

# ***TCF North Fork Buckeye Creek Storm-proofing and Habitat Protection Project*** ***(Project ID: 1728212) 2022***

## **Introduction:**

The Conservation Fund (TCF) will treat 54 prioritized future road related sediment delivery features along 1.01 miles of abandoned logging road by implementing permanent road decommissioning treatments and 3.51 miles of maintained road by implementing storm-proofing upgrading treatments consistent with the *California Salmonid Stream Habitat Restoration Manual, Chapters 9 and 10* (CDFW, 1998; Weaver et al., 2006) and the "*Handbook for Forest, Ranch, and Rural Roads* (Weaver et al., 2015). All roads and sediment delivery features to be treated are legacy infrastructure constructed for timber harvest and management. In addition to the selected focus species (coho salmon), this project will also benefit California Coastal Chinook, steelhead trout, and Pacific Lamprey. Excessive sedimentation from riparian road systems has been shown to adversely impact juvenile salmonid survival as well as the quantity and quality of instream rearing habitats. As a result, the proposed project also addresses the following tasks: GuR-CCC-23.1.1.9(NOAA Recovery Plan for Central CA Coast Coho Salmon, 2012), MC-HU-40, MC-HU-42, & MC-HU-46 (CDFW Recovery Strategy for California Coho Salmon, 2004), GualR-NCSW-23.1.1.9 (NOAA Coastal Multispecies final Recovery Plan, 2016).

The Grantee shall not proceed with on the ground implementation until all necessary permits, consultations, and/or Notice to Proceed are secured. All habitat improvement(s) will follow techniques in the *California Salmonid Stream Habitat Restoration Manual* Volume II, Section IX-X.  
(<https://www.wildlife.ca.gov/Grants/FRGP/Guidance>)

Does the project involve the construction of beaver analogs?

Yes  or No

Is the project located in a tidally influenced [California coastal zone](#)?

Yes  or No

## **Objective(s):**

This project will accomplish the restoration task by treating 54 prioritized future road related sediment delivery features along 1.01 miles of abandoned logging road by implementing permanent road decommissioning treatments and 3.51 miles of maintained road by implementing storm-proofing upgrading treatments consistent with the *California Salmonid Stream Habitat Restoration Manual, Chapters 9 and 10* (CDFW, 1998; Weaver et al., 2006) and the "*Handbook for*

*Forest, Ranch, and Rural Roads* (Weaver et al., 2015). All roads and sediment delivery features to be treated are legacy infrastructure constructed for timber harvest and management. In addition to the selected focus species (coho salmon), this project will also benefit California Coastal Chinook, steelhead trout, and Pacific Lamprey. Excessive sedimentation from riparian road systems has been shown to adversely impact juvenile salmonid survival as well as the quantity and quality of instream rearing habitats. As a result, the proposed project also addresses the following tasks:

GuR-CCC-23.1.1.9 (NOAA Recovery Plan for Central CA Coast Coho Salmon, 2012), MC-HU-40, MC-HU-42, & MC-HU-46 (CDFW Recovery Strategy for California Coho Salmon, 2004), GualR-NCSW-23.1.1.9 (NOAA Coastal Multispecies final Recovery Plan, 2016).

### **Project Description:**

The Project Site includes the Twenty-Five Mile, Twenty-Five Mile Spur 1, Twenty-Five Mile Spur 2, North Fork Buckeye West, and North Fork Buckeye West Spur 2 Roads that are located in the Buckeye Creek sub watershed of the South Fork Gualala River watershed and were identified in a 2017 and 2018 sediment source inventory of 43.5 mi of primarily mid and inner gorge slopes by PWA as priority road segments with potential to deliver more than 102 tons/year of coarse and fine sediment to mainstem Buckeye Creek, a Class I tributary to the Gualala River (Maps 1, 2, and 3). This project includes permanent decommissioning of 1.01 mi of Twenty-Five Mile Spur 2, North Fork Buckeye West, and North Fork Buckeye West Spur 2 Roads within the mainstem Buckeye Creek and North Fork Buckeye Creek riparian corridor, including 16 stream crossings and 1 existing landslide feature where the intervening road reaches will be ripped, outsloped, and/or cross-road drained (Map 3). The project also includes upgrading of 3.51 mi of Twenty-Five Mile and Twenty-Five Mile Spur 1 Roads within the mainstem Buckeye Creek and North Fork Buckeye Creek riparian corridors, including 27 stream crossings, 1 bank erosion fill failure, 2 spring features, 1 road drainage feature, and 6 pending or existing landslide features (Map 3). Project roads are currently unmaintained and not accessible to vehicle traffic except for the North Fork Buckeye West Road which is maintained and accessible to vehicle traffic. In total, this project will stormproof 54 features along 5 mostly inner gorge roads identified by PWA as having a high likelihood of eroding and delivering large quantities of road related sediment to mainstem Buckeye Creek, North Fork Buckeye Creek, and proximal tributary streams. PWA estimates that approximately 5,810 yd<sup>3</sup> of road related sediment (4,775 yd<sup>3</sup> of episodic erosion and 1,035 yd<sup>3</sup> chronic road surface erosion) will be prevented from delivery to Buckeye Creek and its tributaries by implementation of this project.

### **Location:**

This project is located at five sites along Twenty-Five Mile Road, Twenty-Five Mile Road Spur 1 and 2, North Fork Buckeye West Road, and North Fork Buckeye West Spur 2 Road in The Conservation Fund's Buckeye Forest ownership beginning at the intersection of Kelly Road with Twenty-Five Mile Road and Kelly Road with North Fork Buckeye West Road (Maps 1 and 3). The Kelly Road is 1.8 mi north of the intersection of Soda Springs Road and Annapolis Road. From the town of Annapolis, travel north toward Kelly Road along Soda Springs Road for 1 mi, left onto Amco Road for 0.4 mi, right onto Oak Hill LO Road for 0.4 mi, and left onto Kelly Road. The Twenty-Five Mile Road intersection is another 3.63 mi along Kelly Road to the east.

