Introduction:

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

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

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

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

Objective(s):

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

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

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

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

Project Description:

The design engineer will take the 65% design submitted to 100% construction ready plan approved for implementation. Provide technical oversight though the implementation phase.
Excavation, grading and bridge abutments and placement will be completed by heavy equipment contractor.
Riparian vegetation will be locally procured and planted within the project treatment areas. Native riparian vegetation such as willows, alders, and cottonwood will be selected for project planting phase.

Location:

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

Latitude: 41.56042000, Longitude: 122.98706000.

Project Set Up:

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

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

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

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

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

Materials:

Material includes; prefabricated steel bridge, concrete, Rock- boulders and road aggregate, engineered fill for bridge abutments. Riparian trees, straw mulch and grass seed.
Selected subcontractors will provide the necessary materials to completed the contracted tasks, and include these costs with their quote.
Additional project costs are;
Millage
Permitting

Tasks:

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

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

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

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

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

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

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

Timelines:
June 2017-December 2019: Task 1- Project Management and Coordination

June 2017-December 2017: Task 2- Permitting December 2017 - Final Permits Submitted

Fall 2017- Winter 2018: Task 3- Construction Activities

June 2017 - Bid documents prepared

June 2017- Solicitation proposal to qualified bidders

July 2017- Pre-Bid Walk Through and Bids Due

July 2017- Award subcontractor bids August 2017- December 2018

August 2017- December 2018- Construction Implementation Activities

Fall 2017-Winter 2018- Task 4- Monitoring

May 2018 - Project Effectiveness Monitoring Report submitted

May 2018- Pre and Post Project Photos will be submitted

December 2019nal- Final Report

Additional Requirements:

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

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

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

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

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

- Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.

- The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the Grantor

- Project Manager and pursuant to conditions in the USACE Regional General Permit, NMFS Biological Opinion, and project's Lake and Streambed Alteration Agreement (1600 permit).

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

- Only qualified fisheries biologist that are approved by USFWS and permitted by CDFW under a California Endangered Species Act (CESA) Memorandum of Understanding (MOU) shall handle and relocate CESA listed species.

- All electrofishing shall be performed by a qualified fisheries biologist under the supervision of CDFW and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

- USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the Grantor Project Manager on a form provided by Grantor.

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

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

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Boulder Peak (4112351) OR Etna (4112248) OR Fort Jones (4112257) OR Greenview (4112258) OR Indian Creek Baldy (4112267) OR McConaughy Gulch (4112247) OR Russell Peak (4112268) OR Scott Bar (4112361) OR Yellow Dog Peak (4112341))

Possible species within Greenview Quad and surrounding quads for 725150 Scott River, Mill-Shackelford Creek Bridge, T43N R10W S22, Siskiyou County

