

# South Fork Salmon River Tributary Salmonid Habitat Enhancement Project

2016

**Introduction:** The Salmon River Restoration Council (SRRC) will construct instream habitat enhancement structures in Methodist and Knownothing Creeks over 3.15 miles of stream (1.42 miles and 1.73 miles respectively), and monitor restoration effectiveness. This project will place structures with an excavator and skidder using purchased whole tree material (trees with root wads intact) from the United States Forest Service (USFS).

This project is necessary because summertime temperatures and lack of winter rearing habitat are stressors for juvenile coho in the Salmon River. Due to a combination of factors, including simplification and fragmentation of habitat, coho populations are declining. Prior to implementation of the Northwest Forest Plan, timber harvest extended into the riparian zone in many areas of the watershed. The most significant outcomes of these logging activities have been the associated changes in the natural fire regime, the substantial building of road networks throughout the basin, and loss of large diameter wood structures in streams. The SRRC's 2014 assessment of large woody debris (LWD) on Knownothing and Methodist creeks showed an overall lack of large in-stream structures, and identified locations where additional structures would be appropriate. This project will provide short-term and long-term benefits to coho salmon by restoring LWD and shade in key cold-water tributaries.

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

**Objectives:** The goal of this project is to place instream structures, guided by assessment results. The objectives of this project include:

- To increase channel complexity by placing instream structures in areas identified in an assessment.
- To augment LWD structures in two tributaries lacking channel complexity.
- To increase the number of LWD structures to create deeper pools, slower water and more cover for coho salmon.

## **Project Description:**

**Location:** Knownothing Creek and Methodist Creek are tributaries of the South Fork Salmon River. Knownothing Creek is 3 river miles upstream of the confluence of the South Fork Salmon River and 22 river miles upstream of the mouth of the Salmon River at 41.24144200 north latitude, 123.29284500 west longitude. Methodist Creek is 6 river miles upstream of the confluence of the South Fork Salmon River and 25 miles upstream of the mouth of the Salmon River at 41.22223800 north latitude, 123.24990900 west longitude.

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## **Project Set Up:**

Salmon River Restoration Council (SRRRC):

- SRRRC Director: (Task 1). Provide project oversight and grant management. Participate in stakeholder meeting, and assist in completion of National Environmental Policy Act (NEPA) process.
- SRRRC Program Coordinator: (Tasks 1, 2, 3 and 4): Provide overall project management. Manage subcontractors, organize and attend stakeholder meeting, and assist with project tracking and reporting. Responsible for coordinating procurement of wood and helping oversee layout and construction; compile NEPA specialist report and write NEPA document; assisting with project monitoring tasks.

USFS Specialists (Tasks 1 and 2): USFS resource specialists will attend the stakeholder meeting, assist in completing NEPA and perform final NEPA review and approval. They will also assist in acquisition of wood.

Karuk Tribe Fisheries Biologist (Tasks 1, 2 and 3): The Karuk Tribe Fisheries Biologist will attend the stakeholder meeting, and provide input in to project layout and monitoring.

Watershed Restoration Subcontractor (WRS): The WRS will provide project oversight and effectiveness monitoring.

- WRS Principle Geomorphologist: (Tasks: 1, 3, and 4): Provide technical expertise, final work plan review and field guidance for WRS Project Scientist and Physical Science Tech as required in complex landform issues. Responsible for oversight of geologic characterization of landforms, collection of stream habitat field data and monitoring information, and provide technical reviews of reports and publications. Ensure compliance with Geologist and Geophysicist Act (California Business and Professions Code 7800).
- WRS Project Scientist: (Tasks: 1, 2, 3, and 4): Overall responsible charge of project management and oversight, subcontracting, implementation layout, construction oversight, before/after effectiveness monitoring, Quality Assurance/Quality Control (QA/QC) plan development and data collection protocols; database and data form development; and data analysis and reporting associated with the monitoring study.
- WRS Physical Science Tech: (Task 4): Conduct on-the-ground field assessment work including but not limited to: conducting the pre- and post-implementation effectiveness monitoring. Also, collect and enter field data into electronic database. Report directly to Project Scientist.
- WRS Geographic Information Systems (GIS) Staff: (Tasks 2, 3, and 4): Provide project support through development of GIS maps and products, database interfaces, and Global Position System (GPS) data organization

and analysis. Produce field maps in support of assessment work and required final report maps.

- WRS Clerical Staff: (Task 1): Develop invoice tracking spreadsheet analysis, maintain project cost records, and develop timely invoices pursuant to subcontract obligations.

NEPA subcontractor (Task 1.3): Complete specialist reports for NEPA.

Heavy Equipment Subcontractor (Tasks 2.1 and 2.3): The heavy equipment operator will be a licensed contractor and Licensed Timber Operator (LTO) and will procure the whole tree material necessary to conduct project implementation. The equipment required will include but not be limited to: 1) hydraulic excavator, 2) log skidder, 3) end dump, 4) lowboy, 5) field laborer, and 6) pickup truck.

**Materials:** The materials for this project will include whole tree material (logs with and without root wads, and associated small woody material), anchoring materials, total station and sub-meter GPS, and field and office supplies (flagging, field notebooks, wooden lath stakes, rebar, marking paint, printer paper, and writing utensils).

**Tasks:** Construct 22 complex LWD structures and monitor restoration effectiveness to improve coho spawning and rearing habitat in the South Fork Salmon River Watershed by completing the flowing tasks.