The Buckeye Forest is comprised of 19,645 acres of timberland in California's North Coast Range mountains. Located in northwest Sonoma County adjacent to and south of the Mendocino-Sonoma county line, the property lies approximately one mile northeast of the community of Annapolis and 6 miles east of the town of Gualala. The main drainages within the Forest are: 1) Buckeye, Franchini, and Rockpile Creek watersheds; and 2) the Wheatfield Fork of the Gualala River watershed. Primary access to the Buckeye is via Kelly Road, a private road with locked gates and strictly enforced rules. The downstream most portion of the property is approximately 9 miles upstream of the mouth of the Gualala River and 3.5 miles up Buckeye Creek from its confluence with the South Fork Gualala River.

Project coordinates are: 38.76053, -123.33884

### **Project Set Up:**

There are three fundamental tasks that need to be completed to accomplish this project: (A) grant oversight and project administration, (B) implementation of sediment reduction projects, and (C) draft and final reporting.

#### **A – Project Administration**

The Conservation Fund's (TCF) Timberlands Manager and Program Coordinator will provide all contracting oversight and project administration including but not limited to: securing contracts (grantors and subcontractors); scheduling; invoicing and reporting; and agency and landowner communications. This task will occur throughout the life of the project. The Timberlands Manager will be available on a full time basis to coordinate with subcontractors and the grantor. The Timberlands Manager and Program Coordinator will review invoices and process subcontracts, process vendor payments, conduct grant tracking, review project reports, and provide summary reporting.

#### **B – Implementation**

Pacific Watershed Associates (PWA) will be subcontracted by TCF and function as the professional geologic subcontractor. PWA will subcontract qualified professionals TBD to conduct cultural and wildlife surveys as necessary to

conduct the project under FRGP's MND. TCF will provide existing collected Northern Spotted Owl presence and perform surveying and calling as necessary. A qualified botanical subcontractor TBD will provide botanical surveys for rare plants. PWA Professional Geologist Eileen Wepner (PG #7587) will provide paleontological resource surveys in compliance with FRGP's MND prior to project construction. PWA Principal, Professional Geologist, Project Geologist and Staff Scientist will update 60% road logs to account for existing conditions at the time of construction and incorporate recommendations from environmental surveys. TCF Timberlands Manager will review and provide input into the finalized road logs produced by PWA to ensure conformance with landowner's property management requirements and project expectations. PWA will contract a qualified licensed heavy equipment subcontractor to implement project construction. The PWA Principal, Professional Geologist, Project Geologist and Staff Scientist will provide technical oversight throughout construction, pre- and post-construction photo monitoring, and pre- and post-construction stream crossing surveys. PWA Project Geologist and Professional Geologist will produce required project reporting and final metrics. PWA will purchase all steel culverts (except for culverts and bridge materials provided by TCF as cost share contribution), culvert materials, and erosion control materials for the project. PWA Principal provide oversight of all PWA staff operations, review and approve PWA and vendor invoices, and field review project operations. PWA Biologist will conduct the necessary aquatic organism relocation and protection measures as required to conduct a successful project. PWA GIS Specialist will produce final construction maps for permitting and contractor's use and final report maps. PWA Clerical Staff will produce invoices for PWA's staff time, materials, and expenses.

#### C – Draft and Final Reporting

Pre- and post-project information will be compiled and analyzed in a manner to satisfy requirements of the CDFW Grant Agreement. Project information will be synthesized in Annual Progress Report(s) and a Draft and Final Report. The TCF Program Coordinator will compile, format, and submit invoices, reports, and a final budget to CDFW according to grant timelines. The PWA Principal, PWA Professional Geologist, PWA Project Geologist and Staff Scientist, GIS Specialist and PWA Clerical Staff will assist with final data management and technical reporting tasks.

#### **Materials:**

Trees (planting): Approximately 860 Coast Redwood (*sequoia sempervirens*) seedlings will be planted in the riparian zone of decommissioned stream channels. Tree materials will be sourced for the local climatic setting and be purchased by TCF.

Straw/Seed: PWA will obtain approximately 207 bales of weed-free rice straw mulch and 145 pounds of native erosion control seed which will be used for erosion control on disturbed ground surface areas to reduce post-construction

sediment production and delivery to watercourses. Straw mulch will be used in combination with native tree slash. Slash materials will be developed by the Contractor during construction.

**Culverts:** The project will require 320 ft of 24 inch diameter culvert (14 ga), 180 ft of 30 inch diameter culvert (12 ga), 60 ft of 36 inch diameter culvert (12 ga), and 160 ft of 48 in diameter culvert (12 ga), all galvanized steel culvert and coupler materials, to replace undersized culvert infrastructure at 1 stream crossing and install culverts at 12 stream crossings. In addition 200 ft of 18 inch diameter culvert (14 ga) will be installed at four DRC locations. TCF is supplying roughly ½ the needed culverts and PWA is purchasing the remaining steel materials.

**Bridges:** The project will require two pre-fabricated or flatcar 50? to 60? long bridges at two stream crossings. The two bridges will be provided by TCF as cost share including materials, delivery, and installation.

**Trash racks:** The project will require PWA to purchase a total of 10 trash racks installed upstream of stream crossing culvert inlets to orient mobilized woody debris parallel to the culvert alignment and mitigate plug potential, including nine (9) single-post trash racks and one (1) four (4) inch diameter galvanized steel trash rack.

**Rock armor:** A total of 575 yd<sup>3</sup> of locally available rip rap sized rock armor will be installed at 12 armored fill crossings (275 yd<sup>3</sup>) and at 18 site-specific locations (270 yd<sup>3</sup>), including inboard and outboard stream crossing and landslide fillslopes, ditches, and headcuts. Heavy equipment costs have been included in the PWA budget to obtain, transport and deliver the materials to the project features.

**Plate compactor:** A vibratory plate compactor will be used to aid in the compaction of stream crossing backfill at culvert upgrade features. Plate compactor will be provided by the heavy equipment contractor.

**Pump:** A sump pump and/or trash pump will be used to remove nuisance water from excavations. Pump(s) will be provided by the heavy equipment contractor and PWA during aquatic exclusionary and removal activities.

PWA materials include flagging and staking for feature identification, treatment locations, and survey locations. Water quality monitoring materials include a water quality meter (pH, DO, temp) device and a turbidity meter. Reporting materials include supplies for printing of paleontology and other resource assessment reports.

## **Tasks:**

## **Task 2 – Implementation**

### **2.1 - Pre-Implementation Activities**

Pacific Watershed Associates (PWA) will be responsible for managing all elements of project implementation including securing CEQA subcontractors, most materials and annual and final reporting. The heavy equipment and labor subcontractor (Contractor) which will perform construction activities will be selected through TCF's procurement process.

