

String Creek Instream Steelhead Habitat Enhancement Project

2016

Introduction:

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

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

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

Objective(s):

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

Project Description:

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

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Project Set Up:

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

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

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

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

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

Tasks:

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

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- Final Landowner Access Agreements as per the requirements of the 2016 Proposal Solicitation Notice, Appendix K, Funding Approval Submissions. Written permission must be obtained from landowners for access to perform grant work.
- Subcontractor Agreements. If a subcontractor is to be used, then a written copy of the sub agreement(s) shall be submitted to the Grantor Project Manager. The subcontract shall include specific language which establishes the rights of the auditors of the State to examine the records of the subcontractor relative to the services and materials provided under the grant.

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

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

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

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

Task 3. Project Implementation:

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

- Pre-implementation surveys.
- Large wood will be transported from nearby (onsite) locations utilizing a rubber-tired skidder and/or backhoe. Due to the proximity and access to the project reach, the same rubber-tired equipment will place logs and boulders into the

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stream channel at 11 sites along 0.5 miles of String Creek and 0.15 miles of Tartar Creek. The RPF representing the landowner will be available for consultation when needed. Immediately following implementation each piece will be measured, tagged, and photographed.

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

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

Task 5. Reporting: Write and deliver progress reports for invoicing, Annual Progress Report(s), and a Final Report to Grantor Project Manager.

Deliverables:

DELIVERABLE 1: Any progress reports, annual reports, invoices, or other documents that are necessary pursuant to CDFW guidelines.

DELIVERABLE 2: Pre-implementation longitudinal profile, performance metric data, and photos.

DELIVERABLE 3: Installation of at least 30 pieces of wood at 11 sites along 0.65 miles of stream, thus creating at least 3 pools.

DELIVERABLE 4: Performance measure metrics; post-implementation longitudinal profile, As-builts, and photos.

DELIVERABLE 5: Upon completion of the project TU and project partners will submit a written completion report (Final Report) which contains: (1) general grant information, (2) location of work, (3) project access, (4) participating landowners name and address, (5) a description and analysis of the restoration and planning techniques used, (6) a description of the results of the project including all quantifiable expected results (per site), (7) dates of work, (8) As-Builts drawings that include structure placement and alignment, materials used (size and quantity), cross sections and longitudinal profiles, (9) labeled before and after photos of selected 18 restoration activities and techniques, (10) grant dollars spent and contributed and/or in kind services used to complete the project and (11) a project map with all pertinent project features and work site station.

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Timelines:

Grant Oversight: June 1, 2017 to February 28, 2019.

Project Implementation: June 1, 2017 to October 30, 2017 and June 1, 2018 to October 31, 2018

Project documentation and report preparation. November 2018 to February 2019

Final report due February 28, 2019.

Additional Requirements:

The Grantee shall notify the Grant Manager a minimum of five working days before any fish bearing stream reaches are dewatered and the stream flow diverted. The notification will provide a reasonable time for Department personnel to supervise the implementation of the water diversion plan and oversee the safe removal and relocation of salmonids and other aquatic species from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

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

The Grantee will seed and mulch all exposed soils which may deliver sediment to a stream. Mulching and seeding can occur at any time during construction but will need to be completed prior to Oct. 15. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to insure the best chance of survival of the seedlings. The standard for success is 80% survival of plantings, after a period of three years.



