

# East Branch North Fork Big River Coho Habitat Enhancement Project - Large Wood Installation

2019

## **Introduction:**

The California Conservation Corps (CCC) will implement the East Branch North Fork Big River Coho Habitat Enhancement Project - Large Wood Installation. The lack of large wood in the stream channel has affected the quality and quantity of salmonid habitat within the East Branch North Fork (EBNF) Big River by reducing the amount of large channel forming features and the loss of complex cover for salmonids. Recovery plans and assessments recommend adding large wood to EBNF Big River. California Department of Fish and Wildlife's 2011 East Branch North Fork Big River Habitat Inventory Report recommendations include increasing woody cover in the pools and flatwater habitat units. The report found an average shelter rating of 15, where 100 is desirable. NOAA fisheries 2012 lists the watershed as a core area for protection and restoration and lists input of large woody debris (LWD) as an immediate restoration action.

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 VII* <https://www.wildlife.ca.gov/Grants/FRGP/Guidance>).

## **Objective(s):**

The specific objective of this project is to improve the quality and quantity of spawning and rearing habitat for coho salmon by installing 41 large wood features within a 5,930 foot section of EBNF Big River, consisting of 94 pieces of large wood. This project will increase the existing large wood count from 49 to 143 pieces within the 5,930 foot section of stream. The addition of appropriately sized wood to meet target criteria will enhance the quality, quantity, and complexity of spawning and rearing habitat for salmonids.

## **Project Description:**

### **Location:**

The project is located along a section of East Branch North Fork Big River, located in the county of Mendocino, State of California. The project starts approximately 145 feet downstream of Frykman Gulch and continues upstream for 5,930 feet. Frykman Gulch enters EBNF Big River approximately 3.28 miles upstream of the confluence with North Fork Big River. Project boundaries are 39.32428° north latitude, -123.51209° west longitude at the downstream end; 39.32305° north latitude, -123.49503° west longitude at the upstream end; Township 19 North, Range 15 West, and Sections 23 and 14 of the Comptche

and Greenough Ridge 7.5 Minute U.S. Geological Survey (USGS) Quadrangle maps as depicted in the Project Location Map.

## **Project Set Up:**

CCC will provide all project oversight, administration and implementation. Subcontractor Mendocino Redwood Company Forester will approve trees to be felled for project sites. Subcontractor Licensed Timber Operator, under direction from CCC, will fell flagged redwood (*Sequoia sempervirens*) and Douglas-fir (*Pseudotsuga menziesii*) trees at feature locations. Subcontractor archaeologist and botanist, pursuant to the California Environmental Quality Act (CEQA), will conduct archeological and botanical surveys/investigations throughout the project reach. Subcontractor, Paleontologist, pursuant to CEQA, will conduct a paleontological investigation of the project reach. Subcontractor Aquatic Survey Observer, at the recommendation of California Department of Fish and Wildlife (CDFW), will follow all guidelines for foothill yellow-legged frog (*Rana boylei*) mitigation measures required by the CDFW's Lake and Streambed Alteration Agreement.

## **Materials:**

A total of 41 large wood features, consisting of 94 pieces of large wood and root wads, will be constructed and anchored with 1" threaded rebar, nuts, washers, 5/8" galvanized cable, cable clamps, and waterproof epoxy glue, or by wedging into riparian trees without using anchoring materials. Trees left unanchored will be at least 1.5 times the average bankfull width per CDFW's *California Salmonid Stream Habitat Restoration Manual* specifications for unanchored large wood (Part VII-23).

## **Tasks:**

**Task 1. Install Instream Habitat Features:** Install 41 instream features within a 5,930 foot section of EBNF Big River, consisting of 94 pieces of large wood. Work will consist of the following:

- Grantee will construct instream log structures according to the site specific plans to be provided, using locally available logs or logs from other locations.
- Nuts, washers, plates, cable, glue and rebar will be ordered as applicable.
- Location of all project large wood will be documented.
- Various anchoring techniques, which will be approved by CDFW 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.
- Available slash and woody debris will be installed into structures after site completion to provide immediate cover for salmonids present at time of construction.

**Task 2. Erosion Control:** Mulching will take place as sites are completed on all exposed soils which may deliver sediment to a stream.

**Deliverables:** A total of 41 instream features will be constructed within a 5,930 foot section of EBNF Big River, consisting of 94 pieces of large wood.

**Timelines:** June 15 through October 31 of the years 2020, 2021, 2022, and 2023, California Conservation Corps will install large wood features within approved project reaches. Erosion control will be installed as project features are completed.

### **Additional Requirements:**

The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. 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 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 CDFW 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.

# East Branch North Fork Big River Coho Habitat Enhancement Project - Large Wood Installation

2019

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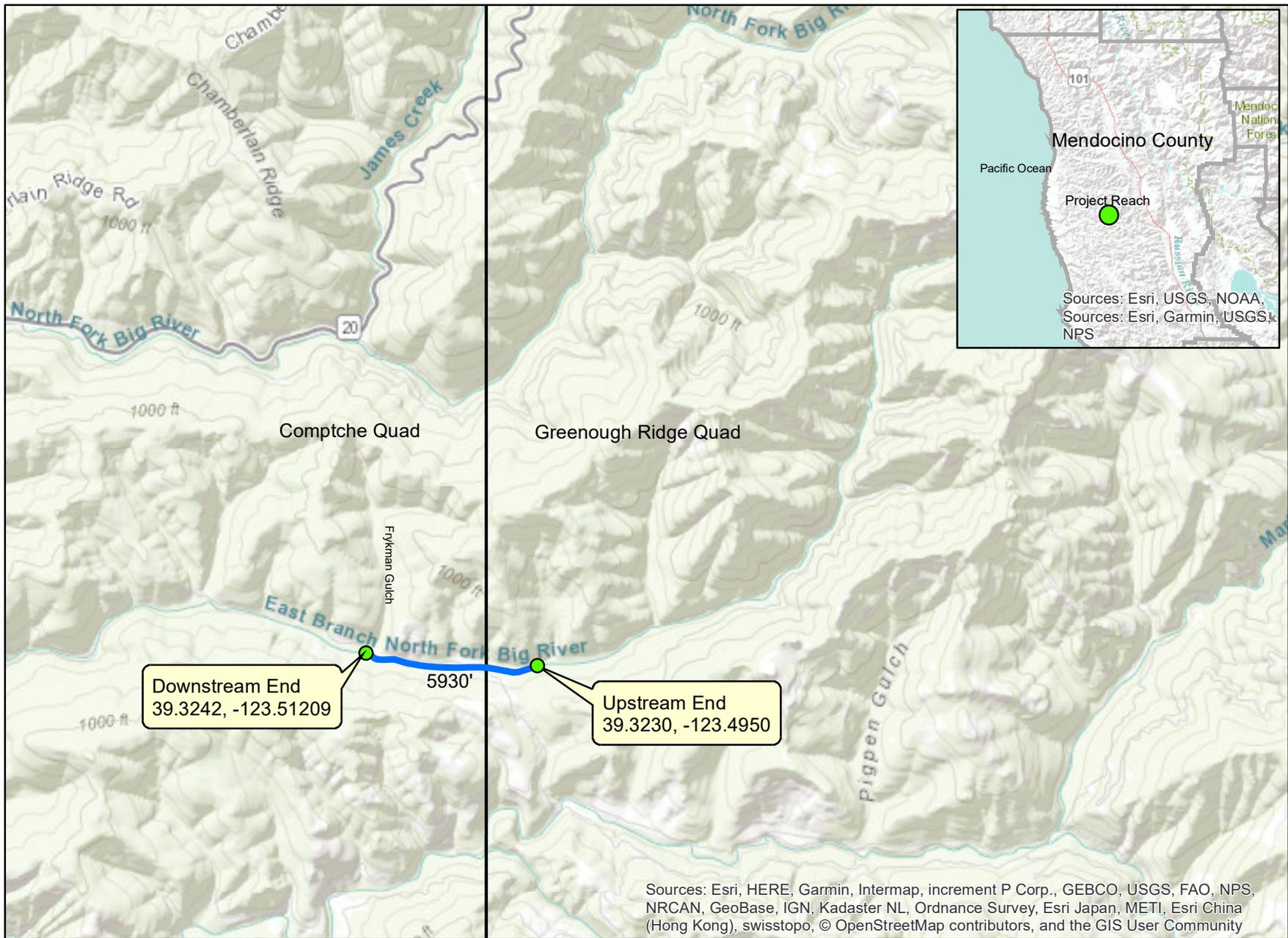
Final structure design and placement will be determined by field consultation between the Grantee and the CDFW Project Managers.

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

# East Branch North Fork Big River Coho Habitat Enhancement Project - Large Wood Installation

## Project Location Map

### California Conservation Corps



— LWD Installation Reach





# Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad<span style='color:Red'> IS </span>(Comptche (3912335)<span style='color:Red'> OR </span>Greenough Ridge (3912334)<span style='color:Red'> OR </span>Willits (3912343)<span style='color:Red'> OR </span>Laughlin Range (3912333)<span style='color:Red'> OR </span>Orrs Springs (3912323)<span style='color:Red'> OR </span>Bailey Ridge (3912324)<span style='color:Red'> OR </span>Navarro (3912325)<span style='color:Red'> OR </span>Elk (3912326)<span style='color:Red'> OR </span>Mathison Peak (3912336)<span style='color:Red'> OR </span>Noyo Hill (3912346)<span style='color:Red'> OR </span>Northspur (3912345)<span style='color:Red'> OR </span>Burbeck (3912344))

Possible species within the Comptche and Greenough Ridge and their surrounding quads for 2972 East Branch North Fork Big River Coho Habitat Enhancement Project - Large Wood Installation, Mendocino County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Accipiter gentilis</i> northern goshawk	ABNKC12060	None	None	G5	S3	SSC
<i>Accipiter striatus</i> sharp-shinned hawk	ABNKC12020	None	None	G5	S4	WL
<i>Agelaius tricolor</i> tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
<i>Agrostis blasdalei</i> Blasdale's bent grass	PMPOA04060	None	None	G2	S2	1B.2
<i>Alisma gramineum</i> grass alisma	PMALI01010	None	None	G5	S3	2B.2
<i>Arboremus pomo</i> Sonoma tree vole	AMAFF23030	None	None	G3	S3	SSC
<i>Arctostaphylos nummularia ssp. mendocinoensis</i> pygmy manzanita	PDERI04280	None	None	G3?T1	S1	1B.2
<i>Arctostaphylos stanfordiana ssp. raichei</i> Raiche's manzanita	PDERI041G2	None	None	G3T2	S2	1B.1
<i>Ascaphus truei</i> Pacific tailed frog	AAABA01010	None	None	G4	S3S4	SSC
<i>Astragalus agnicidus</i> Humboldt County milk-vetch	PDFAB0F080	None	Endangered	G2	S2	1B.1
<i>Blennosperma bakeri</i> Sonoma sunshine	PDAST1A010	Endangered	Endangered	G1	S1	1B.1
<i>Bombus caliginosus</i> obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
<i>Bombus occidentalis</i> western bumble bee	IIHYM24250	None	None	G2G3	S1	
<i>Brasenia schreberi</i> watershield	PDCAB01010	None	None	G5	S3	2B.3
<i>Calileptoneta wapiti</i> Mendocino leptonetid spider	ILARAU6040	None	None	G1	S1	
<i>Campanula californica</i> swamp harebell	PDCAM02060	None	None	G3	S3	1B.2
<i>Carex californica</i> California sedge	PMCYP032D0	None	None	G5	S2	2B.3
<i>Carex lenticularis var. limnophila</i> lagoon sedge	PMCYP037A7	None	None	G5T5	S1	2B.2



Selected Elements by Scientific Name  
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Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<b>Carex lyngbyei</b> Lyngbye's sedge	PMCYP037Y0	None	None	G5	S3	2B.2
<b>Carex saliniformis</b> deceiving sedge	PMCYP03BY0	None	None	G2	S2	1B.2
<b>Castilleja mendocinensis</b> Mendocino Coast paintbrush	PDSCR0D3N0	None	None	G2	S2	1B.2
<b>Coastal and Valley Freshwater Marsh</b> Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
<b>Coastal Brackish Marsh</b> Coastal Brackish Marsh	CTT52200CA	None	None	G2	S2.1	
<b>Coptis laciniata</b> Oregon goldthread	PDRAN0A020	None	None	G4?	S3?	4.2
<b>Corynorhinus townsendii</b> Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
<b>Elanus leucurus</b> white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
<b>Emys marmorata</b> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
<b>Erethizon dorsatum</b> North American porcupine	AMAFJ01010	None	None	G5	S3	
<b>Erysimum concinnum</b> bluff wallflower	PDBRA160E3	None	None	G3	S2	1B.2
<b>Erythronium revolutum</b> coast fawn lily	PMLIL0U0F0	None	None	G4G5	S3	2B.2
<b>Falco peregrinus anatum</b> American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
<b>Fissidens pauperculus</b> minute pocket moss	NBMUS2W0U0	None	None	G3?	S2	1B.2
<b>Fritillaria roderickii</b> Roderick's fritillary	PMLIL0V0M0	None	Endangered	G1Q	S1	1B.1
<b>Gilia capitata ssp. pacifica</b> Pacific gilia	PDPLM040B6	None	None	G5T3	S2	1B.2
<b>Grand Fir Forest</b> Grand Fir Forest	CTT82120CA	None	None	G1	S1.1	
<b>Helminthoglypta arrosa pomoensis</b> Pomo bronze shoulderband	IMGASC2033	None	None	G2G3T1	S1	
<b>Hemizonia congesta ssp. congesta</b> congested-headed hayfield tarplant	PDAST4R065	None	None	G5T2	S2	1B.2
<b>Hesperovax sparsiflora var. brevifolia</b> short-leaved evax	PDASTE5011	None	None	G4T3	S2	1B.2
<b>Hesperocyparis pygmaea</b> pygmy cypress	PGCUP04032	None	None	G1	S1	1B.2



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<b><i>Hesperolinon adenophyllum</i></b> glandular western flax	PDLIN01010	None	None	G2G3	S2S3	1B.2
<b><i>Horkelia marinensis</i></b> Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
<b><i>Icteria virens</i></b> yellow-breasted chat	ABPBX24010	None	None	G5	S3	SSC
<b><i>Kopsiopsis hookeri</i></b> small groundcone	PDORO01010	None	None	G4?	S1S2	2B.3
<b><i>Lavinia symmetricus navarroensis</i></b> Navarro roach	AFCJB19023	None	None	G4T1T2	S2S3	SSC
<b><i>Lilium maritimum</i></b> coast lily	PMLIL1A0C0	None	None	G2	S2	1B.1
<b><i>Limnanthes bakeri</i></b> Baker's meadowfoam	PDLIM02020	None	Rare	G1	S1	1B.1
<b><i>Lycopodium clavatum</i></b> running-pine	PPLYC01080	None	None	G5	S3	4.1
<b><i>Mendocino Pygmy Cypress Forest</i></b> Mendocino Pygmy Cypress Forest	CTT83161CA	None	None	G2	S2.1	
<b><i>Mitellastra caulescens</i></b> leafy-stemmed mitrewort	PDSAX0N020	None	None	G5	S4	4.2
<b><i>Navarretia leucocephala ssp. bakeri</i></b> Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
<b><i>Northern Coastal Salt Marsh</i></b> Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
<b><i>Oncorhynchus kisutch pop. 4</i></b> coho salmon - central California coast ESU	AFCHA02034	Endangered	Endangered	G4	S2?	
<b><i>Oncorhynchus mykiss irideus pop. 16</i></b> steelhead - northern California DPS	AFCHA0209Q	Threatened	None	G5T2T3Q	S2S3	
<b><i>Packera bolanderi var. bolanderi</i></b> seacoast ragwort	PDAST8H0H1	None	None	G4T4	S2S3	2B.2
<b><i>Pandion haliaetus</i></b> osprey	ABNKC01010	None	None	G5	S4	WL
<b><i>Pekania pennanti</i></b> fisher - West Coast DPS	AMAJF01021	None	Threatened	G5T2T3Q	S2S3	SSC
<b><i>Pinus contorta ssp. bolanderi</i></b> Bolander's beach pine	PGPIN04081	None	None	G5T2	S2	1B.2
<b><i>Piperia candida</i></b> white-flowered rein orchid	PMORC1X050	None	None	G3	S3	1B.2
<b><i>Pleuropogon hooverianus</i></b> North Coast semaphore grass	PMPOA4Y070	None	Threatened	G2	S2	1B.1
<b><i>Potamogeton epihydrus</i></b> Nuttall's ribbon-leaved pondweed	PMPOT03080	None	None	G5	S2S3	2B.2



Selected Elements by Scientific Name  
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Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Progne subis</i> purple martin	ABPAU01010	None	None	G5	S3	SSC
<i>Ramalina thrausta</i> angel's hair lichen	NLLEC3S340	None	None	G5	S2?	2B.1
<i>Rana aurora</i> northern red-legged frog	AAABH01021	None	None	G4	S3	SSC
<i>Rana boylei</i> foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
<i>Rhyacotriton variegatus</i> southern torrent salamander	AAAAJ01020	None	None	G3G4	S2S3	SSC
<i>Rhynchospora alba</i> white beaked-rush	PMCYP0N010	None	None	G5	S2	2B.2
<i>Sanguisorba officinalis</i> great burnet	PDROS1L060	None	None	G5?	S2	2B.2
<i>Setophaga petechia</i> yellow warbler	ABPBX03010	None	None	G5	S3S4	SSC
<i>Sidalcea calycosa ssp. rhizomata</i> Point Reyes checkerbloom	PDMAL11012	None	None	G5T2	S2	1B.2
<i>Sidalcea malachroides</i> maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
<i>Speyeria zerene behrensii</i> Behren's silverspot butterfly	IILEPJ6088	Endangered	None	G5T1	S1	
<i>Sphagnum Bog</i> Sphagnum Bog	CTT51110CA	None	None	G3	S1.2	
<i>Taricha rivularis</i> red-bellied newt	AAAAF02020	None	None	G4	S2	SSC
<i>Trifolium buckwestiorum</i> Santa Cruz clover	PDFAB402W0	None	None	G2	S2	1B.1
<i>Trifolium trichocalyx</i> Monterey clover	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
<i>Usnea longissima</i> Methuselah's beard lichen	NLLEC5P420	None	None	G4	S4	4.2
<i>Valley Oak Woodland</i> Valley Oak Woodland	CTT71130CA	None	None	G3	S2.1	

Record Count: 77

# Anderson Creek Habitat Enhancement for Coho Recovery - Phase IV

2019

## **Introduction:**

The Eel River Watershed Improvement Group (ERWIG) will implement the Anderson Creek Habitat Enhancement Project for Coho Recovery Phase IV. Anderson Creek supports populations of endangered coho salmon (*Oncorhynchus kisutch*). 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 shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured. All habitat improvement(s) will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* (Part VII <https://www.wildlife.ca.gov/Grants/FRGP/Guidance>).

## **Objective(s):**

The purpose of this project is to supplement ongoing efforts to provide short and long term benefits to salmonids through the placement of LWD. The placed LWD will enhance pools, increase gravel sorting, create cover and provide increased habitat complexity.

## **Project Description:**

### **Location:**

Anderson Creek is located northwest of Leggett, Mendocino County, California in Township 24 North, Range 19 West, Sections 13 & 24 of the Bear Harbor 7.5 Minute U.S. Geological Survey (USGS) Quadrangle map. Anderson Creek is a tributary to Indian Creek which is itself a tributary to the South Fork Eel River. The project reach contains 41 features within an approximately 1.9 mile stretch of stream starting approximately 2.5 miles from the confluence of Anderson Creek and Indian Creek and approximately 8.5 miles from the confluence of Indian Creek and South Fork Eel River. Project coordinates are: 39.554635 N and -123.552363 W at the Center of the project reach along upper Anderson Creek and 39.97177 N and -123.80074 W at the low water crossing over the South Fork Eel River.

### **Project Set Up:**

There are six fundamental tasks that need to be completed to accomplish this project: (1) administration, (2) pre-implementation, (3) implementation, (4) post-implementation, (5) riparian planting and (6) reporting.

Administration (Task 1) - The project administration will be done by ERWIG staff 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.

Pre-Implementation (Task 2) - The Pacific Watershed Associates (PWA) Associate Scientist, Staff Scientist, GIS staff, and Clerical staff will complete this task. The GIS staff will provide base maps for the project set up. PWA Engineering Geologist, Associate Scientist and Staff Scientist will conduct the required field work, feature layout, field reviews and meetings. RFFI and PWA Staff scientists will conduct the required pre-implementation field work for CEQA. The ERWIG Project Manager will assist with pre-project scheduling and set-up. The PWA Clerical staff will maintain work records and develop invoices.

Implementation (Task 3) - The PWA Staff Scientist will oversee day to day construction activities and the Associate Scientist will check all work upon completion. Rice Logging will be used for all construction needs throughout the implementation of this project including falling trees with a chainsaw, the installation of LWD structures and the installation and removal of the low water crossing over the South Fork Eel River. When needed, the California Conservation Corps (CCC) will grip-hoist LWD into position and if applicable hard anchor with rebar, nuts and plates. The PWA Associate Scientist, Staff Scientist and CCC Fish Habitat Specialist will be on-site to supervise final placement of each feature. ERWIG Project Manager will make sure LWD structures are meeting project goals. All structures will be placed and anchored in a manner consistent with procedures in the CDFW *California Salmonid Stream Habitat Restoration Manual*, Section VII (Flosi et. al, 2010). PWA GIS staff will create field and reporting maps, PWA Clerical staff will track budgets and create invoices, and a PWA Principal will oversee all PWA operations. Once the primary structural elements of the wood jams are in place, Corps members will pre-rack each feature with medium and small woody debris and brush, thereby providing additional cover and habitat complexity for salmonids. In addition to hand placing medium and small woody debris as pre-rack, Corps members will use this same material as erosion control by covering up any bare soil with said material.

Post-Implementation (Task 4) - PWA Associate Scientist, Physical Scientist and ERWIG Project Manager will conduct all the post-implementation field work and field reviews.

Riparian Planting (Task 5) - Woodbenders will plant trees and native shrubs along the project reach.

Reporting (Task 6) - The annual and final reporting of the project will be done by the PWA Associate Scientist, Physical Scientist and Principal with assistance and oversight from ERWIG's Project Manager. The PWA GIS staff will finalize all mapping needs for the final report. The annual reports will happen every year of the project and the final report will be conducted at the end of the project.

## **Materials:**

Trees/Shrubs (Woodbenders): Four hundred trees and native shrubs will be planted by the specialized revegetation sub-contractor Woodbenders. Native understory and overstory vegetation will be planted in the riparian zone. This will facilitate the restoration of existing riparian zones, in areas disturbed by restoration activities and will be consistent with the local native riparian vegetation and succession. RFFI will be providing the local native trees for replanting as an in-kind donation. The shrubs will be purchased by ERWIG.

Large Woody Debris (ERWIG): 119 logs will be required to build the 41 features. These logs will be in-kind donation by the landowner, RFFI.

Fuel (All): Implementation of the proposed project is estimated to require the use of approximately 586 gallons of gasoline for operating pick-up trucks and approximately 370 gallons of diesel that will be used to conduct the restoration activities.

Miscellaneous field and office supplies (PWA): 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/CD for final reports, report maps, phone, fax, and postage. PWA will be responsible for procurement of these materials.

Mileage (ERWIG): ERWIG Project Manager requires mileage reimbursement for round trips to the project site.

Contractor Mileage (Rice Logging, Woodbenders, ERWIG): Two-way contractor mileage is required for transportation costs to get the contractors to the project site on a daily basis.

Sub-Contractor Mileage and Per Diem (PWA): PWA staff require mileage, lodging and per diem to accommodate travel needs to visit the site and meet with partners.