#### **2.1.1 - Project Permitting and Environmental Regulatory Compliance**

PWA will prepare and submit a Lake or Streambed Alteration Agreement (LSAA) Notification for the project. Qualified PWA biological staff will perform habitat and presence surveys for California red legged frogs and other state and federally listed species and perform biological trainings to educate the Contractor to identify listed species as required by the LSAA and NOAA and USFW consultation. CEQA compliant cultural and paleontology resource surveys will be provided by a qualified subcontractor TBD and PWA qualified staff. In order to avoid impacts to rare plants, a qualified botanical subcontractor TBD will survey all work sites for rare plants prior to any ground disturbing activities. Rare plants and their associated survey methods are defined in the "Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities (CDFW 2018) and CNPS botanical Survey Guidelines" (California Native Plant Society 2001). The survey will be floristic in nature and occur once in early spring and again in midsummer. Deliverables include a detailed report of existing vegetation, mitigation recommendations, and associated map. PWA will perform a paleontological resource assessment in compliance with FRGP's MND.

#### **2.1.2 – Pre-project layout**

PWA Geologists and Scientists will flag or stake construction and excavation boundaries (layout) as well as spoils disposal sites and equipment exclusion areas for biological or cultural resource protection. Construction road logs will be finalized by PWA based on final construction layout and staking and will include all impact minimization requirements of LSAA and resource surveys/assessments. PWA staff will setup photo point monitoring stations at all project features. Pre-construction photographic monitoring will be performed by PWA in a manner consistent with CDFW guidelines. PWA staff will purchase approximately half of the culverts and coordinate their and rock materials delivery. TCF will provide the remaining culverts and bridge materials as cost share for the project and coordinate their delivery.

### **2.2. Mobilization and Road Opening**

### **2.2.1 Mobilization**

Contractor low bed trucks will be used to move heavy equipment in and out of the project area at the beginning and end of the work season, these will require a pilot car on public roadways. In accordance with the invasive species protocol included in this proposal, all heavy equipment will be cleaned before and after entering/leaving the work area.

### **2.2.2 Road Opening**

An excavator and bulldozer will be used to reopen roads to be decommissioned and upgraded by removing the vegetation and conducting earthmoving required for temporary heavy equipment access. All Large Wood Debris generated from road opening and project treatments will be staged for future instream enhancement projects within the Buckeye Forest.

## **2.3 Implementation**

### **2.3.1 Construction**

The excavator, bulldozer and dump truck will be used to remove the anthropogenic road fill material from the proposed stream crossing decommissioning features and other site-specific features specified for decommissioning treatments. Similarly, they will be used to treat and restore all road surface drainage as they work their way out from the end of the roads. Concurrently working with the excavator and bulldozer, the dump truck may endhaul spoil from decommission areas to designated spoil disposal sites if and when local spoil areas are limited. Slash generated through decommissioning will be applied by excavator to disturbed stream banks as erosion control materials, cover for straw mulch and native erosion control seed, and habitat. Contractor laborers will be used to spread straw and seed. PWA staff or TCF staff will plant coast redwood seedlings in disturbed riparian areas during winter months.

The Contractor's excavator will be used to remove the culvert to be replaced, install culverts, construct armored fills, and excavate the road fill on roads to be upgraded. The excavator will also be used for removal of unstable road fill at future fill failure locations. The culvert will be replaced, and the fill crossings will be upgraded with corrugated steel culverts sized to convey 100-year flood flows and debris in accordance with the final road logs, and/or armored fill crossings in accordance with the specifications in Chapter X of the California Salmonid Stream Habitat Restoration Manual (Weaver et al., 2006) and the Handbook for Forest, Ranch, and Rural Roads (Weaver, Weppner, and Hagans, 2015). Contractor labor will utilize a gas-powered water pump to remove nuisance water from excavations and protect water quality during replacement and installation of the culverts. Contractor labor will couple culverts together and utilize a

mechanical compactor to compact backfill around the stream crossing culverts. The Contractor's dump truck will be used to endhaul spoil to safe designated stockpile locations and/or for distributing other materials for the project. The Contractor's bulldozer will manage temporarily excavated fill and install critical dips and rolling dips on either side of features as indicated in the final road logs. The Contractor's water truck will be used to moisture condition stream crossing backfill and the road surface at rolling dip and critical dip installations and areas of road shaping. The Contractor's excavator and labor will be used to install trash racks upstream of culvert inlets as indicated in the final road logs. In accordance with the invasive species protocol included in this proposal, all heavy equipment will be cleaned before and after entering/leaving the work area.

### **2.3.2 Construction Oversight and Monitoring**

Construction oversight and adaptive management will be conducted by PWA Professional Geologist, Project/Staff Geologist, and Principal throughout the construction period. Photographic monitoring will be conducted by PWA throughout the project and after completion of construction. Postconstruction stream crossing surveys at key sites will be conducted by PWA staff, consistent with the CDFW guidelines. PWA Staff Geologist will develop as-built road logs detailing completed project work. PWA Staff Geologist will compile and provide CDFW annual and final metrics reporting.

Water quality will be monitored at site(s) 116 and 120, where the bridges are to be installed across the Class I North Fork, as well as at an estimated 8 other features that are suspected to be possibly flowing at the time of construction. These features were previously evaluated during the PWA assessment, and we determined dewatering will likely be necessary for the proposed work. The surface water volume is manageable for pumping or gravity bypass during construction, and it is anticipated that the flows may be contiguous with the downstream watercourses.

#### **Spatial Sampling Scale (horizontal and vertical)**

- Upstream & downstream: Water quality samples will be taken at two locations:
  - 1) upstream from the project activities far enough to be completely out of the influence of the project activities, and
  - 2) 300 feet downstream from the project activities.
- Across the channel:
  - Vertically in the water column: Water quality sampling will be made in situ within the water column at mid-depth, total depth and the sampling depth(s) will be recorded for each sample taken. In instances where the water is too shallow

#### **Temporal Sampling Scale**



- Water quality samples will be taken a minimum of three times in a full workday or should the work time frame be less than a full day, three samples will be taken relative to the work duration from beginning to end. These three samples will be taken:
  - 1) before the activities commence,
  - 2) during the middle of the full workday (or the middle of the construction activity), and
  - 3) at the end of the full workday or after the construction activity has been completed for that day.