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



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

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

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



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



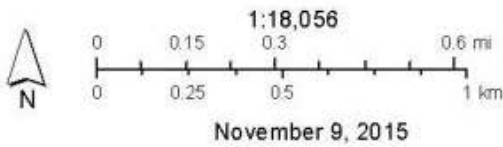
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Roderick's fritillary <i>Fritillaria roderickii</i>	PMLIL0V0M0	None	Endangered	G1Q	S1	1B.1
scabrid alpine tarplant <i>Anisocarpus scabridus</i>	PDASTDU020	None	None	G3	S3	1B.3
sharp-shinned hawk <i>Accipiter striatus</i>	ABNKC12020	None	None	G5	S4	WL
Sonoma tree vole <i>Arborimus pomo</i>	AMAFF23030	None	None	G3	S3	SSC
thin-lobed horkelia <i>Horkelia tenuiloba</i>	PDR0S0W0E0	None	None	G2	S2	1B.2
three-fingered morning-glory <i>Calystegia collina ssp. tridactylosa</i>	PDCON04036	None	None	G4T1	S1	1B.2
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Valley Oak Woodland <i>Valley Oak Woodland</i>	CTT71130CA	None	None	G3	S2.1	
watershield <i>Brasenia schreberi</i>	PDCAB01010	None	None	G5	S3	2B.3
western bumble bee <i>Bombus occidentalis</i>	IIHYM24250	None	None	G2G3	S1	
western pond turtle <i>Emys marmorata</i>	ARAAD02030	None	None	G3G4	S3	SSC
white-flowered rein orchid <i>Piperia candida</i>	PMORC1X050	None	None	G3	S3	1B.2
yellow warbler <i>Setophaga petechia</i>	ABPBX03010	None	None	G5	S3S4	SSC
yellow-breasted chat <i>Icteria virens</i>	ABPBX24010	None	None	G5	S3	SSC
northern spotted owl <i>Strix occidentalis caurina</i>	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC

Record Count: 33

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



FRGP 2016 Proposal Application
 Applicant: Trout Unlimited, NCCP



Anderson Creek Habitat Enhancement Project for Coho Recovery Phase III

2016

Introduction:

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

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

Objective(s):

The specific objective of this project is to create 25 instream features consisting of 100 pieces of LWD within a 0.9-mile section of Anderson Creek. The addition of these structures will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels, increasing the quality and quantity of rearing habitat within the project reach, and by providing velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids.

Project Description:

Location:

The project is located on Anderson Creek beginning 2.5 miles upstream of the confluence with Indian Creek, in the County of Mendocino, State of California. The project is located at approximately 39.93303700 north, 123.91298100 west (upstream extent) and 39.93250500 north, 123.90180200 west (downstream extent); Township 24 North, Range 18 West, and Sections 18 and 19 of the Bear Harbor 7.5 Minute U.S. Geological Survey (USGS) Quadrangle map as depicted in the Project Location Map.

Project Set Up:

The project administration will be done by a ERWIG Project Manager who shall provide all contracting oversight and administration including but not limited to obtaining permits, securing contracts (grantors, subcontractors, and landowner), scheduling, implementation oversight, invoicing, manage budgeting, reporting and agency and landowner communications. This task will occur throughout the life of the project. Subcontractors for Heavy Equipment and Hand Labor will construct instream log structures according to the site specific plans to be provided, using locally available logs or logs from other locations. Logs will be moved into location by hand crews, or by using

heavy equipment where necessary. A subcontracted revegetation planting crew will plant a mix of redwood and fir trees in the disturbed area and mulch any remaining bare soil areas with straw.

Materials:

A total of 100 pieces of LWD will be used to construct 25 structures. Other materials purchased and used during the project include the following:

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

Tasks:

Task 1. Install Instream Habitat Features:

Install instream habitat features at 25 locations including 100 pieces of LWD along 0.9 miles of Anderson Creek. Final structure design and placement will be determined by field consultation between the Grantee and the CDFW Grant Manager. Work will consist of the following:

- Heavy equipment and hand labor crew members will construct instream log structures according to the site specific plans to be provided, using locally available logs or logs from other locations.
- Nuts, washers, plates, cable, glue and rebar will be ordered as applicable.
- Location of all project LWD will be documented.
- Various anchoring techniques, which will be approved by the CDFW Grantor Project Manager prior to the initiation of work, may be used to hold multiple logs together to form complex structures. Anchoring techniques will include wedging logs into existing rocks and logs along the riparian banks; anchoring to live mature trees growing on riparian banks; or anchoring to existing boulders. Anchoring materials will consist of 1" threaded rebar, cable, nuts and washers, and waterproof epoxy.
- The minimum length used for unanchored large woody debris is 1.5 times bankfull width.