Field/Office Supplies (ERWIG, PWA): Supplies that will be required for ERWIG and PWA staff members to assist contractors with project site monitoring and assessments and pre-construction layout, as well as materials needed for ERWIG to complete grant administration tasks such as hosting meetings, scheduling, and managing budgets. These may include (but are not limited to): flagging, measuring tapes, wooden stakes, rite-in-the-rain paper, notebooks and notepads, writing implements, charting pads, envelopes, poster board, and fastening supplies. ERWIG and PWA will be purchasing these materials.

Printing/Duplication (ERWIG, PWA): Supplies that are required for printing items related to grant and project administration, such as reports, invoices, meeting handouts, and maps. These items may include (but are not limited to): paper, ink, and toner. This item also includes costs associated with external printing or copying services that may be required to produce reporting and meeting materials. ERWIG and PWA will be purchasing these materials.

Postage (ERWIG, PWA): This includes supplies and costs for sending or shipping grant administration items such as reports, permit applications, invoices, and contracts. ERWIG and PWA will be purchasing these materials.

Griphoists (ERWIG): TU-32 Tractel griphoists will be purchased to move logs into final position.

Mainline Cable (ERWIG): Used in griphoists to pull logs.

Misc Gripping Materials (ERWIG): items in maintenance kit such as sheer pins and handle presses.

Blocks/Pulley (ERWIG): Used during gripping for change of directions.

Chainsaw (ERWIG): Used when needed to trim tree branches and cut down dead hazard or obstacle trees.

### **Tasks:**

#### **Task 1 – Administration**

ERWIG personnel will provide all contracting oversight and grant administration as pursuant to grant and regulatory guidelines. This includes but is not limited to obtaining permits, securing contracts (grantors, subcontractors, landowner), scheduling, invoicing, reporting and agency and landowner communications. Upon Final execution of the Grant and prior to receiving a Final Notice to Proceed, ERWIG personnel will deliver the landowner access agreements, subcontracts, and assure all permits are finalized. This task will occur throughout

the life of the project. Materials Required: Field/office supplies, postage, and travel expenses.

## **Task 2 – Pre-Implementation**

PWA will coordinate with ERWIG, CDFW, and RFFI to conduct the appropriate surveys for special status species and cultural resources when necessary. RFFI staff will conduct the archeological and botanical assessments and surveys and will write the reports. PWA will complete the paleontological assessments/surveys. PWA will flag heavy equipment access routes and construction boundaries (layout) as well as low water crossing site, equipment exclusion areas for biological or cultural resource protection, and LWD staging areas. They will also document the existing conditions at the proposed feature locations and setup photo-point monitoring stations at the construction locations for final reporting. Pre-construction monitoring will be performed by PWA in a manner consistent with CDFW guidelines and as required by FRGP.

## **Task 3 – Implementation**

Low bed trucks will be used to move heavy equipment in and out of the project area at the beginning and end of the work season, these will require a pilot car to move through the road system. Decontamination protocols will be employed prior to move-in. An excavator and bulldozer will be used to install and remove the low water crossing bridge. A gasoline powered water pump will be used to protect water quality during installation of temporary crossings if prudent; these will be managed by a laborer. LWD features will be constructed using a chainsaw by a feller. Once LWD has been fallen, CCC crews will adjust and anchor LWD when needed. PWA will be providing 100% oversight at each feature. Where prudent, small and medium sized tree fragments will be incorporated into the spider jams as pre-racked and loose material. These racked and loose logs/branches will reduce the spider jams porosity and more closely mimic naturally developed wood features. Once the primary architecture of the features has been completed, PWA and ERWIG, in coordination with the CDFW project, manager will determine if hard anchor points will be required at each of the constructed features. This task may begin as early as July 2020, if pre-implementation surveys are feasible in that year. Otherwise construction activities will occur during low flow periods of 2021 or 2022.

## **Task 4 – Post-Implementation**

Post-construction monitoring, including photographic monitoring, and documentation of as-built conditions, will be performed by PWA consistent with the CDFW guidelines and as required by FRGP. Field reviews with partners and CDFW Grant Manager will be conducted. Woodbenders will conduct revegetation throughout the 1.9 mile reach where disturbance has happened as a result of implementation.

## **Task 5 – Reporting**

PWA, working closely with ERWIG, will develop the annual and final reports consistent with CDFW FRGP requirements. This task will be conducted throughout the life of the grant.

## **Task 6 – Riparian Planting**

In the winter following construction of LWD structures, Woodbenders will plant 400 trees and native shrubs. Approximately 300 Douglas firs (*Pseudotsuga menziesii*) and/or redwood (*Sequoia sempervirens*) will be planted along with approximately 100 native shrubs. Native shrubs may include the following: evergreen huckleberry (*Vaccinium ovatum*), thimbleberry (*Rubus parviflorus*), red elderberry (*Sambucus racemosa*), and cascara buckthorn (*Frangula purshiana*). Trees and shrubs will be planted in areas disturbed by the project and areas lacking sufficient canopy.

## **Deliverables:**

### **Task 1 – Administration**

Landowner Access Agreements; Copies of Subcontracts; copies of permits; progress reports and invoices.

### **Task 2 – Pre-Implementation**

Initial layout and pre-construction existing conditions of all LWD features and flagged staging areas and equipment exclusion zones. Final 100% designs for 41 LWD features. Botanical, Paleontological and Cultural Resource Reports.

### **Task 3 – Implementation**

Construction of 41 LWD features throughout the 1.9 mile stream section in Anderson Creek. Installation of hard anchor points where required. Erosion control Best Management Practices on all streamside access areas and disturbed ground.

### **Task 4 – Post-Implementation**

As-built documentation of the project site, before and after photographs of each feature, and other documentation as required by FRGP. Revegetation on disturbed areas.

### **Task 5 – Reporting**

Annual reports in pdf format. Draft report in pdf format and final report in pdf and hard copy formats.

### **Task 6 – Riparian Planting**

A list of species planted and number of each species.

**Timelines:**

**Task 1 – Administration** – 4/1/2020 to 3/31/2023

**Task 2 – Pre-Implementation** – 4/1/2020 to 7/1/2020

**Task 3 – Implementation** – 7/1/2020 to 10/15/2022

**Task 4 – Post-Implementation** – 12/1/2020 to 3/1/2023

**Task 5 – Reporting** – 3/31/2020 to 3/31/2023

**Task 6 – Riparian Planting** – 12/1/2021 to 2/28/2023

**Additional Requirements:**

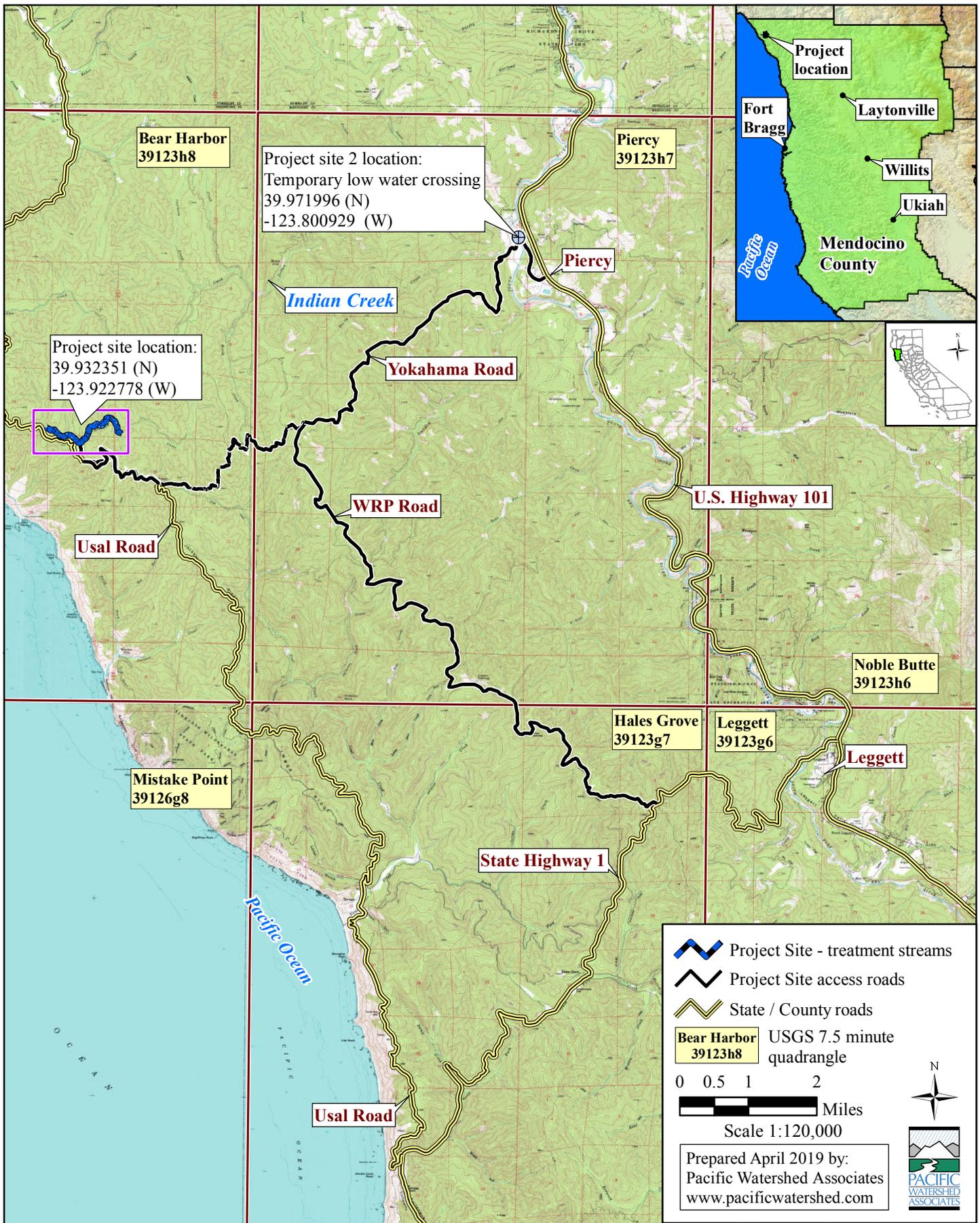
The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured and a “notice to proceed” letter has been received from the Grantor Project Manager. Work in flowing streams is restricted per the Army Corp of Engineers Regional General Permit. Actual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



Map 1. Project location topographic map for the Anderson Creek Habitat Enhancement Project for Coho Recovery, Phase IV, Mendocino County, California. Grantee: Eel River Watershed Improvement Group



# Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



**Query Criteria:** Quad IS (Piercy (3912387) OR Sherwood Peak (3912355) OR Harris (4012316) OR Noble Butte (3912386) OR Leggett (3912376) OR Hales Grove (3912377) OR Mistake Point (3912378) OR Bear Harbor (3912388) OR Briceland (4012318) OR Garberville (4012317) OR Laytonville (3912364) OR Longvale (3912354) OR Burbeck (3912344) OR Northspur (3912345) OR Noyo Hill (3912346) OR Dutchmans Knoll (3912356) OR Lincoln Ridge (3912366) OR Cahto Peak (3912365))

Possible species within the Piercy and Sherwood Peak and their surrounding quads for 3067 Anderson Creek Habitat Enhancement for Coho Recover - Phase IV, Mendocino County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Accipiter cooperii</i> Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
<i>Accipiter gentilis</i> northern goshawk	ABNKC12060	None	None	G5	S3	SSC
<i>Accipiter striatus</i> sharp-shinned hawk	ABNKC12020	None	None	G5	S4	WL
<i>Alisma gramineum</i> grass alisma	PMALI01010	None	None	G5	S3	2B.2
<i>Anodonta californiensis</i> California floater	IMBIV04020	None	None	G3Q	S2?	
<i>Antrozous pallidus</i> pallid bat	AMACC10010	None	None	G5	S3	SSC
<i>Arabis mcdonaldiana</i> McDonald's rockcress	PDBRA06150	Endangered	Endangered	G3	S3	1B.1
<i>Arboremus pomo</i> Sonoma tree vole	AMAFF23030	None	None	G3	S3	SSC
<i>Arctostaphylos nummularia ssp. mendocinoensis</i> pygmy manzanita	PDERI04280	None	None	G3?T1	S1	1B.2
<i>Arctostaphylos stanfordiana ssp. raichei</i> Raiche's manzanita	PDERI041G2	None	None	G3T2	S2	1B.1
<i>Ardea herodias</i> great blue heron	ABNGA04010	None	None	G5	S4	
<i>Ascaphus truei</i> Pacific tailed frog	AAABA01010	None	None	G4	S3S4	SSC
<i>Astragalus agnicidus</i> Humboldt County milk-vetch	PDFAB0F080	None	Endangered	G2	S2	1B.1
<i>Bombus caliginosus</i> obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
<i>Bombus crotchii</i> Crotch bumble bee	IIHYM24480	None	None	G3G4	S1S2	
<i>Bombus occidentalis</i> western bumble bee	IIHYM24250	None	None	G2G3	S1	
<i>Brachyramphus marmoratus</i> marbled murrelet	ABNNN06010	Threatened	Endangered	G3G4	S1	



Selected Elements by Scientific 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
<b><i>Brasenia schreberi</i></b> watershield	PDCAB01010	None	None	G5	S3	2B.3
<b><i>Calamagrostis foliosa</i></b> leafy reed grass	PMPOA170C0	None	Rare	G3	S3	4.2
<b><i>Campanula californica</i></b> swamp harebell	PDCAM02060	None	None	G3	S3	1B.2
<b><i>Cardamine angulata</i></b> seaside bittercress	PDBRA0K010	None	None	G4G5	S3	2B.1
<b><i>Carex lenticularis var. limnophila</i></b> lagoon sedge	PMCYP037A7	None	None	G5T5	S1	2B.2
<b><i>Carex lyngbyei</i></b> Lyngbye's sedge	PMCYP037Y0	None	None	G5	S3	2B.2
<b><i>Carex saliniformis</i></b> deceiving sedge	PMCYP03BY0	None	None	G2	S2	1B.2
<b><i>Castilleja litoralis</i></b> Oregon coast paintbrush	PDSCR0D012	None	None	G3	S3	2B.2
<b><i>Castilleja mendocinensis</i></b> Mendocino Coast paintbrush	PDSCR0D3N0	None	None	G2	S2	1B.2
<b><i>Ceanothus foliosus var. vineatus</i></b> Vine Hill ceanothus	PDRHA040D6	None	None	G3T1	S1	1B.1
<b><i>Clarkia amoena ssp. whitneyi</i></b> Whitney's farewell-to-spring	PDONA05025	None	None	G5T1	S1	1B.1
<b><i>Coastal and Valley Freshwater Marsh</i></b> Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
<b><i>Coptis laciniata</i></b> Oregon goldthread	PDRAN0A020	None	None	G4?	S3?	4.2
<b><i>Corynorhinus townsendii</i></b> Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
<b><i>Emys marmorata</i></b> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
<b><i>Entosphenus tridentatus</i></b> Pacific lamprey	AFBAA02100	None	None	G4	S4	SSC
<b><i>Erethizon dorsatum</i></b> North American porcupine	AMAFJ01010	None	None	G5	S3	
<b><i>Eriogonum kelloggii</i></b> Kellogg's buckwheat	PDPGN083A0	None	Endangered	G2	S2	1B.2
<b><i>Erythronium revolutum</i></b> coast fawn lily	PMLIL0U0F0	None	None	G4G5	S3	2B.2
<b><i>Eucyclogobius newberryi</i></b> tidewater goby	AFCQN04010	Endangered	None	G3	S3	SSC
<b><i>Gentiana setigera</i></b> Mendocino gentian	PDGEN060S0	None	None	G2	S2	1B.2



Selected Elements by Scientific 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
<b><i>Gilia capitata ssp. pacifica</i></b> Pacific gilia	PDPLM040B6	None	None	G5T3	S2	1B.2
<b><i>Gilia millefoliata</i></b> dark-eyed gilia	PDPLM04130	None	None	G2	S2	1B.2
<b><i>Hemizonia congesta ssp. congesta</i></b> congested-headed hayfield tarplant	PDAST4R065	None	None	G5T2	S2	1B.2
<b><i>Hesperocyparis pygmaea</i></b> pygmy cypress	PGCUP04032	None	None	G1	S1	1B.2
<b><i>Hesperolinon adenophyllum</i></b> glandular western flax	PDLIN01010	None	None	G2G3	S2S3	1B.2
<b><i>Horkelia marinensis</i></b> Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
<b><i>Lasiurus cinereus</i></b> hoary bat	AMACC05030	None	None	G5	S4	
<b><i>Limnanthes bakeri</i></b> Baker's meadowfoam	PDLIM02020	None	Rare	G1	S1	1B.1
<b><i>Lupinus milo-bakeri</i></b> Milo Baker's lupine	PDFAB2B4E0	None	Threatened	G1Q	S1	1B.1
<b><i>Lycopodium clavatum</i></b> running-pine	PPLYC01080	None	None	G5	S3	4.1
<b><i>Margaritifera falcata</i></b> western pearlshell	IMBIV27020	None	None	G4G5	S1S2	
<b><i>Mitellastra caulescens</i></b> leafy-stemmed mitrewort	PDSAX0N020	None	None	G5	S4	4.2
<b><i>Montia howellii</i></b> Howell's montia	PDPOR05070	None	None	G3G4	S2	2B.2
<b><i>Myotis evotis</i></b> long-eared myotis	AMACC01070	None	None	G5	S3	
<b><i>Myotis thysanodes</i></b> fringed myotis	AMACC01090	None	None	G4	S3	
<b><i>Myotis yumanensis</i></b> Yuma myotis	AMACC01020	None	None	G5	S4	
<b><i>Navarretia leucocephala ssp. bakeri</i></b> Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
<b><i>North Central Coast Fall-Run Steelhead Stream</i></b> North Central Coast Fall-Run Steelhead Stream	CARA2631CA	None	None	GNR	SNR	
<b><i>Northern Interior Cypress Forest</i></b> Northern Interior Cypress Forest	CTT83220CA	None	None	G2	S2.2	
<b><i>Oncorhynchus kisutch pop. 2</i></b> coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	
<b><i>Oncorhynchus kisutch pop. 4</i></b> coho salmon - central California coast ESU	AFCHA02034	Endangered	Endangered	G4	S2?	



Selected Elements by Scientific Name  
California Department of Fish and Wildlife  
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Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Oncorhynchus mykiss irideus</i> pop. 16 steelhead - northern California DPS	AFCHA0209Q	Threatened	None	G5T2T3Q	S2S3	
<i>Oncorhynchus mykiss irideus</i> pop. 36 summer-run steelhead trout	AFCHA0213B	None	None	G5T4Q	S2	SSC
<i>Packera bolanderi</i> var. <i>bolanderi</i> seacoast ragwort	PDAST8H0H1	None	None	G4T4	S2S3	2B.2
<i>Pandion haliaetus</i> osprey	ABNKC01010	None	None	G5	S4	WL
<i>Pekania pennanti</i> fisher - West Coast DPS	AMAJF01021	None	Threatened	G5T2T3Q	S2S3	SSC
<i>Piperia candida</i> white-flowered rein orchid	PMORC1X050	None	None	G3	S3	1B.2
<i>Pleuropogon hooverianus</i> North Coast semaphore grass	PMPOA4Y070	None	Threatened	G2	S2	1B.1
<i>Potamogeton epihydrus</i> Nuttall's ribbon-leaved pondweed	PMPOT03080	None	None	G5	S2S3	2B.2
<i>Progne subis</i> purple martin	ABPAU01010	None	None	G5	S3	SSC
<i>Ramalina thrausta</i> angel's hair lichen	NLLEC3S340	None	None	G5	S2?	2B.1
<i>Rana aurora</i> northern red-legged frog	AAABH01021	None	None	G4	S3	SSC
<i>Rana boylei</i> foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
<i>Rhyacotriton variegatus</i> southern torrent salamander	AAAAJ01020	None	None	G3G4	S2S3	SSC
<i>Sedum laxum</i> ssp. <i>eastwoodiae</i> Red Mountain stonecrop	PDCRA0A0L1	None	None	G5T2	S2	1B.2
<i>Sidalcea malachroides</i> maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
<i>Silene campanulata</i> ssp. <i>campanulata</i> Red Mountain catchfly	PDCAR0U0A2	None	Endangered	G5T3Q	S3	4.2
<i>Taricha rivularis</i> red-bellied newt	AAAAF02020	None	None	G4	S2	SSC
<i>Taxidea taxus</i> American badger	AMAJF04010	None	None	G5	S3	SSC
<i>Thermopsis robusta</i> robust false lupine	PDFAB3Z0D0	None	None	G2	S2	1B.2
<i>Upland Douglas Fir Forest</i> Upland Douglas Fir Forest	CTT82420CA	None	None	G4	S3.1	
<i>Usnea longissima</i> Methuselah's beard lichen	NLLEC5P420	None	None	G4	S4	4.2



**Selected Elements by Scientific Name**  
**California Department of Fish and Wildlife**  
**California Natural Diversity Database**



<b>Species</b>	<b>Element Code</b>	<b>Federal Status</b>	<b>State Status</b>	<b>Global Rank</b>	<b>State Rank</b>	<b>Rare Plant Rank/CDFW SSC or FP</b>
<i>Viburnum ellipticum</i> oval-leaved viburnum	PDCPR07080	None	None	G4G5	S3?	2B.3

**Record Count: 81**

# Dutch Charlie Creek Instream Coho Habitat Enhancement Project

2019

## **Introduction:**

Trout Unlimited, Inc. (TU) will implement the Dutch Charlie Creek Instream Coho Habitat Enhancement Project. Historic timber harvest and stream clearing practices have resulted in a lack of large woody debris (LWD) in stream channels. Insufficient large wood densities lead to homogenous stream habitats that lack sufficient complexity and refuge for salmonids.

The proposed project addresses NOAA Recovery Plan Action Step SONCC-SFER.2.1.1.2: "Place instream structures, guided by assessment results." The 2007 California Department of Fish and Wildlife's (CDFW) Stream Inventory Report denotes the following shelter ratings for riffles, flatwater habitat types, and pools as 19, 27, and 59, respectively, with undercut banks listed as the dominant cover type. This report recommends installing large wood to increase instream habitat complexity. This project will increase habitat complexity and restore geomorphic function in the project area by increasing pool frequency and depth, increasing velocity and temperature refugia, and sorting instream suspended sediments. In 2015, Pacific Watershed Associates (PWA) completed a restoration planning assessment in the Dutch Charlie Creek watershed (Agreement# P1210519). This assessment included an inventory of instream large wood and riparian conditions, and report findings also identified a need for installing large wood instream. This project will help to maintain the geographic distribution of coho salmon (*Oncorhynchus kisutch*) in a system with historically strong populations and a high potential for recovery.

In addition to the selected focus species, coho salmon, this proposal would also benefit steelhead trout (*Oncorhynchus mykiss*). Improving habitat complexity, pool frequency, and pool depth through the installation of large wood would benefit all life stages of salmonids in the Dutch Charlie watershed. As a result, the proposed project also addresses the following task from the NOAA Multispecies Recovery Plan as it pertains to the Northern Coastal Steelhead Diversity Stratum: SFEeR-NCSW-6.1.1.2, "Add structure, as guided by plan."

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(s) will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* Volume I, Section VII (<https://www.wildlife.ca.gov/Grants/FRGP/Guidance>).

## **Objective(s):**

This project will install 203 pieces of large wood at 96 distinct structure locations in 2.0 miles of high-priority coho salmon recovery habitat in Dutch Charlie Creek. This project will increase stream habitat complexity, pool frequency, pool depth,

# Dutch Charlie Creek Instream Coho Habitat Enhancement Project

2019

high-flow refugia, and over-summer rearing habitat for coho salmon and steelhead trout.