## Task 1: Project Management, Meetings, and Permitting

Task 1.1 SRRC and WRS conduct agreement oversight and project management. All reporting and billing will be pursuant to agreement and regulatory guidelines.

Task 1.2 Stakeholders meeting. The project team will conduct a field meeting to ensure that the stakeholders, including the landowner, have continued direct communication and understanding of how the project is being implemented. The meeting will provide the opportunity for all the stakeholders to have input on the final design elements of the proposed project.

Task 1.3 NEPA permitting. The USFS will be the lead agency for NEPA. The supporting documentation for the process will be prepared by the SRRC. Items to be included for investigation will include 1) fisheries, 2) archeology, 3) botany, 4) geology (paleontology), and 5) hydrology.

Task 1.4 Project tracking and invoicing. Project tracking and invoicing will be conducted over the life of the project. All reporting and billing will be pursuant to agreement and regulatory guidelines.

## Task 2: Instream Habitat Restoration

Task 2.1 Wood procurement. Procure whole tree material in close coordination with the USFS, SRRC and WRS. The Heavy Equipment Subcontractor's Licensed Timber Operator will harvest up to 55 live conifer trees by tipping the trees over with the excavator. The 55 trees assumes 2 logs per tree, if the trees are large enough to provide 3 logs per tree the number of required trees will go down but the overall volume of timber will be similar. This process will aim to ensure maximum retention of the root wad. The SRRC and WRS will work directly with USFS staff to 1) develop the "small timber sale", 2) identify the trees for harvest and coordinate the subcontracting, harvest, and delivery to the project sites.

Task 2.2 Project layout. The project layout will be conducted with coordination between SRRC staff and the WRS Project Scientist, and will consist of identifying and flagging equipment access trails to each of the 22 feature locations, setting up pre-project photo documentation, and finalizing the site designs for approval by the CDFW grant manager. Layout will take place prior to the stakeholders meeting (Task 1.2) in order to allow for input from CDFW, SRRC, USFS, and other local agencies or tribes on the final implementation plan.

Task 2.3 Project construction and construction oversight. The Heavy Equipment Subcontractor will install the habitat structures as per the designs and at the direction of the WRS Project Scientist and SRRC staff. The team will construct 22 features using 110 logs over 3.15 miles stream including 1.42 miles in Methodist Creek and 1.73 miles in Knownothing Creek. Logs will be intentionally woven into existing live vegetation and trees. The features will consist of large diameter (12"-36" dia.) logs which will be wedged into the existing riparian forest. There will be full time supervision of the construction of the 22 log jams to ensure the habitat structures will be built in compliance with the project design and CDFW standards, as per Chapter VII of the *California Salmonid Stream Habitat Restoration Manual*. Use an excavator to install the 22 habitat structures.

### Task 3: Documentation and Reporting

Task 3.1 Documentation of as-built conditions. Upon completion of the installation of the habitat structures, document the as-built conditions through photo monitoring, site measurements, and scaled figures of the 22 habitat structures, and collection of annual and final report metrics.

Task 3.2 Reporting for instream implementation project. Report annual reporting metrics and final reporting requirements.

## Task 4: Before/After Effectiveness Monitoring

Task 4.1 Database and data form development. Prior to the initiation of monitoring activities, develop a database and associated electronic data forms to facilitate habitat attribute data collection activities. Collect habitat attribute data with a sub-meter GPS-enabled electronic data collector. Provide all database and data form elements and associated data to CDFW as a deliverable following completion of the monitoring study.

Task 4.2 QA/QC plan development. Prior to the initiation of monitoring activities, develop a formal QA/QC plan to facilitate consistent data collection and reporting activities. The quality assurance aspect of the plan will consist of a formal system of review procedures to be conducted by field crews to ensure data integrity. The quality control component of the plan will consist of technical activities enlisted to measure and control the quality of the data collected. The QA/QC plan will specify the personnel responsible for conducting specific QA/QC activities, quality assurance and quality control procedures to be accomplished, and reporting, documentation, and archiving protocols.

Task 4.3 Pre-implementation monitoring. Conduct pre-implementation monitoring in reaches of Methodist and Knownothing Creeks (Summer 2016 or 2017). Pre-implementation monitoring will consist of the following specific elements:

- One year of pre-implementation monitoring of treated stream reaches in Methodist and Knownothing Creeks for a total of 3.15 miles of stream channel monitored. Survey/evaluate the following parameters during the pre-implementation monitoring:
  - Topographic data - Channel gradient, bankfull width and depth, sinuosity, pool frequency, and residual pool depth.
  - Habitat attribute data - LWD location, abundance, volume, and cover; substrate particle size distribution, pool tail cobble embeddedness, and LWD feature photo-monitoring (structure persistence, accumulation, or loss, and adjacent channel substrate changes).

Task 4.4 Post-implementation monitoring. Conduct post-implementation monitoring in treated reaches of Methodist and Knownothing creeks for two consecutive years (2018 and 2019). Post-implementation monitoring will consist of the following specific elements:

- Conduct 2 years of post-implementation monitoring of treated stream reaches in Methodist and Knownothing Creeks for a total of 3.15 miles of stream channel monitored. Survey/evaluate the following parameters during the post-implementation monitoring:
  - Topographic data - Channel gradient, bankfull width and depth, sinuosity, pool frequency, and residual pool depth.