Anderson Creek Habitat Enhancement Project for **2016** Coho Recovery Phase III

- Once the primary structural elements of the wood jams are in place and fastened together, crew members and heavy equipment will be used to pre-rack each feature with medium and small woody debris and brush, thereby providing additional cover and habitat complexity for salmonids.

Task 2. Erosion Control:

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

Deliverables:

Deliverable 1: Any progress reports, invoices, or other documents that are necessary according to CDFW guidelines.

Deliverable 2: Installation of 25 LWD jams over a 0.9 mile stream reach, containing approximately 100 pieces of wood. Wood will be woven, trenched, and anchored into the existing riparian corridor.

Deliverable 3: Upon completion of the project ERWIG and PWA shall submit a written completion report which contains: (1) general grant information, (2) location of work, (3) project access, (4) participating landowner's name and address, (5) a description and analysis of the restoration and planning person hours expended, (6) a quantified description of the results of the project, including as-built in-stream enhancement feature designs, (7) dates of work and the number of person hours expended, (8) labeled before and after photos of selected restoration activities and techniques, (9) grant dollars spent and contributed and/or in kind services used to complete the project, and (10) GIS generated maps and shapefiles of the project area. (11) Pre- and postmonitoring results of each of the constructed features.

Timelines:

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

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

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

Compile data and prepare a final report for CDFW to be submitted by February 28, 2019.

Additional Requirements:

Anderson Creek Habitat Enhancement Project for **2016** Coho Recovery Phase III

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

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

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

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

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



Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database



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

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

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
coast fawn lily <i>Erythronium revolutum</i>	PMLILOU0F0	None	None	G4G5	S3	2B.2
coho salmon - southern Oregon / northern California ESU <i>Oncorhynchus kisutch</i>	AFCHA02032	Threatened	Threatened	G4T2Q	S2?	
Cooper's hawk <i>Accipiter cooperii</i>	ABNKC12040	None	None	G5	S4	WL
fisher - West Coast DPS <i>Pekania pennanti</i>	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
foothill yellow-legged frog <i>Rana boylei</i>	AAABH01050	None	None	G3	S3	SSC
Howell's montia <i>Montia howellii</i>	PDPOR05070	None	None	G3G4	S2	2B.2
Humboldt milk-vetch <i>Astragalus agnicidus</i>	PDFAB0F080	None	Endangered	G2	S2	1B.1
leafy reed grass <i>Calamagrostis foliosa</i>	PMPOA170C0	None	Rare	G3	S3	4.2
leafy-stemmed mitrewort <i>Mitellastrum caulescens</i>	PDSAX0N020	None	None	G5	S4	4.2
maple-leaved checkerbloom <i>Sidalcea malachroides</i>	PDMAL110E0	None	None	G3	S3	4.2
marsh pea <i>Lathyrus palustris</i>	PDFAB250P0	None	None	G5	S2	2B.2
Mendocino Coast paintbrush <i>Castilleja mendocinensis</i>	PDSCR0D3N0	None	None	G2	S2	1B.2
Methuselah's beard lichen <i>Usnea longissima</i>	NLLEC5P420	None	None	G4	S4	4.2
obscure bumble bee <i>Bombus caliginosus</i>	IIHYM24380	None	None	G4?	S1S2	
Oregon coast paintbrush <i>Castilleja litoralis</i>	PDSCR0D012	None	None	G3	S3	2B.2
Oregon goldthread <i>Coptis laciniata</i>	PDRAN0A020	None	None	G4	S3	4.2
osprey <i>Pandion haliaetus</i>	ABNKC01010	None	None	G5	S4	WL
Pacific gilia <i>Gilia capitata ssp. pacifica</i>	PDPLM040B6	None	None	G5T3	S2	1B.2