## **Project Description:**

### **Location:**

The project area is located approximately 3.5 miles northwest of the town of Branscomb in Mendocino County, CA. Dutch Charlie Creek is a tributary to the South Fork Eel River, approximately 75 river miles upstream of the confluence with the mainstem Eel River.

Project boundaries are: 39.68901 north latitude, -123.67809 west longitude at the downstream end; 39.68878 north latitude, -123.71118 west longitude at the upstream end.

### **Project Set Up:**

The subcontractors for this project have a long history of partnering with Trout Unlimited to successfully complete large wood augmentation projects. Blencowe Watershed Management (BWM) will provide direct oversight of Pacific Inland Incorporated (PII) and California Conservation Corps (CCC) staff to complete the accelerated recruitment portion of the project as designed. Pacific Watershed Associates (PWA) will provide direct oversight for construction of the woven jams with tracked equipment. Staff from the PWA will also provide labor and materials required to complete CEQA compliance surveys.

### **Task 1: Grant Administration and Project Management**

The Trout Unlimited Project Manager will provide all grant and contract oversight and administration tasks including but not limited to obtaining permits, securing contracts (e.g. grantors, subcontractors, landowner, etc.), scheduling, implementation oversight, invoicing, reporting, and agency and landowner communications. All reporting and billing will be pursuant to the grant and regulatory guidelines. Upon final execution of the Grant and prior to receiving a Final Notice to Proceed, deliver the landowner access agreement, subcontracts, and assure all permits are finalized (if required). This task will occur throughout the life of the project. Elizabeth Mackey will be available on a full-time basis to manage this project. Anna Halligan may assist with some aspects of grant management, administration, and project coordination. In addition to the TU Project Manager, the TU California Grants Assistant, Valerie Wasem, will assist with processing invoices and vendor payments, grant tracking, and reporting.

### **Task 2: Environmental Compliance and CEQA Assessments**

PWA staff will complete CEQA assessments and reports required for this project. PWA Paleontologist and Botanist will complete cultural resource investigations, records searches, tribal consultations, and summary reports. The PWA Botanist will complete a floristic survey, CNDDDB records search, and botanical resources reports. The PWA biologist will be available to conduct foothill yellow-legged frog (*Rana boylei*) initial surveys and on-site monitoring work, as needed. The PWA paleontologist will complete the paleontological investigation. Following completion of the interim resource reports, TU will coordinate with CDFW to secure project coverage under the Programmatic Regional General Permit 12 and the Clean Water Act 401 certification. TU will also secure a CDFW 1600 LSAA permit prior to requesting a Notice to Proceed.

### **Task 3: Pre-Implementation Layout and Surveys**

Following CDFW approval, the BWM Project Manager, BWM Technician, and PWA Project Scientist will complete final site layout and flag equipment access routes prior to beginning construction. A pre-implementation effectiveness monitoring survey (e.g. longitudinal profile) will also be completed by both PWA (Project Scientist) and BWM (PM & Technician) per CDFW Restoration manual guidelines and monitoring forms as required by the FLAR focus. CCC Technical Assistant and/or CCC Conservationist I will assist with project layout and pre-implementation surveys of the accelerated recruitment work as needed.

### **Task 4: Project Implementation**

At least 203 pieces of large wood will be installed throughout the project reach. Accelerated recruitment (AR) construction will be directed by the BWM Project Manager (PM) and Technician, and construction of woven jams will be directed by the PWA Professional Geologist and Project Scientist. The Heavy Equipment Contractor, Excavator operator, Dozer operator, and Laborers will mobilize and operate all heavy tracked equipment to place jam wood instream. The BWM Faller will complete all direct falling activities, and the Licensed Timber Operator (PIO) will mobilize and operate all rubber-tired equipment for construction of AR sites. The CCC Laborers and Conservationist I will move, reposition, and/or bolt logs installed for accelerated recruitment at the direction of the BWM PM and Technician.

### **Task 5: Post-Construction Surveys**

Post-construction surveys, including photographic monitoring, wood inventory, documentation of as-built conditions, cross-sections, and post-project longitudinal profile assessments will be performed by PWA, BWM, and CCC staff as required by the grant agreement and required by the FLAR focus. Personnel required to

complete this tasks include PWA Project Scientist, BWM Project Manager, BWM Technician, CCC Technical Assistant and/or CCC Conservationist I.

## **Task 6: Data Management, Invoicing, and Reporting**

Pre- and post-project information will be compiled and analyzed in a manner to satisfy requirements of the CDFW Grant Agreement. Project information will be synthesized into Annual Progress Report(s) and a Final Report. The TU Project Manager and TU California Grants Assistant will compile, format, and submit invoices, reports, and a final budget to CDFW according to grant timelines. The PWA Principal, PWA Project Geologist, PWA Project Scientist, PWA Technical Staff, PWA GIS staff, PWA Clerical Staff, BWM Project Manager, BWM Technician, CCC Conservationist I, and CCC Technical Assistant will assist with final data management and reporting tasks.

### **Materials:**

**TU mileage:** Mileage reimbursement is requested for travel to/from the project site beginning from TU office in Fort Bragg.

**TU Supplies:** Includes costs associated with field supplies, meeting materials, and reporting supplies. These supplies may include, but are not limited to, flagging, rite-in-the-rain paper, poster board, postage, and external printing services.

**TU Permit Fees:** Fees for the 1600 LSAA application as required by CDFW BWM Mileage: Mileage required for project site visits.

**BWM Supplies:** Field materials include, but are not limited to flagging, metal identification tags, nails, rite-in-the rain paper, gloves, and measuring field tapes.

**PII Mileage:** Mileage required for project site visits.

**PII Equipment Mobilization:** Transporting the rubber tired tractor in/out of project site.

**PII Equipment Operation:** A rubber tired tractor and cable winch will be used to retrieve upslope trees and/or facilitate appropriate instream structure orientations.

**CCC Corps Member Laborer meals (food):** To feed Corps Member crews while on spike.

# Dutch Charlie Creek Instream Coho Habitat Enhancement Project

2019

CCC Spike Supplies: Materials needed to prepare food and maintain spike field camp for CCC crews (e.g. charcoal briquettes, propane, etc.)

CCC Portable Toilet Rental: Portable toilets are needed to maintain spike field camp while minimizing environmental impacts.

CCC Generator: Used for operating power equipment used during instream structure anchoring processes.

CCC Rebar: Supply used to anchor instream structures  
CCC Nuts: Used for anchoring instream structures  
CCC Washers: Used for anchoring instream structures.

CCC Wood Drill Bits: Used for drilling logs/root-wads/trees during instream structure anchoring process.

CCC Car Wash: Needed for larger tool decontamination.

CCC Tool/Gear Decontamination Chemicals (bulk): Used to decontaminate gear daily and between field sites.

CCC Hand Tools and Supplies: Hand tools needed to install large wood structures that include, but are not limited to chain, bar oil, files, hacksaws, bit extensions, shearpins, GFI, etc.

CCC Safety and First Aid Supplies: Personal protective equipment and First Aid materials for on-site construction that include, but are not limited to gloves, hard hats, and safety glasses.

CCC Tool/Equipment Service/Repair: Required for the service and/or repair of tools used for project implementation such as chainsaws, hand tools, etc.

CCC Office Supplies: Used for creating site designs, work-plans, and reporting. Includes paper, printer supplies, etc.

CCC Mileage: Mileage required for travel to/from project site.

PWA Mulch and Seeds: Erosion control measures  
PWA Log tong rental: Will be used to procure and position project logs.

PWA Pressure Washer: Heavy equipment decontamination.

PWA Supplies: Field materials may include, but are not limited to flagging, metal identification tags, nails, rite-in-the rain paper, gloves, and measuring field tapes.

PWA Mileage: Travel to/from project site.

PWA Lodging and Per Diem: Overnight and daily travel costs for on-site work.

Anderson Logging Contractor Mileage: Travel to/from project site.

Anderson Logging Mobilization: Costs required for tracked equipment mobilization (low boy and pilot car).

Anderson Logging Contractor Excavator: Necessary to implement woven jam structures.

Anderson Logging Contractor Dozer: Necessary to implement woven jam structures LWD (LRFC): 203 pieces of large wood are required to install structures as designed in this proposal. The landowner (LRFC) will contribute these materials as in-kind cost share.

## **Tasks:**

### **Task 1: Grant Administration and Project Management**

The Trout Unlimited Project Manager will provide all grant and contract oversight and administration tasks including but not limited to obtaining permits, securing contracts (e.g. grantors, subcontractors, landowner, etc.), scheduling, implementation oversight, invoicing, reporting, and agency and landowner communications. All reporting and billing will be pursuant to the grant and regulatory guidelines. Upon final execution of the Grant and prior to receiving a Final Notice to Proceed, deliver the landowner access agreement, subcontracts, and assure all permits are finalized (if required).

This task will occur throughout the life of the project. Elizabeth Mackey will be available on a full-time basis to manage this project. Anna Halligan may assist with some aspects of grant management, administration, and project coordination. In addition to the TU Project Manager, the TU California Grants Assistant, Valerie Wasem, will assist with processing invoices and vendor payments, grant tracking, and reporting.

### **Task 2: Environmental Compliance and CEQA Assessments**

PWA staff will complete CEQA assessments and reports required for this project. PWA Paleontologist and Botanist will complete cultural resource investigations, records searches, tribal consultations, and summary reports. The PWA Botanist will complete a botany survey, CNDDDB records search, and botanical resources

reports. The PWA biologist will be available to conduct foothill yellow-legged frog initial surveys and on-site monitoring work, as needed. The PWA paleontologist will complete the paleontological investigation. Following completion of the interim resource reports, TU will coordinate with CDFW to secure project coverage under the Programmatic RGP 12 and 401 certification. TU will also secure a CDFW 1600 LSAA permit prior to requesting a Notice to Proceed.

### **Task 3: Pre-Implementation Layout and Surveys**

Following CDFW approval, the BWM Project Manager, BWM Technician, and PWA Project Scientist will complete final site layout and flag equipment access routes prior to beginning construction. A pre-implementation effectiveness monitoring survey (e.g. longitudinal profile) will also be completed by both PWA (Project Scientist) and BWM (Project Manager & Technician) per CDFW Restoration manual guidelines and monitoring forms as required by the FLAR focus. CCC Technical Assistant and/or CCC Conservationist I will assist with project layout and pre-implementation surveys of the accelerated recruitment work as needed.

### **Task 4: Project Implementation**

At least 203 pieces of large wood will be installed throughout the project reach. Accelerated recruitment (AR) construction will be directed by the BWM Project Manager (PM) and Technician, and construction of woven jams will be directed by the PWA Professional Geologist and Project Scientist. The Heavy Equipment Contractor Excavator operator, Dozer operator, and Laborers will mobilize and operate all heavy tracked equipment to place jam wood instream. The BWM Faller will complete all direct falling activities, and the Licensed Timber Operator (PII) will mobilize and operate all rubber-tired equipment for construction of AR sites. The CCC Laborers and Conservationist I will move, reposition, and/or bolt logs installed for accelerated recruitment at the direction of the BWM PM and Technician.

### **Task 5: Post-Construction Surveys**

Post-construction surveys, including photographic monitoring, wood inventory, documentation of as-built conditions, cross-sections, and post-project longitudinal profile assessments will be performed by PWA, BWM, and CCC staff as required by the grant agreement and required by the FLAR focus. Personnel required to complete this tasks include PWA Project Scientist, BWM Project Manager, BWM Technician, CCC Technical Assistant and/or CCC Conservationist I.

### **Task 6: Data Management, Invoicing, and Reporting**

Pre- and post-project information will be compiled and analyzed in a manner to satisfy requirements of the CDFW Grant Agreement. Project information will be synthesized into Annual Progress Report(s) and a Final Report. The TU Project Manager and TU California Grants Assistant will compile, format, and submit invoices, reports, and a final budget to CDFW according to grant timelines. The PWA Principal, PWA Project Geologist, PWA Project Scientist, PWA Technical Staff, PWA GIS staff, PWA Clerical Staff, BWM Project Manager, BWM Technician, CCC Conservationist I, and CCC Technical Assistant will assist with final data management and reporting tasks.

## **Deliverables:**

**Task 1 - Grant Administration and Project Management:** Project deliverables will include the information listed below as well as everything that will be delivered to the CDFW Project Manager during the life of the project: Final Landowner Access Agreements (prior to receiving Notice to Proceed); Executed subcontractor agreements (prior to receiving the Notice to Proceed), and Invoices & Progress Reports (submitted at least quarterly).

**Task 2 - Environmental Compliance and CEQA Surveys:** Interim Cultural resource, botanical, biological, and paleontological reports (completed prior to receiving Notice to Proceed); Final Cultural resource, botanical, and paleontological reports (to be completed prior to project Final Report); Preparation and payment of CDFW LSAA/1600 Agreement Application (prior to receiving Notice to Proceed).

**Task 3 - Pre-Implementation Project Layout and Surveys:** Final feature layout and updated feature plans, if necessary; Pre-project longitudinal profile, cross-sections, etc. as required by effectiveness monitoring forms.

**Task 4 - Implementation:** Construction of 96 sites with at least 203 pieces of large wood.

**Task 5 - Post-Implementation Surveys:** Actual performance measures by site, as-built drawings, before and after photographs, post-project longitudinal profile and cross sections.

**Task 6 - Data Management and Reporting:** Progress Reports (pdf format); Annual Reports (pdf format); and Final Grant Report (cd and hard copy), including all pre-and post-project data produced as a part of the project; Final Invoice and Final Budget.

## **Timelines:**

# Dutch Charlie Creek Instream Coho Habitat Enhancement Project

2019

**Task 1 - Grant Administration and Project Management:** 04/01/2020 to 03/31/2022.

**Task 2 - Environmental Compliance and CEQA Surveys:** 04/01/2020 to 09/30/2021.

**Task 3 - Pre-Implementation Project Layout and Surveys:** 06/01/2020 to 07/01/2021.

**Task 4 - Implementation:** 07/10/2020 to 10/31/2021.

**Task 5 - Post-Implementation Surveys:** 11/01/2020 to 02/15/2022.

**Task 6 - Data Management and Reporting:** 04/01/2020 to 03/31/2022.

## **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

# Dutch Charlie Creek Instream Coho Habitat Enhancement Project

2019

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*.

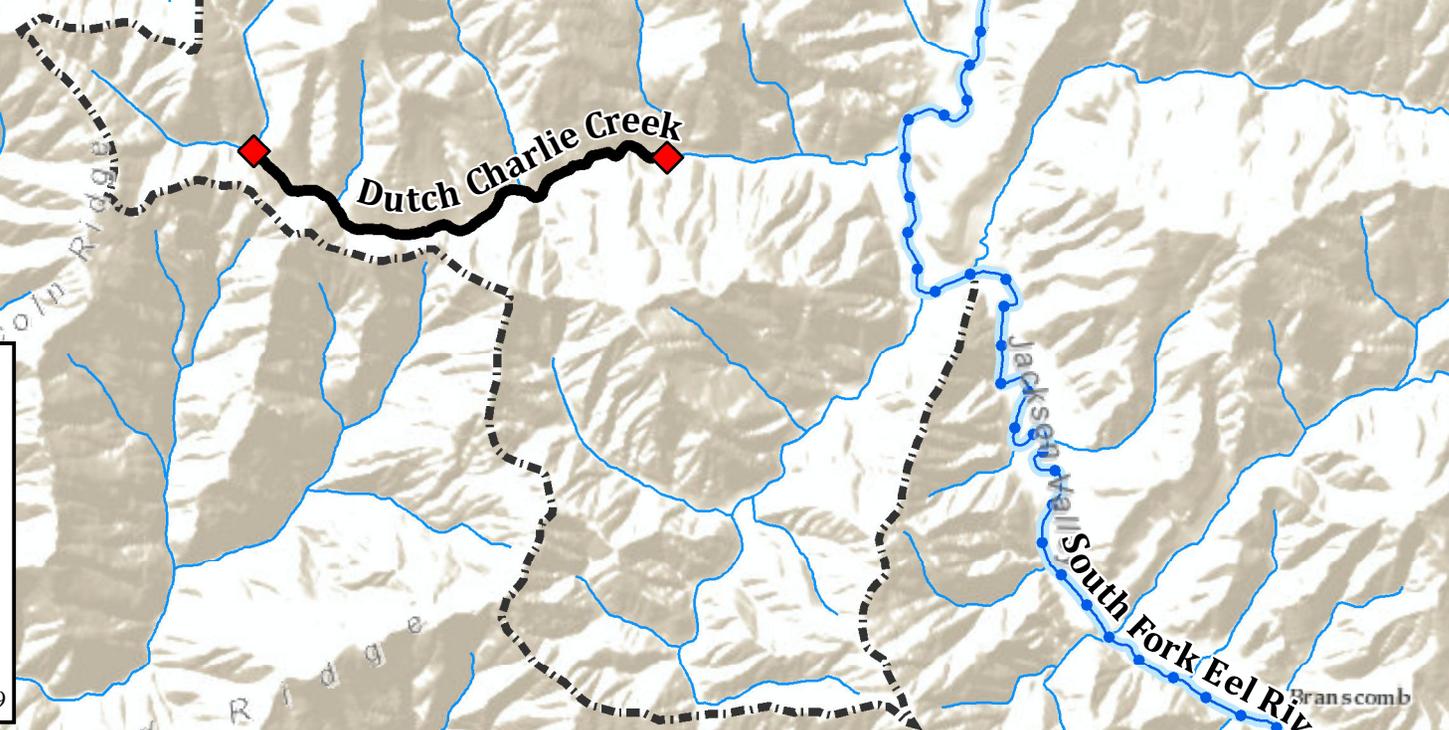
All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to ensure the best chance of survival of the seedlings.

# Dutch Charlie Creek Instream Habitat Enhancement Project Watershed Map

Mendocino County  
Lincoln Ridge 7.5' USGS Quad

1 inch = 4,392 feet

N



## Legend

- ◆ Project Start/Stop
- Dutch Charlie Project
- - - Dutch Charlie Watershed
- Mainstem stream
- Other streams

JB 4/10/2019



# Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



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

Possible species within the Lincoln Ridge and surrounding quads for 3073 Dutch Charlie Creek Instream Coho Habitat Enhancement Project, Mendocino County

Table with 7 columns: Species, Element Code, Federal Status, State Status, Global Rank, State Rank, Rare Plant Rank/CDFW SSC or FP. Rows include species like Abronia umbellata var. breviflora, Accipiter gentilis, Agrostis blasdalei, Alisma gramineum, Anodonta californiensis, Arborimus pomo, Arctostaphylos manzanita ssp. elegans, Arctostaphylos stanfordiana ssp. raichei, Ardea herodias, Ascaphus truei, Astragalus agnicidus, Bombus caliginos, Bombus crotchii, Bombus occidentalis, Brachyramphus marmoratus, Brasenia schreberi, Calamagrostis crassiglumis, and Calamagrostis foliosa.



Selected Elements by Scientific 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
<b><i>Campanula californica</i></b> swamp harebell	PDCAM02060	None	None	G3	S3	1B.2
<b><i>Cardamine angulata</i></b> seaside bittercress	PDBRA0K010	None	None	G4G5	S3	2B.1
<b><i>Carex lyngbyei</i></b> Lyngbye's sedge	PMCYP037Y0	None	None	G5	S3	2B.2
<b><i>Carex saliniformis</i></b> deceiving sedge	PMCYP03BY0	None	None	G2	S2	1B.2
<b><i>Carex viridula ssp. viridula</i></b> green yellow sedge	PMCYP03EM5	None	None	G5T5	S2	2B.3
<b><i>Castilleja mendocinensis</i></b> Mendocino Coast paintbrush	PDSCR0D3N0	None	None	G2	S2	1B.2
<b><i>Ceanothus foliosus var. vineatus</i></b> Vine Hill ceanothus	PDRHA040D6	None	None	G3T1	S1	1B.1
<b><i>Charadrius alexandrinus nivosus</i></b> western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
<b><i>Chorizanthe howellii</i></b> Howell's spineflower	PDPGN040C0	Endangered	Threatened	G1	S1	1B.2
<b><i>Clarkia amoena ssp. whitneyi</i></b> Whitney's farewell-to-spring	PDONA05025	None	None	G5T1	S1	1B.1
<b>Coastal and Valley Freshwater Marsh</b> Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
<b>Coastal Brackish Marsh</b> Coastal Brackish Marsh	CTT52200CA	None	None	G2	S2.1	
<b><i>Coelus globosus</i></b> globose dune beetle	IICOL4A010	None	None	G1G2	S1S2	
<b><i>Collinsia corymbosa</i></b> round-headed Chinese-houses	PDSCR0H060	None	None	G1	S1	1B.2
<b><i>Coptis laciniata</i></b> Oregon goldthread	PDRAN0A020	None	None	G4?	S3?	4.2
<b><i>Corynorhinus townsendii</i></b> Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
<b><i>Emys marmorata</i></b> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
<b><i>Entosphenus tridentatus</i></b> Pacific lamprey	AFBAA02100	None	None	G4	S4	SSC
<b><i>Erethizon dorsatum</i></b> North American porcupine	AMAFJ01010	None	None	G5	S3	
<b><i>Eriogonum kelloggii</i></b> Kellogg's buckwheat	PDPGN083A0	None	Endangered	G2	S2	1B.2
<b><i>Erysimum concinnum</i></b> bluff wallflower	PDBRA160E3	None	None	G3	S2	1B.2



Selected Elements by Scientific 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
<b><i>Erysimum menziesii</i></b> Menzies' wallflower	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
<b><i>Erythronium revolutum</i></b> coast fawn lily	PMLIL0U0F0	None	None	G4G5	S3	2B.2
<b><i>Eucyclogobius newberryi</i></b> tidewater goby	AFCQN04010	Endangered	None	G3	S3	SSC
<b><i>Fen</i></b> Fen	CTT51200CA	None	None	G2	S1.2	
<b><i>Gilia capitata ssp. pacifica</i></b> Pacific gilia	PDPLM040B6	None	None	G5T3	S2	1B.2
<b><i>Gilia millefoliata</i></b> dark-eyed gilia	PDPLM04130	None	None	G2	S2	1B.2
<b><i>Grand Fir Forest</i></b> Grand Fir Forest	CTT82120CA	None	None	G1	S1.1	
<b><i>Hesperevax sparsiflora var. brevifolia</i></b> short-leaved evax	PDASTE5011	None	None	G4T3	S2	1B.2
<b><i>Hesperocyparis pygmaea</i></b> pygmy cypress	PGCUP04032	None	None	G1	S1	1B.2
<b><i>Horkelia marinensis</i></b> Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
<b><i>Lasiurus cinereus</i></b> hoary bat	AMACC05030	None	None	G5	S4	
<b><i>Lasthenia californica ssp. bakeri</i></b> Baker's goldfields	PDAST5L0C4	None	None	G3T1	S1	1B.2
<b><i>Lasthenia californica ssp. macrantha</i></b> perennial goldfields	PDAST5L0C5	None	None	G3T2	S2	1B.2
<b><i>Lilium maritimum</i></b> coast lily	PMLIL1A0C0	None	None	G2	S2	1B.1
<b><i>Margaritifera falcata</i></b> western pearlshell	IMBIV27020	None	None	G4G5	S1S2	
<b><i>Mitellastra caulescens</i></b> leafy-stemmed mitrewort	PDSAX0N020	None	None	G5	S4	4.2
<b><i>Navarretia leucocephala ssp. bakeri</i></b> Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
<b><i>North Central Coast Fall-Run Steelhead Stream</i></b> North Central Coast Fall-Run Steelhead Stream	CARA2631CA	None	None	GNR	SNR	
<b><i>Northern Coastal Salt Marsh</i></b> Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
<b><i>Noyo intersessa</i></b> Ten Mile shoulderband	IMGASC5070	None	None	G2	S2	
<b><i>Oenothera wolfii</i></b> Wolf's evening-primrose	PDONA0C1K0	None	None	G2	S1	1B.1