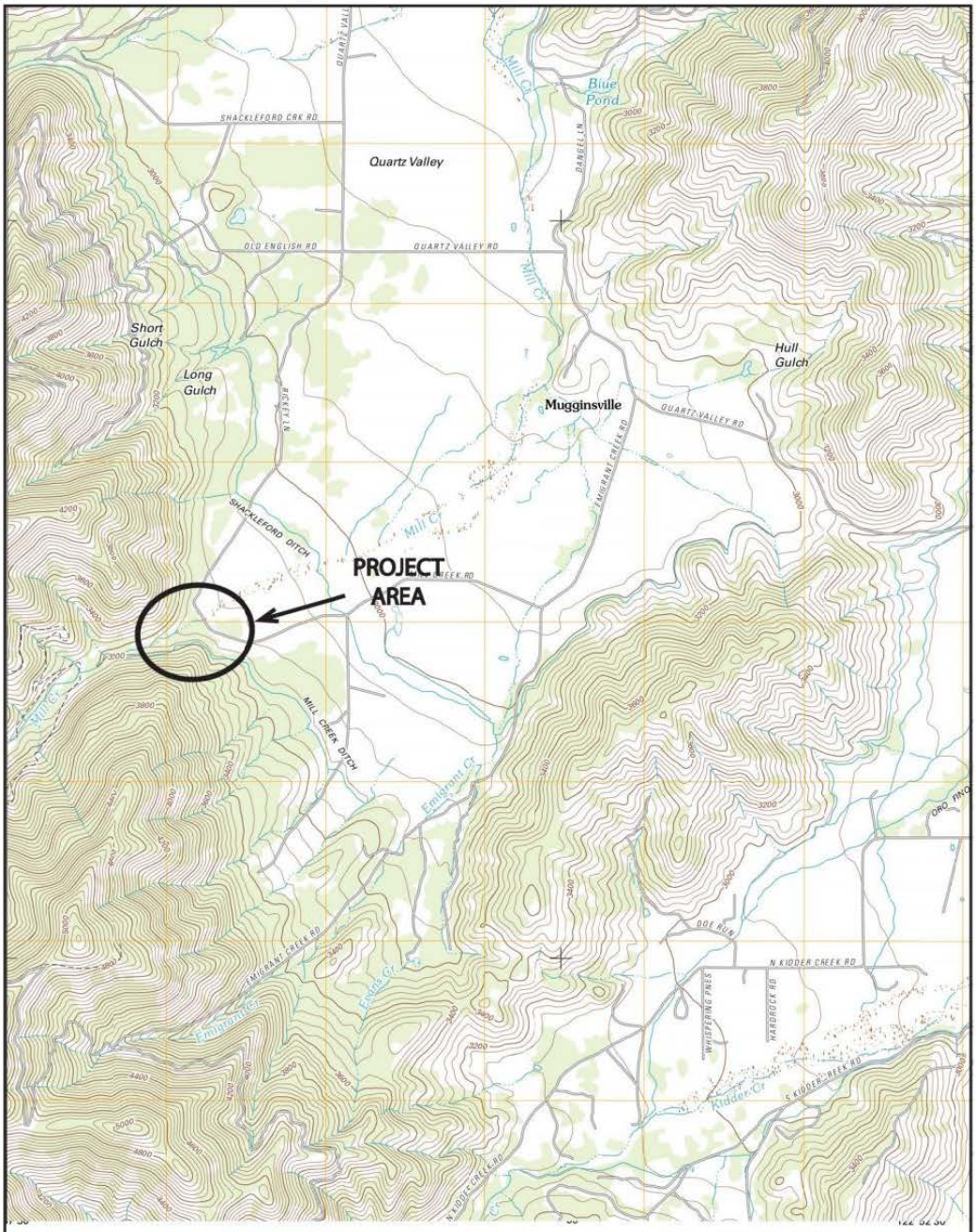
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S2	
blushing wild buckwheat *Eriogonum ursinum var. erubescens*	PDPGN08632	None	None	G3G4T2	S2	1B.3
coast checkerbloom *Sidalcea oregana ssp. eximia*	PDMAL110K9	None	None	G5T1	S1	1B.2
crested potentilla *Potentilla cristae*	PDROS1B2F0	None	None	G2	S2	1B.3
Crotch bumble bee *Bombus crotchii*	IIHYM24480	None	None	G3G4	S1S2	
downy sideband *Monadenia callipeplus*	IMGASC7110	None	None	G1G2	S1S2	
English Peak greenbrier *Smilax jamesii*	PMSMI010D0	None	None	G3G4	S3S4	4.2
English sundew *Drosera anglica*	PDDRO02010	None	None	G5	S2	2B.3
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
Franklin's bumble bee *Bombus franklini*	IIHYM24010	None	None	G1	S1	
golden eagle *Aquila chrysaetos*	ABNKC22010	None	None	G5	S3	FP
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
greater sandhill crane *Grus canadensis tabida*	ABNMK01014	None	Threatened	G5T4	S2	FP
Heckner's lewisia *Lewisia cotyledon var. heckneri*	PDPOR04052	None	None	G4T3	S3	1B.2
Henderson's fawn lily *Erythronium hendersonii*	PMLIL0U070	None	None	G4	S2	2B.3
Howell's sandwort *Sabulina howellii*	PDCAR0G0F0	None	None	G4	S3	1B.3
Jaynes Canyon buckwheat *Eriogonum diclinum*	PDPGN081S0	None	None	G3	S3	2B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Klamath gentian *Gentiana plurisetosa*	PDGEN060V0	None	None	G2G3	S2	1B.3
Klamath Mountain buckwheat *Eriogonum hirtellum*	PDPGN082T0	None	None	G2G3	S2S3	1B.3
leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020	None	None	G5	S4	4.2
long seta hump moss *Meesia longiseta*	NBMUS4L010	None	None	G5	S2	2B.3
Morrison bumble bee *Bombus morrisoni*	IIHYM24460	None	None	G4G5	S1S2	
northwestern moonwort *Botrychium pinnatum*	PPOPH010V0	None	None	G4?	S2	2B.3
Oregon polemonium *Polemonium carneum*	PDPLM0E050	None	None	G3G4	S2	2B.2
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
Pacific fuzzwort *Ptilidium californicum*	NBHEP2U010	None	None	G4G5	S3S4	4.3
Pacific marten *Martes caurina*	AMAJF01030	None	None	G5	S3	
Pacific silver fir *Abies amabilis*	PGPIN01010	None	None	G5	S2	2B.3
prairie falcon *Falco mexicanus*	ABNKD06090	None	None	G5	S4	WL
Scott Bar salamander *Plethodon asupak*	AAAAD12560	None	Threatened	G1G2	S1S2	
Scott Mountain bedstraw *Galium serpenticum ssp. scotticum*	PDRUB0N1Y6	None	None	G4G5T2	S2	1B.2
Scott Valley buckwheat *Eriogonum umbellatum var. lautum*	PDPGN086UX	None	None	G5T1	S1	1B.1
Scott Valley phacelia *Phacelia greenei*	PDHYD0C1V0	None	None	G2	S2	1B.2
Shasta chaenactis *Chaenactis suffrutescens*	PDAST200H0	None	None	G3	S3	1B.3
Siskiyou clover *Trifolium siskiyouense*	PDFAB402S0	None	None	GH	SH	1B.1
Siskiyou fireweed *Epilobium siskiyouense*	PDONA06100	None	None	G3	S3	1B.3
Siskiyou ground beetle *Nebria gebleri siskiyouensis*	IICOL6L091	None	None	G4G5T4	S1S2	
Siskiyou mariposa-lily *Calochortus persistens*	PMLIL0D140	None	Rare	G2	S1	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
southern long-toed salamander *Ambystoma macrodactylum sigillatum*	AAAAA01085	None	None	G5T4	S3	SSC
subalpine fir *Abies lasiocarpa var. lasiocarpa*	PGPIN01072	None	None	G5T5	S3	2B.3
Tehama chaparral *Trilobopsis tehamana*	IMGASA2040	None	None	G1	S1	
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Warner Mountains buckwheat *Eriogonum umbellatum var. glaberrimum*	PDPGN086U2	None	None	G5T2?	S2	1B.3
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
western pearlshell *Margaritifera falcata*	IMBIV27020	None	None	G4G5	S1S2	
Wilkin's harebell *Campanula wilkinsiana*	PDCAM020Z0	None	None	G2	S2	1B.2
woolly balsamroot *Balsamorhiza lanata*	PDAST11047	None	None	G3	S3	1B.2
yellow-based sideband *Monadenia infumata ochromphalus*	IMGASC7051	None	None	G2T1	S1	

Record Count: 49

Scott River, Mill-Shackelford Creek Bridge
Project Location Map
T43 R10W S22, Greenview Quad, Siskiyou County



French Creek Main Channel and Off Channel Habitat Improvement and Monitoring 2016

Introduction: The Scott River Watershed Council (SRWC) will implement the French Creek Main Channel and Off Channel Habitat Improvement and Monitoring Project for the restoration of juvenile coho rearing habitat. An engineered, construction ready design was completed though the Fisheries Restoration Grants Program (FRGP) Grant P1310305 French Creek Instream Habitat Enhancement Design Project. This project will implement the approved design.

Low surface flows in French Creek during the summer and fall limit the amount of suitable rearing habitat for coho. The project will improve instream rearing habitat with the installation of wood log structures for velocity controls, pool formation, and cover habitat. Augmentation of coarse gravel will occur for increased spawning habitat.
A secondary channel will be created to provide slow water habitat for juvenile coho salmon throughout the year. During summer months when flows are low, the secondary channel will provide slow water habitat with depths of 0.5 to 4 feet where juveniles can seek refuge from shallow main channel stream conditions. In storm events or high flow conditions the secondary channel will provide velocity refuge. In addition large wood pieces will be placed in the secondary channel to provide complex structure.

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

Objective(s): The objective to this project is to create a total of 4 instream features and one 350 foot side channel within a 650 foot reach of French Creek. Instream features consist of 100 logs, boulder rocks, and 80 cubic yards of spawning gravel.
These structures will enhance spawning and rearing habitats by providing cover, increasing pool complexity, increasing pool depth and frequency, sorting and collecting spawning gravels. The project will also provide velocity refuge during peak winter flows for juvenile salmonids and migrating adult salmonids. In addition 320 native trees will be planted to enhance riparian cover, and for future wood recruitment.