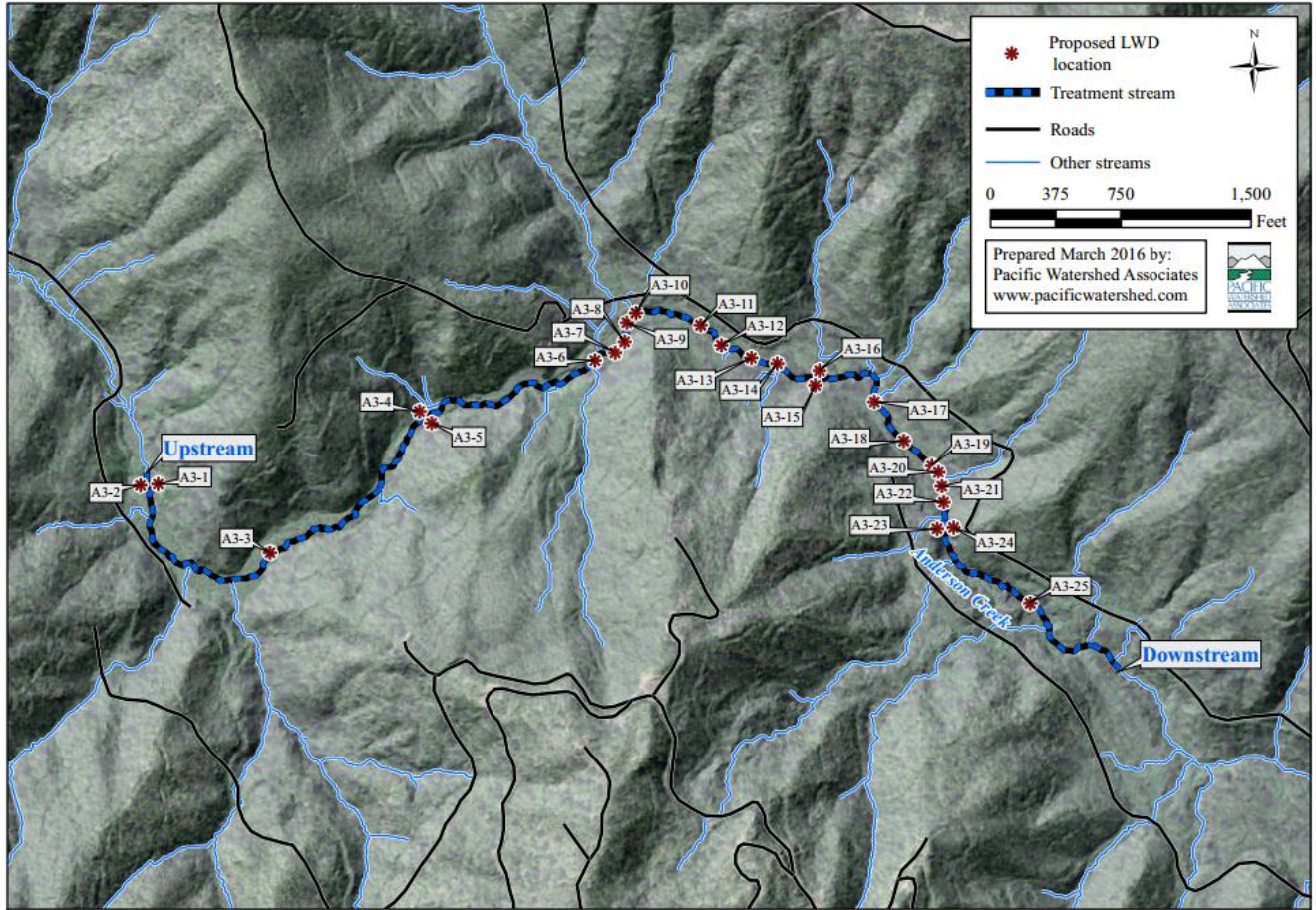
Selected Elements by Common Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Pacific tailed frog <i>Ascaphus truei</i>	AAABA01010	None	None	G4	S3S4	SSC
pallid bat <i>Antrozous pallidus</i>	AMACC10010	None	None	G5	S3	SSC
perennial goldfields <i>Lasthenia californica ssp. macrantha</i>	PDAST5L0C5	None	None	G3T2	S2	1B.2
Point Reyes horkelia <i>Horkelia marinensis</i>	PDR0S0W0B0	None	None	G2	S2	1B.2
Sonoma tree vole <i>Arborimus pomo</i>	AMAFF23030	None	None	G3	S3	SSC
southern torrent salamander <i>Rhyacotriton variegatus</i>	AAAAJ01020	None	None	G3G4	S2S3	SSC
summer-run steelhead trout <i>Oncorhynchus mykiss irideus</i>	AFCHA0213B	None	None	G5T4Q	S2	SSC
western bumble bee <i>Bombus occidentalis</i>	IIHYM24250	None	None	G2G3	S1	
western pond turtle <i>Emys marmorata</i>	ARAAD02030	None	None	G3G4	S3	SSC
white-flowered rein orchid <i>Piperia candida</i>	PMORC1X050	None	None	G3	S3	1B.2
Whitney's farewell-to-spring <i>Clarkia amoena ssp. whitneyi</i>	PDONA05025	None	None	G5T1	S1	1B.1
northern spotted owl <i>Strix occidentalis caurina</i>	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC

