

Introduction:

Trout Unlimited, Inc. will produce final (100%) engineered designs to restore fish access to 2.6 miles of habitat by replacing a culvert that is a partial barrier to Coho Salmon and steelhead trout near the mouth of Soda Creek. The project is necessary due to recommendations from several federal and state salmonid recovery plans that promote restoration projects designed to address fish passage and to create or restore complex habitat features that provide velocity refuge, pool habitats, and cover in high-priority coastal watersheds.

The Permittee shall not proceed with on the ground implementation until all necessary permits, consultations, and Notice to Proceed are secured. All habitat improvements will follow techniques in the *California Salmonid Stream Habitat Restoration Manual*.

Objective(s):

The specific objective of this Project is to develop 100% final designs to remediate the existing partial barrier to fish passage near the mouth of Soda Creek and habitat improvements 500 feet immediately upstream (Phase 1 Restoration). The design effort will also include site characterizations and development of a conceptual restoration plan for an additional 4,200 feet of habitat in Lower Soda Creek (Phase 2 Restoration).

The project goal is to produce final engineered designs for the Mendocino Redwood Company (MRC) Soda Creek stream crossing that, when implemented, will restore fish access to approximately 2.6 miles of upstream habitat. The project will also develop final designs for instream enhancement activities along approximately 500 feet of existing winter refugia habitat (Phase 1, "Crossing Replacement Reach"), will develop a conceptual instream enhancement plan for an additional 4,200 feet of habitat in Lower Soda Creek (Phase 2, "Lower Soda Creek Planning Reach"), and will complete CEQA-related surveys of the project area to prepare for future construction activities.

Project Description:

Location:

The Project is located on Soda Creek and starts at the confluence with North Fork Navarro River continuing upstream for approximately 4,200 feet. The project center point is 39.160031° north latitude, -123.566754° west longitude and is located on the Navarro 7.5 Minute U.S. Geological Survey (USGS) Quadrangle maps.

Project Set Up:

The SHN Lab Manager and Lab Technician will lead the assessment of collected soil samples and will provide content for inclusion in the geotechnical memo.

Materials:

None.

Tasks:

A geologic and geomorphic assessment will be conducted by subcontractor SHN's Project Geologist and Senior Geotechnical and Civil Engineer to characterize the geologic and geomorphic conditions at the crossing site. This will include conducting borings at the crossing site, laboratory (SHN) testing of samples and a field assessment of geologic conditions within the limits of work. SHN will subcontract to an environmental drill company to conduct subsurface investigations. The SHN Project Manager will secure the required drilling permits to complete this task.

A minimum of five soil borings will be completed at the crossing using a subcontract drilling firm. Each boring will extend through the road surface, plus a sufficient depth below the equivalent streambed level to establish a support condition for a range of waterway crossing structures. Using split-spoon and/or thin wall tube sampling techniques, soil samples will be recovered typically at 2.5- to 10-foot sampling intervals in the embankment and at 2.5- to 5-foot intervals below the streambed. The recovered samples will be field classified, bagged or capped and transferred to SHN laboratory for testing, which will consist of moisture content, grain size and Atterberg limits tests for classification, and, depending on the type of soils encountered, a lesser number of specialty tests to evaluate consolidation and shear strength characteristics. At completion, the boreholes will be backfilled with soil cuttings mixed with bentonite powder or chips.

Results of the investigation will be compiled into the Soda Creek Crossing Replacement Geotechnical Memorandum that will include field and laboratory notes about soil stratification and properties, discussion of bearing capacity, settlement, lateral earth pressure, geologic hazards, and construction considerations. SHN Senior Engineering Geologist, will provide document review services.

Deliverables:

Draft and Final Soda Creek Crossing Replacement Geotechnical Memorandum.

Timelines:

June 15, 2022, through October 31, 2022, the geologic and geomorphic assessment will be conducted by subcontractor SHN's Project Geologist and Senior Geotechnical and Civil Engineer to characterize the geologic and geomorphic conditions at the crossing site.