- Habitat attribute data - LWD location, abundance, volume, and cover; substrate particle size distribution, pool tail cobble embeddedness, and LWD feature photo-monitoring (structure persistence, accumulation, or loss, and adjacent channel substrate changes).
- Task 4.5 Data analysis. Analyze and evaluate the results of pre- and post-implementation monitoring surveys to investigate potential changes in channel gradient, bankfull width and depth, sinuosity, pool frequency, residual pool depth, LWD location, abundance, volume, and cover; substrate particle size distribution, pool tail cobble embeddedness, velocity refugia, LWD feature persistence, wood accumulation, loss, and adjacent channel substrate changes associated with instream wood loading efforts. In addition to data gathered as a component of the monitoring study, evaluate available regional precipitation and runoff data in the context of the results of the study during the data analysis phase of the project to gain further insight into any changes detected.
- Task 4.6 Reporting. Develop a manuscript suitable for peer-reviewed journal and submit to the CDFW grant manager. Work with project stakeholders to evaluate and determine an appropriate journal to target and attempt to have the monitoring study published. All data collected as a result of the monitoring study including database and data form elements, will be provided to the California Department of Fish and Wildlife, accompanied with appropriate Federal Geographic Data Committee (FGDC) and Biogeographic Information & Observation System (BIOS) compliant metadata.

### **Deliverables:**

- Task 1 Deliverables: Progress reports, invoices, annual reports and final report, according to CDFW agreement, as well as the NEPA permitting, and the results of the stakeholder's meeting.
- Task 2 Deliverables: This task will result in 1) delivery of a minimum of 110 logs, of which approximately 1/3 contain intact rootwads, 2) construction of 10 habitat improvement structures in Methodist Creek, and 12 habitat structures in Knownothing Creek, for a total of 22 habitat structures, and 3) pre-implementation photo documentation of the existing conditions at the feature location scale.
- Task 3 Deliverables: Documentation of as-built conditions upon completion of construction of the habitat structures to include 1) photo documentation, 2) as-built figures displaying the post construction conditions of the habitat structures, and 3) final reporting metrics.
- Task 4 Deliverables: 1) Final manuscript suitable for publication in a scientific journal, in scientific format (Abstract, Introduction, Methods, Discussion, Literature Cited, etc.); 2) Field sampling database, in Excel or Access; Data compilations and analytical products, in Excel or Access; 3) Names

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of reports prepared, in the format: Author, date, title, name, source, source address;

## **Timelines:**

Task 1: SRRC's project management will begin once grant agreement is finalized and continue through the life of the project - June 2016 or upon grant approval, through March 2019. The NEPA process will begin immediately following the notice to proceed.

Task 2: Begin the project layout promptly after the notice to proceed - July 2016 - August 2016. Wood procurement will also take place between July 2016 and July 2017. Implementation of 10 habitat structures in Methodist Creek, and 12 habitat structures in Knownothing Creek for a total of 22 habitat structures, will commence between June 2017 and October 2017.

Task 3: Document the as-built conditions upon completion of the habitat structures between October 2017 and December 2017. Final reporting metrics will be submitted during December 2019.

Task 4: Pre-implementation monitoring will be conducted between July 2016 and July 2017 just prior to implementation. The first post-implementation monitoring survey will be conducted between May 2018 and October 2018. The second post-implementation monitoring survey will be conducted between May 2019 and October 2019. Data analysis will begin in 2017 and be completed by November 2019. Final manuscript, database, data compilations and analytical products will be completed and delivered during December 2019.

## **Additional Requirements:**

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

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

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). When transporting traps out of the area, each numbered trap will be bagged in its own

bag to avoid cross contamination during transport in and out of the work area. All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the California Department of Fish & Wildlife Aquatic Invasive Species Decontamination Protocol.

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

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

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

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



In addition to the Final Report of the grant agreement, the required information is as follows:

- a. Final manuscript suitable for publication in a scientific journal (including Abstract, Introduction, Methods, Results, Discussion, and Literature Cited sections);
- b. Field sampling database, in Excel or Access;
- c. Data compilations and analytical products, in Excel or Access;
- d. Names of reports prepared, in the format: Author, date, title, name, source, source address;
- e. All data collected and created is a required deliverable and will become the property of the California Department of Fish and Wildlife, and not of the Grantee. A condition of final payment shall include the delivery of all related data. Spatial data should be delivered in an ESRI-useable format where applicable and documented with metadata in accordance with minimum BIOS metadata standards (<http://bios.dfg.ca.gov/metadata.asp>) and FGDC metadata standards ([http://www.fgdc.gov/metadata/documents/workbook\\_0501\\_bmk.pdf](http://www.fgdc.gov/metadata/documents/workbook_0501_bmk.pdf)).

