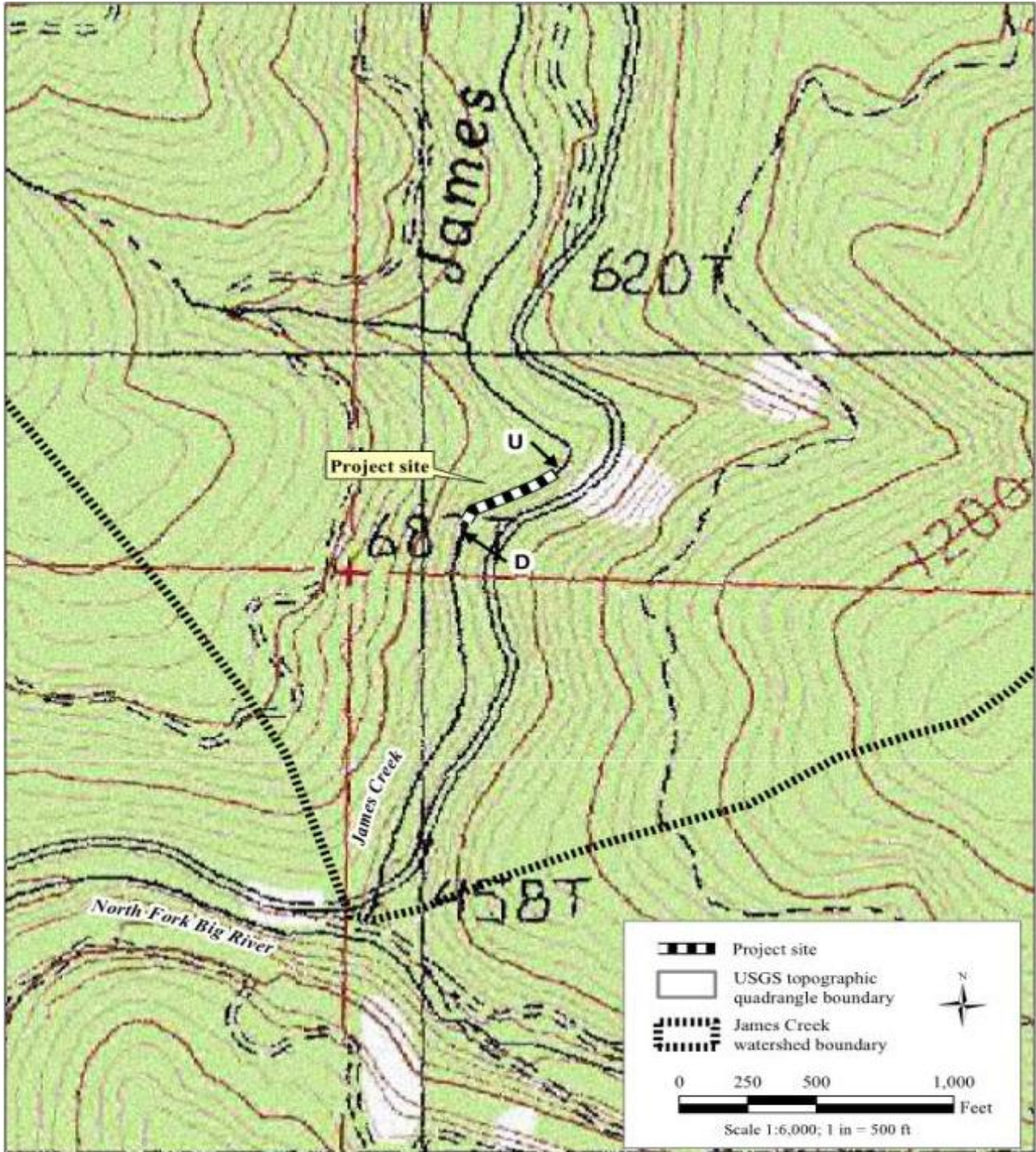
Natural Diversity Database

Selected Elements by Common Name - Portrait

Possible species within the Comptche Quad and surrounding quads for James Creek Fish Barrier Modification Project, T17N R15W S02, Mendocino County

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

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



Introduction:

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

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

Objective(s):

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

Project Description:

Location:

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

Project Set Up:

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

Materials:

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

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

Tasks:

Bridge Installation:

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

Erosion Control:

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

Deliverables:

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

Timelines:

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

Additional Requirements:

The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured and a “notice to proceed” letter has been received from the Grantor Project Manager. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual project start and end dates, within this timeframe, are at the discretion of the Grantor.