Selected Elements by Scientific 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
<b><i>Oncorhynchus kisutch</i> pop. 4</b> coho salmon - central California coast ESU	AFCHA02034	Endangered	Endangered	G4	S2?	
<b><i>Oncorhynchus mykiss irideus</i> pop. 16</b> steelhead - northern California DPS	AFCHA0209Q	Threatened	None	G5T2T3Q	S2S3	
<b><i>Pekania pennanti</i></b> fisher - West Coast DPS	AMAJF01021	None	Threatened	G5T2T3Q	S2S3	SSC
<b><i>Phacelia insularis</i> var. <i>continentis</i></b> North Coast phacelia	PDHYD0C2B1	None	None	G2T2	S2	1B.2
<b><i>Piperia candida</i></b> white-flowered rein orchid	PMORC1X050	None	None	G3	S3	1B.2
<b><i>Pleuropogon hooverianus</i></b> North Coast semaphore grass	PMPOA4Y070	None	Threatened	G2	S2	1B.1
<b><i>Potamogeton epihydrus</i></b> Nuttall's ribbon-leaved pondweed	PMPOT03080	None	None	G5	S2S3	2B.2
<b><i>Progne subis</i></b> purple martin	ABPAU01010	None	None	G5	S3	SSC
<b><i>Rana aurora</i></b> northern red-legged frog	AAABH01021	None	None	G4	S3	SSC
<b><i>Rana boylei</i></b> foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
<b><i>Rhyacotriton variegatus</i></b> southern torrent salamander	AAAAJ01020	None	None	G3G4	S2S3	SSC
<b><i>Rhynchospora alba</i></b> white beaked-rush	PMCYP0N010	None	None	G5	S2	2B.2
<b><i>Sidalcea malachroides</i></b> maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
<b><i>Sidalcea malviflora</i> ssp. <i>purpurea</i></b> purple-stemmed checkerbloom	PDMAL110FL	None	None	G5T1	S1	1B.2
<b><i>Silene campanulata</i> ssp. <i>campanulata</i></b> Red Mountain catchfly	PDCAR0U0A2	None	Endangered	G5T3Q	S3	4.2
<b><i>Taricha rivularis</i></b> red-bellied newt	AAAAF02020	None	None	G4	S2	SSC
<b><i>Taxidea taxus</i></b> American badger	AMAJF04010	None	None	G5	S3	SSC
<b><i>Thermopsis robusta</i></b> robust false lupine	PDFAB3Z0D0	None	None	G2	S2	1B.2
<b><i>Triquetrella californica</i></b> coastal triquetrella	NBMUS7S010	None	None	G2	S2	1B.2
<b>Upland Douglas Fir Forest</b> Upland Douglas Fir Forest	CTT82420CA	None	None	G4	S3.1	
<b><i>Usnea longissima</i></b> Methuselah's beard lichen	NLLEC5P420	None	None	G4	S4	4.2



**Selected Elements by Scientific Name**  
**California Department of Fish and Wildlife**  
**California Natural Diversity Database**



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<b>Species</b>	<b>Element Code</b>	<b>Federal Status</b>	<b>State Status</b>	<b>Global Rank</b>	<b>State Rank</b>	<b>Rare Plant Rank/CDFW SSC or FP</b>
<i>Viburnum ellipticum</i> oval-leaved viburnum	PDCPR07080	None	None	G4G5	S3?	2B.3

**Record Count: 82**

## **Introduction:**

Trout Unlimited, Inc. (TU) will decommission 5.23 miles of streamside riparian roads including 25 stream crossings, 18 fill failures, two springs and one bank erosion feature along the mainstem of Julius Creek. The project will also upgrade two stream crossings on two unnamed tributaries to South Fork Usal Creek. This project is necessary because excessive sediment inputs from legacy timber practices continue to adversely impact the channel geomorphology and fish habitat of the Julias Creek watershed, in the form of channel-stored sediments within the upper main stem and its tributaries, and as high turbidity levels during wet weather conditions. Furthermore, altered hillside hydrology, along with an extreme lack of large wood in the channel system, has led to simplified channel geometry in mainstem reaches, where the altered stream channel lacks habitat complexity. By reducing both chronic and episodic sediment delivery to the stream system and normalizing the hillside hydrology this project will accelerate the natural recovery of anadromous fish in the watershed.

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(s) will follow techniques in the *California Salmonid Stream Habitat Restoration Manual Volume II Part X* (<https://www.wildlife.ca.gov/Grants/FRGP/Guidance>).

## **Objective(s):**

This project will result in the permanent removal of 5.23 miles of streamside riparian road which represents almost 100% of the streamside road under Redwood Forest Foundation Inc. management along Julius Creek. It will also reduce future anthropogenic sediment impacts from the streamside road system to the watershed by eliminating approximately 14,445 cubic yards of future potential sediment from the decommissioned road system and normalizing the hillside hydrology.

## **Project Description:**

### **Location:**

The Julias Creek Watershed is located west of Leggett, California in the Usal Creek Watershed. Specifically, the project includes permanent road removal of almost all of the streamside riparian roads in the watershed. Julius Creek intersects Usal Creek approximately 3.10 miles upstream of its confluence with the Pacific Ocean. From streamside road removal will occur on the mainstem and largest tributaries for approximately 5.23 stream miles. The project is located on the Hales Grove United States Geologic Survey 24k Quad. Project

coordinates are: 39.849124 north latitude, - 123.801951 west longitude (center point of the road decommission project).

## **Project Set Up:**

The TU Project Manager will provide all grant and contract oversight and administration tasks including but not limited to obtaining permits, securing contracts (e.g. grantors, subcontractors, landowner, etc.), scheduling, implementation oversight, invoicing, reporting, and agency and landowner communications. All reporting and billing will be pursuant to the grant and regulatory guidelines. Upon final execution of the Grant and prior to receiving a Final Notice to Proceed, deliver the Final Landowner Agreement, subcontracts, and assure all permits are finalized (if required). This task will occur throughout the life of the project. Anna Halligan will be available on a full-time basis to manage this project. Elizabeth Mackey may assist with some aspects of grant management, administration, and project coordination. In addition to the TU Project Manager, the TU California Grants Assistant, Valerie Wasem, will assist with processing invoices and vendor payments, grant tracking, and reporting.

The implementation of the road decommissioning will be completed by Pacific Watershed Associates (PWA) (construction manager). PWA professionals will be under the charge of Engineering Geologist, Thomas H. Leroy (CEG #2593), who will provide project and construction oversight and Quality Assurance /Quality Control of project products. The PWA Project Leader will manage project layout, construction oversight, monitoring, and reporting. The PWA Biologists will assist with frog identification and minimization measures and the PWA paleontologist (Senior Geologist) will provide paleontology surveys required for the California Environmental Quality Act. PWA Technical Staff will conduct surveys, be on-site to layout the heavy equipment construction treatments in the project area, construction oversight, pre-, during, and post-construction monitoring as required by the Forest Land Anadromous Restoration program (FLAR), and data entry. PWA Geographic Information Systems staff will provide field layout maps, digitize layout and as-built project data, and develop report maps. PWA clerical staff will track and monitor hours and create invoices during the project. All PWA work elements will be supervised by a PWA Principal. The final reporting of the project will be done by the PWA Engineering Geologist and Project Leader with assistance and oversight from TU's Project Manager. The final summary report will include project accomplishments such as the final project budget, photographic monitoring, as-built road logs, and other project information as required by the grant agreement.

Rice Construction will be the heavy equipment contractor for the project. Rice Construction will be providing all heavy equipment for the project including

# Julias Creek Sediment Reduction and Salmonid Recovery Project

2019

Excavator, Dozer, Water Truck, Dump Truck, Low Boy, Pilot Car, Labor for erosion control, and Truck and trailer.

Revegetation will be conducted by Woodbenders.

Fish identification, relocation and monitoring will be implemented by Ross Taylor and Associates (RTA) and PWA. A qualified RTA Biologist, PWA Biologist, and RTA Employee will conduct Electrofishing, de-watering, and fish relocation activities, as needed.

Redwood Forest Foundation Inc. (RFFI) forestry and botanical staff will conduct a cultural resource survey and a botanical resource survey. This information will be provided to the California Department of Fish and Wildlife (CDFW) prior to implementation. RFFI will also provide planting materials (e.g. trees) required to complete this project. These services will be contributed as in-kind cost share.

## **Materials:**

RFFI Trees (planting): Approximately 1,267 trees will be planted by specialized laborers. Trees will be provided by landowner as cost share.

PWA Straw: Approximately 350 bales. PWA Seed: Approximately 240 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 as needed. 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. PWA Debris/Trash Pump: Implementation of the proposed project is estimated to require the use/rental of one pump intermittently 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. PWA 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. It will be the responsibility of the equipment subcontractor to decontaminate all heavy equipment prior to entering the project area. PWA Culvert: The project will require 300 feet of six foot flex pipe as part of the stream dewatering to assure water quality protection in active construction areas. The project will also require 80 feet of 60 inch; 80 feet of 36 inch; 120 feet of 30 inch, and 160 feet of 18 inch diameter culvert to upgrade the two stream crossings on the M&M road and construct Spittler crossings where the road network crosses class I streams. Secured by subcontractor. PWA Office Supplies: Many small office supplies will be used to complete the project including photo duplication for final reports,

copying/binding for final reports, report maps, and postage. PWA Mileage and per diem: PWA staff require mileage, lodging and per diem to accommodate travel needs to visit the site and meet with partners. PWA Field Supplies: Field materials may include, but are not limited to flagging, metal identification tags, nails, rite-in-the rain paper, gloves, spray paint and measuring field tapes.

Rice Construction Mileage: One-way contractor mileage is required for transportation costs to get the contractor (heavy equipment operators) to the project site on a daily basis. Heavy equipment: An Excavator, Dozer, Water Truck, Dump Truck, Low Boy, Pilot Car, and Truck and trailer will be required for equipment mobilization and construction. Rice construction will provide necessary equipment and operation labor.

TU Mileage: Mileage reimbursement for five round trips to the project site. TU Supplies: Includes costs associated with field supplies, meeting materials, and supporting supplies such as flagging, measuring tapes, wooden stakes, rite-in-the-rain paper, notebooks and notepads, writing utensils, charting pads, envelopes, poster board, and fastening supplies. TU Permit Fee: Required for Notification of Lake or Streambed Alteration Fee.

RTA Supplies: Electrofishing gear to conduct fish relocations; three inch centrifugal pump for drawing down larger pools; exclusion fencing; water quality equipment required to conduct de-watering and fish relocations. These items will be secured by RTA staff. RTA Travel Miles: Required to travel to/from project site. RTA Per Diem: Per diem to accommodate overnight travel.

## **Tasks:**

**Task A. Grant Oversight and Project Administration:** TU personnel will provide all contracting oversight and administration as pursuant to grant and regulatory guidelines. This includes but is not limited to obtaining permits, securing contracts, scheduling, implementation oversight, invoicing, reporting, and agency and landowner communications. Upon final execution of the Grant and prior to receiving a Final Notice to Proceed, TU personnel will deliver the Final Landowner Agreement, subcontracts, and assure all permits are finalized. Additionally, the TU Grants Assistant will be available to assist with invoicing and vendor payment. This task will occur throughout the life of the project.

**Task B. Implementation of the road decommissioning (PWA):** PWA will be responsible for executing project implementation.

**Task B-1. Environmental Compliance and Pre-project layout:** PWA will coordinate with RFFI to conduct the appropriate surveys for listed species. RFFI staff will complete necessary cultural resource and botanical surveys. Prior to

implementation all required botanical, biotic, cultural, and paleontological survey information will be provided to TU and CDFW. Exclusionary fencing for salmonids and other aquatic species will be installed at the confluence of flowing tributaries to prevent upstream migration into the construction areas as deemed necessary by the grant manager, Biologist, and the project manager. This component of the project may require fish and amphibian exclusion and relocation. This task will be conducted by Ross Taylor and Associates (RTA) and the PWA Biologist. PWA will flag heavy equipment access routes and construction boundaries (layout) as well as spoils disposal sites, equipment exclusion areas for biologic or cultural resource protection, and LWD staging areas. They will also document the existing conditions on a subset of the stream crossings and setup photo point monitoring stations at the construction locations for final reporting. Pre-construction monitoring will be performed by PWA in a manner consistent with CDFW guidelines and as required by FLAR.

**Task B-2. Road opening, feature treatment, and erosion control:** PWA will work with Rice Construction heavy equipment operators to reopen the road sites for equipment access and decommissioning treatments. All equipment, vehicles and materials used to implement this project will be cleaned and treated in accordance with the TU Aquatic Invasive Species Decontamination Plan. Personal field gear and heavy equipment working in or near a stream will be decontaminated as well. Several methods will be employed to avoid the spread of invasive species during the implementation of the project.

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

**Task B-2-2.** An excavator and bulldozer will be used to reopen the road for decommissioning by removing the vegetation and developing temporary stream crossings if prudent. A gasoline powered water pump will be used to protect water quality during installation of temporary crossings; these will be managed by a laborer.

**Task B-2-3.** The excavator, bulldozer and dump truck will be used to remove the anthropogenic road fill material from the stream crossing decommissioning features and other site specific features specified for treatment. Similarly, they will be used to treat and restore all road surface drainage as they work their way out from the end of the road. A gas powered water pump will be used to divert flow and protect water quality during decommissioning of live stream crossings; these will be managed by a laborer. Concurrently working with the excavator and bulldozer, the dump truck will end-haul spoils from decommission areas to designated spoil disposal sites. The water truck will be used for dust abatement to protect water quality and riparian vegetation, and laborers will be used to

spread seed and straw, and plant trees at completed construction sites. In accordance with the invasive species protocol all heavy equipment will be cleaned before and after entering/leaving the work area.

**Task B-2-4.** Post-construction monitoring, including photographic monitoring, and stream crossing profiles, will be performed by PWA consistent with the CDFW guidelines and as required by the FLAR focus. This task could begin as early as June 2020, assuming that the appropriate level of biotic, floristic and cultural resource surveys have been completed prior to implementation.

**Task C. Reporting:** PWA will conduct post-decommissioning surveys on a subset of the stream crossings and reoccupy photo points to document pre- and post-conditions at the feature locations. TU and PWA will develop a report based on CDFW requirements that documents the work completed and the total costs to implement the project. Reports will be submitted annually by November 15, and a Final Project Report will be prepared and submitted prior to grant close-out (including Final Project Budget and Final Invoice). Annual and final reports will include summaries of the following information as required: (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 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, (10) GIS generated maps and shapefiles of the project area, and (11) monitoring checklists, databases, spreadsheets and any other data products produced during the grant term.

## **Deliverables:**

**Task A. Grant Oversight and Project Administration:** Project deliverables will include the information listed below as well as everything that will be delivered to the CDFW Project Manager during the life of the project: Final Landowner Agreements (prior to receiving Notice to Proceed); Executed subcontractor agreements (prior to receiving the Notice to Proceed), and Invoices and Progress Reports (submitted at least quarterly).

**Task B. Implementation of the road decommissioning (PWA):** Deliverables include interim cultural resource, botanical, biological, and paleontological reports (completed prior to receiving Notice to Proceed); Final Cultural resource, botanical, and paleontological reports (to be completed prior to project Final Report); as-built road log and all associated data (to be included with final report).

# Julias Creek Sediment Reduction and Salmonid Recovery Project

2019

**Task C. Reporting:** Progress Reports (pdf format); Annual Reports (pdf format); and Final Grant Report (cd and hard copy), including all pre-and post-project data produced as a part of the project; Final Invoice and Final Budget.

## Timelines:

**Task A. Grant Oversight and Project Administration:** 04/01/2020 to 03/31/2022.

**Task B. Implementation of the road decommissioning (PWA):** 06/30/2020 to 03/31/2022.

**Task C. Reporting:** 11/15/2021 to 03/31/2022.

## Additional Requirements:

Provide survey data demonstrating steelhead trout (*Oncorhynchus mykiss*) are not present at feature 2029 before construction.

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.

All road decommissioning will be done in accordance with techniques described in the Handbook for Forest and Ranch Roads, (PWA, 1994c.) and the *California*

*Salmonid Stream Habitat Restoration Manual*, Volume II, Part X. All road upgrade and decommissioning sites and techniques shall be approved by the Grantor Project Manager before any equipment work takes place.

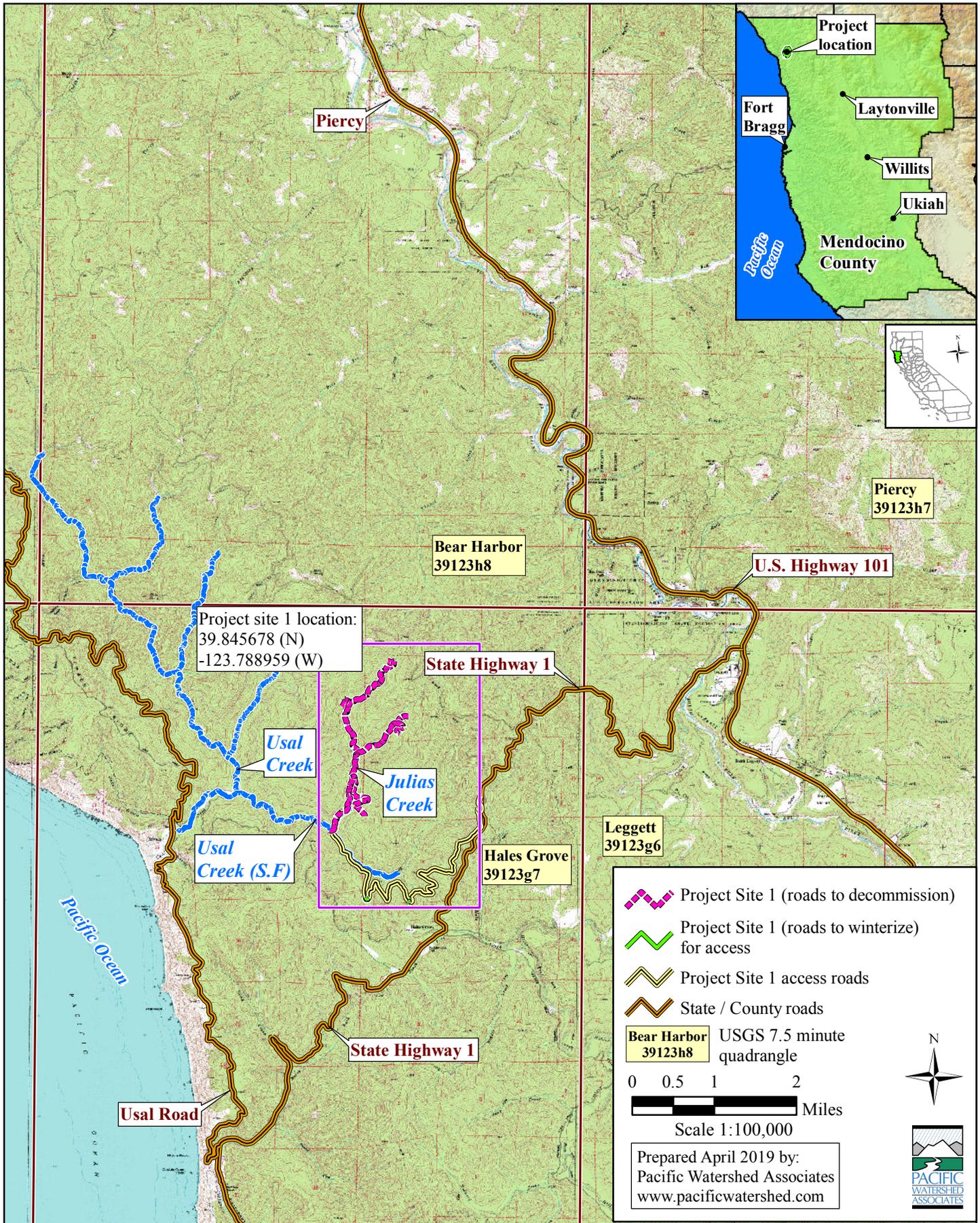
All crossings treated in fish bearing reaches of streams will follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and the criteria for adult and juvenile salmonid fish passage as described in Volume II, Part IX of the *California Salmonid Stream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

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

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

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

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.