California Department of Fish and Wildlife

Natural Diversity Database

Selected Elements by Common Name - Portrait

Possible Species within the Cecilville, Youngs Peak, Sawyers Bar, Forks of Salmon, Orleans Mt, Trinity Mt, Dees Peak, and Cecil Lake Quads for South Fork Salmon River Tributary Salmonid Habitat Enhancement Project, "Methodist Creek" T 39N, R 12W, S 30, Cecilville, Siskiyou County; "Knownothing Creek" T 10N, R 08E, S 29, Youngs Peak, Siskiyou County, United States

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 American peregrine falcon <i>Falco peregrinus anatum</i>	ABNKD06071	Delisted	Delisted	G4T4	S3S4	
2 California wolverine <i>Gulo gulo</i>	AMAJF03010		Threatened	G4	S1	
3 Cascade stonecrop <i>Sedum divergens</i>	PDCRA0A0B0			G5?	S2	2B.3
4 English Peak greenbrier <i>Smilax jamesii</i>	PMSMI010D0			G2	S2	1B.3
5 Henderson's fawn lily <i>Erythronium hendersonii</i>	PMLIL0U070			G4	S2	2B.3
6 Howell's tauschia <i>Tauschia howellii</i>	PDAPI27050			G2G3	S2S3	1B.3
7 Humboldt marten <i>Martes caurina humboldtensis</i>	AMAJF01012			G5T1	S1	SC
8 Karok hesperian <i>Vespericola karokorum</i>	IMGASA4040			G2	S2	
9 Klamath gentian <i>Gentiana plurisetosa</i>	PDGEN060V0			G2G3	S2	1B.3
10 Klamath/North Coast Interior Headwater Fishless Stream	CARB2220CA			GNR	SNR	
11 Klamath/North Coast Rainbow Trout Stream	CARB2312CA			GNR	SNR	
12 Marble Mountain campion <i>Silene marmorensis</i>	PDCAR0U0Z0			G2	S2	1B.2
13 Oregon fireweed <i>Epilobium oreganum</i>	PDONA060P0			G2	S2	1B.2
14 Pacific fuzzwort <i>Ptilidium californicum</i>	NBHEP2U010			G3G4	S3?	4.3
15 Pacific tailed frog <i>Ascaphus truei</i>	AAABA01010			G4	S3S4	SC
16 Shasta chaenactis <i>Chaenactis suffrutescens</i>	PDAST200H0			G3	S3	1B.3
17 Siskiyou fireweed <i>Epilobium siskiyouense</i>	PDONA06100			G3	S3	1B.3
18 Siskiyou phacelia <i>Phacelia leonis</i>	PDHYD0C2N0			G3	S3	1B.3
19 Townsend's big-eared bat <i>Corynorhinus townsendii</i>	AMACC08010		Candidate Threatened	G3G4	S2	SC
20 Trinity Mountains rockcress <i>Arabis rigidissima var. rigidissima</i>	PDBRA061R2			G3T2	S2	1B.3
21 Trinity shoulderband <i>Helminthoglypta talmadgei</i>	IMGASC2630			G2	S2	
22 buttercup-leaf suksdorfia <i>Hemieva ranunculifolia</i>	PDSAX0W010			G5	S2	2B.2