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

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

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

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

- Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
- The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the Grantor Project Manager and pursuant to conditions in the USACE Regional General Permit, NMFS Biological Opinion, and project’s Lake and Streambed Alteration Agreement (1600 permit).

- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.
- Only qualified fisheries biologist that are approved by USFWS and permitted by CDFW under a California Endangered Species Act (CESA) Memorandum of Understanding (MOU) shall handle and relocate CESA listed species.
- All electrofishing shall be performed by a qualified fisheries biologist under the supervision of CDFW and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
- USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the Grantor Project Manager on a form provided by Grantor.

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

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

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

Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings.

California Department of Fish and Game

Natural Diversity Database

Selected Elements by Common Name - Portrait

Possible species within the Lincoln Ridge Quad and surrounding quads for Kenny Creek Fish Passage Improvement Project, T21N R16W S22, Mendocino County

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 American badger <i>Taxidea taxus</i>	AMAJF04010			G5	S3	SC
2 Baker's navarretia <i>Navarretia leucocephala ssp. bakeri</i>	PDPLM0C0E1			G4T2	S2	1B.1
3 Blasdale's bent grass <i>Agrostis blasdalei</i>	PMPOA04060			G2	S2	1B.2
4 California floater <i>Anodonta californiensis</i>	IMBIV04020			G3Q	S2?	
5 Coastal Brackish Marsh	CTT52200CA			G2	S2.1	
6 Coastal and Valley Freshwater Marsh	CTT52410CA			G3	S2.1	
7 Crotch bumble bee <i>Bombus crotchii</i>	IIHYM24480			G3G4	S1S2	
8 Fen	CTT51200CA			G2	S1.2	
9 Grand Fir Forest	CTT82120CA			G1	S1.1	
10 Howell's spineflower <i>Chorizanthe howellii</i>	PDPGN040C0	Endangered	Threatened	G1	S1	1B.2
11 Humboldt milk-vetch <i>Astragalus agnicidus</i>	PDFAB0F080		Endangered	G3	S3	1B.1
12 Kellogg's buckwheat <i>Eriogonum kelloggii</i>	PDPGN083A0	Candidate	Endangered	G2	S2	1B.2
13 Konocti manzanita <i>Arctostaphylos manzanita ssp. elegans</i>	PDERI04271			G5T3	S3	1B.3
14 Lyngbye's sedge <i>Carex lyngbyei</i>	PMCYP037Y0			G5	S2	2B.2
15 Mendocino Coast paintbrush <i>Castilleja mendocinensis</i>	PDSCR0D3N0			G2	S2	1B.2
16 Menzies' wallflower <i>Erysimum menziesii</i>	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
17 Methuselah's beard lichen <i>Usnea longissima</i>	NLLEC5P420			G4	S4	4.2
18 North Central Coast Fall-Run Steelhead Stream	CARA2631CA			GNR	SNR	
19 North Coast phacelia <i>Phacelia insularis var. continentis</i>	PDHYD0C2B1			G2T2	S2	1B.2
20 North Coast semaphore grass <i>Pleuropogon hooverianus</i>	PMPOA4Y070		Threatened	G2	S2	1B.1
21 Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2	
22 Nuttall's ribbon-leaved pondweed <i>Potamogeton epihydrus</i>	PMPOT03080			G5	S2S3	2B.2
23 Oregon goldthread <i>Coptis laciniata</i>	PDRAN0A020			G4	S3	4.2
24 Pacific gilia <i>Gilia capitata ssp. pacifica</i>	PDPLM040B6			G5T3T4	S2	1B.2
25 Pacific lamprey <i>Entosphenus tridentatus</i>	AFBAA02100			G4	S4	SC

California Department of Fish and Game

Natural Diversity Database

Selected Elements by Common Name - Portrait

Possible species within the Lincoln Ridge Quad and surrounding quads for Kenny Creek Fish Passage Improvement Project, T21N R16W S22, Mendocino County