Map 1. Project location topographic map for the Julius Creek Sediment Reduction and Salmonid Recovery Project, Mendocino County, California. Grantee: Trout Unlimited



# Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad (Hales Grove (3912377) OR Noble Butte (3912386) OR Leggett (3912376) OR Lincoln Ridge (3912366) OR Westport (3912367) OR Mistake Point (3912378) OR Bear Harbor (3912388) OR Piercy (3912387))

Possible species within the Hales Grove and surrounding quads for 3074 Julias Creek Sediment Reduction and Salmonid Recovery Project, Mendocino County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Abronia umbellata</i> var. <i>breviflora</i> pink sand-verbena	PDNYC010N4	None	None	G4G5T2	S2	1B.1
<i>Accipiter cooperii</i> Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
<i>Accipiter gentilis</i> northern goshawk	ABNKC12060	None	None	G5	S3	SSC
<i>Agrostis blasdalei</i> Blasdale's bent grass	PMPOA04060	None	None	G2	S2	1B.2
<i>Anodonta californiensis</i> California floater	IMBIV04020	None	None	G3Q	S2?	
<i>Antrozous pallidus</i> pallid bat	AMACC10010	None	None	G5	S3	SSC
<i>Arabis mcdonaldiana</i> McDonald's rockcress	PDBRA06150	Endangered	Endangered	G3	S3	1B.1
<i>Arboremus pomo</i> Sonoma tree vole	AMAFF23030	None	None	G3	S3	SSC
<i>Arctostaphylos stanfordiana</i> ssp. <i>raichei</i> Raiche's manzanita	PDERI041G2	None	None	G3T2	S2	1B.1
<i>Ascaphus truei</i> Pacific tailed frog	AAABA01010	None	None	G4	S3S4	SSC
<i>Astragalus agnicidus</i> Humboldt County milk-vetch	PDFAB0F080	None	Endangered	G2	S2	1B.1
<i>Bombus caliginosus</i> obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
<i>Bombus crotchii</i> Crotch bumble bee	IIHYM24480	None	None	G3G4	S1S2	
<i>Bombus occidentalis</i> western bumble bee	IIHYM24250	None	None	G2G3	S1	
<i>Calamagrostis foliosa</i> leafy reed grass	PMPOA170C0	None	Rare	G3	S3	4.2
<i>Cardamine angulata</i> seaside bittercress	PDBRA0K010	None	None	G4G5	S3	2B.1
<i>Castilleja litoralis</i> Oregon coast paintbrush	PDSCR0D012	None	None	G3	S3	2B.2
<i>Castilleja mendocinensis</i> Mendocino Coast paintbrush	PDSCR0D3N0	None	None	G2	S2	1B.2
<i>Ceanothus foliosus</i> var. <i>vineatus</i> Vine Hill ceanothus	PDRHA040D6	None	None	G3T1	S1	1B.1



Selected Elements by Scientific 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
<b><i>Clarkia amoena ssp. whitneyi</i></b> Whitney's farewell-to-spring	PDONA05025	None	None	G5T1	S1	1B.1
<b><i>Coptis laciniata</i></b> Oregon goldthread	PDRAN0A020	None	None	G4?	S3?	4.2
<b><i>Corynorhinus townsendii</i></b> Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
<b><i>Erethizon dorsatum</i></b> North American porcupine	AMAFJ01010	None	None	G5	S3	
<b><i>Eriogonum kelloggii</i></b> Kellogg's buckwheat	PDPGN083A0	None	Endangered	G2	S2	1B.2
<b><i>Erysimum concinnum</i></b> bluff wallflower	PDBRA160E3	None	None	G3	S2	1B.2
<b><i>Erythronium revolutum</i></b> coast fawn lily	PMLIL0U0F0	None	None	G4G5	S3	2B.2
<b><i>Gentiana setigera</i></b> Mendocino gentian	PDGEN060S0	None	None	G2	S2	1B.2
<b><i>Gilia capitata ssp. pacifica</i></b> Pacific gilia	PDPLM040B6	None	None	G5T3	S2	1B.2
<b><i>Hesperocyparis pygmaea</i></b> pygmy cypress	PGCUP04032	None	None	G1	S1	1B.2
<b><i>Horkelia marinensis</i></b> Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
<b><i>Margaritifera falcata</i></b> western pearlshell	IMBIV27020	None	None	G4G5	S1S2	
<b><i>Mitellastra caulescens</i></b> leafy-stemmed mitrewort	PDSAX0N020	None	None	G5	S4	4.2
<b><i>Myotis thysanodes</i></b> fringed myotis	AMACC01090	None	None	G4	S3	
<b><i>Myotis yumanensis</i></b> Yuma myotis	AMACC01020	None	None	G5	S4	
<b>North Central Coast Fall-Run Steelhead Stream</b> North Central Coast Fall-Run Steelhead Stream	CARA2631CA	None	None	GNR	SNR	
<b>Northern Interior Cypress Forest</b> Northern Interior Cypress Forest	CTT83220CA	None	None	G2	S2.2	
<b><i>Oncorhynchus kisutch pop. 2</i></b> coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	
<b><i>Oncorhynchus kisutch pop. 4</i></b> coho salmon - central California coast ESU	AFCHA02034	Endangered	Endangered	G4	S2?	
<b><i>Oncorhynchus mykiss irideus pop. 16</i></b> steelhead - northern California DPS	AFCHA0209Q	Threatened	None	G5T2T3Q	S2S3	
<b><i>Oncorhynchus mykiss irideus pop. 36</i></b> summer-run steelhead trout	AFCHA0213B	None	None	G5T4Q	S2	SSC



**Selected Elements by Scientific 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
<b><i>Pekania pennanti</i></b> fisher - West Coast DPS	AMAJF01021	None	Threatened	G5T2T3Q	S2S3	SSC
<b><i>Piperia candida</i></b> white-flowered rein orchid	PMORC1X050	None	None	G3	S3	1B.2
<b><i>Rana aurora</i></b> northern red-legged frog	AAABH01021	None	None	G4	S3	SSC
<b><i>Rana boylei</i></b> foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
<b><i>Rhyacotriton variegatus</i></b> southern torrent salamander	AAAAJ01020	None	None	G3G4	S2S3	SSC
<b><i>Sedum laxum ssp. eastwoodiae</i></b> Red Mountain stonecrop	PDCRA0A0L1	None	None	G5T2	S2	1B.2
<b><i>Sidalcea malachroides</i></b> maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
<b><i>Silene campanulata ssp. campanulata</i></b> Red Mountain catchfly	PDCAR0U0A2	None	Endangered	G5T3Q	S3	4.2
<b><i>Taricha rivularis</i></b> red-bellied newt	AAAAF02020	None	None	G4	S2	SSC
<b><i>Thermopsis robusta</i></b> robust false lupine	PDFAB3Z0D0	None	None	G2	S2	1B.2
<b><i>Upland Douglas Fir Forest</i></b> Upland Douglas Fir Forest	CTT82420CA	None	None	G4	S3.1	
<b><i>Usnea longissima</i></b> Methuselah's beard lichen	NLLEC5P420	None	None	G4	S4	4.2
<b><i>Viburnum ellipticum</i></b> oval-leaved viburnum	PDCPR07080	None	None	G4G5	S3?	2B.3

**Record Count: 53**

## **Introduction:**

The Eel River Watershed Improvement Group (ERWIG) will install 40 large woody debris (LWD) structures, containing 136 pieces of LWD, 32 of which will be key pieces, along 1.1 miles of Butler Creek. The project is necessary because the Hollow Tree Creek watershed is a very important salmonid watershed in the South Fork Eel River Basin, and has been identified as a priority watershed for restoration by the Salmon Habitat Restoration Priorities (SHaRP) team. Butler Creek hosts a large proportion of the spawning coho salmon (*Oncorhynchus kisutch*) in the Hollow Tree Creek watershed and plays an integral role in supporting the coho salmon population in the watershed. Butler Creek also supports steelhead trout (*Oncorhynchus mykiss*) and Chinook salmon (*Oncorhynchus tshawytscha*) and has a high potential for improvement. The South Fork Eel River Watershed Assessment (CDFW, 2014) puts Butler Creek in the Western Subbasin (WS) of the South Fork Eel River watershed. The assessment indicates that the WS has relatively low average percent shelter from LWD, "indicating the need for additional large wood as vital rearing and holding habitat components in all SF Eel River Basin streams". Currently, pools in the project reach are lacking shelter and LWD is in short supply. A survey of the project reach by ERWIG found only 1.1 key pieces per 330 feet, well below a good ranking. This project will bring the project reach to the target metric of over three key pieces per 330 feet, which will give it a rating of very good.

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(s) will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* Volume I, Part VII (<https://www.wildlife.ca.gov/Grants/FRGP/Guidance>).

## **Objective(s):**

The objective of this project is to construct 40 LWD features along 1.1 miles of Butler Creek. These features will contain 136 pieces of LWD, 32 of which will be key pieces. The addition of these structures will enhance spawning and rearing habitats for juvenile and adult salmonids.

## **Project Description:**

### **Location:**

The project is located along a section of Butler Creek, in Mendocino county, California. Butler Creek is a tributary to Hollow Tree Creek in the South Fork Eel River Watershed. The Butler Creek project reach starts approximately 50 feet upstream from the confluence with Hollow Tree Creek and continues upstream 5,700 feet. Project boundaries are 39.738139° north latitude, -123.707469° west longitude at the downstream end; 39.744038° north latitude, -123.691486° west

longitude at the upstream end; Township 22 North, Range 17 West, and Sections 24 and 25, of the Lincoln Ridge 7.5 Minute U.S. Geological Survey Quadrangle map.

## **Project Set Up:**

### ERWIG Staff:

-ERWIG Executive Director: Task 1. Contract oversight and reporting will be conducted by ERWIG Executive Director with assistance from the ERWIG Project Manager.

-ERWIG Project Manager: Tasks 1, 3, 4, 5, 6 and 7. Will assist with contract oversight, invoicing, and reporting. Will manage all aspects of project implementation.

### Subcontractors:

-Edwards Excavation & Restoration - Licensed Timber Operator (LTO) and Licensed Equipment Operator (EO): Tasks 3 and 4. Will be responsible for falling trees as the source of LWD. Will also be responsible for placing LWD and boulders according to design plans when equipment access is available.

Boulders will be purchased from the Garberville quarry.

-California Conservation Corps (CCC) Corpsmembers: Task 4. Under supervision of the Conservationist 1 (C1) will anchor the structures according to design and anchoring specifications. CCC Corpsmembers will also move LWD into position using a come along.

-William Rich and Associates: Task 2. Will conduct botanical and archeological surveys and prepare California Environmental Quality Act (CEQA) reports.

-Paleontology survey crew: Task 2. Will conduct paleontological surveys and prepare CEQA report.

-Registered Professional Forester (RPF): Task 4. Will make sure trees chosen for project use are appropriate.

## **Materials:**

All materials will be purchased by ERWIG. Anchoring Hardware: one-inch Rebar, 5/8- inch Wire Rope, 5/8-inch Clamps, Nuts and Plates (Washers), these items are used to anchor logs to live trees, boulders, bedrock and other logs. Power Tools: Portable band saws and wood drills, these items are used to construct the anchoring portion of the structures. Wood drills are used to drill holes in live trees and logs for rebar attachment. Portable band saws are used to cut rebar to length. Portable Generators: Used to power the power tools that are used during the anchoring process. Chain Saw: Used to cut logs to length, trim branches on downed trees and to remove dead trees that are hazards or in the way of construction. Timber bits: used to drill holes in logs and trees, needed for construction. Epoxy glue: Used to glue wire rope mollies into boulders. Misc items: Small items such as chuck keys, allen wrenches, shear pins, hammers and band saw blades, which are used during construction. Socket wrenches and sockets: Used to tighten down nuts on 5/8-inch clamps. Erosion control

materials: Straw, wattles and/or other erosion controls that will help keep sediment from entering watercourses. Permits: Notification of Lake or Streambed Alteration fee will need to be paid for to meet permitting requirements. ERWIG Mileage: Reimbursement for miles driven by ERWIG staff to and from project site in order to manage project. Boulders, logs, and rootwads: Will be used in the construction of the habitat structures in order to provide habitat and will be anchored together. Some of the logs will be donated by the landowner and some will be purchased. Griphoist: Used to move logs into final position after placement by excavator or after falling a live tree. Conifer Trees and Native Plants: Will be used to plant areas disturbed by project activities and areas within the project reach that are lacking canopy cover.

## **Tasks:**

**Task 1. Project Management and Administration:** Grant oversight including invoicing and reporting will be conducted by ERWIG Executive Director and Project Manager (Staff). Upon final execution of the Grant and prior to receiving a Notice to Proceed, Grantee shall deliver the following items to the California Department of Fish and Wildlife (CDFW) Grant Manager: 1. Request to spend project funds in order to prepare for implementation (e.g., obtain permits, secure subcontracts, purchase supplies, notify of Streambed Alteration Agreement, etc.). Requests shall be sent by email or telephone. 2. Final Landowner Access agreement that will be project specific and meet grant agreement requirements. 3. Subcontractor Agreements. A written copy of the sub agreements shall be submitted to the CDFW Grant 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. 4. CEQA survey interim reports for archaeological and botanical surveys. Interim reports shall be delivered prior to receiving notice to proceed, as part of the Notification of Lake or Streambed Alteration. Final Archaeological, botanical and paleontological surveys shall be delivered prior to the End Term date. 5. Send Grantor Notification of Streambed Alteration with a check for the most current permit fee. The Grantee shall notify the CDFW Grant Manager a minimum of 10 business days prior to the beginning of project implementation.

**Task 2. CEQA Surveys:** William Rich and Associates will conduct archeological and botanical surveys within the project reach to fulfill CEQA requirements. Interim survey reports will be delivered to CDFW Grant Manager prior to receiving a Notice to Proceed. Paleontological survey crew will conduct paleontological research and surveys and prepare reports.

**Task 3. Site Preparation:** The ERWIG Project Manager will finalize site specific designs based on channel morphology, equipment access, and LWD availability. They will submit designs for CDFW Project Manager approval. The ERWIG Project Manager will flag sites for wood selection, staging, and installation, clear brush as needed, and designate staging areas for wood along project reaches.

Pre-project photos and metrics will be collected by ERWIG. Tools and materials will be purchased by ERWIG prior to the start of implementation and on an as needed basis throughout the project.

**Task 4. LWD Structure Construction:** With approval from the CDFW grant manager and under the direction of the ERWIG Project Manager, site construction on 40 LWD features will begin. Some features may involve cutting down or uprooting trees, this will be accomplished by the LTO or the EO, respectively. The RPF will approve all trees chosen for use in the project. The licensed equipment operator will place downed logs into the stream in accordance with design plans. When necessary, CCC Corpsmembers will move LWD into position using a come along. The project will utilize living riparian trees as anchors by wedging the logs between them, where feasible. CCC Corpsmembers will anchor the sites according to design and anchoring specifications. Corpsmembers will use one-inch threaded rebar to anchor logs to mature riparian trees and other logs. Holes will be drilled through the logs and their anchor trees using a drill, timber bit, and drill bit extensions when necessary. One-inch rebar will be strung through the log and secured with nuts and washers. Corpsmembers will be supervised by a trained C1 and the ERWIG Project Manager. Erosion control methods will be employed by the CCC as required at each structure and along equipment corridors to eliminate the possibility of sediment transport to the stream. Any tools that break down will be taken to a repair shop or replaced, if necessary. To address concerns over invasive species this project will follow the ERWIG Aquatic Invasive Species Decontamination Protocol.

**Task 5. Riparian Planting:** ERWIG staff will return in the winter following project implementation to plant 150 redwood seedlings and 50 native plants, with a primary focus in areas lacking sufficient conifer cover or riparian vegetation.

**Task 6. Post Project Photo and Data Collection:** Following implementation ERWIG will take post-project photos and quantitative implementation metrics will be collected which satisfy the Project Annual Progress Reports and Final Report.

**Task 7. Reporting:** ERWIG Staff will write and deliver yearly annual reports, and a draft and final report.

## **Deliverables:**

**Task 1. Project Management and Administration:** Streambed Alteration Agreement, Subcontractor Agreements, Final Landowners Agreements, Invoices, and Invoice Progress Reports.

**Task 2. CEQA Surveys:** Interim and Final Survey Reports.

**Task 3. Site Preparation:** Finalized design plans, flagged equipment access routes, pre-project photos and metrics.

**Task 4. LWD Structure Construction:** 40 LWD structures made up of 136 logs, including 32 key pieces.

**Task 5. Riparian Planting:** 150 redwood seedlings and 50 native plants planted along the project reach.

**Task 6. Post Project Photo and Data Collection:** Post-project metrics and photos.

**Task 7. Reporting:** Yearly annual reports, draft final report in electronic format, final report in electronic and hard copy formats.

### **Timelines:**

**Task 1. Project Management and Administration:** 04/01/2020 to 02/28/2022.

**Task 2. CEQA Surveys:** 04/30/2020 to 07/30/2020.

**Task 3. Site Preparation:** 07/30/2020 to 06/21/2021.

**Task 4. LWD Structure Construction:** 06/21/2021 to 09/30/2021.

**Task 5. Riparian Planting:** 12/01/2021 to 01/31/2022.

**Task 6. Post Project Photo and Data Collection:** 10/01/2021 to 02/01/2022.

**Task 7. Reporting:** 11/16/2020 to 02/14/2022.

### **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:

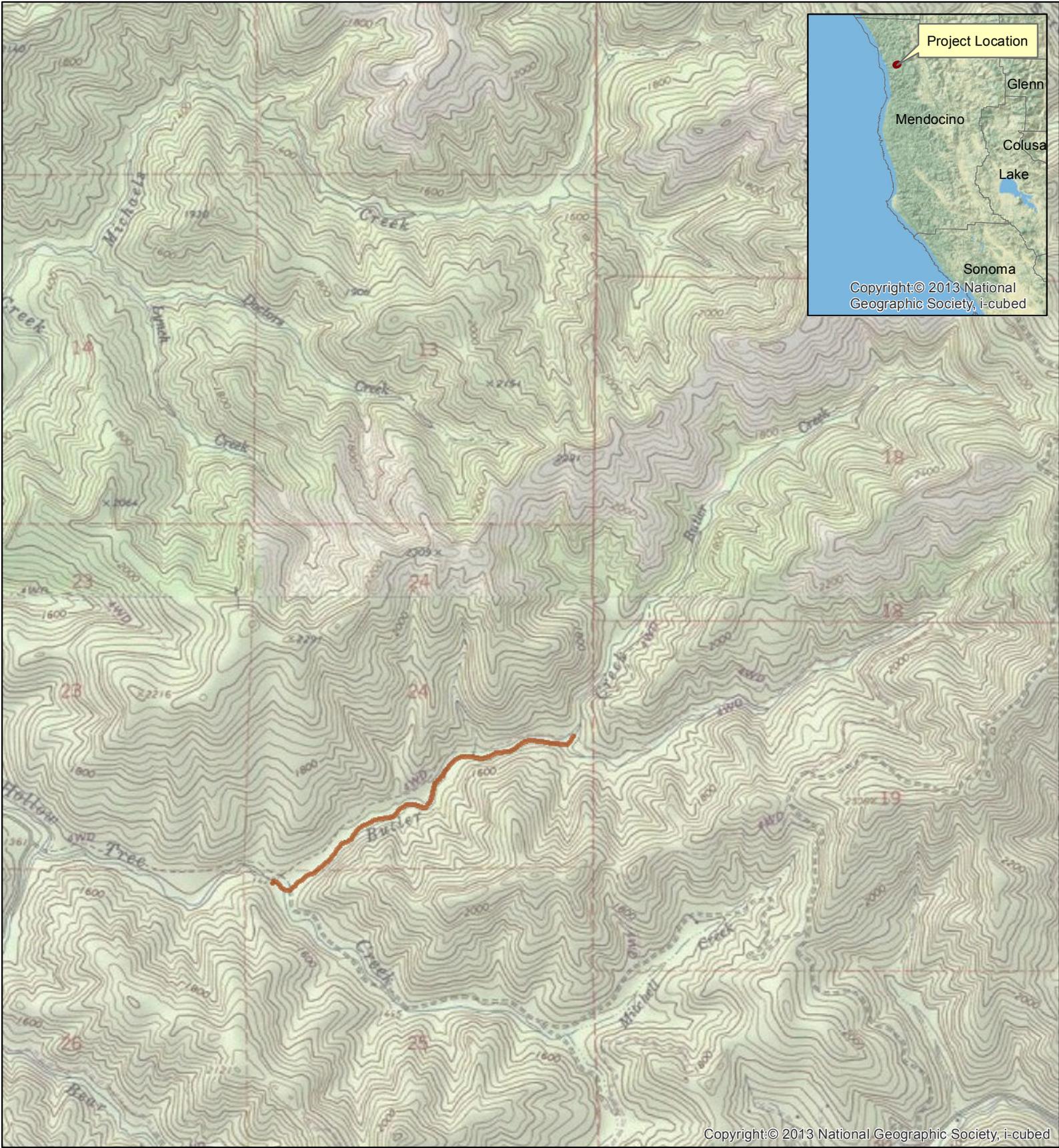
- a. Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.
- b. Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California 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*.

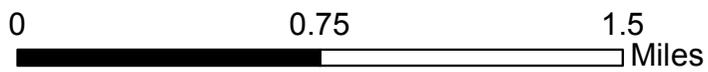
All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to ensure the best chance of survival of the seedlings.

# Butler Creek Habitat Restoration Watershed Map

## Butler Creek, Lincoln Ridge Quad, Mendocino County



— Butler Project Reach



Eel River Watershed Improvement Group  
April 2019





# Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



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

Possible species within the Lincoln Ridge and surrounding quads for 3085 Butler Creek Habitat Restoration Project, Mendocino County

Table with 7 columns: Species, Element Code, Federal Status, State Status, Global Rank, State Rank, Rare Plant Rank/CDFW SSC or FP. Rows include species like Abronia umbellata var. breviflora, Accipiter gentilis, Agrostis blasdalei, Alisma gramineum, Anodonta californiensis, Arborimus pomo, Arctostaphylos manzanita ssp. elegans, Arctostaphylos stanfordiana ssp. raichei, Ardea herodias, Ascaphus truei, Astragalus agnicidus, Bombus caliginosus, Bombus crotchii, Bombus occidentalis, Brachyramphus marmoratus, Brasenia schreberi, Calamagrostis crassiglumis, and Calamagrostis foliosa.



Selected Elements by Scientific 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
<b><i>Campanula californica</i></b> swamp harebell	PDCAM02060	None	None	G3	S3	1B.2
<b><i>Cardamine angulata</i></b> seaside bittercress	PDBRA0K010	None	None	G4G5	S3	2B.1
<b><i>Carex lyngbyei</i></b> Lyngbye's sedge	PMCYP037Y0	None	None	G5	S3	2B.2
<b><i>Carex saliniformis</i></b> deceiving sedge	PMCYP03BY0	None	None	G2	S2	1B.2
<b><i>Carex viridula ssp. viridula</i></b> green yellow sedge	PMCYP03EM5	None	None	G5T5	S2	2B.3
<b><i>Castilleja mendocinensis</i></b> Mendocino Coast paintbrush	PDSCR0D3N0	None	None	G2	S2	1B.2
<b><i>Ceanothus foliosus var. vineatus</i></b> Vine Hill ceanothus	PDRHA040D6	None	None	G3T1	S1	1B.1
<b><i>Charadrius alexandrinus nivosus</i></b> western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
<b><i>Chorizanthe howellii</i></b> Howell's spineflower	PDPGN040C0	Endangered	Threatened	G1	S1	1B.2
<b><i>Clarkia amoena ssp. whitneyi</i></b> Whitney's farewell-to-spring	PDONA05025	None	None	G5T1	S1	1B.1
<b>Coastal and Valley Freshwater Marsh</b> Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
<b>Coastal Brackish Marsh</b> Coastal Brackish Marsh	CTT52200CA	None	None	G2	S2.1	
<b><i>Coelus globosus</i></b> globose dune beetle	IICOL4A010	None	None	G1G2	S1S2	
<b><i>Collinsia corymbosa</i></b> round-headed Chinese-houses	PDSCR0H060	None	None	G1	S1	1B.2
<b><i>Coptis laciniata</i></b> Oregon goldthread	PDRAN0A020	None	None	G4?	S3?	4.2
<b><i>Corynorhinus townsendii</i></b> Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
<b><i>Emys marmorata</i></b> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
<b><i>Entosphenus tridentatus</i></b> Pacific lamprey	AFBAA02100	None	None	G4	S4	SSC
<b><i>Erethizon dorsatum</i></b> North American porcupine	AMAFJ01010	None	None	G5	S3	
<b><i>Eriogonum kelloggii</i></b> Kellogg's buckwheat	PDPGN083A0	None	Endangered	G2	S2	1B.2
<b><i>Erysimum concinnum</i></b> bluff wallflower	PDBRA160E3	None	None	G3	S2	1B.2



Selected Elements by Scientific 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
<b><i>Erysimum menziesii</i></b> Menzies' wallflower	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
<b><i>Erythronium revolutum</i></b> coast fawn lily	PMLIL0U0F0	None	None	G4G5	S3	2B.2
<b><i>Eucyclogobius newberryi</i></b> tidewater goby	AFCQN04010	Endangered	None	G3	S3	SSC
<b><i>Fen</i></b> Fen	CTT51200CA	None	None	G2	S1.2	
<b><i>Gilia capitata ssp. pacifica</i></b> Pacific gilia	PDPLM040B6	None	None	G5T3	S2	1B.2
<b><i>Gilia millefoliata</i></b> dark-eyed gilia	PDPLM04130	None	None	G2	S2	1B.2
<b><i>Grand Fir Forest</i></b> Grand Fir Forest	CTT82120CA	None	None	G1	S1.1	
<b><i>Hesperevax sparsiflora var. brevifolia</i></b> short-leaved evax	PDASTE5011	None	None	G4T3	S2	1B.2
<b><i>Hesperocyparis pygmaea</i></b> pygmy cypress	PGCUP04032	None	None	G1	S1	1B.2
<b><i>Horkelia marinensis</i></b> Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
<b><i>Lasiurus cinereus</i></b> hoary bat	AMACC05030	None	None	G5	S4	
<b><i>Lasthenia californica ssp. bakeri</i></b> Baker's goldfields	PDAST5L0C4	None	None	G3T1	S1	1B.2
<b><i>Lasthenia californica ssp. macrantha</i></b> perennial goldfields	PDAST5L0C5	None	None	G3T2	S2	1B.2
<b><i>Lilium maritimum</i></b> coast lily	PMLIL1A0C0	None	None	G2	S2	1B.1
<b><i>Margaritifera falcata</i></b> western pearlshell	IMBIV27020	None	None	G4G5	S1S2	
<b><i>Mitellastra caulescens</i></b> leafy-stemmed mitrewort	PDSAX0N020	None	None	G5	S4	4.2
<b><i>Navarretia leucocephala ssp. bakeri</i></b> Baker's navarretia	PDPLM0C0E1	None	None	G4T2	S2	1B.1
<b><i>North Central Coast Fall-Run Steelhead Stream</i></b> North Central Coast Fall-Run Steelhead Stream	CARA2631CA	None	None	GNR	SNR	
<b><i>Northern Coastal Salt Marsh</i></b> Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
<b><i>Noyo intersessa</i></b> Ten Mile shoulderband	IMGASC5070	None	None	G2	S2	
<b><i>Oenothera wolfii</i></b> Wolf's evening-primrose	PDONA0C1K0	None	None	G2	S1	1B.1