The objectives are consistent with goals identified in:
Recovery Strategy for California Coho Salmon (DFW 2004)
SONCC-ScoR.2.2.20 Floodplain and Channel Structure-
The SONCC Coho Recovery Plan 2014 lists beaver removal, road construction, agricultural practices, river channelization, dams and diversions, timber harvest, mining/dredging, gravel extraction, high severity fires, and rural residential development as limiting factors that have simplified, degraded, and fragmented migrating, spawning, and rearing habitat throughout the Scott River basin (NOAA, 2014).
By restoring floodplain functions, watershed health and salmonid habitat will improve from;

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

Project Description:

Location: From Etna California; Travel south on Hwy 3 approximately 5 miles to French Creek Road. Turn right on French Creek road and travel 1 mile until Miners Creek Rd on the left. Approximately 500 feet past the turn off for Miners Creek Road will be driveway 3 on the left which leads to the project site.

Latitude- 41.40000000, Longitude- -122.90000000

Project Set Up: SRWC and administrative staff will oversee and coordinate all project components including design, implementation, and monitoring. They will also be responsible for all direct project administration, invoicing, cost tracking, grant reporting, environmental reporting/permitting, coordination, and project outreach/media. Tasks 1, 3

The Project Coordinator will manage project task implementation, will coordinate on-site project planning including scheduling with contractors and will ensure permitting compliance requirements are met.
Tasks 2, 3

The Technical Subcontractor: Cascade Stream Solutions will oversee implementation to ensure designs are followed and specifications are met. Cascade Stream Solutions will lead construction oversight and participate in selecting qualified contractors. Tasks 1, 2

The Heavy Equipment Subcontractor will be contracted to implement the finalized construction plans. The equipment contractor will complete the excavation, grading, gravel augmentation and wood structure placement. Other tasks would include mobilization, access preparation, site preparation, dewatering plan and riparian treatments. Task 2

Materials: The materials for this project will include whole tree material (logs with and without root wads, and associated small woody material), rock boulders, spawning gravel, riparian trees, planting material (soil & fencing), anchoring materials, H2O data loggers, and field, monitoring and office supplies (flagging, field notebooks, wooden lath stakes, rebar, marking paint, printer paper, and writing utensils).
Selected subcontractors will provide the necessary materials to complete the contracted tasks, and include these costs with their quote.

Tasks: Construct 4 instream LWD structures and 1 off channel habitat feature. Monitor restoration effectiveness to improve coho spawning and rearing habitat in French Creek by completing the following tasks:

Task 1: Project Management, Meetings, and Permitting

- SRWC and administration staff will conduct agreement oversight and project management. All reporting and billing will be pursuant to agreement and regulatory guidelines.

- Subcontracting. The SWRC will prepare, solicit bid proposals and conduct bid tour. Select qualified subcontractors.

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

- Riparian Planting and Effectiveness Monitoring. SRWC will develop planting and monitoring plans, implement approved plans, and install vegetation caging, conduct post construction surveys, effectiveness monitoring report.

Task 2: Instream Habitat Restoration

- Clearing, Grubbing, Construction and Access, Site Preparation: SRWC will identify and flag equipment access trails to each of the site locations, setting up pre-project photo documentation, and finalizing the site designs for approval by the CDFW grant manager. Prepare sites for implementation. Areas for equipment storage, re-fueling and equipment maintenance will be flagged and established for use by the contractor. Areas for material storage will be established and prepared with pre-construction erosion control measures. When construction has been completed, equipment and all excess materials will be removed and the channel will be allowed to flow freely into the work site.

- Dewatering: Appropriate measures will be taken to dewater construction areas as necessary depending on current site conditions at the time of implementation. Water isolation measures may be necessary to contain turbid waters during removal of the earthen berm separating the alcove.

- Fish Relocation: Fish and other aquatic animals will be removed from the wetted work areas and then fish exclusion screens will be placed a minimum of 30-feet upstream and downstream of dewatered areas as an isolation measure.

- Excavation/Spoil Placement: Spoil material will be delivered and spread to designated areas as shown on the plans. Material suitable for rock ballast or structure enhancement will be separated and stockpiled.

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

- Spawning Gravel Placement: Clean, washed gravel will be placed according to the construction details and specifications.

- Off Channel Habitat Enhancement: Area will be excavated to the depths and side slopes indicated in the plans. An earthen plug will remain at the inlet and outlet with French Creek to maintain separation and dewatered areas. Spoil material will be delivered and spread to designated areas as shown on the plans.

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

- Riparian Planting: Revegetation of riparian species will follow the planting plan as described in Final Design.

Task 3: Pre and Post Effectiveness Monitoring

- Implementation monitoring will be conducted in accordance with requirements presented in the 2016 FRGP Proposal Solicitation Notice (PSN) and as described in the project's French Creek Off-Channel Monitoring Plan.

- Water Quality Monitoring: Assess water quality in the off channel feature by monitoring water temperature, water level, and

dissolved oxygen. Data will be collected by Onset HOBO data loggers as identified in the monitoring plan.

- Geomorphic Monitoring: Establish 5 photo point sites to document annual site changes to the instream and off channel habitat features. Photo monitoring will be conducted to document physical and vegetative response to the project and identify any issues of concern that may require maintenance. Photo monitoring will be conducted using photo points. Photo-points will be established as part of pre-construction activities from established locations that are located with GPS coordinates to ensure consistent and comparable views. Photo locations will include the inlet and outlet of the off channel feature, log structures, and areas that receive vegetation treatments.

- Fish Presence and Usage: Fish presence will be assessed by direct observation a minimum of twice a season (eight times a year) to evaluate usage of the pond and constructed habitat features (i.e. rootwad and woody material cover).

- Passive Integrated Transponder (PIT) Monitoring: Under the direction of California Department of Fish and Wildlife (CDFW) staff, the Grantee will install and maintain PIT Tag station and PIT antenna stations located at the inlet to the off channel habitat as well as upstream and downstream to collect data on coho movement and utilization with the restored habitat. All monitoring protocols will be in accordance with The French Creek Off Channel Monitoring Plan.

- SRWC Quality Assurance and Quality Control (QA/QC) Plan: SRWC will work under the guidance of CDFW Fishery staff to implement the QA/QC plan. All monitoring protocols will be in accordance with Quality Assurance and Quality Control (QA/QC) Plan and approved by CDFW.

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

Timelines:

June 2017 through August 2017- Permitting and subcontractor bid/selection, site preparation, and pre-implementation monitoring.

August 2017 through October 2017- Implement design plans, implementation monitoring. Install PIT array station.

November 2017 through December 2017- Post construction surveys, PIT station installation. Construction Technical Report submittal. Project Technical Report submittal. Riparian planting/management plan submittal

January 2018 through May 2018- Riparian planting. Implement tasks approved from the Riparian Management Plan. Pre-monitoring riparian planting.

June 2018 through October 2018- Riparian vegetation management. Irrigate, inspection plantings. Post-riparian planting monitoring.

June 2019 through October 2019- Riparian vegetation management. Irrigate, inspection plantings. Post-riparian planting monitoring.