Additional Requirements:

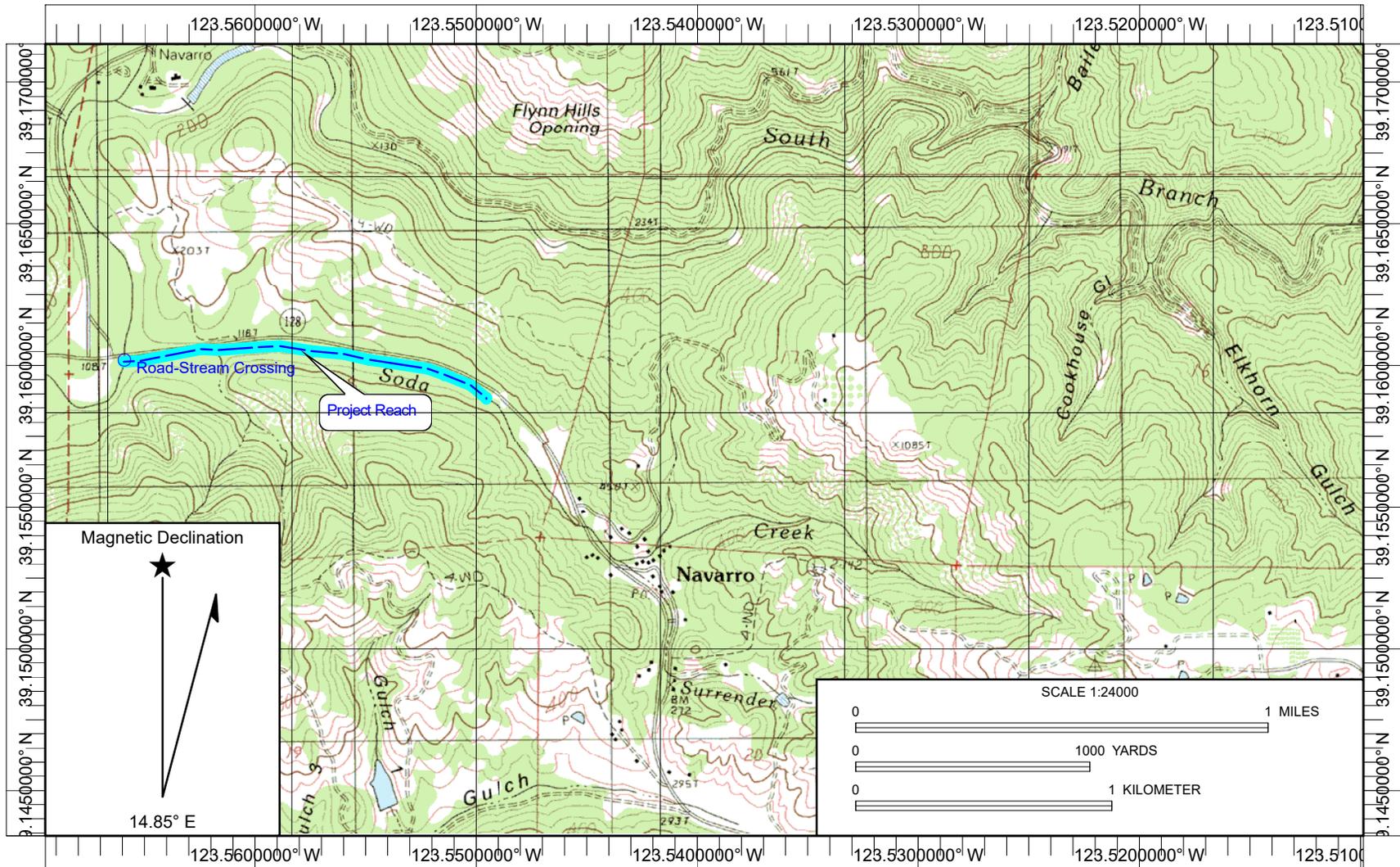
Work in flowing streams is restricted per the United States Army Corp of Engineers Regional General Permit. Actual Project start and end dates, within this timeframe, are at the discretion of CDFW.