Selected Elements by Scientific 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
<b><i>Oncorhynchus kisutch</i> pop. 4</b> coho salmon - central California coast ESU	AFCHA02034	Endangered	Endangered	G4	S2?	
<b><i>Oncorhynchus mykiss irideus</i> pop. 16</b> steelhead - northern California DPS	AFCHA0209Q	Threatened	None	G5T2T3Q	S2S3	
<b><i>Pekania pennanti</i></b> fisher - West Coast DPS	AMAJF01021	None	Threatened	G5T2T3Q	S2S3	SSC
<b><i>Phacelia insularis</i> var. <i>continentis</i></b> North Coast phacelia	PDHYD0C2B1	None	None	G2T2	S2	1B.2
<b><i>Piperia candida</i></b> white-flowered rein orchid	PMORC1X050	None	None	G3	S3	1B.2
<b><i>Pleuropogon hooverianus</i></b> North Coast semaphore grass	PMPOA4Y070	None	Threatened	G2	S2	1B.1
<b><i>Potamogeton epihydrus</i></b> Nuttall's ribbon-leaved pondweed	PMPOT03080	None	None	G5	S2S3	2B.2
<b><i>Progne subis</i></b> purple martin	ABPAU01010	None	None	G5	S3	SSC
<b><i>Rana aurora</i></b> northern red-legged frog	AAABH01021	None	None	G4	S3	SSC
<b><i>Rana boylei</i></b> foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
<b><i>Rhyacotriton variegatus</i></b> southern torrent salamander	AAAAJ01020	None	None	G3G4	S2S3	SSC
<b><i>Rhynchospora alba</i></b> white beaked-rush	PMCYP0N010	None	None	G5	S2	2B.2
<b><i>Sidalcea malachroides</i></b> maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
<b><i>Sidalcea malviflora</i> ssp. <i>purpurea</i></b> purple-stemmed checkerbloom	PDMAL110FL	None	None	G5T1	S1	1B.2
<b><i>Silene campanulata</i> ssp. <i>campanulata</i></b> Red Mountain catchfly	PDCAR0U0A2	None	Endangered	G5T3Q	S3	4.2
<b><i>Taricha rivularis</i></b> red-bellied newt	AAAAF02020	None	None	G4	S2	SSC
<b><i>Taxidea taxus</i></b> American badger	AMAJF04010	None	None	G5	S3	SSC
<b><i>Thermopsis robusta</i></b> robust false lupine	PDFAB3Z0D0	None	None	G2	S2	1B.2
<b><i>Triquetrella californica</i></b> coastal triquetrella	NBMUS7S010	None	None	G2	S2	1B.2
<b>Upland Douglas Fir Forest</b> Upland Douglas Fir Forest	CTT82420CA	None	None	G4	S3.1	
<b><i>Usnea longissima</i></b> Methuselah's beard lichen	NLLEC5P420	None	None	G4	S4	4.2



**Selected Elements by Scientific Name**  
**California Department of Fish and Wildlife**  
**California Natural Diversity Database**



<b>Species</b>	<b>Element Code</b>	<b>Federal Status</b>	<b>State Status</b>	<b>Global Rank</b>	<b>State Rank</b>	<b>Rare Plant Rank/CDFW SSC or FP</b>
<i>Viburnum ellipticum</i> oval-leaved viburnum	PDCPR07080	None	None	G4G5	S3?	2B.3

**Record Count: 82**

# Julias Creek Instream Habitat Enhancement Project

2019

## **Introduction:**

Trout Unlimited, Inc. (TU) will install 309 key logs in 71 features along 1.9 miles of lower Julius Creek. This project is necessary because legacy impacts of timber operations along with subsequent stream clearing has left the Julius Creek channel in a highly dysfunctional state as examined through the lens of fish habitat conditions. Completion of this project, along with the companion road decommissioning project will arguably address the two largest limiting factors inhibiting fisheries recovery in Julius 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(s) will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* Volume I Part VII (<https://www.wildlife.ca.gov/Grants/FRGP/Guidance>).

## **Objective(s):**

This project will install 309 key pieces of wood in 1.9 miles of core Steelhead trout recovery habitat in Julius Creek. This project will increase stream habitat complexity, pool frequency, pool depth, high-flow refugia, and over-summer rearing habitat for salmonids in the watershed.

## **Project Description:**

### **Location:**

The Julius Creek Watershed is located west of Leggett, California in the Usal Creek Watershed. Julius Creek intersects Usal Creek approximately 3.10 miles upstream of its confluence with the Pacific Ocean. The project will construct instream habitat features on the lowest 1.9 miles of Julius Creek. The project is located on the Hales Grove United States Geological Survey 24k Quad. Project coordinates are: 39.84281 north latitude, -123.80330 west longitude at the center point of the project reach.

### **Project Set Up:**

There are three fundamental tasks that need to be completed to accomplish this project: (A) Grant Oversight and Project Administration, (B) Construction of the Large Woody Material (LWM) Features, and (C) Reporting.

(A) Grant Oversight and Project Administration: The TU Project Manager will provide all grant and contract oversight and administration tasks including but not limited to obtaining permits, securing contracts (e.g. grantors, subcontractors, landowner, etc.), scheduling, implementation oversight, invoicing, reporting, and agency and landowner communications. All reporting and billing will be pursuant to the grant and regulatory guidelines. Upon final execution of the Grant and prior to receiving a Final Notice to Proceed, deliver the Final Landowner Agreement, subcontracts, and assure all permits are finalized (if required). This task will occur throughout the life of the project. Elizabeth Mackey will be available on a full-time basis to manage this project. Anna Halligan may assist with some aspects of grant management, administration, and project coordination. In addition to the TU Project Manager, the TU California Grants Assistant, Valerie Wasem, will assist with processing invoices and vendor payments, grant tracking, and reporting.

(B) Construction of the LWM Features: Construction of features will be designed and led by Pacific Watershed Associates (PWA), Associate Scientist. Under the responsible charge of Engineering Geologist, Thomas H. Leroy CEG #2593 (Professional Geologist) and a PWA Principal Geologist, PWA Technical staff will provide project layout and construction oversight. The PWA Project Manager (Associate Scientist) will manage project layout, construction oversight, monitoring, and reporting. PWA Technical Staff will conduct surveys, layout, construction oversight, pre-, during-, and post-construction monitoring as required by the Forest Land Anadromous Restoration program (FLAR), and any data entry. PWA Geographic Information Systems (GIS) staff will provide field layout maps, digitize layout and as-built project data, and develop report maps. PWA Clerical staff will track and monitor hours and create invoices during the project. The PWA Senior Scientist will conduct the Paleontology review for the California Environmental Quality Act (CEQA). All PWA work elements will be supervised by a PWA Principal.

Rice Construction will be the heavy equipment contractor for the project. PWA and Rice Construction will be providing all heavy equipment for the project including Excavator, Dozer, Water Truck, Dump Truck, Low Boy, Pilot Car, Labor for erosion control, and Truck and trailer. Revegetation will be conducted by Woodbenders. Redwood Forest Foundation Inc. (RFFI) forestry and botanical staff will conduct a cultural resource survey and a botanical resource survey. This information will be provided to the California Department of Fish and Wildlife (CDFW) prior to implementation. RFFI will also provide planting materials (e.g. trees) required to complete this project. These services will be contributed as in-kind cost share. Woodbender will be the revegetation contractor. Woodbender will be in charge of planting 219 trees in disturbed areas. RFFI forestry and botanical staff will conduct a cultural resource survey and botanical resource survey and contribute as in-kind staff time to this project. RFFI will also provide

# Julias Creek Instream Habitat Enhancement Project

2019

planting materials (e.g. trees) and the LWM required to complete this project as in-kind materials.

(C) Reporting: An interim cultural resource survey and botanical resource report (RFFI) and a paleontological report will be provided to CDFW prior to implementation. The final reporting of the project will be done by the PWA Engineering Geologist and Project Leader with assistance and oversight from TU Project Manager. The final summary report will include project accomplishments such as the final project budget, photographic monitoring, as-built site information, and other project information as required by the grant.

## **Materials:**

Trees (planting): Approximately 219 trees and shrubs will be planted by specialized laborers. RFFI will provide the trees for replanting. LWM: RFFI will be providing 309 LWM pieces (average length 40 feet by x 1.75 feet diameter) of Douglas Fir and Redwood.

Straw (PWA): Approximately 10 bales of straw mulch. Seed (PWA): Approximately 10 pounds of native seed. PWA will procure the seed for spreading by Rice Construction. Generator/hole hawg/drill bits (PWA): Materials required for structure anchoring (including extension cord and gasoline for generator). Rebar, nuts, plates. (PWA): Materials required for anchoring structures. Porta band (PWA): Blades required for structure installation. Pressure Washer (PWA): 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 TU decontamination protocol. It will be the responsibility of the equipment sub-contractor to decontaminate all heavy equipment prior to entering the project area. PWA Field and Office Supplies: Field materials may include, but are not limited to flagging, metal identification tags, nails, rite-in-the rain paper, gloves, spray paint and measuring field tapes. Office supplies used to complete the project include photo duplication for final reports, copying/binding for final reports, report maps, and postage. PWA Mileage and Per Diem: PWA staff require mileage, lodging and per diem to accommodate travel needs to visit the site and meet with partners.

Heavy Equipment (Rice Construction): Excavator, Dozer, Pilot Car, Lowboy, Feller and Labor. Rice Construction Mileage: Mileage is required for transportation costs to get the contractor (Rice Construction) to the project site on a daily basis.

TU Mileage: TU Project Manager requires mileage reimbursement for five round trips to the project site. TU Supplies: Includes costs associated with field

supplies, meeting materials, and supporting supplies such as flagging, measuring tapes, wooden stakes, weather resistant paper, notebooks and notepads, writing utensils, charting pads, envelopes, poster board, and fastening supplies. TU Permit Fee: Required for Notification of Lake or Streambed Alteration.

## **Tasks:**

**Task A. Grant Oversight and Project Administration:** TU personnel will provide all contracting oversight and administration pursuant to grant and regulatory guidelines. This includes but is not limited to obtaining permits, securing contracts, scheduling, implementation oversight, invoicing, reporting, and agency and landowner communications. Upon final execution of the Grant and prior to receiving a Final Notice to Proceed, TU personnel will deliver the Final Landowner Agreement, subcontracts, and assure all permits are finalized. Additionally, the TU Grants Assistant will be available to assist with invoicing and vendor payment. This task will occur throughout the life of the project.

**Task B. Construction of the LWM features (PWA):** PWA staff will be responsible for executing project implementation and providing direct construction oversight. Rice Construction will complete equipment operation tasks.

**Task B-1. Environmental Compliance and CEQA Surveys:** PWA will coordinate with TU, CDFW, and RFFI to conduct the appropriate surveys for special status species, cultural resources, and botanical resources, as necessary. The Biologist will conduct an initial survey for foothill yellow-legged frog (*Rana boylei*) individuals and habitat in coordination with CDFW Grant Manager. TU will prepare and submit the Notification of Lake or Streambed Alteration and fee.

**Task B-2. Pre-project layout and surveys:** Following approval by CDFW of site-specific design plans, PWA will flag heavy equipment access routes and construction boundaries (layout, equipment exclusion areas for biological or cultural resource protection, and large woody debris (LWD) staging areas). They will also document the existing conditions at the feature locations and setup photo point monitoring stations at the construction locations for final reporting. Pre-construction monitoring will be performed by PWA in a manner consistent with CDFW guidelines and as required by the FLAR focus.

**Task B-3. Road access development and tree procurement:** Low bed trucks will be used to move heavy equipment in and out of the project area at the beginning and end of the work season, these will require a pilot car to move through the road system. Decontamination protocols will be employed prior to move in. An excavator and bulldozer will be used to reopen the roads along

Julius Creek by removing the vegetation and developing temporary stream crossings if prudent. A gasoline powered water pump will be used to protect water quality during installation of temporary crossings if prudent; these will be managed by a laborer. During the road opening phase of the project the excavator and dozer will be used to procure whole trees including root wads for installation in the adjacent channel reach. The trees will be skidded to flagged staging areas for the installation phase of the project. This task may begin as early as June 2020, if floristic surveys are feasible in that year. Otherwise construction activities will occur during low flow periods of 2021.

**Task B-4. Construction of LWM features:** Most of the features will be constructed with heavy equipment but in some locations, the features will be constructed by direct falling of trees by a professional tree faller. In general, the excavator and bulldozer will be used to create access routes to the proposed LWM features and construct said features. The features will be constructed with an excavator with a log tong attachment. To conduct the install, the excavator and bull dozer will create access to the streamside area and the excavator will install the logs while the dozer will deliver logs to the construction site from the adjacent road. The excavator will grapple each log with the log tongs and weave it through the existing riparian forest with the intention of wedging the log through the riparian trees such that the existing riparian forest provides natural anchoring for the features. In some locations, where equipment access is limited, trees will be inserted into the creek by direct falling by a Rice Construction tree faller. Where prudent, small and medium sized tree fragments that do not meet the criteria for key logs will be incorporated into the spider jams as pre-racked and loose material. These racked and loose logs/branches will reduce the spider jams porosity and more closely mimic naturally developed wood features. Once the primary architecture of the features has been completed, PWA in coordination with the CDFW project manager will determine if hard anchor points will be required at each of the constructed features (i.e. where LWM is less than 1.5 times bankfull width in length). Hard anchor points will be installed by Rice Construction. After the CDFW project manager approves of the final configuration and anchoring of each of the features, the excavator and dozer will winterize each feature access point by decompacting the disturbed ground surface and mulching all bare areas with wood slash and or straw. Native seed will be distributed in the bare areas to provide short to medium term erosion control.

**Task B-5. Post-construction monitoring and documentation:** Post-construction monitoring, including photographic monitoring, and documentation of as-built conditions, will be performed by PWA consistent with the CDFW guidelines and as required by the FLAR focus. As built drawings will include structure placement and alignment, cross sections and longitudinal profiles, and the sizes and quantity of materials added.

**Task C. Reporting:** TU and PWA will develop project reports (annual and a final project report) based on CDFW requirements that documents work completed and the total costs to implement the project. Reports will be submitted annually by November 15, and a Final Project Report will be prepared and submitted prior to grant close-out (including Final Project Budget and Final Invoice). Annual and final reports will include summaries of the following information as required: (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 person hours expended, (6) a quantified description of the results of the project, including as-built site information, (7) dates of work and the number of person hours expended, (8) labeled before-and-after photos of constructed sites, (10) GIS generated maps and shapefiles of the project area, and (11) monitoring checklists, databases, spreadsheets and any other data products produced during the grant term.

## **Deliverables:**

**Task A. Grant Oversight and Project Administration:** Project deliverables will include the information listed below as well as everything that will be delivered to the CDFW Project Manager during the life of the project: Final Landowner Agreements (prior to receiving Notice to Proceed); Executed subcontractor agreements (prior to receiving the Notice to Proceed), and Invoices and Progress Reports (submitted at least quarterly).

**Task B. Construction of the LWM features (PWA):** Installation of 71 LWD jams over a 1.9 mile stream reach, containing approximately 309 pieces of wood. Wood will be woven into the existing riparian corridor. Hardware anchors will be used where required.

**Task B-1. Environmental Compliance and CEQA Surveys:** Interim Cultural resource, botanical, biological, and paleontological reports (completed prior to receiving Notice to Proceed); Final Cultural resource, botanical, and paleontological reports (to be completed prior to project Final Report); Preparation and payment of Notification of Lake or Streambed Alteration (prior to receiving Notice to Proceed).

**Task B-2. Pre-project layout and surveys:** Initial layout and pre-construction existing conditions of all LWM features and flagged staging areas and equipment exclusion zones; Final layout and design of LWD features; Pre-project monitoring data.

**Task B-3. Road access development and tree procurement:** Development of access roads for project construction; establishing staging areas for LWM.

# Julias Creek Instream Habitat Enhancement Project

2019

**Task B-4. Construction of LWM features:** Construction of 71 LWM features throughout the 1.9 mile stream sections in Julias Creek including 309 key logs. Installation of hard anchor points where required. Erosion control Best Management Practices on all streamside access areas and disturbed ground. Actual performance measures by site, as-built drawings, before and after photographs, post-project longitudinal profile and cross sections.

**Task C. Reporting:** Progress Reports (pdf format); Annual Reports (pdf format); and Final Grant Report (cd and hard copy), including all pre-and post-project data produced as a part of the project; Final Invoice and Final Budget.

## Timelines:

**Task A. Grant Oversight and Project Administration:** 04/01/2020 to 03/31/2022.

**Task B. Construction of the LWM features (PWA):** 06/15/2020 to 10/31/2021.

**Task B-1. Environmental Compliance and CEQA Surveys:** 04/01/2020 to 07/01/2021.

**Task B-2. Pre-project layout and surveys:** 06/15/2020 to 07/01/2021

**Task B-3. Road access development and tree procurement:** 06/15/2020 to 08/31/2021.

**Task B-4. Construction of LWM features:** 06/15/2020 to 10/30/2021.

**Task C. Reporting:** 11/15/2020 to 03/31/2022.

## 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.

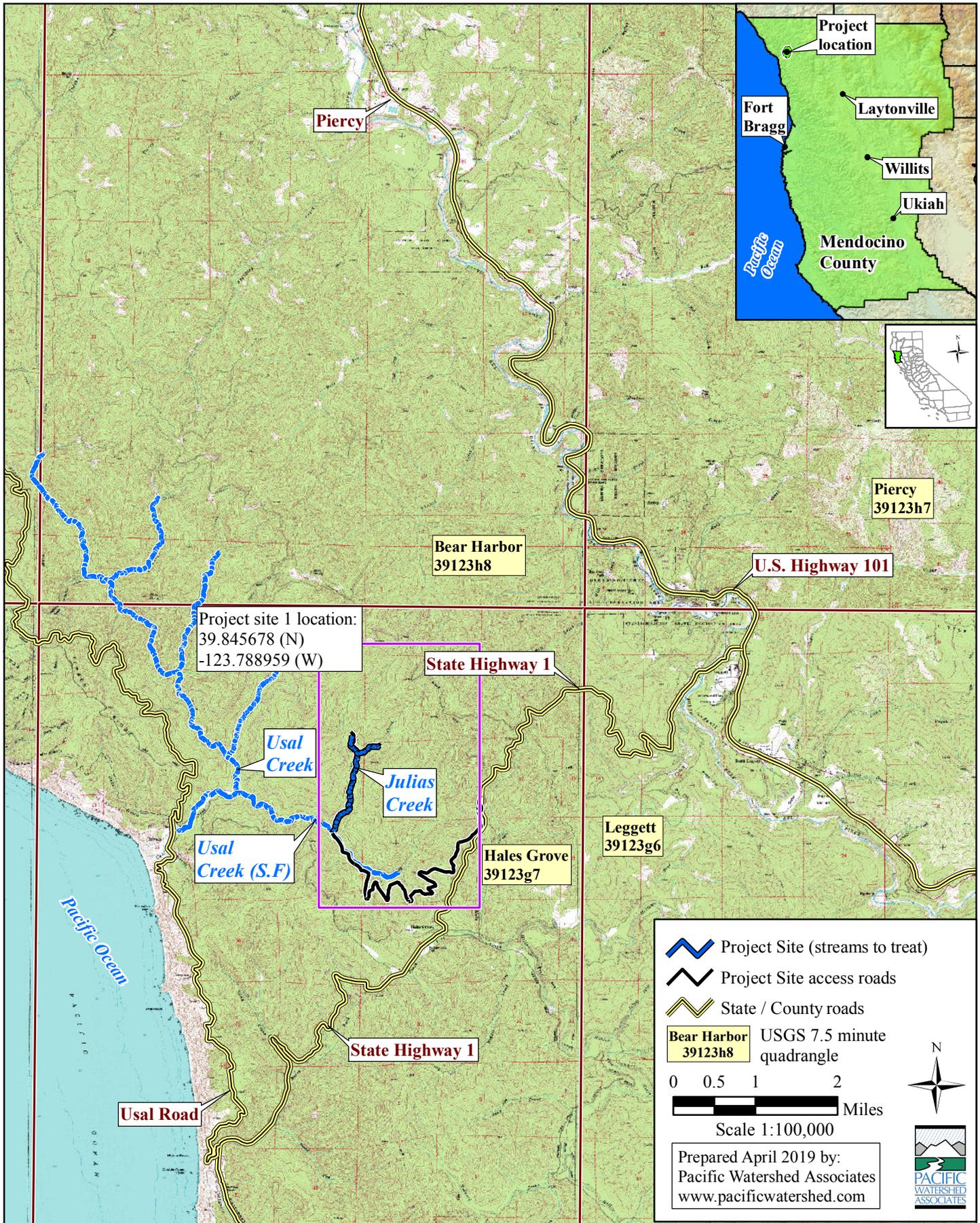
Final structure design and placement will be determined by field consultation between the Grantee and the Grantor Project Managers. All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*.