#### Parameters and Meters

- The water parameters that will be sampled include but are not limited to:
  - turbidity (NTU),
  - pH (Standard international units),
  - temperature (°C), and
  - Dissolved Oxygen or DO (mg/L and % saturation).

A hand-held meter designed for field applications will be used to take the water quality measurements. The meter(s) will conform to and utilize a USEPA-approved algorithm/method for the sample readings and the meter(s) will be calibrated and maintained as per the manufacturer's instructions for reading accuracy; a calibration and maintenance log will be kept with each meter. Observational surface water quality monitoring will be conducted continuously throughout the work period. These visual inspections will be made for visible construction related pollutants that may include foam, petroleum, and hydraulic product sheen, construction related excavated materials that are earthen or organic in nature, or any other visible signs for water quality degradation.

#### Reporting

All water quality sample results will be recorded in the daily water quality sample form, as provided within the 2022 FRGP Guidelines, which is attached within the supplemental documents section of this proposal. These water quality data forms will be provided to the Grant Manager weekly, from the beginning of the in-water work until the work is completed or done for the season.

#### Task 3 –Reporting

PWA Staff Scientist and Project Geologist will develop a draft and final report based on CDFW requirements that documents the work completed and the total costs to implement the project. The annual, draft, and final reports will be reviewed by a combination of Professional Geologist and Principal prior to being provided to TCF staff for their review. PWA will assist TCF with all annual and

final grant reporting. PWA Project Geologist will provide annual metrics reporting to TCF and CDFW as required by the grant agreement.

**Deliverables:**

The permanent decommissioning of 1.01 mi of Twenty-Five Mile Spur 2, North Fork Buckeye West, and North Fork Buckeye West Spur 2 Roads within the mainstem Buckeye Creek and North Fork Buckeye Creek riparian corridor, including 16 stream crossings and 1 existing landslide feature where the intervening road reaches will be ripped, outsloped, and/or cross-road drained (Map 3). The project also includes upgrading of 3.51 mi of Twenty-Five Mile and Twenty-Five Mile Spur 1 Roads within the mainstem Buckeye Creek and North Fork Buckeye Creek riparian corridors, including 27 stream crossings, 1 bank erosion fill failure, 2 spring features, 1 road drainage feature, and 6 pending or existing landslide features.

Final report with pre and post project analysis.

**Timelines:**

**Task 2 – Pre-Implementation**

Equipment will be brought on-site, and roads opened will start on 6/15/2023

Construction activities will be from 07/15/2023 to 11/01/2025.

Final reporting will be delivered by 02/28/2026

**Additional Requirements:**

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

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

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

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

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

All habitat improvements will follow techniques described in the *California Salmonids Stream Habitat Restoration Manual*, Volume I and Volume II.

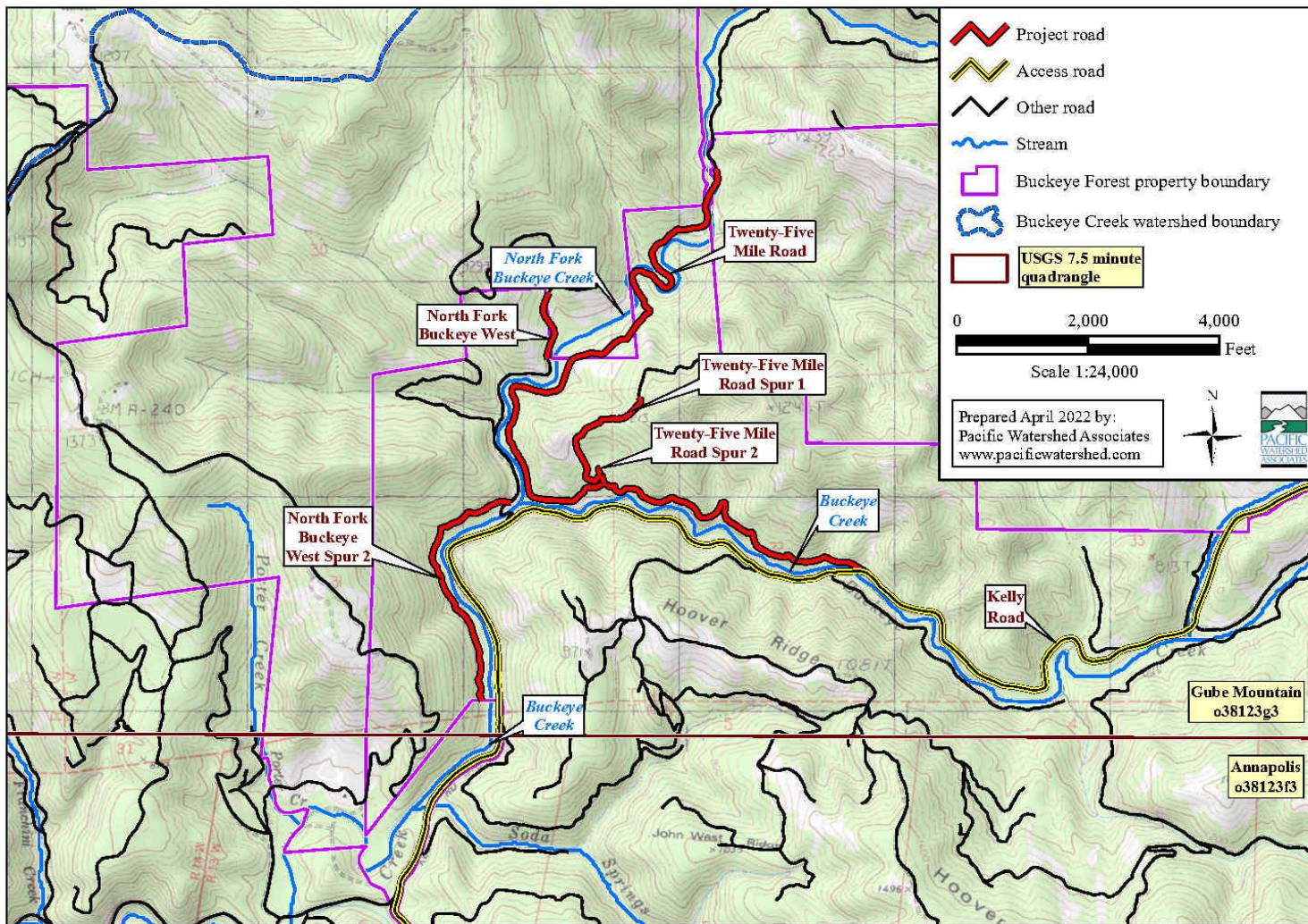
All road decommissioning will be done in accordance with techniques described in the Handbook for Forest and Ranch Roads, (PWA, 1994c.) and the *California Salmonid Stream Habitat Restoration Manual*, Volume II, Part X. All road upgrade and decommissioning sites and techniques shall be approved by the CDFW personnel before any equipment work takes place.