California Department of Fish and Wildlife

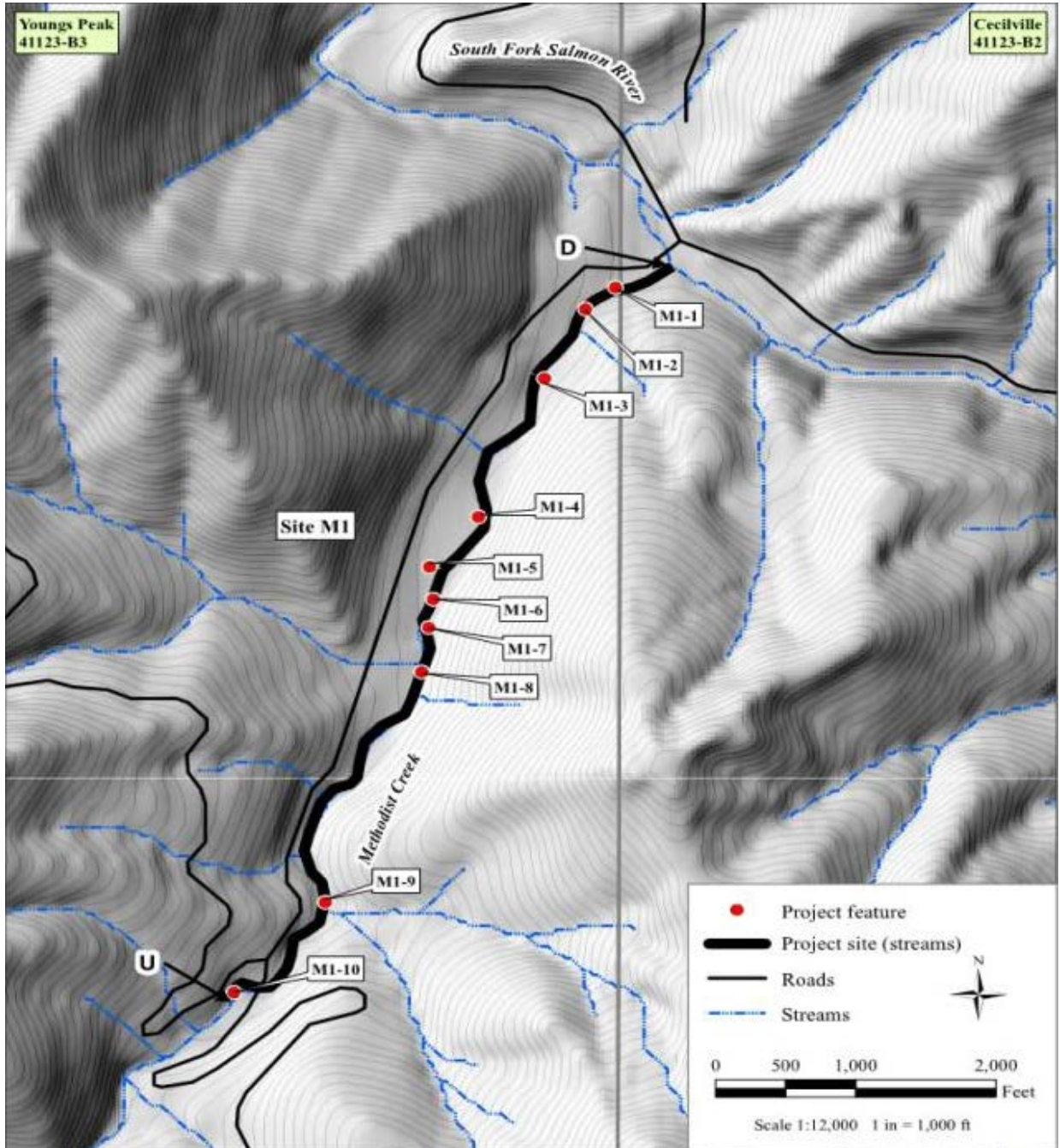
Natural Diversity Database

Selected Elements by Common Name - Portrait

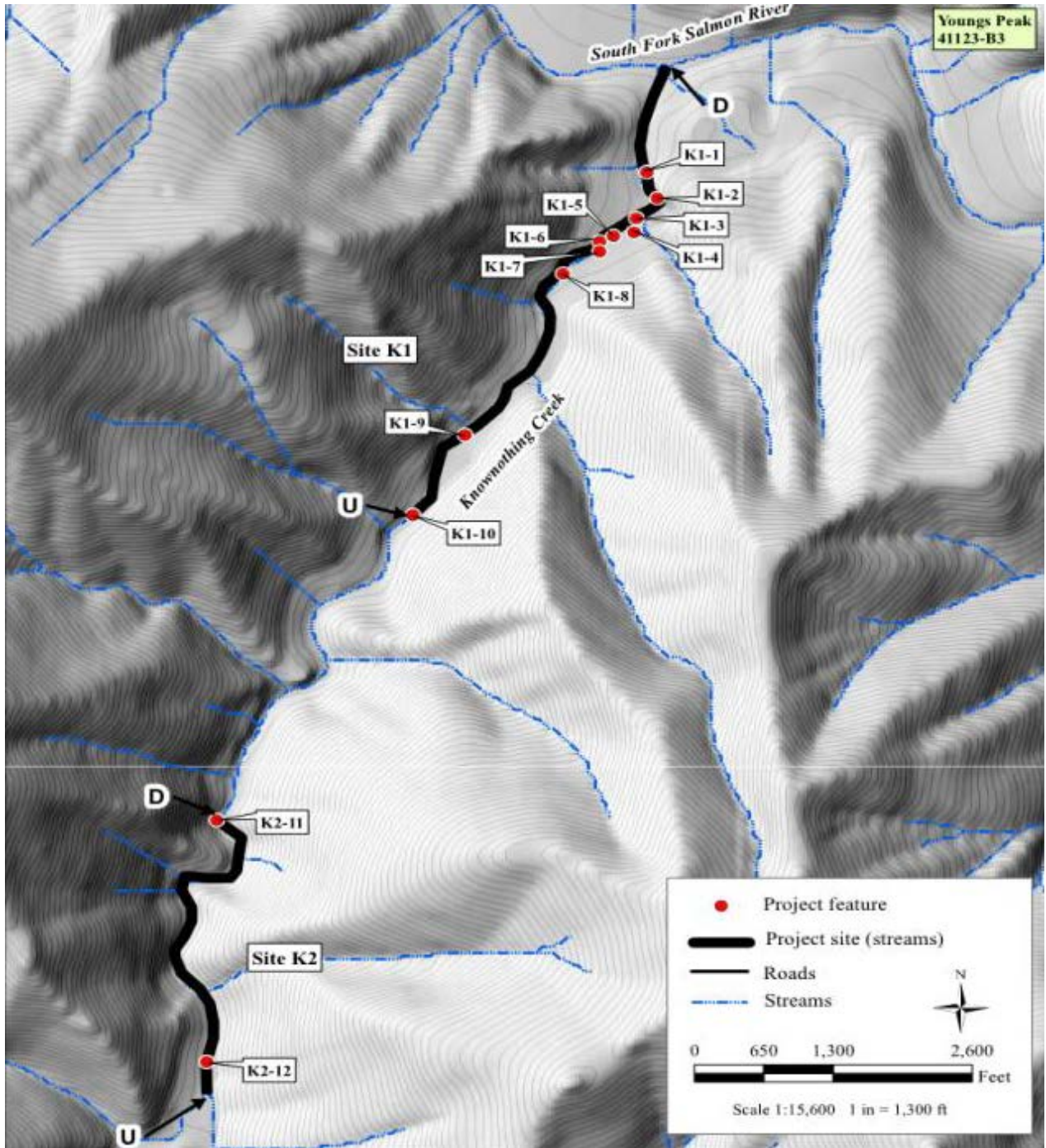
Possible Species within the Cecilville, Youngs Peak, Sawyers Bar, Forks of Salmon, Orleans Mt, Trinity Mt, Dees Peak, and Cecil Lake Quads for South Fork Salmon River Tributary Salmonid Habitat Enhancement Project, "Methodist Creek" T 39N, R 12W, S 30, Cecilville, Siskiyou County; "Knownothing Creek" T 10N, R 08E, S 29, Youngs Peak, Siskiyou County, United States