# Julias Creek Instream Habitat Enhancement Project

2019

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



Map 1. Project location topographic map for the Julius Creek Instream Habitat Enhancement Project, Mendocino County, California. Grantee: Trout Unlimited



# Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad (Hales Grove (3912377) OR Noble Butte (3912386) OR Leggett (3912376) OR Lincoln Ridge (3912366) OR Westport (3912367) OR Mistake Point (3912378) OR Bear Harbor (3912388) OR Piercy (3912387))

Possible species within the Hales Grove and surrounding quads for 3091 Julias Creek Instream Habitat Enhancement Project, Mendocino County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Abronia umbellata</i> var. <i>breviflora</i> pink sand-verbena	PDNYC010N4	None	None	G4G5T2	S2	1B.1
<i>Accipiter cooperii</i> Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
<i>Accipiter gentilis</i> northern goshawk	ABNKC12060	None	None	G5	S3	SSC
<i>Agrostis blasdalei</i> Blasdale's bent grass	PMPOA04060	None	None	G2	S2	1B.2
<i>Anodonta californiensis</i> California floater	IMBIV04020	None	None	G3Q	S2?	
<i>Antrozous pallidus</i> pallid bat	AMACC10010	None	None	G5	S3	SSC
<i>Arabis mcdonaldiana</i> McDonald's rockcress	PDBRA06150	Endangered	Endangered	G3	S3	1B.1
<i>Arborimus pomo</i> Sonoma tree vole	AMAFF23030	None	None	G3	S3	SSC
<i>Arctostaphylos stanfordiana</i> ssp. <i>raichei</i> Raiche's manzanita	PDERI041G2	None	None	G3T2	S2	1B.1
<i>Ascaphus truei</i> Pacific tailed frog	AAABA01010	None	None	G4	S3S4	SSC
<i>Astragalus agnicidus</i> Humboldt County milk-vetch	PDFAB0F080	None	Endangered	G2	S2	1B.1
<i>Bombus caliginosus</i> obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
<i>Bombus crotchii</i> Crotch bumble bee	IIHYM24480	None	None	G3G4	S1S2	
<i>Bombus occidentalis</i> western bumble bee	IIHYM24250	None	None	G2G3	S1	
<i>Calamagrostis foliosa</i> leafy reed grass	PMPOA170C0	None	Rare	G3	S3	4.2
<i>Cardamine angulata</i> seaside bittercress	PDBRA0K010	None	None	G4G5	S3	2B.1
<i>Castilleja litoralis</i> Oregon coast paintbrush	PDSCR0D012	None	None	G3	S3	2B.2
<i>Castilleja mendocinensis</i> Mendocino Coast paintbrush	PDSCR0D3N0	None	None	G2	S2	1B.2
<i>Ceanothus foliosus</i> var. <i>vineatus</i> Vine Hill ceanothus	PDRHA040D6	None	None	G3T1	S1	1B.1



**Selected Elements by Scientific 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
<b><i>Clarkia amoena ssp. whitneyi</i></b> Whitney's farewell-to-spring	PDONA05025	None	None	G5T1	S1	1B.1
<b><i>Coptis laciniata</i></b> Oregon goldthread	PDRAN0A020	None	None	G4?	S3?	4.2
<b><i>Corynorhinus townsendii</i></b> Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
<b><i>Erethizon dorsatum</i></b> North American porcupine	AMAFJ01010	None	None	G5	S3	
<b><i>Eriogonum kelloggii</i></b> Kellogg's buckwheat	PDPGN083A0	None	Endangered	G2	S2	1B.2
<b><i>Erysimum concinnum</i></b> bluff wallflower	PDBRA160E3	None	None	G3	S2	1B.2
<b><i>Erythronium revolutum</i></b> coast fawn lily	PMLIL0U0F0	None	None	G4G5	S3	2B.2
<b><i>Gentiana setigera</i></b> Mendocino gentian	PDGEN060S0	None	None	G2	S2	1B.2
<b><i>Gilia capitata ssp. pacifica</i></b> Pacific gilia	PDPLM040B6	None	None	G5T3	S2	1B.2
<b><i>Hesperocyparis pygmaea</i></b> pygmy cypress	PGCUP04032	None	None	G1	S1	1B.2
<b><i>Horkelia marinensis</i></b> Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
<b><i>Margaritifera falcata</i></b> western pearlshell	IMBIV27020	None	None	G4G5	S1S2	
<b><i>Mitellastra caulescens</i></b> leafy-stemmed mitrewort	PDSAX0N020	None	None	G5	S4	4.2
<b><i>Myotis thysanodes</i></b> fringed myotis	AMACC01090	None	None	G4	S3	
<b><i>Myotis yumanensis</i></b> Yuma myotis	AMACC01020	None	None	G5	S4	
<b>North Central Coast Fall-Run Steelhead Stream</b> North Central Coast Fall-Run Steelhead Stream	CARA2631CA	None	None	GNR	SNR	
<b>Northern Interior Cypress Forest</b> Northern Interior Cypress Forest	CTT83220CA	None	None	G2	S2.2	
<b><i>Oncorhynchus kisutch pop. 2</i></b> coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	
<b><i>Oncorhynchus kisutch pop. 4</i></b> coho salmon - central California coast ESU	AFCHA02034	Endangered	Endangered	G4	S2?	
<b><i>Oncorhynchus mykiss irideus pop. 16</i></b> steelhead - northern California DPS	AFCHA0209Q	Threatened	None	G5T2T3Q	S2S3	
<b><i>Oncorhynchus mykiss irideus pop. 36</i></b> summer-run steelhead trout	AFCHA0213B	None	None	G5T4Q	S2	SSC



Selected Elements by Scientific 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
<b><i>Pekania pennanti</i></b> fisher - West Coast DPS	AMAJF01021	None	Threatened	G5T2T3Q	S2S3	SSC
<b><i>Piperia candida</i></b> white-flowered rein orchid	PMORC1X050	None	None	G3	S3	1B.2
<b><i>Rana aurora</i></b> northern red-legged frog	AAABH01021	None	None	G4	S3	SSC
<b><i>Rana boylei</i></b> foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
<b><i>Rhyacotriton variegatus</i></b> southern torrent salamander	AAAAJ01020	None	None	G3G4	S2S3	SSC
<b><i>Sedum laxum ssp. eastwoodiae</i></b> Red Mountain stonecrop	PDCRA0A0L1	None	None	G5T2	S2	1B.2
<b><i>Sidalcea malachroides</i></b> maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
<b><i>Silene campanulata ssp. campanulata</i></b> Red Mountain catchfly	PDCAR0U0A2	None	Endangered	G5T3Q	S3	4.2
<b><i>Taricha rivularis</i></b> red-bellied newt	AAAAF02020	None	None	G4	S2	SSC
<b><i>Thermopsis robusta</i></b> robust false lupine	PDFAB3Z0D0	None	None	G2	S2	1B.2
<b>Upland Douglas Fir Forest</b> Upland Douglas Fir Forest	CTT82420CA	None	None	G4	S3.1	
<b><i>Usnea longissima</i></b> Methuselah's beard lichen	NLLEC5P420	None	None	G4	S4	4.2
<b><i>Viburnum ellipticum</i></b> oval-leaved viburnum	PDCPR07080	None	None	G4G5	S3?	2B.3

Record Count: 53

# Albion River Coho Habitat Enhancement Project - Large Wood Installation

2019

## **Introduction:**

The California Conservation Corps (CCC) will implement the Albion River Coho Habitat Enhancement Project - Large Wood Installation. The lack of large wood in the stream channel has affected the quality and quantity of salmonid habitat within Albion River by reducing the amount of large channel-forming features and the loss of complex cover for salmonids. Recovery plans and assessments recommend adding large wood to Albion River. California Department of Fish and Wildlife's 2015 Albion River Habitat Inventory Report recommendations include increasing woody cover in the pools and flatwater habitat units as well as improving gravel retention and recruitment by adding instream structures where appropriate.

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 VII <https://www.wildlife.ca.gov/Grants/FRGP/Guidance>).

## **Objective(s):**

The specific objective of this project is to improve the quality and quantity of spawning and rearing habitat for coho salmon (*Oncorhynchus kisutch*) by installing 19 large wood features within a 3,660 foot section of Albion River, consisting of 62 pieces of large wood. This project will increase the key pieces of large wood from one piece per 330 feet to 4.3 pieces per 330 feet. The addition of appropriately sized wood to meet target criteria will enhance the quality, quantity, and complexity of spawning and rearing habitat for salmonids.

## **Project Description:**

### **Location:**

The project is located along a section of Albion River, located in Mendocino county, California. The project starts approximately 2,205 feet upstream from the Albion River's confluence with Tom Bell Creek and continues upstream for 3,660 feet. Project boundaries are 39.2687° north latitude, -123.6375° west longitude at the downstream end; 39.2631° north latitude, -123.6282° west longitude at the upstream end; Township 16 North, Range 16 West, and Sections 3 and 10 of the Mathison Peak 7.5 Minute U.S. Geological Survey (USGS) Quadrangle maps as depicted in the Project Location Map.

### **Project Set Up:**

CCC will provide all project oversight, administration and implementation. Subcontractor Mendocino Redwood Company will approve trees to be felled for project features. Subcontractor Licensed Timber Operator, under direction from CCC, will fell flagged redwood (*Sequoia sempervirens*) and Douglas-fir (*Pseudotsuga menziesii*) trees at feature locations. Subcontractor archaeologist and botanist, pursuant to the California Environmental Quality Act (CEQA), will conduct archeological and botanical surveys/investigations throughout the project reach. Subcontractor, Paleontologist, pursuant to the California Environmental Quality Act (CEQA), will conduct a paleontological investigation of the project reach. Subcontractor Aquatic Survey Observer, at the recommendation of California Department of Fish and Wildlife (CDFW), will follow all guidelines for foothill yellow-legged frog (*Rana boylei*) mitigation measures required by the CDFW's Lake and Streambed Alteration Agreement.

## **Materials:**

A total of 19 large wood features, consisting of 62 pieces of large wood and root wads, will be constructed and anchored with 1" threaded rebar, nuts, washers, 5/8" galvanized cable, cable clamps, and waterproof epoxy glue, or by wedging into riparian trees without using anchoring materials. Trees left unanchored will be at least 1.5 times the average bankfull width per CDFW's *California Salmonid Stream Habitat Restoration Manual* specifications for unanchored large wood (Part VII-23).

## **Tasks:**

**Task 1. Install Instream Habitat Features:** Install 19 instream features within a 3,660 foot section of Albion River, consisting of 62 pieces of large wood. Work will consist of the following:

- Grantee will construct instream log structures according to the site specific plans to be provided, using locally available logs or logs from other locations.
- Nuts, washers, plates, cable, glue and rebar will be ordered as applicable.
- Location of all project large wood will be documented.
- Various anchoring techniques, which will be approved by CDFW 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.
- Available slash and woody debris will be installed into structures after site completion to provide immediate cover for salmonids present at time of construction.

# Albion River Coho Habitat Enhancement Project - Large Wood Installation

2019

**Task 2. Erosion Control:** Mulching will take place as features are completed on all exposed soils which may deliver sediment to a stream.

## **Deliverables:**

A total of 19 instream features will be constructed within a 3,660 foot section of Albion River, consisting of 62 pieces of large wood.

## **Timelines:**

June 15 through October 31 of the years 2020, 2021, 2022, and 2023, California Conservation Corps will install large wood features within approved project reaches. Erosion control will be installed as project features are completed.

## **Additional Requirements:**

The Grantee will not proceed with on the ground implementation until all necessary permits and consultations are secured. 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 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 CDFW 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 CDFW Project Managers.

# Albion River Coho Habitat Enhancement Project - **2019** Large Wood Installation

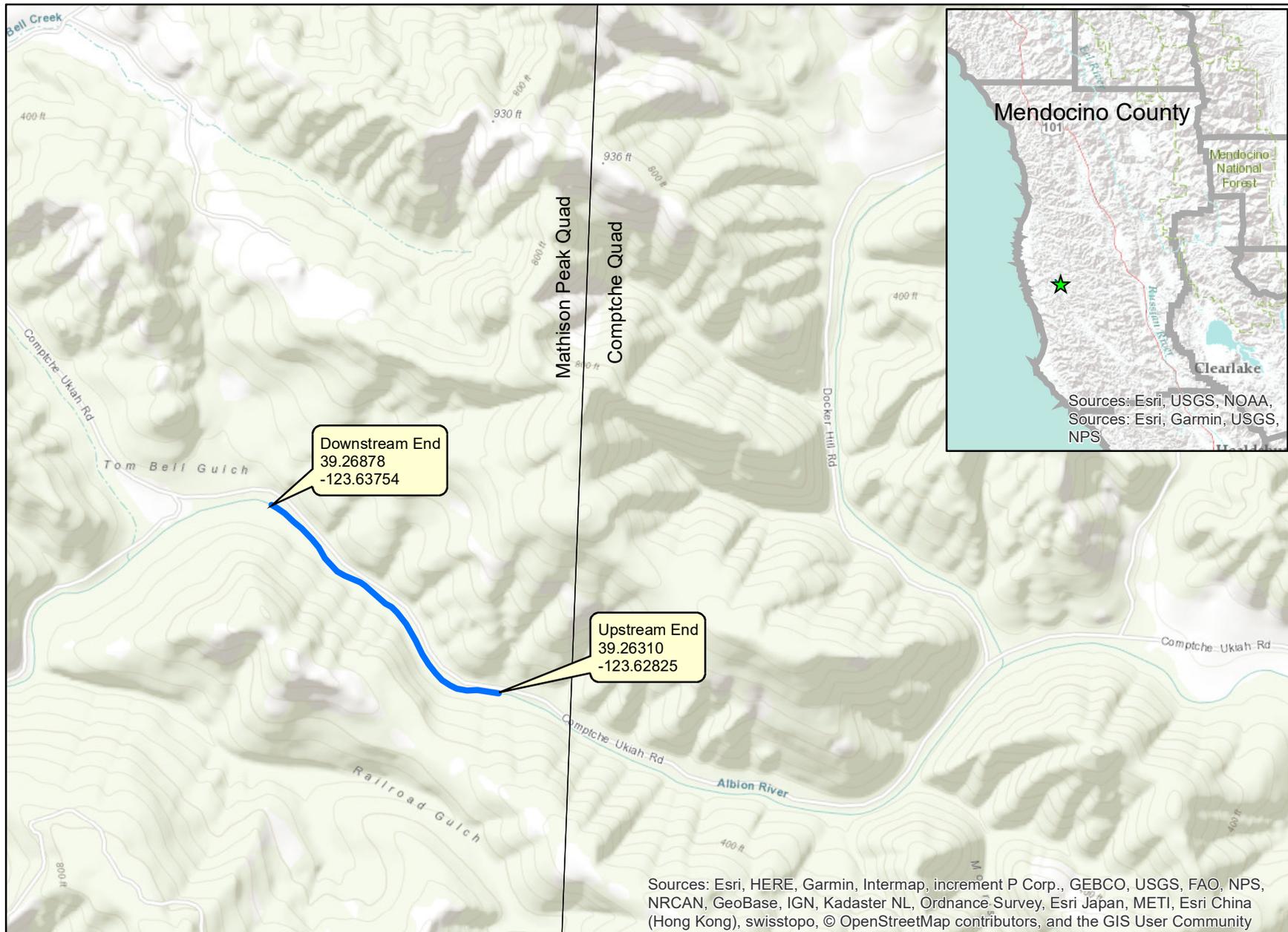
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All habitat improvements will follow techniques described in the *California Salmonid Stream Habitat Restoration Manual*.

# Albion River Coho Habitat Enhancement Project - Large Wood Installation

## Project Location Map

### California Conservation Corps



— LWD treatment reach





# Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



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

Possible species within the Mathison Peak and surrounding quads for 3099 Albion River Coho Habitat Enhancement Project - Large Wood Installation, Mendocino County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Abronia umbellata</i> var. <i>breviflora</i> pink sand-verbena	PDNYC010N4	None	None	G4G5T2	S2	1B.1
<i>Accipiter gentilis</i> northern goshawk	ABNKC12060	None	None	G5	S3	SSC
<i>Agelaius tricolor</i> tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
<i>Agrostis blasdalei</i> Blasdale's bent grass	PMPOA04060	None	None	G2	S2	1B.2
<i>Arboremus pomo</i> Sonoma tree vole	AMAFF23030	None	None	G3	S3	SSC
<i>Arctostaphylos nummularia</i> ssp. <i>mendocinoensis</i> pygmy manzanita	PDERI04280	None	None	G3?T1	S1	1B.2
<i>Ascaphus truei</i> Pacific tailed frog	AAABA01010	None	None	G4	S3S4	SSC
<i>Astragalus agnicidus</i> Humboldt County milk-vetch	PDFAB0F080	None	Endangered	G2	S2	1B.1
<i>Blennosperma nanum</i> var. <i>robustum</i> Point Reyes blennosperma	PDAST1A022	None	Rare	G4T2	S2	1B.2
<i>Bombus caliginosus</i> obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
<i>Bombus occidentalis</i> western bumble bee	IIHYM24250	None	None	G2G3	S1	
<i>Brachyramphus marmoratus</i> marbled murrelet	ABNNN06010	Threatened	Endangered	G3G4	S1	
<i>Calamagrostis crassiglumis</i> Thurber's reed grass	PMPOA17070	None	None	G3Q	S2	2B.1
<i>Calileptoneta wapiti</i> Mendocino leptonetid spider	ILARAU6040	None	None	G1	S1	
<i>Calystegia purpurata</i> ssp. <i>saxicola</i> coastal bluff morning-glory	PDCON040D2	None	None	G4T2T3	S2S3	1B.2
<i>Campanula californica</i> swamp harebell	PDCAM02060	None	None	G3	S3	1B.2
<i>Carex californica</i> California sedge	PMCYP032D0	None	None	G5	S2	2B.3
<i>Carex lenticularis</i> var. <i>limnophila</i> lagoon sedge	PMCYP037A7	None	None	G5T5	S1	2B.2
<i>Carex livida</i> livid sedge	PMCYP037L0	None	None	G5	SH	2A



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Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<b><i>Carex lyngbyei</i></b> Lyngbye's sedge	PMCYP037Y0	None	None	G5	S3	2B.2
<b><i>Carex saliniformis</i></b> deceiving sedge	PMCYP03BY0	None	None	G2	S2	1B.2
<b><i>Castilleja ambigua var. humboldtiensis</i></b> Humboldt Bay owl's-clover	PDSCR0D402	None	None	G4T2	S2	1B.2
<b><i>Castilleja litoralis</i></b> Oregon coast paintbrush	PDSCR0D012	None	None	G3	S3	2B.2
<b><i>Castilleja mendocinensis</i></b> Mendocino Coast paintbrush	PDSCR0D3N0	None	None	G2	S2	1B.2
<b><i>Charadrius alexandrinus nivosus</i></b> western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
<b><i>Chorizanthe howellii</i></b> Howell's spineflower	PDPGN040C0	Endangered	Threatened	G1	S1	1B.2
<b><i>Clarkia amoena ssp. whitneyi</i></b> Whitney's farewell-to-spring	PDONA05025	None	None	G5T1	S1	1B.1
<b>Coastal and Valley Freshwater Marsh</b> Coastal and Valley Freshwater Marsh	CTT52410CA	None	None	G3	S2.1	
<b>Coastal Brackish Marsh</b> Coastal Brackish Marsh	CTT52200CA	None	None	G2	S2.1	
<b><i>Coelus globosus</i></b> globose dune beetle	IICOL4A010	None	None	G1G2	S1S2	
<b><i>Collinsia corymbosa</i></b> round-headed Chinese-houses	PDSCR0H060	None	None	G1	S1	1B.2
<b><i>Coptis laciniata</i></b> Oregon goldthread	PDRAN0A020	None	None	G4?	S3?	4.2
<b><i>Cornus canadensis</i></b> bunchberry	PDCOR01040	None	None	G5	S2	2B.2
<b><i>Corynorhinus townsendii</i></b> Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
<b><i>Cuscuta pacifica var. papillata</i></b> Mendocino dodder	PDCUS011A2	None	None	G5T1	S1	1B.2
<b><i>Elanus leucurus</i></b> white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
<b><i>Emys marmorata</i></b> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
<b><i>Erethizon dorsatum</i></b> North American porcupine	AMAFJ01010	None	None	G5	S3	
<b><i>Erigeron supplex</i></b> supple daisy	PDAST3M3Z0	None	None	G2	S2	1B.2
<b><i>Erysimum concinnum</i></b> bluff wallflower	PDBRA160E3	None	None	G3	S2	1B.2



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<b><i>Erysimum menziesii</i></b> Menzies' wallflower	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
<b><i>Erythronium revolutum</i></b> coast fawn lily	PMLIL0U0F0	None	None	G4G5	S3	2B.2
<b><i>Eucyclogobius newberryi</i></b> tidewater goby	AFCQN04010	Endangered	None	G3	S3	SSC
<b><i>Fratercula cirrhata</i></b> tufted puffin	ABNNN12010	None	None	G5	S1S2	SSC
<b><i>Gilia capitata ssp. pacifica</i></b> Pacific gilia	PDPLM040B6	None	None	G5T3	S2	1B.2
<b><i>Gilia millefoliata</i></b> dark-eyed gilia	PDPLM04130	None	None	G2	S2	1B.2
<b>Grand Fir Forest</b> Grand Fir Forest	CTT82120CA	None	None	G1	S1.1	
<b><i>Helminthoglypta arrosa pomoensis</i></b> Pomo bronze shoulderband	IMGASC2033	None	None	G2G3T1	S1	
<b><i>Hemizonia congesta ssp. congesta</i></b> congested-headed hayfield tarplant	PDAST4R065	None	None	G5T2	S2	1B.2
<b><i>Hesperevax sparsiflora var. brevifolia</i></b> short-leaved evax	PDASTE5011	None	None	G4T3	S2	1B.2
<b><i>Hesperocyparis pygmaea</i></b> pygmy cypress	PGCUP04032	None	None	G1	S1	1B.2
<b><i>Horkelia marinensis</i></b> Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
<b><i>Juncus supiniformis</i></b> hair-leaved rush	PMJUN012R0	None	None	G5	S1	2B.2
<b><i>Kopsiopsis hookeri</i></b> small groundcone	PDORO01010	None	None	G4?	S1S2	2B.3
<b><i>Lasthenia californica ssp. bakeri</i></b> Baker's goldfields	PDAST5L0C4	None	None	G3T1	S1	1B.2
<b><i>Lasthenia californica ssp. macrantha</i></b> perennial goldfields	PDAST5L0C5	None	None	G3T2	S2	1B.2
<b><i>Lathyrus palustris</i></b> marsh pea	PDFAB250P0	None	None	G5	S2	2B.2
<b><i>Lavinia symmetricus navarroensis</i></b> Navarro roach	AFCJB19023	None	None	G4T1T2	S2S3	SSC
<b><i>Lilium maritimum</i></b> coast lily	PMLIL1A0C0	None	None	G2	S2	1B.1
<b><i>Lycopodium clavatum</i></b> running-pine	PPLYC01080	None	None	G5	S3	4.1
<b>Mendocino Pygmy Cypress Forest</b> Mendocino Pygmy Cypress Forest	CTT83161CA	None	None	G2	S2.1	



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<b><i>Microseris borealis</i></b> northern microseris	PDAST6E030	None	None	G5	S1	2B.1
<b><i>Mitellastra caulescens</i></b> leafy-stemmed mitrewort	PDSAX0N020	None	None	G5	S4	4.2
<b>Northern Coastal Salt Marsh</b> Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
<b><i>Noyo intersessa</i></b> Ten Mile shoulderband	IMGASC5070	None	None	G2	S2	
<b><i>Oceanodroma homochroa</i></b> ashy storm-petrel	ABNDC04030	None	None	G2	S2	SSC
<b><i>Oncorhynchus kisutch pop. 4</i></b> coho salmon - central California coast ESU	AFCHA02034	Endangered	Endangered	G4	S2?	
<b><i>Oncorhynchus mykiss irideus pop. 16</i></b> steelhead - northern California DPS	AFCHA0209Q	Threatened	None	G5T2T3Q	S2S3	
<b><i>Packera bolanderi var. bolanderi</i></b> seacoast ragwort	PDAST8H0H1	None	None	G4T4	S2S3	2B.2
<b><i>Pandion haliaetus</i></b> osprey	ABNKC01010	None	None	G5	S4	WL
<b><i>Phacelia insularis var. continentis</i></b> North Coast phacelia	PDHYD0C2B1	None	None	G2T2	S2	1B.2
<b><i>Pinus contorta ssp. bolanderi</i></b> Bolander's beach pine	PGPIN04081	None	None	G5T2	S2	1B.2
<b><i>Piperia candida</i></b> white-flowered rein orchid	PMORC1X050	None	None	G3	S3	1B.2
<b><i>Plebejus idas lotis</i></b> lotis blue butterfly	IILEPG5013	Endangered	None	G5TH	SH	
<b><i>Pleuropogon hooverianus</i></b> North Coast semaphore grass	PMPOA4Y070	None	Threatened	G2	S2	1B.1
<b><i>Progne subis</i></b> purple martin	ABPAU01010	None	None	G5	S3	SSC
<b><i>Puccinellia pumila</i></b> dwarf alkali grass	PMPOA531L0	None	None	G4?	SH	2B.2
<b><i>Ramalina thrausta</i></b> angel's hair lichen	NLLEC3S340	None	None	G5	S2?	2B.1
<b><i>Rana aurora</i></b> northern red-legged frog	AAABH01021	None	None	G4	S3	SSC
<b><i>Rana boylei</i></b> foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
<b><i>Rhyacotriton variegatus</i></b> southern torrent salamander	AAAAJ01020	None	None	G3G4	S2S3	SSC
<b><i>Rhynchospora alba</i></b> white beaked-rush	PMCYP0N010	None	None	G5	S2	2B.2



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<b><i>Sanguisorba officinalis</i></b> great burnet	PDROS1L060	None	None	G5?	S2	2B.2
<b><i>Sidalcea calycosa ssp. rhizomata</i></b> Point Reyes checkerbloom	PDMAL11012	None	None	G5T2	S2	1B.2
<b><i>Sidalcea malachroides</i></b> maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
<b><i>Sidalcea malviflora ssp. patula</i></b> Siskiyou checkerbloom	PDMAL110F9	None	None	G5T2	S2	1B.2
<b><i>Sidalcea malviflora ssp. purpurea</i></b> purple-stemmed checkerbloom	PDMAL110FL	None	None	G5T1	S1	1B.2
<b><i>Speyeria zerene behrensii</i></b> Behren's silverspot butterfly	IILEPJ6088	Endangered	None	G5T1	S1	
<b><i>Sphagnum Bog</i></b> Sphagnum Bog	CTT51110CA	None	None	G3	S1.2	
<b><i>Taricha rivularis</i></b> red-bellied newt	AAAAF02020	None	None	G4	S2	SSC
<b><i>Trifolium buckwestiorum</i></b> Santa Cruz clover	PDFAB402W0	None	None	G2	S2	1B.1
<b><i>Trifolium trichocalyx</i></b> Monterey clover	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
<b><i>Triquetrella californica</i></b> coastal triquetrella	NBMUS7S010	None	None	G2	S2	1B.2
<b><i>Usnea longissima</i></b> Methuselah's beard lichen	NLLEC5P420	None	None	G4	S4	4.2
<b><i>Viola palustris</i></b> alpine marsh violet	PDVIO041G0	None	None	G5	S1S2	2B.2

Record Count: 95

# Indian Creek Sediment Reduction and Salmonid Habitat Enhancement Project

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## **Introduction:**

The Mattole Salmon Group will implement the Indian Creek Sediment Reduction and Salmonid Habitat Enhancement Project. This project will treat forest legacy impacts, reduce sediment delivery and improve water quality for all life stages of salmonids in Indian Creek by treating prioritized, high value sediment sources and preventing the delivery of approximately 7,915 yd<sup>3</sup> of sediment from road-related sediment delivery features to Indian Creek, including decommissioning 18 features on 1.63 miles of road.