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

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

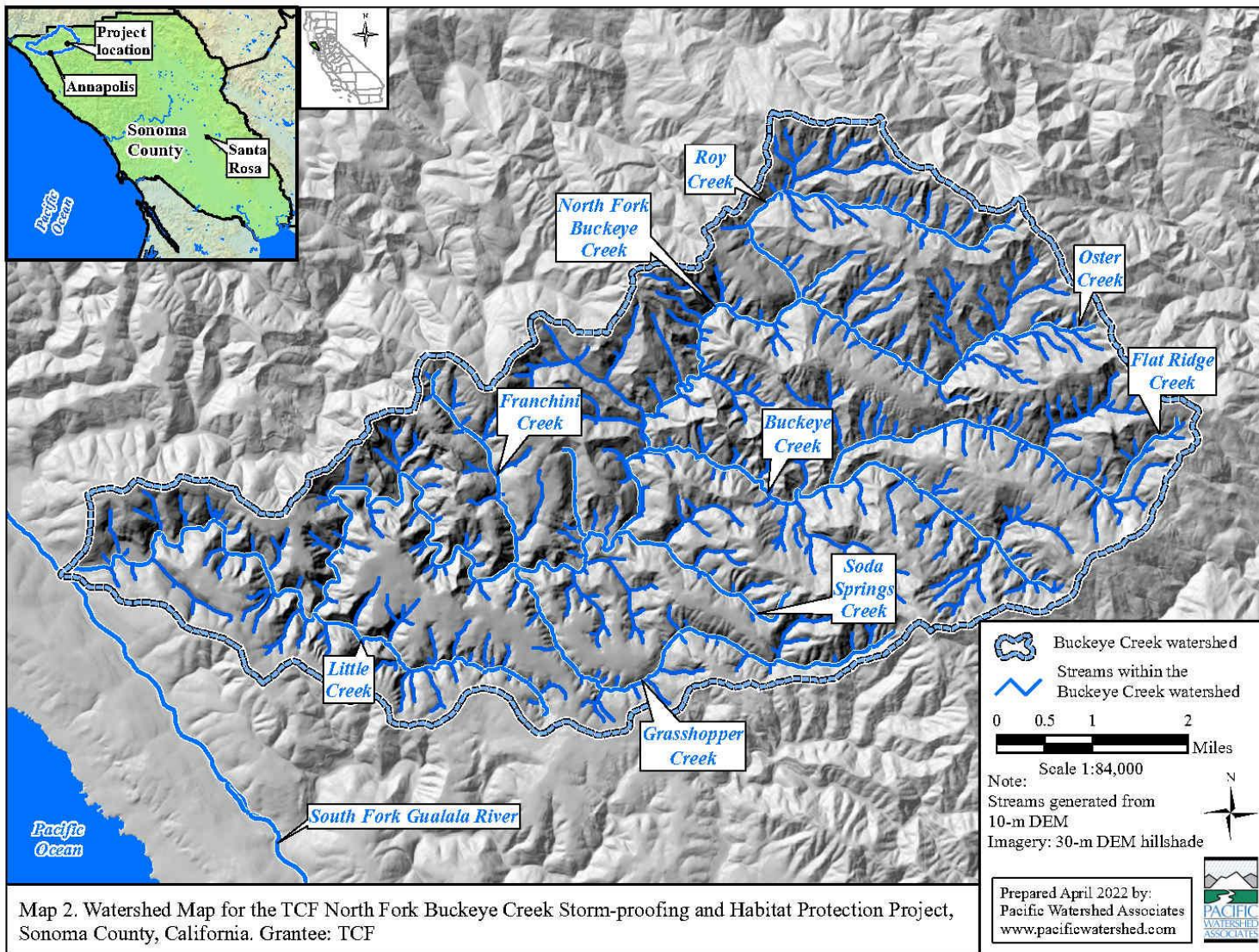
Sites that are expected to erode and deliver sediment to the stream are the only locations where work will be authorized for reimbursement under the terms of this agreement. Reimbursement will not be authorized for work done to improve aesthetics only.