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
23 chinook salmon - upper Klamath and Trinity Rivers ESU. <i>Oncorhynchus tshawytscha</i>	AFCHA02056			G5	S1S2	SC
24 coast sidalcea <i>Sidalcea oregana ssp. eximia</i>	PDMAL110K9			G5T1	S1	1B.2
25 fisher - West Coast DPS <i>Pekania pennanti</i>	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
26 foothill yellow-legged frog <i>Rana boylei</i>	AAABH01050			G3	S3	SC
27 giant fawn lily <i>Erythronium oregonum</i>	PMLIL0U0C0			G5	S2	2B.2
28 hooded lancetooth <i>Ancotrema voyanum</i>	IMGAS36130			G1G2	S1S2	
29 leafy-stemmed mitrewort <i>Mitellastra caulescens</i>	PDSAX0N020			G5	S4	4.2
30 northern goshawk <i>Accipiter gentilis</i>	ABNKC12060			G5	S3	SC
31 northern spotted owl <i>Strix occidentalis caurina</i>	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
32 obscure bumble bee <i>Bombus caliginosus</i>	IIHYM24380			G4?	S1S2	
33 obtuse starwort <i>Stellaria obtusa</i>	PDCAR0X0U0			G5	S4	4.3
34 southern torrent salamander <i>Rhyacotriton variegatus</i>	AAAAJ01020			G3G4	S2S3	SC
35 summer-run steelhead trout <i>Oncorhynchus mykiss irideus</i>	AFCHA0213B			G5T4Q	S2	SC
36 thread-leaved beardtongue <i>Penstemon filiformis</i>	PDSCR1L2A0			G3	S3	1B.3
37 western bumble bee <i>Bombus occidentalis</i>	IIHYM24250			G2G3	S1	
38 white-flowered rein orchid <i>Piperia candida</i>	PMORC1X050			G3	S3	1B.2

South Fork Salmon River Tributary Salmonid Habitat Enhancement Project  
Project Location Map  
T 39N, R 12W, S 30  
Cecilville Quad, Siskiyou County



South Fork Salmon River Tributary Salmonid Habitat Enhancement Project  
T 10N, R 08E, S 2  
Youngs Peak Quad, Siskiyou County



## **Introduction:**

California Trout, Inc. will restore floodplain connectivity and increase instream channel habitat complexity in a .21 mile reach of the South Fork Scott River, a tributary to the Scott River, Siskiyou County, California.

The project will construct large wood structures at three locations to enhance/restore floodplain connection, increase stream channel habitat with LWD structures. Legacy mining and historic timber harvest impacts has degraded salmonid habitat, channelizing the South Fork Scott River resulting in excessive flow velocities during storm events, reduced stream flows in summer months, lethal water temperatures, juvenile stranding, restricts riparian habitat recruitment.

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

## **Objective(s):**

The objectives to this project are:

Address task SONCC-ScOR.2.2.20 Floodplain and Channel Structure-

The SONCC Coho Recovery Plan 2014 lists beaver removal, road construction, agricultural practices, river channelization, dams and diversions, timber harvest, mining/dredging, gravel extraction, high severity fires, and rural residential development as limiting factors that have simplified, degraded, and fragmented migrating, spawning, and rearing habitat throughout the Scott River basin (NOAA, 2014).

By restoring floodplain functions, watershed health and salmonid habitat will improve from;

- Reduced high velocity flow conditions during storm events
- Promote sediment retention and sorting
- Groundwater recharge, water quality improvement
- Riparian vegetation recruitment
- Restore instream habitat structures, complexity and recruitment.

Engineered design/construction ready plans will be completed to restore the geomorphic function and increase instream habitat complexity for coho life cycle requirements.

The project design will address;

- Removal of lateral constraints preventing access to the floodplain
- Installation of large wood logs for fish habitat , floodplain connectivity
- Produce 100 percent construction ready plan set approved by CDFW engineering

California Trout Inc. will implement the approved construction ready plans.

## **Project Description:**

The design engineer will take the 65% design submitted to 100% construction ready plan approved for implementation. Provide technical oversight through the implementation phase.

Excavation, grading and wood logjam placements will be completed by heavy equipment contractor.

Riparian vegetation will be locally procured and planted within the project treatment areas. Native riparian vegetation such as willows, alders, and cottonwood will be selected for project planting phase.

## **Location:**

The project area is located approximately three miles from the town of Callahan, Siskiyou County, California. At the intersection of CA State Hwy 3 and Cecilville/Callahan road the project site is located 2.5 miles on Cecilville/Callahan road on Timbervest property. The project site coordinates are: latitude 41.28959100 : longitude -122.83573600

## **Project Set Up:**

The Project Director and Administration Staff will oversee and coordinate all project components including design, implementation, and monitoring as well as responsibility for all direct project administration, invoicing, cost tracking, grant reporting, environmental reporting/permitting, partnership coordination, and project outreach/media.

The Siskiyou RCD will be contracted for project implementation support. Project support includes overseeing and completing all listed project tasks including design work, permitting, construction, monitoring and reporting.

The Technical Subcontractor Cascade Stream Solutions will finalize the design and prepare construction ready plans and specifications. Cascade Stream Solutions will oversee all project elements including construction oversight and selecting qualified contractors. Project monitoring, maintenance planning.