Record Count: 30

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



Grantee: Eel River Watershed Improvement Group

Anderson Creek Sediment Reduction and Coho Recovery Project Phase 2

2016

Introduction:

Grantee, through its North Coast Coho Project program, will implement the Anderson Creek Sediment Reduction and Coho Recovery Project Phase 2. The purpose of the project is to decommission roads and treat sediment sources in the Anderson Creek watershed. The project is necessary because salmonid habitat conditions in Anderson Creek are degraded due to historical activities that caused excessive delivery of sediment to the creek. Salmonid recovery plans recommend decreasing sediment input by treating prioritized sediment sources, including roads.

Objective(s):

The project will implement 18 site specific road treatments for road decommissioning along 1.33 miles of road, which will prevent sediment from entering Anderson Creek.

Project Description:

Location: Anderson Creek is a tributary of the South Fork Eel River in Mendocino County. The mouth of Anderson Creek is near the town of Piercy. Project coordinates are: 39.93488400 north and 123.90641600 west (upstream) and 39.94149100 north and -123.89594000 west (downstream).

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

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

implementation supervision, technical oversight and field reviews, including pre- and post-construction inspections; and (3) Post-treatment data collection, photographic monitoring, data analysis and reporting. In addition, the Geologic Subcontractor will maintain regular communications between the Grantee, Grantor, Landowner Area Forester, and Heavy Equipment and Labor subcontractor.

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

Materials: Materials for this project include:

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

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

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

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

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

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

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

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

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

Tasks: Decommission 1.33 miles of roads in the Anderson Creek watershed in order to protect and improve instream habitat for all salmonid species.

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

Task B: Implementation. Decommission 1.33 miles of roads in the Anderson Creek watershed.

- Implement project permitting, pre-construction layout, and pre-project monitoring
- Implement heavy equipment work, provide technical oversight and field reviews, including pre- and post-construction inspections
- Implement post-treatment data collection, photographic monitoring, data analysis, and reporting.
- Treat 15 stream crossings to save approximately 2,635 cubic yards of road-related sediment from delivery to local streams.