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

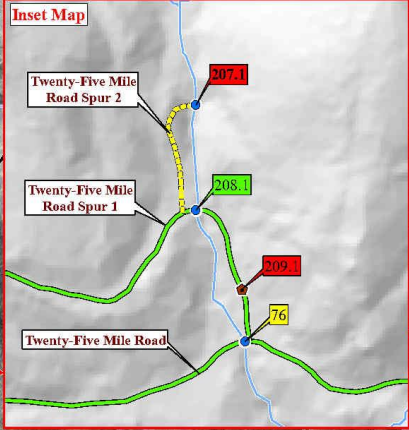
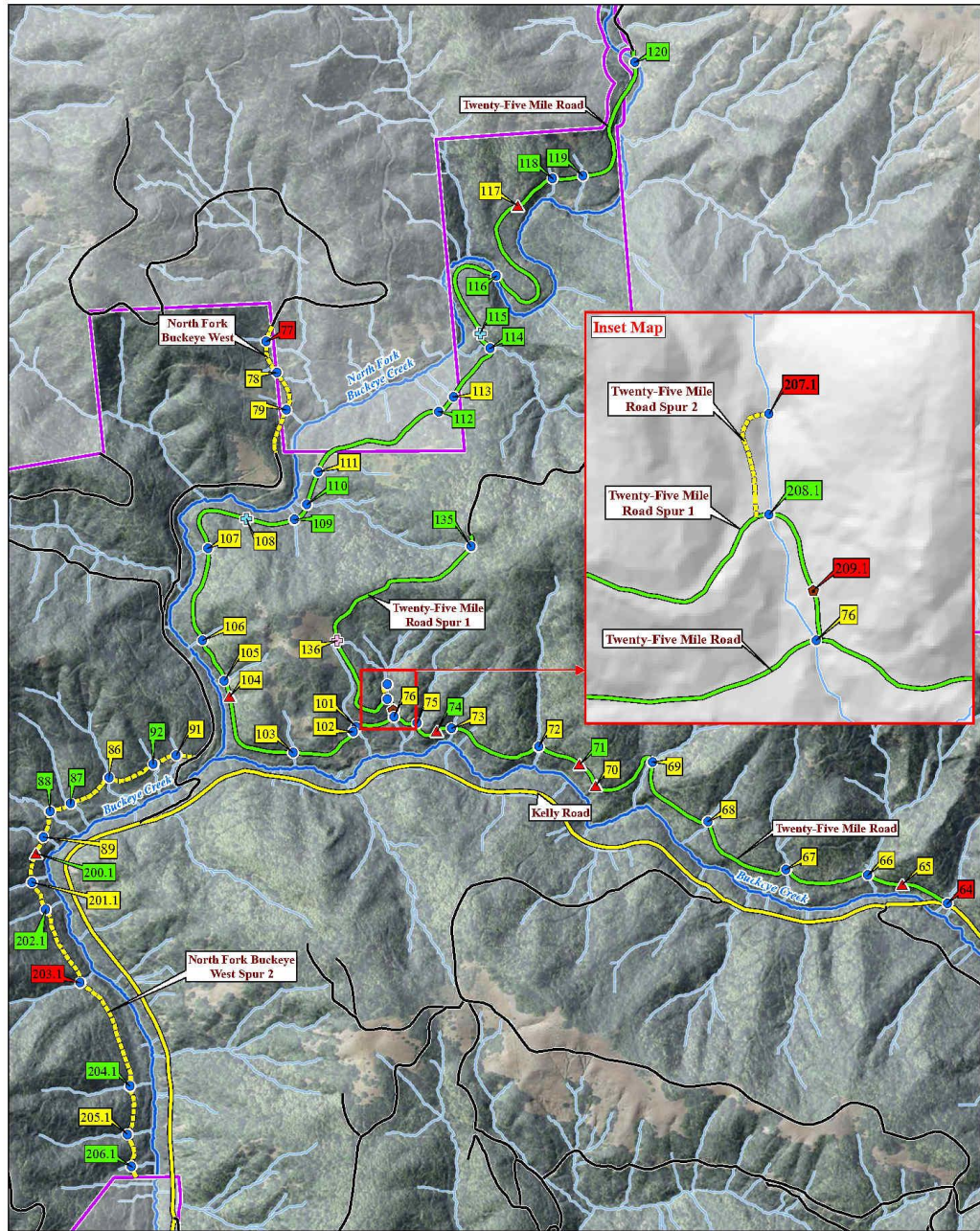


Map 1. Project Location Topographic Map for the TCF North Fork Buckeye Creek Storm-proofing and Habitat Protection Project, Sonoma County, California. (Gube Mountain USGS 7.5' quadrangles). Grantee: TCF









Site type	Recommended road treatments	Site priority
● Stream crossing	Road - Upgrade	<b>High priority</b>
▲ Fill failure	Road - Decommission	<b>Moderate priority</b>
⊕ Road surface	Access road	<b>Low priority</b>
⊕ Spring	Other road	
⊕ Bank erosion	Stream	
Property boundary		

Scale 1:8,400 1 inch = 700 feet  
 Imagery: NAIP 2020, 1m DEM hillshade  
 Stream network generated from 1m DEM

Prepared April 2022 by:  
 Pacific Watershed Associates  
 www.pacificwatershed.com

Map 3. Project Site and Features Map of the TCF North Fork Buckeye Creek Storm-proofing and Habitat Protection Project, Sonoma County, California. Grantee: TCF. App #1728212

P:\GIS\110076 Buckeye Creek\110608 Buckeye Creek FKGP 2022 map 3 - site.mxd

CALIFORNIA DEPARTMENT OF  
**FISH and WILDLIFE** *RareFind*

**Query Summary:**

Quad IS (Gube Mountain (3812373) OR McGuire Ridge (3812374) OR Big Foot Mtn. (3812372) OR Stewarts Point (3812364) OR Annapolis (3812363) OR Tombs Creek (3812362) OR Zeni Ridge (3812384) OR Ormbaun Valley (3812383) OR Yorkville (3812382))

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**CNDDB Element Query Results**

Scientific Name	Common Name	Taxonomic Group	Element Code	Total Occs	Returned Occs	Federal Status	State Status	Global Rank	State Rank	CA Rare Plant Rank	Other Status	Habitats
<i>Accipiter gentilis</i>	northern goshawk	Birds	ABNKC12060	433	1	None	None	G5	S3	null	BLM_S-Sensitive, CDFW_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	North coast coniferous forest, Subalpine coniferous forest, Upper montane coniferous forest
<i>Agrostis blasdalei</i>	Blasdale's bent grass	Monocots	PMPOA04060	62	4	None	None	G2G3	S2	1B.2	BLM_S-Sensitive, SB_UCSC-UC Santa Cruz	Coastal bluff scrub, Coastal dunes, Coastal prairie
<i>Ammodramus savannarum</i>	grasshopper sparrow	Birds	ABPBXA0020	27	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Valley & foothill grassland
<i>Antrozous pallidus</i>	pallid bat	Mammals	AMACC10010	420	1	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority	Chaparral, Coastal scrub, Desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Riparian woodland, Sonoran desert scrub, Upper montane coniferous forest, Valley & foothill grassland
<i>Arborimus pomus</i>	Sonoma tree vole	Mammals	AMAFF23030	222	20	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	North coast coniferous forest, Oldgrowth, Redwood
<i>Arctostaphylos bakeri</i> ssp. <i>sublaevis</i>	Cedars manzanita	Dicots	PDERI04222	4	1	None	Rare	G2T2	S2	1B.2	BLM_S-Sensitive	Chaparral, Closed-cone coniferous forest, Ultramafic
<i>Arctostaphylos stanfordiana</i> ssp. <i>raichei</i>	Raiche's manzanita	Dicots	PDERI041G2	13	1	None	None	G3T2	S2	1B.1	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_USDA-US Dept of Agriculture	Chaparral, Lower montane coniferous forest, Ultramafic
<i>Astragalus agnicidus</i>	Humboldt County milk-vetch	Dicots	PDFAB0F080	69	1	None	Endangered	G2	S2	1B.1	SB_BerrySB-Berry Seed Bank, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, North coast coniferous forest
<i>Bombus caliginosus</i>	obscure bumble bee	Insects	IIHYM24380	181	3	None	None	G2G3	S1S2	null	IUCN_VU-Vulnerable	null
<i>Brachyramphus marmoratus</i>	marbled murrelet	Birds	ABNNN06010	110	1	Threatened	Endangered	G3	S2	null	CDF_S-Sensitive, IUCN_EN-Endangered, NABCI_RWL-Red Watch List	Lower montane coniferous forest, Oldgrowth, Redwood
<i>Brasenia schreberi</i>	watershield	Dicots	PDCAB01010	43	1	None	None	G5	S3	2B.3	IUCN_LC-Least Concern	Marsh & swamp, Wetland
<i>Calochortus raichei</i>	Cedars fairy-lantern	Monocots	PMLIL0D1L0	9	1	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_UCSC-UC Santa Cruz	Chaparral, Closed-cone coniferous forest, Ultramafic