Permittee will follow the appropriate Regional General Permit and 401 Water Quality Certification for the Project and all its conditions including but not limited to the following: Projects must complete required threatened and endangered species surveys, biological monitoring, and reasonable measures that are protective and avoid causing harm to cultural, archeological, paleontological, and biological resources, including native species and their habitat. Staging/storage areas for equipment, materials, fuels, lubricants, and solvents will be located outside of the stream's high-water channel and associated riparian area where it cannot enter the stream channel. Stationary equipment such as motors, pumps, generators, compressors, and welders located within the dry portion of the stream channel or adjacent to the stream will be positioned over drip-pans. Vehicles will be moved out of the normal high-water area of the stream prior to refueling and lubricating. Permittee shall ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, Permittee shall provide to CDFW a plan to allow a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur. Projects dewatering waterways are required to monitor and report water quality during dewatering activities. Parameters, such as but not limited to dissolved oxygen, temperature, conductivity, and turbidity shall be reported. For more information and an example monitoring report please contact the FRGP regulatory coordinator. Projects working in or near wetlands must delineate the wetland's boundary using the 1987 U.S. Army Corps of Engineers Wetlands Delineation Manual and Supplements as outlined in State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State.

All equipment and gear will be brushed with a stiff brush prior to leaving each stretch of stream to avoid the transport of aquatic invasive species (AIS). All crew members will decontaminate equipment and shoes for AIS according to the standards detailed in the CDFW's 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.

Seeding and mulching of all exposed soils shall be done for all slopes that may deliver sediment to a stream. Woody debris will be concentrated on finished slopes adjacent to stream crossings. The standard for success is 80% ground cover for broadcast planting of seed, after a period of three years. Mulching and seeding will take place as sites are completed to avoid unforeseen erosion. Planting of tree seedlings will take place after December 1 or when sufficient rainfall has occurred to ensure the best chance of survival of the seedlings but in no case after April 1.



<p>Name: NAVARRO Date: 4/12/2021 Scale: 1 inch equals 2000 feet</p>	<p>Location: 039.1573801° N 123.5397103° W NAD27 Caption: Applicant: Trout Unlimited Project: Soda Creek Fish Passage and Winter Habitat Refugia Design Project</p>
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Datum: NAD27

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Soda Creek Fish Passage and Winter Habitat Refugia Design Project

Applicant: Trout Unlimited

2021 FRGP Proposal #1725468



◊ - Culvert Site

● - Upstream End of Project Reach



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad IS OR Bailey Ridge (3912324) OR Philo (3912314) OR Cold Spring (3912315) OR Mallo Pass Creek (3912316) OR Elk (3912326) OR Mathison Peak (3912336) OR Comptche (3912335) OR Greenough Ridge (3912334)

Possible species within the Navarro and surrounding quads for 1725468 - Soda Creek Fish Passage and Winter Habitat Refugia Design Project, Mendocino County

Table with 7 columns: Species, Element Code, Federal Status, State Status, Global Rank, State Rank, Rare Plant Rank/CDFW SSC or FP. Rows include species like Accipiter gentilis, Agelaius tricolor, Agrostis blasdalei, etc.