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
26 Pacific tailed frog <i>Ascaphus truei</i>	AAABA01010			G4	S3S4	SC
27 Point Reyes horkelia <i>Horkelia marinensis</i>	PDROS0W0B0			G2	S2	1B.2
28 Raiche's manzanita <i>Arctostaphylos stanfordiana ssp. raichei</i>	PDERI041G2			G3T1	S1	1B.1
29 Red Mountain catchfly <i>Silene campanulata ssp. campanulata</i>	PDCAR0U0A2		Endangered	G5T3Q	S3	4.2
30 Sonoma tree vole <i>Arborimus pomo</i>	AMAFF23030			G3	S3	SC
31 Ten Mile shoulderband <i>Noyo intersessa</i>	IMGASC5070			G2	S2	
32 Thurber's reed grass <i>Calamagrostis crassiglumis</i>	PMPOA17070			G3Q	S2?	2B.1
33 Townsend's big-eared bat <i>Corynorhinus townsendii</i>	AMACC08010		Candidate Threatened	G3G4	S2	SC
34 Upland Douglas Fir Forest	CTT82420CA			G4	S3.1	
35 Vine Hill ceanothus <i>Ceanothus foliosus var. vineatus</i>	PDRHA040D6			G3T1	S1	1B.1
36 Whitney's farewell-to-spring <i>Clarkia amoena ssp. whitneyi</i>	PDONA05025			G5T1	S1	1B.1
37 Wolf's evening-primrose <i>Oenothera wolfii</i>	PDONA0C1K0			G2	S1	1B.1
38 bluff wallflower <i>Erysimum concinnum</i>	PDBRA160E3			G3	S3	1B.2
39 coast fawn lily <i>Erythronium revolutum</i>	PMLIL0U0F0			G4	S3	2B.2
40 coast lily <i>Lilium maritimum</i>	PMLIL1A0C0			G2	S2	1B.1
41 coastal triquetrella <i>Triquetrella californica</i>	NBMUS7S010			G2	S2	1B.2
42 coho salmon - central California coast ESU <i>Oncorhynchus kisutch</i>	AFCHA02034	Endangered	Endangered	G4	S2?	
43 dark-eyed gilia <i>Gilia millefoliata</i>	PDPLM04130			G2	S2	1B.2
44 deceiving sedge <i>Carex saliniformis</i>	PMCYP03BY0			G2	S2	1B.2
45 fisher - West Coast DPS <i>Pekania pennanti</i>	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
46 foothill yellow-legged frog <i>Rana boylei</i>	AAABH01050			G3	S3	SC
47 globose dune beetle <i>Coelus globosus</i>	IICOL4A010			G1G2	S1S2	

California Department of Fish and Game

Natural Diversity Database

Selected Elements by Common Name - Portrait

Possible species within the Lincoln Ridge Quad and surrounding quads for Kenny Creek Fish Passage Improvement Project, T21N R16W S22, Mendocino County