Calystegia purpurata ssp. saxicola	coastal bluff morning-glory	Dicots	PDCON040D2	42	4	None	None	G4T2T3	S2S3	1B.2	BLM_S-Sensitive	Coastal bluff scrub, Coastal dunes, Coastal scrub, North coast coniferous forest
Campanula californica	swamp harebell	Dicots	PDCAM02060	155	28	None	None	G3	S3	1B.2	BLM_S-Sensitive	Bog & fen, Closed-cone coniferous forest, Coastal prairie, Marsh & swamp, Meadow & seep, North coast coniferous forest, Wetland
Carex saliniformis	deceiving sedge	Monocots	PMCYP03BY0	18	2	None	None	G2	S2	1B.2	null	Coastal prairie, Coastal scrub, Marsh & swamp, Meadow & seep, Wetland
Ceanothus confusus	Rincon Ridge ceanothus	Dicots	PDRHA04220	33	1	None	None	G1	S1	1B.1	BLM_S-Sensitive, SB_SBBG-Santa Barbara Botanic Garden	Chaparral, Cismontane woodland, Closed-cone coniferous forest, Ultramafic
Corynorhinus townsendii	Townsend's big-eared bat	Mammals	AMACC08010	635	3	None	None	G4	S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority	Broadleaved upland forest, Chaparral, Chenopod scrub, Great Basin grassland, Great Basin scrub, Joshua tree woodland, Lower montane coniferous forest, Meadow & seep, Mojavean desert scrub, Riparian forest, Riparian woodland, Sonoran desert scrub, Sonoran thorn woodland, Upper montane coniferous forest, Valley & foothill grassland
Cryptantha dissita	serpentine cryptantha	Dicots	PDBOR0A0H2	23	1	None	None	G3	S3	1B.2	BLM_S-Sensitive	Chaparral, Ultramafic
Danaus plexippus plexippus pop. 1	monarch - California overwintering population	Insects	IILEPP2012	383	6	Candidate	None	G4T2T3	S2S3	null	IUCN_EN-Endangered, USFS_S-Sensitive	Closed-cone coniferous forest
Dicamptodon ensatus	California giant salamander	Amphibians	AAAAH01020	234	19	None	None	G2G3	S2S3	null	CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	Aquatic, Meadow & seep, North coast coniferous forest, Riparian forest
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	1404	1	None	None	G3G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive	Aquatic, Artificial flowing waters, Klamath/North coast flowing waters, Klamath/North coast standing waters, Marsh & swamp, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland
Erigeron supplex	supple daisy	Dicots	PDAST3M3Z0	21	6	None	None	G2	S2	1B.2	SB_UCBG-UC Botanical Garden at Berkeley	Coastal bluff scrub, Coastal prairie
Eriogonum	Cedars	Dicots	PDPGN087A0	3	1	None	None	G1	S1	1B.3	BLM_S-Sensitive,	Closed-cone



cedrorum	buckwheat										SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	coniferous forest, Ultramafic
Gilia capitata ssp. pacifica	Pacific gilia	Dicots	PDPLM040B6	91	1	None	None	G5T3	S2	1B.2	null	Chaparral, Coastal bluff scrub, Coastal prairie, Valley & foothill grassland
Gilia capitata ssp. tomentosa	woolly-headed gilia	Dicots	PDPLM040B9	18	1	None	None	G5T2	S2	1B.1	null	Coastal bluff scrub, Riparian woodland, Ultramafic, Valley & foothill grassland
Haliaeetus leucocephalus	bald eagle	Birds	ABNKC10010	332	1	Delisted	Endangered	G5	S3	null	BLM_S-Sensitive, CDF_S-Sensitive, CDFW_FP-Fully Protected, IUCN_LC-Least Concern, USFS_S-Sensitive	Lower montane coniferous forest, Oldgrowth
Harmonia guggolziorum	Guggolz's harmonia	Dicots	PDAST650M0	2	2	None	None	G1	S1	1B.1	null	Chaparral, Ultramafic
Hesperevax sparsiflora var. brevifolia	short-leaved evax	Dicots	PDASTE5011	72	1	None	None	G4T3	S3	1B.2	BLM_S-Sensitive	Coastal bluff scrub, Coastal dunes, Coastal prairie
Hesperoleucus parvipinnis	Gualala roach	Fish	AFCJB19025	4	2	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern	Aquatic, Klamath/North coast flowing waters
Horkelia tenuiloba	thin-lobed horkelia	Dicots	PDROS0W0E0	27	3	None	None	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, Chaparral, Valley & foothill grassland
Lasiurus cinereus	hoary bat	Mammals	AMACC05030	238	1	None	None	G3G4	S4	null	IUCN_LC-Least Concern, WBWG_M-Medium Priority	Broadleaved upland forest, Cismontane woodland, Lower montane coniferous forest, North coast coniferous forest
Lasthenia californica ssp. macrantha	perennial goldfields	Dicots	PDAST5L0C5	59	1	None	None	G3T2	S2	1B.2	BLM_S-Sensitive	Coastal bluff scrub, Coastal dunes, Coastal scrub
Lathyrus palustris	marsh pea	Dicots	PDFAB250P0	13	1	None	None	G5	S2	2B.2	null	Bog & fen, Coastal prairie, Coastal scrub, Lower montane coniferous forest, Marsh & swamp, North coast coniferous forest, Wetland
Lilium maritimum	coast lily	Monocots	PMLIL1A0C0	84	5	None	None	G2	S2	1B.1	BLM_S-Sensitive, SB_BerrySB-Berry Seed Bank, SB_UCBG-UC Botanical Garden at Berkeley	Broadleaved upland forest, Closed-cone coniferous forest, Coastal prairie, Coastal scrub, Marsh & swamp, North coast coniferous forest
Lupinus sericatus	Cobb Mountain lupine	Dicots	PDFAB2B3J0	46	3	None	None	G2?	S2?	1B.2	BLM_S-Sensitive, SB_UCSC-UC Santa Cruz	Broadleaved upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Ultramafic
Lycopodium clavatum	running-pine	Ferns	PPLYC01080	120	1	None	None	G5	S3	4.1	null	Lower montane coniferous forest, Marsh & swamp, North coast coniferous forest, Wetland
Myotis yumanensis	Yuma myotis	Mammals	AMACC01020	265	1	None	None	G5	S4	null	BLM_S-Sensitive, IUCN_LC-Least Concern,	Lower montane coniferous forest, Riparian