- Treat 2 potential or existing fillslope landslide features saving approximately 445 cubic yards of future sediment delivery. Treat by direct excavation, sediment removal, and proper spoils disposal.
- Treat 1 swale site saving approximately 10 cubic yards of sediment from delivery to stream channels.
- Permanently decommission 1.33 miles of road and prevent or minimize accelerated sediment delivery to stream channels during future large storms. Hydrologically disconnect the road from the stream system by permanently removing the road, thus lowering overall road density in the watershed and mostly eliminating the roads from the potentially unstable inner gorge setting of the mainstem. These prescriptions will include treatments such as road outsloping, ripping (decompacting), and cross road drain construction.
- As part of the proposed erosion control and erosion prevention treatments, replant redwood (*Sequoia sempervirens*) within the riparian corridor along disturbed work areas, primarily at stream crossing excavations.

Deliverables: Deliverable 1: Any progress reports, invoices, or other documents that are necessary according to CDFW guidelines. Deliverable 2: Permanent road decommissioning of 1.33 miles of inner gorge and streamside road in Anderson Creek; direct treatment of 18 site specific erosional features along the decommission road alignment; prevention of 4,220 yd³ of sediment from entering the Anderson Creek stream system; Deliverable 3: Upon completion of the project, a written completion report which contains: (1) general grant information, (2) location of work, (3) project access, (4) participating landowner's name and address, (5) a description and analysis of the restoration and planning person hours expended, (6) a quantified description of the results of the project, including as-built road logs, (7) dates of work and the number of person hours expended, (8) labeled before and after photos of selected restoration activities and techniques, (9) grant dollars spent and contributed and/or in kind services used to complete the project, and (10) GIS generated maps and shapefiles of the project area, and (11) monitoring checklists and summaries consistent with CDFW guidelines and as required by the FLAR focus..

Timelines:

Project will be completed according to the following timeline:

- Administer and manage the project throughout the entirety of the agreement term June 2017 to March 31, 2019.
- June 1, 2017 Pre-construction project permitting, pre-construction layout, and pre-project monitoring tasks are planned to occur.
- June 2017 - October 2018 Heavy equipment implementation
- Fall 2017, 2018 Post-construction data collection. Post-treatment data collection, road logs and maps showing as built road conditions, and photographic monitoring will be conducted to fulfill reporting requirements.

- Fall 2018 – February 28, 2019 Reporting. Data collection synthesis, data analysis, and report writing. The implementation report will be completed and submitted no later than February 28, 2019.

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

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

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

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

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

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

- c. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.
- d. All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
- e. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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

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



Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database



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

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

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



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



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Pacific tailed frog <i>Ascaphus truei</i>	AAABA01010	None	None	G4	S3S4	SSC
pallid bat <i>Antrozous pallidus</i>	AMACC10010	None	None	G5	S3	SSC
perennial goldfields <i>Lasthenia californica ssp. macrantha</i>	PDAST5L0C5	None	None	G3T2	S2	1B.2
Point Reyes horkelia <i>Horkelia marinensis</i>	PDR0S0W0B0	None	None	G2	S2	1B.2
Sonoma tree vole <i>Arborimus pomo</i>	AMAFF23030	None	None	G3	S3	SSC
southern torrent salamander <i>Rhyacotriton variegatus</i>	AAAAJ01020	None	None	G3G4	S2S3	SSC
summer-run steelhead trout <i>Oncorhynchus mykiss irideus</i>	AFCHA0213B	None	None	G5T4Q	S2	SSC
western bumble bee <i>Bombus occidentalis</i>	IIHYM24250	None	None	G2G3	S1	
western pond turtle <i>Emys marmorata</i>	ARAAD02030	None	None	G3G4	S3	SSC
white-flowered rein orchid <i>Piperia candida</i>	PMORC1X050	None	None	G3	S3	1B.2
Whitney's farewell-to-spring <i>Clarkia amoena ssp. whitneyi</i>	PDONA05025	None	None	G5T1	S1	1B.1
northern spotted owl <i>Strix occidentalis caurina</i>	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC

Record Count: 30

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