The Heavy Equipment Subcontractor will be contracted to implement the finalized construction plans. The equipment contractor will complete the excavation, grading, and wood structure placement. Other tasks would include mobilization, access preparation, site preparation and dewatering plan, wood structure installation, riparian planting.

## **Materials:**

Selected subcontractors will provide the necessary materials to completed the contracted tasks, and include these costs with their quote.

Additional project costs are;

Millage

Permitting

## **Tasks:**

1. Construction staking and inspection: Construction staking and inspection involves placement of grade stakes and locating placement of large wood with the contractor. Technical Subcontractor will place the grade stakes in a location that will allow the contractor to construct the work without disturbing the stake while they use it to construct that particular portion of the work. Technical Subcontractor will inspect construction of the project features and oversee construction activities. Inspection includes checking and approving grades and large wood placement.
2. Mobilization and preparation: This subtask includes the contractor to move construction equipment to and from the site.
3. Clear and grub: This subtask includes clearing debris and cutting and clearing vegetation required to access the site and perform construction.
4. Temporary access and crossing: This subtask includes grading a construction access road and installing a temporary culvert crossing to access the work on the south bank (right bank).
5. Excavation: This subtask the contractor will use an excavator and other earth moving equipment for large wood placement, excavation, and fill placement. Transport rock and wood material for project features.
6. Labor: This subtask the contractor will use laborers to assist with water control, site preparation, large wood placement, excavation, and fill placement. The laborers will likely assist the contractor construct the project.
7. Water Control and Site Prep: This subtask the contractors will maintain water quality and prevent hazardous material entering the aquatic and riparian environment. Water control measures may include temporary coffer dam construction, silt fence installation, and piping of river flows.
8. Log Felling and Placement: This subtask the contractor will cut and drop a tree as directed by an engineer in the field and winch or pull the tree into the position directed by the engineer.
9. Planting: The Planting subtask the contractor to procure and plant native vegetation within the constructed project features. Native vegetation includes willows, alders, and cottonwoods.
10. Site Cleanup: Site Cleanup subtask the contractor to restore the construction access and staging areas to pre-project conditions. This work includes regrading and loosening/ripping disturbed and compacted areas and spreading erosion control seed and mulch.



11. Monitoring: This subtask the contractor will complete Pre and Post implementation monitoring as outlined in the CDFW monitoring checklists: Instream habitat and bank restoration checklist.

**Deliverables:**

Final design plan set, as-built construction plan set in PDF. Riparian management plan restored beneficial fish habitat, monitoring data, and Final Report.

**Timelines:**

June 2016 through October 2016- Finalize design plans (100%)

November 2016 through August 2017- Permitting and subcontractor bid/selection procurement, site and access preparation, pre implementation monitoring.

September 2017 through October 2017- Implementation of finalize design plan

November 2017 through July 2018- Project reporting, post construction monitoring, site preparation, pre implementation monitoring.

August 2018 through September 2018- Complete implementation of finalize design plans. Submit as-built construction plan set, final report, monitoring report.

**Additional Requirements:**

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

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

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

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

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

- Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
- The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the Grantor Project Manager and pursuant to conditions in the USACE Regional General Permit, NMFS Biological Opinion, and project's Lake and Streambed Alteration Agreement (1600 permit).
- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.
- Only qualified fisheries biologist that are approved by USFWS and permitted by CDFW under a California Endangered Species Act (CESA) Memorandum of Understanding (MOU) shall handle and relocate CESA listed species.
- All electrofishing shall be performed by a qualified fisheries biologist under the supervision of CDFW and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.
- USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the Grantor Project Manager on a form provided by Grantor.

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

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

California Department of Fish and Game

Natural Diversity Database

Selected Elements by Common Name - Portrait

Possible species within Callahan Quad and surrounding quads for Scott River Instream Habitat Restoration Project, 40N 09W S25, Siskiyou County

Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 California wolverine <i>Gulo gulo</i>	AMAJF03010		Threatened	G4	S1	
2 Cascade grass-of-Parnassus <i>Parnassia cirrata</i> var. <i>intermedia</i>	PDSAX0P044			G5T3	S3	2B.2
3 Cascades frog <i>Rana cascadae</i>	AAABH01060			G3G4	S3	SC
4 Crotch bumble bee <i>Bombus crotchii</i>	IIHYM24480			G3G4	S1S2	
5 Darlingtonia Seep	CTT51120CA			G4	S3.2	
6 Dudley's rush <i>Juncus dudleyi</i>	PMJUN01390			G5	S1	2B.3
7 Engelmann spruce <i>Picea engelmannii</i>	PGPIN03030			G5	S2	2B.2
8 English Peak greenbrier <i>Smilax jamesii</i>	PMSMI010D0			G2	S2	1B.3
9 Holzinger's orthotrichum moss <i>Orthotrichum holzingeri</i>	NBMUS560E0			G3	S2	1B.3
10 Jaynes Canyon buckwheat <i>Eriogonum diclinum</i>	PDPGN081S0			G3	S2S3	1B.3
11 Jepson's horkelia <i>Horkelia daucifolia</i> var. <i>indicta</i>	PDROS0W053			G4T1	S1	1B.1
12 Klamath Mountain catchfly <i>Silene salmonacea</i>	PDCAR0U2D0			G3	S3	1B.2
13 Klamath manzanita <i>Arctostaphylos klamathensis</i>	PDERI041R0			G3?	S3?	1B.2
14 Mt. Shasta sky pilot <i>Polemonium pulcherrimum</i> var. <i>shastense</i>	PDPLM0E0J4			G5T2	S2	1B.2
15 Pacific fuzzwort <i>Ptilidium californicum</i>	NBHEP2U010			G3G4	S3?	4.3
16 Pacific marten <i>Martes caurina</i>	AMAJF01030			G5	S3	
17 Pacific tailed frog <i>Ascaphus truei</i>	AAABA01010			G4	S3S4	SC
18 Pickering's ivesia <i>Ivesia pickeringii</i>	PDROS0X0D0			G2	S2	1B.2
19 Scott Mountain bedstraw <i>Galium serpenticum</i> ssp. <i>scotticum</i>	PDRUB0N1Y6			G4G5T2	S2	1B.2
20 Scott Mountain howellanthus <i>Howellanthus dalesianus</i>	PDHYD0C140			G3	S3	4.3
21 Scott Mountain sandwort <i>Minuartia stolonifera</i>	PDCAR0G110			G2	S2	1B.3
22 Scott Mountains fawn lily <i>Erythronium citrinum</i> var. <i>roderickii</i>	PMLIL0U042			G4T3	S3	1B.3
23 Scott Valley buckwheat <i>Eriogonum umbellatum</i> var. <i>lautum</i>	PDPGN086UX			G5T1	S1	1B.1