June 2020 through October 2020- Riparian vegetation management. Irrigate, inspection plantings. Post-riparian planting monitoring.

Annual Reports - November 2017, 2018, 2019, 2020.

Final Report- March 2021

Additional Requirements:

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

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

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

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

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

- Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.

- The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the Grantor Project Manager and pursuant to conditions in the USACE Regional General Permit, NMFS Biological Opinion, and project's Lake and Streambed Alteration Agreement (1600 permit).

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

- Only qualified fisheries biologist that are approved by USFWS and permitted by CDFW under a California Endangered Species Act (CESA) Memorandum of Understanding (MOU) shall handle and relocate CESA listed species.

- All electrofishing shall be performed by a qualified fisheries biologist under the supervision of CDFW and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing

Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

- USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the Grantor Project Manager on a form provided by Grantor.

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

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

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Boulder Peak (4112351) OR Callahan (4112237) OR Eaton Peak (4112238) OR Etna (4112248) OR Fort Jones (4112257) OR Greenview (4112258) OR McConaughy Gulch (4112247) OR Tanners Peak (4112331) OR Yellow Dog Peak (4112341))

Possible species within the Etna Quad and surrounding quads for 725160 French Creek Main Channel & Off Channel Habitat Improvement & Monitoring, T41N R09W, S17, Siskiyou County

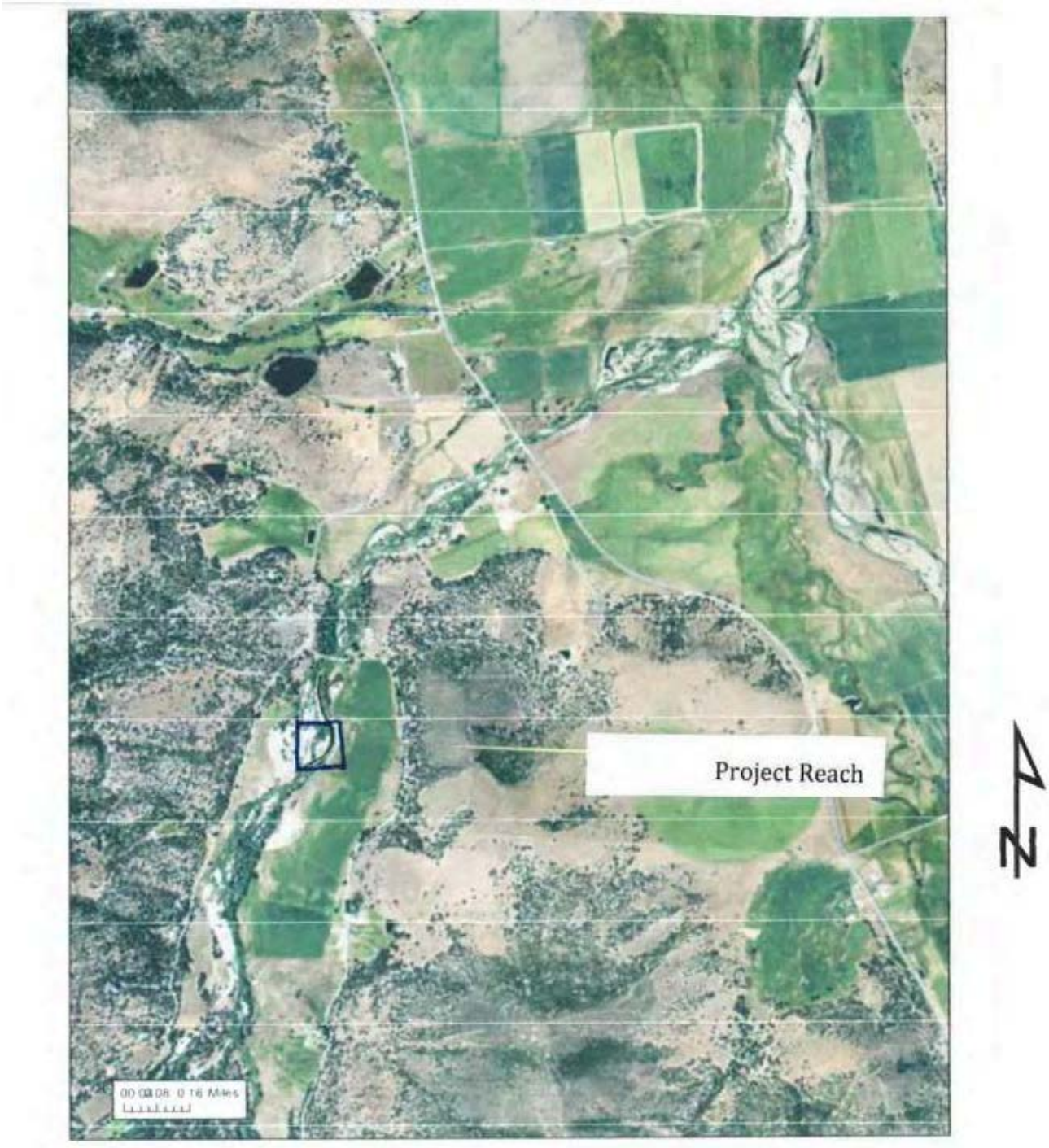
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S2	
brook pocket moss *Fissidens aphelotaxifolius*	NBMUS2W290	None	None	G3G4	S1	2B.2
bunchberry *Cornus canadensis*	PDCOR01040	None	None	G5	S2	2B.2
California wolverine *Gulo gulo*	AMAJF03010	None	Threatened	G4	S1	FP
Cascades frog *Rana cascadae*	AAABH01060	None	None	G3G4	S3	SSC
coast checkerbloom *Sidalcea oregana ssp. eximia*	PDMAL110K9	None	None	G5T1	S1	1B.2
crested potentilla *Potentilla cristae*	PDROS1B2F0	None	None	G2	S2	1B.3
Crotch bumble bee *Bombus crotchii*	IIHYM24480	None	None	G3G4	S1S2	
Darlingtonia Seep *Darlingtonia Seep*	CTT51120CA	None	None	G4	S3.2	
Del Norte salamander *Plethodon elongatus*	AAAAD12050	None	None	G4	S3	WL
Engelmann spruce *Picea engelmannii*	PGPIN03030	None	None	G5	S2	2B.2
English Peak greenbrier *Smilax jamesii*	PMSMI010D0	None	None	G3G4	S3S4	4.2
English sundew *Drosera anglica*	PDDRO02010	None	None	G5	S2	2B.3
fisher - West Coast DPS *Pekania pennanti*	AMAJF01021	Proposed Threatened	Candidate Threatened	G5T2T3Q	S2S3	SSC
Franklin's bumble bee *Bombus franklini*	IIHYM24010	None	None	G1	S1	
golden eagle *Aquila chrysaetos*	ABNKC22010	None	None	G5	S3	FP
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
greater sandhill crane *Grus canadensis tabida*	ABNMK01014	None	Threatened	G5T4	S2	FP
Heckner's lewisia *Lewisia cotyledon var. heckneri*	PDPOR04052	None	None	G4T3	S3	1B.2
Henderson's fawn lily *Erythronium hendersonii*	PMLIL0U070	None	None	G4	S2	2B.3
Jaynes Canyon buckwheat *Eriogonum diclinum*	PDPGN081S0	None	None	G3	S3	2B.3
Klamath gentian *Gentiana plurisetosa*	PDGEN060V0	None	None	G2G3	S2	1B.3
leafy-stemmed mitrewort *Mitellastra caulescens*	PDSAX0N020	None	None	G5	S4	4.2
little-leaved huckleberry *Vaccinium scoparium*	PDERI180Y0	None	None	G5	S3	2B.2
long seta hump moss *Meesia longiseta*	NBMUS4L010	None	None	G5	S2	2B.3
Mt. Shasta sky pilot *Polemonium pulcherrimum var. shastense*	PDPLM0E0J4	None	None	G5T2	S2	1B.2
northwestern moonwort *Botrychium pinnatum*	PPOPH010V0	None	None	G4?	S2	2B.3
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
Oregon polemonium *Polemonium carneum*	PDPLM0E050	None	None	G3G4	S2	2B.2
Pacific fuzzwort *Ptilidium californicum*	NBHEP2U010	None	None	G4G5	S3S4	4.3
Pacific marten *Martes caurina*	AMAJF01030	None	None	G5	S3	
Pacific silver fir *Abies amabilis*	PGPIN01010	None	None	G5	S2	2B.3
Pacific tailed frog *Ascaphus truei*	AAABA01010	None	None	G4	S3S4	SSC
Pickering's ivesia *Ivesia pickeringii*	PDROS0X0D0	None	None	G2	S2	1B.2
prairie falcon *Falco mexicanus*	ABNKD06090	None	None	G5	S4	WL
rattlesnake fern *Botrypus virginianus*	PPOPH010H0	None	None	G5	S2	2B.2
Scott Mountain bedstraw *Galium serpenticum ssp. scotticum*	PDRUB0N1Y6	None	None	G4G5T2	S2	1B.2
Scott Mountain sandwort *Sabulina stolonifera*	PDCAR0G110	None	None	G2	S2	1B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Scott Valley buckwheat *Eriogonum umbellatum var. lautum*	PDPGN086UX	None	None	G5T1	S1	1B.1
Scott Valley phacelia *Phacelia greenei*	PDHYD0C1V0	None	None	G2	S2	1B.2
Shasta chaenactis *Chaenactis suffrutescens*	PDAST200H0	None	None	G3	S3	1B.3
silky balsamroot *Balsamorhiza sericea*	PDAST110C0	None	None	G4Q	S3	1B.3
Siskiyou clover *Trifolium siskiyouense*	PDFAB402S0	None	None	GH	SH	1B.1
Siskiyou fireweed *Epilobium siskiyouense*	PDONA06100	None	None	G3	S3	1B.3
Siskiyou ground beetle *Nebria gebleri siskiyouensis*	IICOL6L091	None	None	G4G5T4	S1S2	
southern long-toed salamander *Ambystoma macrodactylum sigillatum*	AAAAA01085	None	None	G5T4	S3	SSC
subalpine fir *Abies lasiocarpa var. lasiocarpa*	PGPIN01072	None	None	G5T5	S3	2B.3
summer-run steelhead trout *Oncorhynchus mykiss irideus*	AFCHA0213B	None	None	G5T4Q	S2	SSC
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
Trinity Mountains rockcress *Arabis rigidissima var. rigidissima*	PDBRA061R2	None	None	G3T3	S3	1B.3
tundra thread moss *Pohlia tundrae*	NBMUS5S1B0	None	None	G3	S3	2B.3
Warner Mountains buckwheat *Eriogonum umbellatum var. glaberrimum*	PDPGN086U2	None	None	G5T2?	S2	1B.3
western bumble bee *Bombus occidentalis*	IIHYM24250	None	None	G2G3	S1	
Wilkin's harebell *Campanula wilkinsiana*	PDCAM020Z0	None	None	G2	S2	1B.2
woolly balsamroot *Balsamorhiza lanata*	PDAST11047	None	None	G3	S3	1B.2
yellow-based sideband *Monadenia infumata ochromphalus*	IMGASC7051	None	None	G2T1	S1	
northern spotted owl *Strix occidentalis caurina*	ABNSB12011	Threatened	Candidate Threatened	G3T3	S2S3	SC