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

California Department of Fish and Game

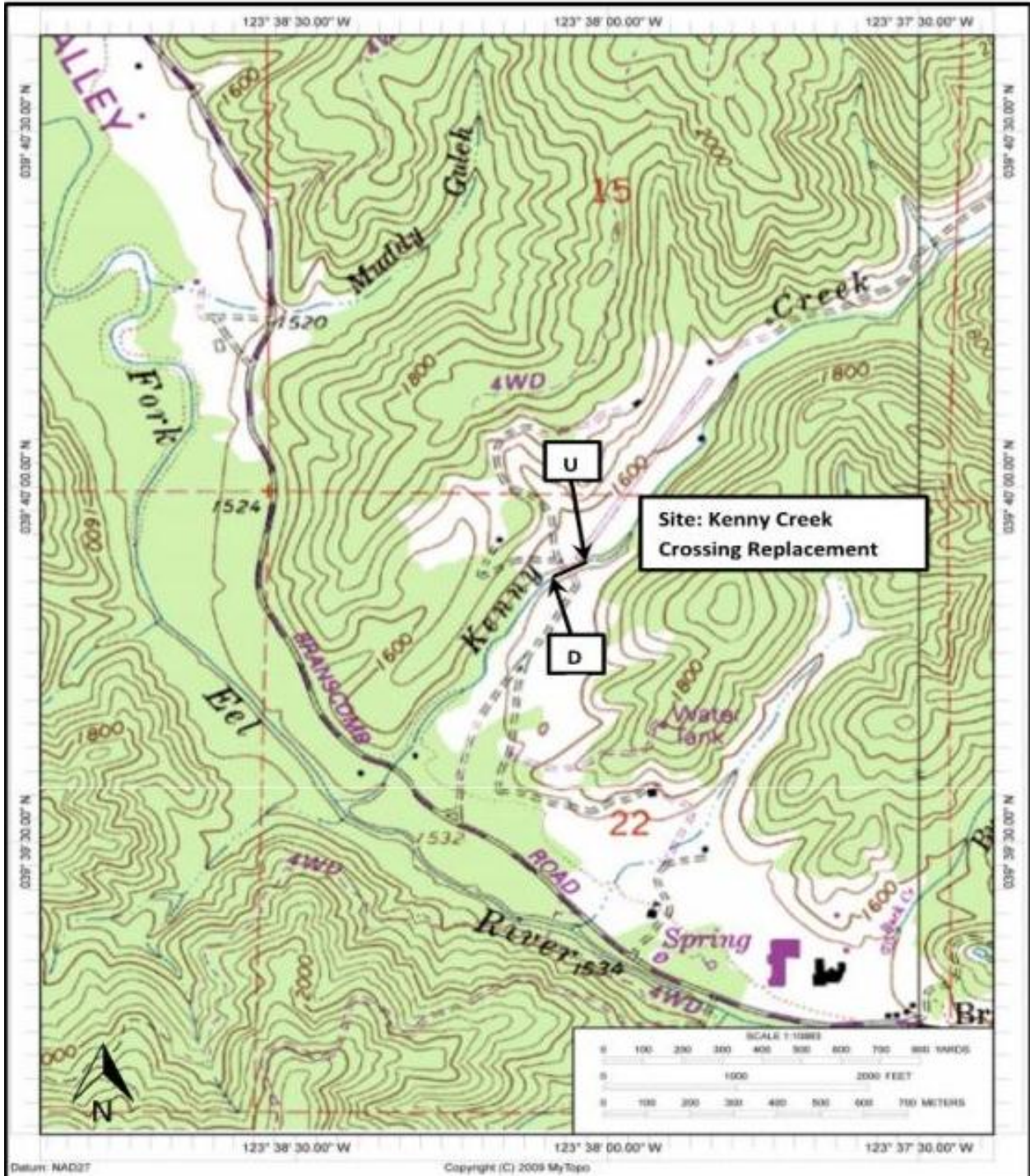
Natural Diversity Database

Selected Elements by Common Name - Portrait

Possible species within the Lincoln Ridge Quad and surrounding quads for Kenny Creek Fish Passage Improvement Project, T21N R16W S22, Mendocino County

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

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



Anderson Creek Sediment Reduction and Coho Recovery Project

2016

Introduction:

Trout Unlimited (Grantee), through its North Coast Coho Project program, will implement the Anderson Creek Sediment Reduction and Coho Recovery Project. The purpose of the project is to decommission roads and treat sediment sources in the Anderson Creek watershed. The project is necessary because salmonid habitat conditions in Anderson Creek are degraded due to historical activities that caused excessive delivery of sediment to the creek. Salmonid recovery plans recommend decreasing sediment input by treating prioritized sediment sources, including roads.

Objective(s):

The project will implement 17 site specific road treatments for road decommissioning along 1.49 miles of road, which will prevent sediment from entering Anderson Creek.

Project Description:

Location: Anderson Creek is a tributary of the South Fork Eel River in Mendocino County. The mouth of Anderson Creek is near the town of Piercy. Project coordinates are: 39.92807600 and -123.89489900 (center point of road reach).

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

- Heavy equipment and labor subcontractor - The heavy equipment and labor teams will provide all necessary heavy equipment, experienced operators, and skilled laborers required to complete the project as designed. This includes but may not be limited to the excavation of stream crossing fills, unstable road fills, and road drainage treatments using a team of hydraulic excavators, bulldozers, dump trucks, pilot cars, and truck/trailers. In addition, laborers will be used to spread straw and mulch, man and monitor pumps during any necessary dewatering operations, and maintain and monitor equipment. Laborers will also conduct seeding, tree planting, straw delivery and mulching.
- Geologic subcontractor (technical oversight) - The Geologic Subcontractor will provide technical oversight and supervision of Heavy Equipment and Labor Subcontractor. Tasks include (1) Project permitting, pre-construction layout, and pre-project monitoring; (2) Heavy equipment implementation supervision, technical oversight and field reviews, including pre- and post-construction inspections; and (3) Post-treatment data collection, photographic monitoring, data analysis and reporting. In addition, the Geologic Subcontractor will maintain regular communications

Anderson Creek Sediment Reduction and Coho Recovery Project

2016

between the Grantee, Grantor, Landowner Area Forester, and Heavy Equipment and Labor subcontractor.