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Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24 Scott Valley phacelia <i>Phacelia greenei</i>	PDHYD0C1V0			G2	S2	1B.2
25 Shasta chaenactis <i>Chaenactis suffrutescens</i>	PDAST200H0			G3	S3	1B.3
26 Siskiyou fireweed <i>Epilobium siskiyouense</i>	PDONA06100			G3	S3	1B.3
27 Siskiyou ground beetle <i>Nebria gebleri siskiyouensis</i>	IICOL6L091			G4G5T4	S1S2	
28 Siskiyou phacelia <i>Phacelia leonis</i>	PDHYD0C2N0			G3	S3	1B.3
29 Suckley's cuckoo bumble bee <i>Bombus suckleyi</i>	IIHYM24350			GU	S1	
30 Trinity Mountains rockcress <i>Arabis rigidissima var. rigidissima</i>	PDBRA061R2			G3T2	S2	1B.3
31 Trinity buckwheat <i>Eriogonum alpinum</i>	PDPGN08060		Endangered	G3	S3	1B.2
32 bank swallow <i>Riparia riparia</i>	ABPAU08010		Threatened	G5	S2	
33 brook pocket moss <i>Fissidens aphelotaxifolius</i>	NBMUS2W290			G3G4	S1	2B.2
34 bunchberry <i>Cornus canadensis</i>	PDCOR01040			G5	S2	2B.2
35 coast sidalcea <i>Sidalcea oregana ssp. eximia</i>	PDMAL110K9			G5T1	S1	1B.2
36 fisher - West Coast DPS <i>Pekania pennanti</i>	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SC
37 foothill yellow-legged frog <i>Rana boylei</i>	AAABH01050			G3	S3	SC
38 leafy-stemmed mitrewort <i>Mitellastra caulescens</i>	PDSAX0N020			G5	S4	4.2
39 little hulsea <i>Hulsea nana</i>	PDAST4Z060			G4	S3	2B.3
40 little-leaved huckleberry <i>Vaccinium scoparium</i>	PDERI180Y0			G5	S3	2B.2
41 northern goshawk <i>Accipiter gentilis</i>	ABNKC12060			G5	S3	SC
42 northern spotted owl <i>Strix occidentalis caurina</i>	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC
43 northwestern moonwort <i>Botrychium pinnatum</i>	PPOPH010V0			G4?	S2	2B.3
44 prairie falcon <i>Falco mexicanus</i>	ABNKD06090			G5	S4	
45 rattlesnake fern <i>Botrypus virginianus</i>	PPOPH010H0			G5	S2	2B.2

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Common Name/Scientific Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
46 showy raillardella <i>Raillardella pringlei</i>	PDAST7X030			G3	S3	1B.2
47 silky balsamroot <i>Balsamorhiza sericea</i>	PDAST110C0			G4Q	S3	1B.3
48 silver-haired bat <i>Lasionycteris noctivagans</i>	AMACC02010			G5	S3S4	
49 subalpine fir <i>Abies lasiocarpa</i> var. <i>lasiocarpa</i>	PGPIN01072			G5T5	S3	2B.3
50 thread-leaved beardtongue <i>Penstemon filiformis</i>	PDSCR1L2A0			G3	S3	1B.3
51 tundra thread moss <i>Pohlia tundrae</i>	NBMUS5S1B0			G3	S3	2B.3
52 water bulrush <i>Schoenoplectus subterminalis</i>	PMCYP0Q1G0			G4G5	S3	2B.3
53 western bumble bee <i>Bombus occidentalis</i>	IIHYM24250			G2G3	S1	
54 western pond turtle <i>Emys marmorata</i>	ARAAD02030			G3G4	S3	SC
55 willow flycatcher <i>Empidonax traillii</i>	ABPAE33040		Endangered	G5	S1S2	
56 woolly balsamroot <i>Balsamorhiza lanata</i>	PDAST11047			G3	S3	1B.2
57 yellow-based sideband <i>Monadenia infumata ochromphalus</i>	IMGASC7051			G2T1	S1	

**Scott River Instream Habitat Restoration project**  
**Project Location Map**  
**T40N, R09W Section 25**  
**Callahan Quad**  
**Siskiyou County**