Record Count: 58

French Creek Main Channel & Off Channel Habitat Improvement & Monitoring
Project Location Map
T41N R09W S17, Etna Quad, Siskiyou County



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

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

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

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

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

Engineered design/construction ready plans for Kelly Gulch Off-Channel Fisheries and Riparian Habitat Enhancement Project Phase II will be implemented to restore the floodplain function and increase off-channel habitat complexity for coho life cycle requirements.

The project design will address;

- Removal of lateral constraints preventing access to the floodplain
- Installation of large wood logs for fish habitat , floodplain connectivity
- Restore critical habitat for winter and summer refugia.

Project Description:

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

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

Project Set Up:

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

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

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

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

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

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

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

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

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

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

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

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

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

Materials:

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

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

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

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

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

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

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

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

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

Tasks:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Deliverables:

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

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

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

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

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

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

Timelines:

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

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

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

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

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

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

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

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

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

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

The Grantee shall notify the Grantor Project Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification will provide a reasonable time for Grantor personnel to oversee

the implementation of the water diversion plan and the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee will implement the following measures to minimize harm and mortality to listed salmonids:

a. Fish dewatering and relocation activities shall only occur between June 15 and October 31 of each year.

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

c. The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the CDFW Grant Manager and pursuant to conditions in the USACE Regional General Permit and NMFS Biological Opinion.

d. All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

e. USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the CDFW Grant Manager on a form provided by CDFW.

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

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

a. Final manuscript suitable for publication in a scientific journal (including Abstract, Introduction, Methods, Results, Discussion, and Literature Cited sections);

b. Field sampling database, in Excel or Access;

c. Data compilations and analytical products, in Excel or Access;

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

e. All data collected and created is a required deliverable and will become the property of the California Department of Fish and Wildlife, and not of the Grantee. A condition of final payment shall include the delivery of all related data. Spatial data should be delivered in an ESRI-useable format

where applicable and documented with metadata in accordance with minimum BIOS metadata standards (http://bios.dfg.ca.gov/metadata.asp) and FGDC metadata standards (http://www.fgdc.gov/metadata/documents/workbook_0501_bmk.pdf).