- The Associate Geologist will provide project and construction oversight and QA/QC of project products.
- The project manager will manage project layout, construction oversight, monitoring, and reporting.
- Technical staff will conduct surveys, construction oversight, pre-, during, and post-construction monitoring and data entry.
- GIS staff will provide field layout maps, digitize layout and as-built project data, and develop report maps.
- Clerical staff will track and monitor hours and create invoices during the project.
- The Principal will supervise all geologic work elements.

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

Tasks: Decommission 1.49 miles of roads in the Anderson Creek watershed in order to protect and improve instream habitat for all salmonid species.

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

Task B: Implementation. Decommission 1.49 miles of roads in the Anderson Creek watershed.

- Implement project permitting, pre-construction layout, and pre-project monitoring
- Implement heavy equipment work, provide technical oversight and field reviews, including pre- and post-construction inspections
- Implement post-treatment data collection, photographic monitoring, data analysis, and reporting.
- Treat 10 stream crossings to save approximately 4,855 cubic yards of road-related sediment from delivery to local streams.
- Treat 3 potential or existing fillslope landslide features saving approximately 1,636 cubic yards of future sediment delivery. Treat by direct excavation, sediment removal, and proper spoils disposal.
- Treat 2 road discharge points and 2 bank erosion sites saving approximately 1,770 cubic yards of sediment from delivery to stream channels.

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

Deliverables: Deliverable 1: Any progress reports, invoices, or other documents that are necessary according to CDFW guidelines. Deliverable 2: Permanent road decommissioning of 1.49 miles of inner gorge and streamside road in Anderson Creek; direct treatment of 17 site specific erosional features along the decommission road alignment; prevention of 8,270 yd³ of sediment from entering the Anderson Creek stream system; Deliverable 3: Upon completion of the project, a written completion report which contains: (1) general grant information, (2) location of work, (3) project access, (4) participating landowner's name and address, (5) a description and analysis of the restoration and planning person hours expended, (6) a quantified description of the results of the project, including as-built road logs, (7) dates of work and the number of person hours expended, (8) labeled before and after photos of selected restoration activities and techniques, (9) grant dollars spent and contributed and/or in kind services used to complete the project, and (10) GIS generated maps and shapefiles of the project area, and (11) monitoring checklists and summaries consistent with CDFW guidelines and as required by the FLAR focus..

Timelines:

Project will be completed according to the following timeline:

- Administer and manage the project throughout the entirety of the agreement term June 2016 to March 31, 2019.
- June 1, 2016 Pre-construction project permitting, pre-construction layout, and pre-project monitoring tasks are planned to occur.
- June 2016 - October 2017 Heavy equipment implementation
- Fall 2016, 2017, 2018 Post-construction data collection. Post-treatment data collection, road logs and maps showing as built road conditions, and photographic monitoring will be conducted to fulfill reporting requirements.
- Fall 2018 – February 28, 2019 Reporting. Data collection synthesis, data analysis, and report writing. The implementation report will be completed and submitted no later than February 28, 2019.

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

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

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). When transporting traps out of the area, each numbered trap will be bagged in its own bag to avoid cross contamination during transport in and out of the work area. All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

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

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

- a. Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.
- b. Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.
- c. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.

- d. All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
- e. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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

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

California Department of Fish and Wildlife

Natural Diversity Database

Selected Elements by Common Name - Portrait

Possible Species within the Briceland, Shelter Cove, Bear Harbor, Garberville, Mistake Point, Hales Grove, and Piercy quads for: Anderson Creek Sediment Reduction and Coho Recovery Project.

T24N, R18W, Section 19, Bear Harbor Quad, Mendocino County, USA.

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

California Department of Fish and Wildlife

Natural Diversity Database

Selected Elements by Common Name - Portrait

Possible Species within the Briceland, Shelter Cove, Bear Harbor, Garberville, Mistake Point, Hales Grove, and Piercy quads for: Anderson Creek Sediment Reduction and Coho Recovery Project.

T24N, R18W, Section 19, Bear Harbor Quad, Mendocino County, USA.

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

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