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



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Coptis laciniata</i> Oregon goldthread	PDRAN0A020	None	None	G4?	S3?	4.2
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
<i>Elanus leucurus</i> white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
<i>Erethizon dorsatum</i> North American porcupine	AMAFJ01010	None	None	G5	S3	
<i>Erysimum concinnum</i> bluff wallflower	PDBRA160E3	None	None	G3	S2	1B.2
<i>Erythronium revolutum</i> coast fawn lily	PMLIL0U0F0	None	None	G4G5	S3	2B.2
<i>Falco peregrinus anatum</i> American peregrine falcon	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
<i>Fissidens pauperculus</i> minute pocket moss	NBMUS2W0U0	None	None	G3?	S2	1B.2
<i>Fritillaria roderickii</i> Roderick's fritillary	PMLIL0V0M0	None	Endangered	G1Q	S1	1B.1
<i>Gilia capitata ssp. pacifica</i> Pacific gilia	PDPLM040B6	None	None	G5T3	S2	1B.2
Grand Fir Forest Grand Fir Forest	CTT82120CA	None	None	G1	S1.1	
<i>Helminthoglypta arrosa pomoensis</i> Pomo bronze shoulderband	IMGASC2033	None	None	G2G3T1	S1	
<i>Hesperovax sparsiflora var. brevifolia</i> short-leaved evax	PDASTE5011	None	None	G4T3	S3	1B.2
<i>Hesperocyparis pygmaea</i> pygmy cypress	PGCUP04032	None	None	G1	S1	1B.2
<i>Hesperolinon adenophyllum</i> glandular western flax	PDLIN01010	None	None	G2G3	S2S3	1B.2
<i>Kopsiopsis hookeri</i> small groundcone	PDORO01010	None	None	G4?	S1S2	2B.3
<i>Lasthenia californica ssp. bakeri</i> Baker's goldfields	PDAST5L0C4	None	None	G3T1	S1	1B.2
<i>Lasthenia californica ssp. macrantha</i> perennial goldfields	PDAST5L0C5	None	None	G3T2	S2	1B.2
<i>Lavinia symmetricus navarroensis</i> Navarro roach	AFCJB19023	None	None	G4T1T2	S2S3	SSC
<i>Lilium maritimum</i> coast lily	PMLIL1A0C0	None	None	G2	S2	1B.1
Mendocino Pygmy Cypress Forest Mendocino Pygmy Cypress Forest	CTT83161CA	None	None	G2	S2.1	



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California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Mitellastra caulescens leafy-stemmed mitrewort	PDSAX0N020	None	None	G5	S4	4.2
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
Oncorhynchus mykiss irideus pop. 16 steelhead - northern California DPS	AFCHA0209Q	Threatened	None	G5T2T3Q	S2S3	
Packera bolanderi var. bolanderi seacoast ragwort	PDAST8H0H1	None	None	G4T4	S2S3	2B.2
Pandion haliaetus osprey	ABNKC01010	None	None	G5	S4	WL
Pinus contorta ssp. bolanderi Bolander's beach pine	PGPIN04081	None	None	G5T2	S2	1B.2
Piperia candida white-flowered rein orchid	PMORC1X050	None	None	G3	S3	1B.2
Pleuropogon hooverianus North Coast semaphore grass	PMPOA4Y070	None	Threatened	G2	S2	1B.1
Progne subis purple martin	ABPAU01010	None	None	G5	S3	SSC
Ramalina thrausta angel's hair lichen	NLLEC3S340	None	None	G5?	S2S3	2B.1
Rana aurora northern red-legged frog	AAABH01021	None	None	G4	S3	SSC
Rana boylei foothill yellow-legged frog	AAABH01050	None	Endangered	G3	S3	SSC
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Rhyacotriton variegatus southern torrent salamander	AAAAJ01020	None	None	G3G4	S2S3	SSC
Rhynchospora alba white beaked-rush	PMCYP0N010	None	None	G5	S2	2B.2
Sanguisorba officinalis great burnet	PDROS1L060	None	None	G5?	S2	2B.2
Sidalcea calycosa ssp. rhizomata Point Reyes checkerbloom	PDMAL11012	None	None	G5T2	S2	1B.2
Sidalcea malachroides maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
Sidalcea malviflora ssp. purpurea purple-stemmed checkerbloom	PDMAL110FL	None	None	G5T1	S1	1B.2
Sphagnum Bog Sphagnum Bog	CTT51110CA	None	None	G3	S1.2	
Taricha rivularis red-bellied newt	AAAAF02020	None	None	G2	S2	SSC



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Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Trifolium buckwestiorum</i> Santa Cruz clover	PDFAB402W0	None	None	G2	S2	1B.1
<i>Trifolium trichocalyx</i> Monterey clover	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
<i>Usnea longissima</i> Methuselah's beard lichen	NLLEC5P420	None	None	G4	S4	4.2

Record Count: 63