												WBWG_LM-Low-Medium Priority	forest, Riparian woodland, Upper montane coniferous forest
Oncorhynchus kisutch pop. 4	coho salmon - central California coast ESU	Fish	AFCHA02034	23	1	Endangered	Endangered	G5T2Q	S2	null	AFS_EN-Endangered	Aquatic	
Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	Fish	AFCHA0209Q	12	2	Threatened	None	G5T2T3Q	S2S3	null	AFS_TH-Threatened	Aquatic, Klamath/North coast flowing waters	
Piperia candida	white-flowered rein orchid	Monocots	PMORC1X050	222	11	None	None	G3?	S3	1B.2	null	Broadleaved upland forest, Lower montane coniferous forest, North coast coniferous forest, Ultramafic	
Rana boylei	foothill yellow-legged frog	Amphibians	AAABH01050	2478	53	None	Endangered	G3	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened, USFS_S-Sensitive	Aquatic, Chaparral, Cismontane woodland, Coastal scrub, Klamath/North coast flowing waters, Lower montane coniferous forest, Meadow & seep, Riparian forest, Riparian woodland, Sacramento/San Joaquin flowing waters	
Rana draytonii	California red-legged frog	Amphibians	AAABH01022	1671	2	Threatened	None	G2G3	S2S3	null	CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable	Aquatic, Artificial flowing waters, Artificial standing waters, Freshwater marsh, Marsh & swamp, Riparian forest, Riparian scrub, Riparian woodland, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing waters, South coast standing waters, Wetland	
Sidalcea calycosa ssp. rhizomata	Point Reyes checkerbloom	Dicots	PDMAL11012	34	5	None	None	G5T2	S2	1B.2	null	Freshwater marsh, Marsh & swamp, Wetland	
Sidalcea malachroides	maple-leaved checkerbloom	Dicots	PDMAL110E0	136	4	None	None	G3	S3	4.2	null	Broadleaved upland forest, Coastal prairie, Coastal scrub, North coast coniferous forest, Riparian forest	
Sidalcea malviflora ssp. purpurea	purple-stemmed checkerbloom	Dicots	PDMAL110FL	19	1	None	None	G5T1	S1	1B.2	BLM_S-Sensitive	Broadleaved upland forest, Coastal prairie	
Speyeria zerene behrensii	Behren's silverspot butterfly	Insects	IILEPJ6088	12	2	Endangered	None	G5T1	S1	null	null	Coastal prairie	
Streptanthus glandulosus ssp. hoffmanii	Hoffman's bristly jewelflower	Dicots	PDBRA2G0J4	16	2	None	None	G4T2	S2	1B.3	SB_UCSC-UC Santa Cruz	Chaparral, Cismontane woodland, Ultramafic, Valley & foothill grassland	
Streptanthus morrisonii ssp. morrisonii	Morrison's jewelflower	Dicots	PDBRA2G0S3	5	3	None	None	G2T1?	S1?	1B.2	BLM_S-Sensitive	Chaparral, Ultramafic	
Sulcaria spirifer	twisted horsehair lichen	Lichens	NLT0042560	18	1	None	None	G3G4	S2	1B.2	BLM_S-Sensitive	Coastal dunes, North coast coniferous forest	
Taricha rivularis	red-bellied	Amphibians	AAAAF02020	136	19	None	None	G2	S2	null	CDFW_SSC-	Broadleaved	

	newt											Species of Special Concern, IUCN_LC-Least Concern	upland forest, North coast coniferous forest, Redwood, Riparian forest, Riparian woodland
Taxidea taxus	American badger	Mammals	AMAJF04010	594	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Alkali marsh, Alkali playa, Alpine, Alpine dwarf scrub, Bog & fen, Brackish marsh, Broadleaved upland forest, Chaparral, Chenopod scrub, Cismontane woodland, Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub, Desert dunes, Desert wash, Freshwater marsh, Great Basin grassland, Great Basin scrub, Interior dunes, lone formation, Joshua tree woodland, Limestone, Lower montane coniferous forest, Marsh & swamp, Meadow & seep, Mojavean desert scrub, Montane dwarf scrub, North coast coniferous forest, Oldgrowth, Pavement plain, Redwood, Riparian forest, Riparian scrub, Riparian woodland, Salt marsh, Sonoran desert scrub, Sonoran thorn woodland, Ultramafic, Upper montane coniferous forest, Upper Sonoran scrub, Valley & foothill grassland	
Tracyina rostrata	beaked tracyina	Dicots	PDAST9D010	15	1	None	None	G2	S2	1B.2	USFS_S-Sensitive	Chaparral, Cismontane woodland, Valley & foothill grassland	
Trifolium buckwestiorum	Santa Cruz clover	Dicots	PDFAB402W0	64	20	None	None	G2	S2	1B.1	BLM_S-Sensitive, SB_SBBG-Santa Barbara Botanic Garden, SB_UCSC-UC Santa Cruz, SB_USDA-US Dept of Agriculture	Broadleaved upland forest, Cismontane woodland, Coastal prairie	
Usnea longissima	Methuselah's beard lichen	Lichens	NLLEC5P420	206	6	None	None	G4	S4	4.2	BLM_S-Sensitive	Broadleaved upland forest, North coast coniferous forest, Oldgrowth, Redwood	