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

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

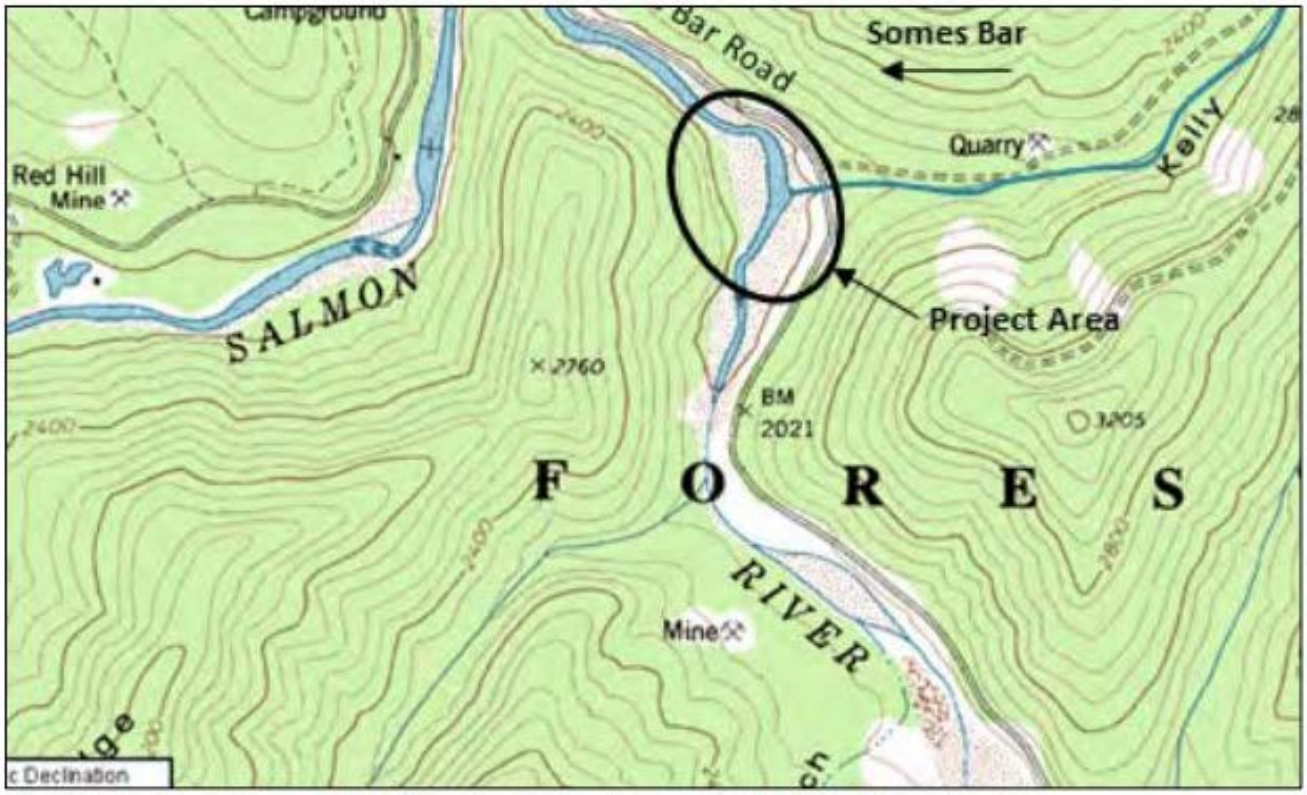
Possible species within the Sawyers Bar Quad and surrounding quads for 725164 Kelly Gulch Fisheries and Riparian Habitat Enhancement Phase II, T40N R12W S24, Siskiyou County

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

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

Record Count: 35

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



Introduction:

The Montague Water Conservation District (MWCD) will implement the Montague Water Conservation District – Dwinnell Enhancement Project. The Shasta River watershed identify reduced flows and limited over-summering rearing habitat as major limiting factors for the Shasta River coho population.

The Shasta River is a key inland tributary to the Klamath River that supports Chinook, coho, steelhead and lamprey. The Shasta River population of Coho salmon is identified as a core population in the NOAA SONCC Coho Recovery Plan.

Recovery options for the Klamath Basin highlighted the Shasta River as the primary stream to provide recovery to salmonid species. The components of this project have been developed to enhance flow and habitat conditions in the upper Shasta River where coho salmon are present through the year. This project contains critical elements that will permanently improve water quality and quantity in the Shasta River.

Expanding capacity of the Cross Canal will provide increased flow volumes that allow controlled releases to the Shasta River from Dwinnell Reservoir.

The Cross Canal delivers stored water from Dwinnell Dam to the Shasta River. The project will increase the flow capacity of the Cross Canal from its current maximum of 23 cfs to 110 cfs. This will allow release of significant pulse flows and flushing flows, improve passage and aid in limiting uncontrolled reservoir spills.

Additional component is a 6.5 cfs cold water (12.8° C) source delivered from the Flying L Pumps to the base of Dwinnell Dam. This dependable cold water source provides thermal refugia to juvenile coho salmon during periods of elevated water temperatures in the Shasta River.

The project includes a low velocity backwater channel and habitat feature located immediately downstream of the Cross Canal
The habitat feature will consist of approximately 0.4 acres total of riverine, freshwater emergent wetland, seasonal wetland or riparian, and ecotone habitat types. The backwater channel is approximately 400 feet long, and has varying water depths to allow for open water and vegetated areas dependent on wetland type. Depths will generally vary between 0.5 – 2 feet maximum depth for riparian and freshwater emergent wetlands, and 2-4 feet for the distributary channels and open water areas.

The ecological benefits of the three infrastructure components described will be included in the current monitoring program. New temperature and flow data loggers will be installed at locations in the cross canal, Shasta River.

With the capacity to measure water temperatures and stream flows throughout the system, MWCD will promptly understand thermal trends in the water supply and can therefore make needed adjustments to maximize habitat benefits for coho salmon.

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

Objective(s):
The objectives to this project are:
NOAA Recovery Plan for So. OR/No. CA Coast Coho Salmon.

SONCC-ShaR.3.1.4.3 Relocate or redesign the diversion structure to Dwinnell Dam Reservoir guided by assessment results.

The proposed improvements provide the necessary infrastructure to manage flow volumes and timing from Dwinnell Dam based on habitat monitoring and fish responses.

Water quality and quantity will be addressed though this project by the development of cold water source delivered to critical rearing habitat for juvenile salmonids. This action will enhance and expand the over-summering rearing habitat for coho salmon in the stream reach below Dwinnell Dam.

Project Description:
This project improves MWCD's Infrastructure to allow for increased release rates from Dwinnell Reservoir to the Shasta River, improve water quality and temperature of water released to the Shasta River below Dwinnell Dam by incorporating cold groundwater and develop a dependable cold water habitat fed by MWCDs seeps.