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(s) will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* Volume II, Part X (<https://www.wildlife.ca.gov/Grants/FRGP/Guidance>).

## **Objective(s):**

This project will treat forest legacy impacts and reduce sediment delivery and improve water quality for all life stages of salmonids in Indian Creek by treating prioritized, high value sediment sources and preventing the delivery of approximately 7,915 yd<sup>3</sup> of sediment from road-related sediment delivery features to Indian Creek including decommissioning 18 features on 1.63 miles of road.

## **Project Description:**

### **Location:**

The Lost Coast Forestlands, LLC (LCF) property is 5,230 acres of forest land in the Indian Creek watershed located west of Piercy, north of Fort Bragg and south of Whitethorn in northern Mendocino County. The proposed planning watershed feeds directly into the South Fork Eel River via Indian Creek. The project area is located along the mainstem, roughly 7.7 miles upstream of the Indian Creek and South Fork Eel River confluence. The center of the project coordinates are: 39.953230 degrees north latitude, -123.906655 degrees west longitude.

### **Project Set Up:**

Mattole Salmon Group (MSG) will conduct Task A, Contract oversight. MSG contract Admin/Bookkeeper will process invoices from subcontractors and develop and submit invoices to the grantor. MSG Executive Director will perform periodic reviews of project progress. MSG will ensure adherence of billing practices and project performance as stated in the CDFW Grant Agreement.

# Indian Creek Sediment Reduction and Salmonid Habitat Enhancement Project

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MSG Executive Director and Admin/Bookkeeper will conduct all Grant Oversight. Grant oversight includes but is not limited to contracting oversight and administration, invoicing, scheduling, implementation oversight, landowner communications, and obtaining, developing and adhering to all permits, as well as assuring the application of the matching funds provided by Lost Coast Forestlands. Upon final execution of the grant, and prior to receiving a final Notice to Proceed, MSG will deliver the landowner access agreements and subcontracts, and assure CEQA and all permits are finalized.

Archeological, paleontological, botanical and biological monitors (Pacific Watershed Associates (PWA) and DZC Archaeology and Cultural Resources Management (DZC)) will conduct Task B. PWA will provide preliminary monitoring reports on all mitigation measures for listed species in the project area which may include the Northern Spotted Owl (*Strix occidentalis caurina*). Pre-construction training for all workers who will be performing work on this project will be provided. A qualified archaeologist from DZC Archaeology and Cultural Resources Management and PWA botanist and PWA paleontologist will be on site or on call at all times while construction is underway. A qualified biologist will provide monitoring for frogs, owls, and fish on site or on call at all times while construction is underway.

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

Geologic subcontractor will contribute to Task C. (Pacific Watershed Associates technical oversight). The geologic subcontractor will provide treatment layout, technical oversight and supervision of heavy equipment and labor operations.

The PWA Project Manager and Technical Staff perform pre-construction layout, and pre-project monitoring for the upslope project elements for Task C. This includes laying out (flagging) specific treatments and extent of excavations, carrying out pre-treatment surveys of stream crossings, and pre-treatment monitoring. Layout hours include a wet weather inspection to help identify seeps and springs along the road proposed for treatment. Other layout steps include compiling the field information into a detailed set of construction maps, road logs,

detailed treatment information, and state and federal permits that will be provided to the heavy equipment contractor. Specifically, Project Manager and Technical Staff hours, costs, and expenses are based on the length of road proposed for treatment and ease of access (walk, quad, or drive) to the project specific roads (1.63 miles), and erosional features (18 upslope features). The GIS staff provides project support through development of GIS maps and products for the field, database interfaces, GPS data organization and analysis.

The PWA Associate Geologist (PG) and Project Manager supervise the heavy equipment implementation and provide technical oversight for Task C. Heavy equipment technical oversight and supervision hours are based on the total excavator hours and number of work weeks for site specific and road drainage treatments (494 excavator hours; 14 weeks).

The Senior Geologist conducts paleontological surveys and CEQA compliance.

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

PWA Technical Staff hours include heavy equipment oversight, field preparation, coordination, field vehicle maintenance, and field map creation and transfer for the GIS staff. Photo downloading and file management, as well as data entry for annual report metrics, performance measures, as-built construction road logs, before/after implementation monitoring photographs, stream crossing surveys, and heavy equipment time logs for hours spent treating each feature on the proposed roads are also part of the technical staff duties.

Field review costs and expenses (Task C) including pre- and post-construction inspections by the Principal and Associate Geologist (PG), CEG, and Project Manager are based on the number of heavy equipment hours and work weeks (14 weeks). For Task C, the Principal, Senior Geologist (PG) and CEG review the technical aspects of the implementation project and provide guidance for the Project Manager and Technical Staff as required in complex landform issues.

The Associate Geologist (PG) ensures compliance with the Geologist and Geophysicist Act (California Business and Professions Code 7800). In addition, the Principal and Associate Geologist ensure that the project is implemented as designed, and follows or exceeds the CDFW standards for road decommissioning (Task C).

In addition for task C, revegetation will be conducted by specialist contractors to be determined after the grant contract is approved and signed.

A qualified Biologist will conduct fish exclusion and required amphibian monitoring.

For Task D, the PWA Project Manager and Technical Staff will perform post-treatment data collection, 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 decommissioned road. Expenses include quality assurance and quality control including final report technical editing and review by the Principal and Engineering Geologist. For the final report (Task E), the GIS staff will generate and provide final report maps.

## **Materials:**

**Straw:** For this project 152 bales of straw mulch is used to protect and promote growth of native seedlings used in re-planting in areas disturbed from restoration activities. Straw mulch will also be used for erosion control. Straw and tree mulch will be critical to reducing post-decommissioning surface erosion.

**Seed:** For this project 107 pounds of native grass seed is 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.

**Flex pipe:** six inch diameter (600 feet): Used for dewatering live stream crossings. The flex pipe will be used to convey streamflow around the work area with the trash pump or using gravity feed to dewater stream crossings.

**Trees (planting):** For this project 723 trees (\$4.85/tree; includes labor) will be planted by specialized laborers. Native conifer saplings will be planted in the riparian zone disturbed by heavy equipment.

**Debris pump:** Implementation of the project is estimated to require the use/rental of one pump for site-specific work (approximately 30 days). Pumps are used during construction to pump clean streamflow around the construction features and manage turbidity.

**Pressure washer:** A (hot water) pressure washer is used to decontaminate heavy equipment between each use in different waterbodies to prevent the spread of invasive species as per the equipment decontamination methods stated in the CDFW decontamination protocol.

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Exclusionary fencing: Fencing material (225 ft) will be used to prevent for fish and aquatic species from entering the work area.

Miscellaneous field and office supplies: Many small field and office supplies are 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, email and postage.

Implementation of the project is estimated to require the use of 782 gallons of gasoline and 14,273 gallons of diesel.

The heavy equipment contractor will be responsible for acquiring the following materials: Debris pump, flex pipe, pressure washer, and fuel.

PWA will be responsible for acquiring the following materials: Trees, miscellaneous field and office supplies, fuel, straw bales, and seed.

Heavy Equipment and Labor Requirements: Equipment needs for erosion control treatments are summarized, based on priority level. Most treatments will require the use of heavy equipment (e.g., excavator, bulldozer, and dump truck). Labor is required at features involving tree removal and post-treatment mulching for surface erosion control. Work hours for logistics are added to hours for the actual treatment work in determining total equipment costs.

## Tasks:

**Task A: Grant and contract oversight:** Contract oversight will be conducted by Mattole Salmon Group and Pacific Watershed Associates. All reporting and billing will be pursuant to contract and regulatory guidelines. MSG contract Admin/Bookkeeper and PWA Clerical Staff will process invoices from subcontractors and develop and submit invoices to the grantor. PWA Professional Geologists will administer the project in the field to ensure timeliness, completion, and conformance with restoration and land management goals of the landowner. MSG Executive Director will perform periodic reviews of project progress. Pacific Watershed Associates will ensure adherence of billing practices and project performance as stated in the CDFW Grant Agreement. MSG Executive Director, Admin/Bookkeeper, and PWA Project Manager will conduct all Grant Oversight. Grant oversight includes but is not limited to contracting oversight and administration, invoicing, obtaining and adhering to permits, scheduling, implementation oversight, and landowner communications. 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, MSG will deliver the landowner access agreements and subcontracts, and assure all

permits are finalized. Elements of this task will continue throughout the life of the project.

**Task B: Construction archeological, botanical and biological monitoring:** A MSG Staff, Service-approved, qualified archeologist, botanist, and biologist will provide preliminary monitoring reports on all mitigation measures for listed species in the project area which may include the Northern Spotted Owl (NSO). All mitigation measures described in the USFWS NSO Take Avoidance Analysis and Guidance 2011 will be followed. Pre-construction training for all workers who will be performing work on this project will be provided. A DZC qualified archeologist and PWA qualified botanist and paleontologist will be on-site or on call at all times while construction is underway. A qualified biologist will provide monitoring to cover CEQA requirements for amphibians, fish, and owls.

**Task C: Construction of sediment control project:** This project will implement road decommissioning, and complete road-related sediment reduction treatments, included in the Indian Creek erosion control plan developed by PWA through a previous CDFW FRGP-funded upslope sediment source assessment. PWA will be responsible for implementation of the project. The PWA clerical team will compile invoices and track budgets throughout the project. All mitigation measures described in the CDFW Regional General Permit will be followed. In order to be compliant with FRGP CEQA process and to prevent the spread of aquatic invasive species, the project will follow the Invasive Species Prevention Protocol (MSG, 2019). A qualified Biologist will conduct fish exclusion and required amphibian monitoring. Personal field gear and heavy equipment working in or near a stream will be decontaminated following terms outlined in the referenced protocol.

Pre-project layout and pre-implementation monitoring - PWA will flag heavy equipment access routes and construction boundaries (layout) as well as spoil disposal areas, equipment exclusion areas for biologic, botanical, paleontological and/or cultural resource protection. They will also set up before- after photo point monitoring stations at selected construction locations for final reporting. Pre-project monitoring will be completed prior to implementation, following the CDFW guidelines and data forms.

Heavy equipment mobilization - Low bed trucks will be used to move heavy equipment in and out of the project area at the beginning and end of the work season and will require one or more pilot cars to move through the public highway system.

Road opening and erosion control - PWA will work with the selected heavy equipment operators to reopen the proposed roads for equipment access and decommissioning treatments. All treatment prescriptions proposed in the project

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follow guidelines in the Handbook for Forest, Ranch, and Rural Roads (Pacific Watershed Associates, 2015), as well as Part X of the California Department of Fish and Game Salmonid Habitat.

**Task D: Post-implementation monitoring:** PWA will reoccupy photo points to document pre- and post-implementation conditions at sediment source feature locations. In addition to the proposed monitoring specified within this proposal, PWA will conduct pre- and post-project monitoring to assess upslope restoration project outcomes using CDFW monitoring protocols, guidelines, and data forms.

**Task E: Summary reporting:** PWA Project Manager and Technical Staff will prepare a final summary report detailing project accomplishments, containing pre- and post-construction photographic documentation, and all summary reporting metrics required by the FRGP contract. PWA Principal will be responsible for final editing of the summary report.

## Deliverables:

**Task A: Grant and contract oversight:** Project deliverables will include the information listed below: final landowner access agreements; notification and payment of CDFW Lake and Streambed Alteration Agreement (LSAA/1600); periodic progress, status and annual reports. The project deliverables will also include all invoices, additional progress reports or any other documentation pursuant to the grant requirements, including a final report, as-built road logs, before/after photographs, performance measures, maps and project budget.

**Task B: Construction archeological, botanical and biological monitoring:** Preliminary report monitoring on all mitigation measures for listed species and/or findings in the project area will be provided to MSG and the CDFW Contract Manager.

**Task C: Construction of sediment control project:** As-built road logs for permanent road decommissioning of 1.63 mi of inner gorge and streamside riparian road in the Indian Creek watershed; erosion and sediment control treatment of 18 site specific erosional features along the decommission road alignment; excavation of 22,096 yd<sup>3</sup> of man-made fill and sediment, primarily at unstable fill slopes, bank erosion features, and stream crossings, and prevention of 7,915 yd<sup>3</sup> of anthropogenic related sediment from entering the Indian Creek stream system. As-built road logs and performance measures to be included in the final report.

**Task D: Post-implementation monitoring:** Implementation monitoring deliverables will be included in the final report including labeled before-and-after photos of selected restoration activities and techniques and as-built road logs.

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**Task E: Summary reporting:** Upon completion of the project MSG and PWA will submit a written completion report which contains: (1) general grant information, (2) location of work, (3) project access, (4) participating landowner's name and address, (5) a description and analysis of the restoration and planning person hours expended, (6) a quantified description of the results of the project, including as-built road logs, (7) dates of work and the number of person hours expended, (8) labeled before-and- after photos of selected restoration activities and techniques, (9) grant dollars spent and contributed and/or in-kind services used to complete the project, (10) GIS generated maps and shapefiles of the project area, and (11) monitoring checklists, databases, spreadsheets and any other data products produced under this grant.

## Timelines:

**Task A: Grant and contract oversight:** 03/02/2020 to 03/31/2022.

**Task B: Construction archeological, botanical and biological monitoring:** 04/01/2021 to 10/31/2021.

**Task C: Construction of sediment control project:** 06/01/2020 to 10/31/2021.

**Task D: Post-implementation monitoring:** 10/31/2021 to /28/2022.

**Task E: Summary reporting:** 10/31/2021 to 03/31/2022.

**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

# Indian Creek Sediment Reduction and Salmonid Habitat Enhancement Project

2019

standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

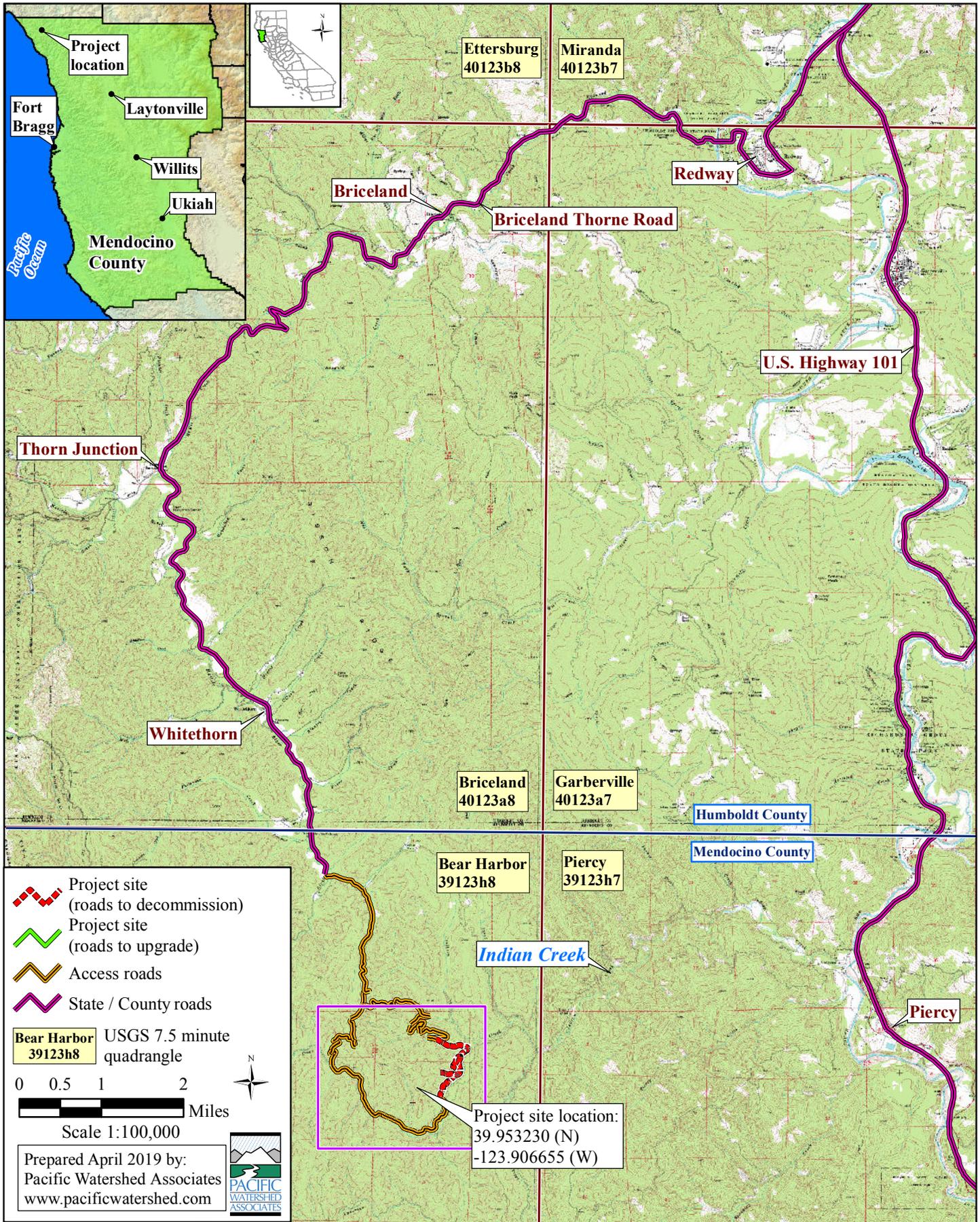
During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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 ensure the best chance of survival of the seedlings.



Map 1. Project location topographic map for the Indian Creek Sediment Reduction and Salmonid Habitat Enhancement Project, Mendocino County, California. Grantee: Mattole Salmon Group



# Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



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

Possible species within the Bear Harbor and surrounding quads for 3118 Indian Creek Sediment Reduction and Salmonid Habitat Enhancement Project, Mendocino County

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Accipiter cooperii</i> Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
<i>Antrozous pallidus</i> pallid bat	AMACC10010	None	None	G5	S3	SSC
<i>Arborimus pomo</i> Sonoma tree vole	AMAFF23030	None	None	G3	S3	SSC
<i>Ascaphus truei</i> Pacific tailed frog	AAABA01010	None	None	G4	S3S4	SSC
<i>Astragalus agnicidus</i> Humboldt County milk-vetch	PDFAB0F080	None	Endangered	G2	S2	1B.1
<i>Bombus caliginosus</i> obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
<i>Bombus occidentalis</i> western bumble bee	IIHYM24250	None	None	G2G3	S1	
<i>Calamagrostis foliosa</i> leafy reed grass	PMPOA170C0	None	Rare	G3	S3	4.2
<i>Cardamine angulata</i> seaside bittercress	PDBRA0K010	None	None	G4G5	S3	2B.1
<i>Castilleja litoralis</i> Oregon coast paintbrush	PDSCR0D012	None	None	G3	S3	2B.2
<i>Castilleja mendocinensis</i> Mendocino Coast paintbrush	PDSCR0D3N0	None	None	G2	S2	1B.2
<i>Clarkia amoena ssp. whitneyi</i> Whitney's farewell-to-spring	PDONA05025	None	None	G5T1	S1	1B.1
<i>Coptis laciniata</i> Oregon goldthread	PDRAN0A020	None	None	G4?	S3?	4.2
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
<i>Emys marmorata</i> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
<i>Erethizon dorsatum</i> North American porcupine	AMAFJ01010	None	None	G5	S3	
<i>Erythronium revolutum</i> coast fawn lily	PMLIL0U0F0	None	None	G4G5	S3	2B.2
<i>Gilia capitata ssp. pacifica</i> Pacific gilia	PDPLM040B6	None	None	G5T3	S2	1B.2
<i>Hesperocyparis pygmaea</i> pygmy cypress	PGCUP04032	None	None	G1	S1	1B.2



Selected Elements by Scientific 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
<b><i>Horkelia marinensis</i></b> Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
<b><i>Lasthenia californica ssp. macrantha</i></b> perennial goldfields	PDAST5L0C5	None	None	G3T2	S2	1B.2
<b><i>Lathyrus palustris</i></b> marsh pea	PDFAB250P0	None	None	G5	S2	2B.2
<b><i>Mitellastra caulescens</i></b> leafy-stemmed mitrewort	PDSAX0N020	None	None	G5	S4	4.2
<b><i>Montia howellii</i></b> Howell's montia	PDPOR05070	None	None	G3G4	S2	2B.2
<b><i>Myotis evotis</i></b> long-eared myotis	AMACC01070	None	None	G5	S3	
<b><i>Myotis thysanodes</i></b> fringed myotis	AMACC01090	None	None	G4	S3	
<b><i>Myotis yumanensis</i></b> Yuma myotis	AMACC01020	None	None	G5	S4	
<b><i>Oncorhynchus kisutch pop. 2</i></b> coho salmon - southern Oregon / northern California ESU	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	
<b><i>Oncorhynchus mykiss irideus pop. 36</i></b> summer-run steelhead trout	AFCHA0213B	None	None	G5T4Q	S2	SSC
<b><i>Pandion haliaetus</i></b> osprey	ABNKC01010	None	None	G5	S4	WL
<b><i>Pekania pennanti</i></b> fisher - West Coast DPS	AMAJF01021	None	Threatened	G5T2T3Q	S2S3	SSC
<b><i>Piperia candida</i></b> white-flowered rein orchid	PMORC1X050	None	None	G3	S3	1B.2
<b><i>Rana aurora</i></b> northern red-legged frog	AAABH01021	None	None	G4	S3	SSC
<b><i>Rana boylei</i></b> foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
<b><i>Rhyacotriton variegatus</i></b> southern torrent salamander	AAAAJ01020	None	None	G3G4	S2S3	SSC
<b><i>Sidalcea malachroides</i></b> maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
<b><i>Taricha rivularis</i></b> red-bellied newt	AAAAF02020	None	None	G4	S2	SSC
<b><i>Thermopsis robusta</i></b> robust false lupine	PDFAB3Z0D0	None	None	G2	S2	1B.2
<b><i>Usnea longissima</i></b> Methuselah's beard lichen	NLLEC5P420	None	None	G4	S4	4.2

Record Count: 39