Location:
Drive south on Interstate 5 to Grenada Exit. Turn Left over freeway (East) on Hwy A-12 and continue on Hwy A-12 for approximately 8 miles. Turn right on Big Spring Road and continue driving south for 7 miles. Turn Right on Lake Shore Drive and continue 0.5 miles to locked gate on right hand side of road.

Latitude: 41.54187800 Longitudes: 122.37429200

Project Set Up:

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

The Technical Subcontractors; will oversee all technical and engineering elements of the Shasta River Enhancement Dwinnell Dam Cross Channel Implementation Design.

The Heavy Equipment Subcontractor will implement construction activities.

Materials:

Concrete vault box, concrete, quarry rock, gravel base rock, 18" PVC pipe, 24" HDPE pipe, 24" & 30" headgates, cellular control package, trees w/attached root mass. H2O temperature and flow data loggers.

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

Additional project costs are;

Millage

Permitting

Tasks:

Habitat improvements will be accomplished by:

Task 1: Project Management:

- Contract oversight will be MWCD. All reporting, contracting and billing will be pursuant to contract and regulatory guidelines.

Task 2: Implementation. Cross Canal Modifications

- Implement project permitting, pre-construction layout, and pre-project monitoring.
- Implement construction activities, provide technical/engineering oversight and field reviews.
- Installation of head gates and piping
- Install instream features as design to increase floodplain connectivity
- Install rock slope protection and riparian planting
- Implement monitoring plan, install water temperature and flow data loggers

Task 3: Cold Water Habitat

- Install concrete junction box and electrical generator for cold water supply pipeline. Flying L Pumps
- As design construct backwater alcove feature
- As design install 10 wood log structures
- Implement riparian planting plan

Task 4: Monitoring
- Install stream flow and water temperature monitors at crested weir location of Cross Canal
- Install stream flow and water temperature monitors in cold water supply junction box
- Install flow monitors to sluice gates on the Main Canal.
- Implement monitoring plan

Deliverables:

Task 1 Deliverables: Progress reports, invoices, annual reports and final report, according to CDFW agreement.

Task 2 Deliverables: This task will result in the implementation of the engineered design plan.
- Equipment Mobilization/Material Delivery
- Site Preparation
- Excavation for Off Channel Features, Grading
- Wood Structure Installation
- Riparian Planting and Vegetation Enhancements
- Erosion Control/Site Stabilization

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

Post-construction monitoring include physical, biological and water quality monitoring for two years after implementation. Post implementation physical monitoring will include the following:
- Biological Monitoring
- Vegetation Monitoring
- Water Quality Monitoring
- Pre-and Post-Project Photo Monitoring
- Longitudinal Profiles and Cross Sections, and Water Depth Surveys
- As-Built Survey and Memorandum
- Data Analysis

Timelines:

Project Management and Coordination: Task 1- 06/2017 through 03/2019

Complete 100% Engineered Design: Task 1- 08/2017

Project Staking, Pre-Construction Monitoring, Site Reviews: Task 2- 09/2017

Habitat and Cross Canal Implementation, Construction/Excavation, Riparian Planting: Task 2- 09/2017 through 04/2018

Cold Water Supply, Flying L Pipeline: Task 3- 02/2018

Post Construction/Project Monitoring: Task 4- 10/2017 through 03/2019

Additional Requirements:

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

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

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

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

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

- Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.

- The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible as approved by the Grantor

- Project Manager and pursuant to conditions in the USACE Regional General Permit, NMFS Biological Opinion, and project's Lake and Streambed Alteration Agreement (1600 permit).

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

- Only qualified fisheries biologist that are approved by USFWS and permitted by CDFW under a California Endangered Species Act (CESA) Memorandum of Understanding (MOU) shall handle and relocate CESA listed species.

- All electrofishing shall be performed by a qualified fisheries biologist under the supervision of CDFW and conducted according to the National Marine Fisheries Service, Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

- USFWS Approved fisheries biologists will provide fish relocation data via the Grantee to the Grantor Project Manager on a form provided by Grantor.

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

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

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Grass Lake (4112262) OR Hotlum (4112243) OR Juniper Flat (4112253) OR Lake Shastina (4112254) OR Little Shasta (4112264) OR Mt. Shasta (4112242) OR Solomons Temple (4112263) OR The Whaleback (4112252) OR Weed (4112244))

Possible species within the Juniper Flat Quad and surrounding quads for 725245 Montague Water Conservation District- Dwinnell Enhancement, T43N R05W S25, Siskiyou County

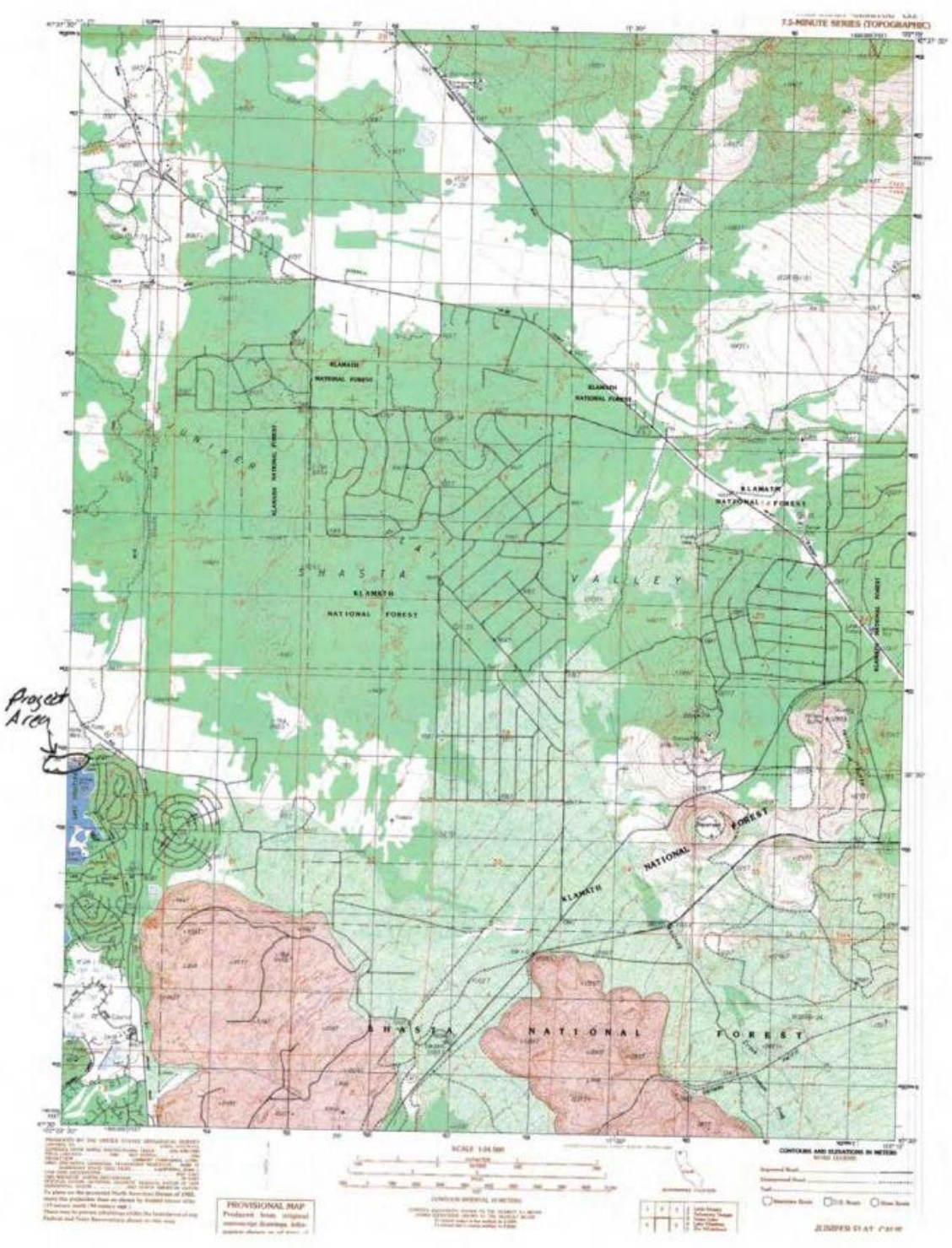
Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
alkali hymenoxys *Hymenoxys lemmonii*	PDAST530C0	None	None	G4?	S2S3	2B.2
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S3	SSC
Baker's globe mallow *Iliamna bakeri*	PDMAL0K010	None	None	G4	S3	4.2
bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S3	FP
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S2	
brittle prickly-pear *Opuntia fragilis*	PDCAC0D0H0	None	None	G4G5	S1	2B.1
broad-nerved hump moss *Meesia uliginosa*	NBMUS4L030	None	None	G5	S3	2B.2
California gull *Larus californicus*	ABNNM03110	None	None	G5	S4	WL
California wolverine *Gulo gulo*	AMAJF03010	None	Threatened	G4	S1	FP
Cascades frog *Rana cascadae*	AAABH01060	None	None	G3G4	S3	SSC
coast fawn lily *Erythronium revolutum*	PMLIL0U0F0	None	None	G4G5	S3	2B.2
Cooke's phacelia *Phacelia cookei*	PDHYD0C0Y0	None	None	G1	S1	1B.1
golden eagle *Aquila chrysaetos*	ABNKC22010	None	None	G5	S3	FP
grass alisma *Alisma gramineum*	PMALI01010	None	None	G5	S3	2B.2
gray-headed pika *Ochotona princeps schisticeps*	AMAEA0102H	None	None	G5T2T4	S2S4	
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
greater sandhill crane *Grus canadensis tabida*	ABNMK01014	None	Threatened	G5T4	S2	FP
Greene's mariposa-lily *Calochortus greenei*	PMLIL0D0H0	None	None	G3	S2S3	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
hairy marsh hedge-nettle *Stachys pilosa*	PDLAM1X1A0	None	None	G5	S2	2B.3
Jepson's dodder *Cuscuta jepsonii*	PDCUS011T0	None	None	GH	SH	1B.2
Klamath Spring Stream *Klamath Spring Stream*	CARB2325CA	None	None	GNR	SNR	
large-flowered triteleia *Triteleia grandiflora*	PMLIL21060	None	None	G4G5	S1	2B.1
little hulsea *Hulsea nana*	PDAST4Z060	None	None	G4	S3	2B.3
Mt. Eddy draba *Draba carnosula*	PDBRA112T0	None	None	G2	S2	1B.3
Mt. Shasta sky pilot *Polemonium pulcherrimum var. shastense*	PDPLM0E0J4	None	None	G5T2	S2	1B.2
Newberry's cinquefoil *Potentilla newberryi*	PDROS1B130	None	None	G3G4	S2S3	2B.3
northern goshawk *Accipiter gentilis*	ABNKC12060	None	None	G5	S3	SSC
Northern Interior Cypress Forest *Northern Interior Cypress Forest*	CTT83220CA	None	None	G2	S2.2	
obscure bumble bee *Bombus caliginosus*	IIHYM24380	None	None	G4?	S1S2	
pallid bird's-beak *Cordylanthus tenuis ssp. pallescens*	PDSCR0J0S3	None	None	G4G5T1	S1	1B.2
Peck's lomatium *Lomatium peckianum*	PDAPI1B1G0	None	None	G4	S1	2B.2
Pickering's ivesia *Ivesia pickeringii*	PDROS0X0D0	None	None	G2	S2	1B.2
prairie falcon *Falco mexicanus*	ABNKD06090	None	None	G5	S4	WL
pumice moonwort *Botrychium pumicola*	PPOPH010D0	None	None	G3	S1	2B.2
pyrola-leaved buckwheat *Eriogonum pyrolifolium var. pyrolifolium*	PDPGN084Z2	None	None	G4T4	S3	2B.3
Shasta chaenactis *Chaenactis suffrutescens*	PDAST200H0	None	None	G3	S3	1B.3
Shasta orthocarpus *Orthocarpus pachystachyus*	PDSCR1H0L0	None	None	G1	S1	1B.1
Sierra Nevada mountain beaver *Aplodontia rufa californica*	AMAFA01013	None	None	G5T3T4	S2S3	SSC
Sierra Nevada red fox *Vulpes vulpes necator*	AMAJA03012	Candidate	Threatened	G5T1T2	S1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
silver-haired bat *Lasionycteris noctivagans*	AMACC02010	None	None	G5	S3S4	
Siskiyou hesperian *Vespericola sierranus*	IMGASA4080	None	None	G2	S1S2	
snow fleabane daisy *Erigeron nivalis*	PDASTE1060	None	None	G4G5	S3	2B.3
subalpine aster *Eurybia merita*	PDASTEB030	None	None	G5	SH	2B.3
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	Candidate Threatened	G3G4	S2	SSC
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Wilkin's harebell *Campanula wilkinsiana*	PDCAM020Z0	None	None	G2	S2	1B.2
willow flycatcher *Empidonax traillii*	ABPAE33040	None	Endangered	G5	S1S2	
woolly balsamroot *Balsamorhiza lanata*	PDAST11047	None	None	G3	S3	1B.2

Record Count: 49

Montague Water Conservation District- Dwinnell Enhancement
Project Location Map 1
T43N R05W S25, Juniper Flat Quad, Siskiyou County



Montague Water Conservation District- Dwinnell Enhancement
Project Location Map 2
T43N R05W S25, Juniper Flat Quad, Siskiyou County