Gualala River Estuary Habitat Enhancement Planning Project *(Project ID:* ***1728118****) 2022*

Introduction:

The Redwood Coast Land Conservancy will conduct planning and design activities that will lead to implementation-ready projects to improve channel complexity and salmonid habitat in the Gualala River Estuary. The project team will fully evaluate the physical and regulatory feasibility of installing large wood structures in the estuary system to create cover elements, to reconfigure channel geometry to build and sustain increased bed topographic complexity (gravel bars and pools), and to provide hydraulic shelter for emergent vegetation establishment and high flow velocity refugia. Findings from this feasibility assessment will be translated into a habitat enhancement plan for the entire estuary that includes concept drawings showing potential enhancement sites and approaches. A portion of the sites—selected by stakeholders based on ecological priority and for fitting within the restoration permitting pathways—will be designed through bid-ready final plans (100%).

In addition, the project will utilize the National Large Wood Manual: Assessment, Planning, Design, and Maintenance of Wood in Fluvial Ecosystems (USBOR and USAERDC 2016) in the planning and design of the project. The following chapters will be consulted in the design and engineering process: Chapter 3 Ecological and Biological Considerations, and Chapter 6 Engineering Considerations.

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 I, Sections II Preliminary Watershed Assessment, VI Project Planning and Organization, and VII Project Implementation [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):

The Gualala River Estuary Habitat Enhancement Planning Project proposes planning and design activities that will lead to implementation-ready projects to improve channel complexity and salmonid habitat in the Gualala River estuary. As with most, if not all, of the region's estuaries, habitat conditions have been degraded by centuries of wood removal, channel modifications, filling of wetlands, water extractions, and upland land use changes causing increased sediment loads and aggradation. Channel morphology in the Gualala River estuary now lacks complexity. The upper estuary is wide and shallow, with low elevation bars, no large wood, and no defined pools; it is essentially a ½-milelong riffle. The middle estuary is primarily one very long, deep pool that becomes stratified. It has little to no wood or emergent vegetative cover along the edges. An extensive, elevated gravel bar that is largely unvegetated dominates the rest of the middle estuary. The lower estuary has a few patches of emergent wetlands and willow stands on the south bank that provide shelter and foraging options. Several small accumulations of large wood pieces are found in the middle and lower estuary that provide cover for fish, including one that has developed an emergent marsh behind it.

The project team will fully evaluate the physical and regulatory feasibility of installing large wood structures in the estuary system to create cover elements, to reconfigure channel geometry to build and sustain increased bed topographic complexity (gravel bars and pools), and to provide hydraulic shelter for emergent vegetation establishment and high flow velocity refugia. Findings from this feasibility assessment will be translated into a habitat enhancement plan for the entire estuary that includes concept drawings showing potential enhancement sites and approaches. A portion of the sites—selected by stakeholders based on ecological priority and for fitting within the restoration permitting pathways—will be designed through bid-ready final plans (100%).

Project Description:

Location:

The Project reach extends from the mouth of the Gualala River upstream approximately 1.5 miles. The Project area includes portions of both the RCLCowned Mill Bend property (north side of estuary in Mendocino County) and of Sonoma County Regional Park's (SCRP) Gualala Point Regional Park (south

side of estuary in Sonoma County). Highway 1 passes over the estuary one mile upstream of the mouth. The town of Gualala sits above the lower estuary on the north side and the SCRP Gualala Point Campground is on the south side along the banks of the upper estuary.

Like many north coast estuaries, the Gualala River has a bar-built lagoon system. Seasonally, it fluctuates between an open estuary with direct connectivity to the ocean (typically winter) and a closed to semi-closed lagoon (typically during summer). Project coordinates are: 38.75842, -123.52043

Project Set Up:

Redwood Coast Land Conservancy (RCLC) is the project lead and a participating landowner and will manage the project, including grant administration and reporting, facilitating the Technical Advisory Committee (TAC), and coordinating with project partners and the community. Sonoma County Regional Parks (SCRP) is a project partner and participating landowner. SCRP natural resources and parks planning staff will participate in the TAC and will consult with the project team through all stages of the planning project. Prunuske Chatham, Inc. (PCI) is the subcontractor that will provide the technical expertise to conduct the assessments and studies, prepare the Estuary Habitat Enhancement Plan and concept designs, develop the Phase 1 restoration designs, and conduct environmental compliance and permitting to provide a shovel-ready implementation project.

Habitat Enhancement Plan and Concept (30%) Drawings (PCI)

- PCI will conduct all technical evaluations, mapping, and surveys to complete the site assessment work and habitat enhancement planning, as described in the Project Description of Activities
- PCI will prepare the Habitat Enhancement Plan for the Gualala Estuary and the conceptual reach-wide enhancement site drawings and alternatives analysis (30% plans), per the detailed task list in the Project Description of Activities by Task.

Phase 1 Designs and Construction Documents (PCI)

- PCI will conduct all engineering and design studies required for designing the Phase 1 projects, including topographic surveys, 2-dimensional (2D) hydraulic modeling, large wood scour, force, and buoyancy analyses, and geomorphic assessments.

- Geomorphic assessments may include groundwater monitoring wells in the wetlands. Wells will be a maximum of 20 feet deep and hand dug with a soil corer. Maximum area of surface disturbance will be 16 square feet per well. No heavy equipment will be used to access or excavate wells. All wells will avoid ground-nesting animals, special-status animals, and rare plants. There will be nore more than six monitoring wells.
- PCI will prepare plan sets (65%, 90%, and 100%) for a suite of priority habitat enhancement sites, as well as basis-of-design reports, technical specifications, and construction cost estimates, as described in the Project Description of Activities by Task.

Materials:

The project will use the following materials:

PCI-owned pressure transducers for monitoring water surface levels and temperature in the Gualala River estuary to document water surfaces throughout the estuary at different hydrodynamic conditions for estimating habitat conditions and to provide hydrographs for hydraulic models.

Project-purchased hardware for installation of pressure transducers, such as tposts, tubing, wire, zip-ties, etc.

Tasks:

Habitat Enhancement Plan and Concept (30%) Drawings (PCI)

PCI will qualitatively and quantitatively analyze and describe existing habitat conditions in the estuary using existing and project-collected data. The project team will compile and review pre-existing data/studies on the Gualala River estuary to develop a formal data collection plan that integrates existing information and provides supplemental data needed for location-specific salmonid habitat enhancement design. An extensive study of the Gualala River Estuary's water quality, fish populations, and lagoon hydrodynamics was conducted in 2002 and 2003 by ECORP Consulting and Kamman Hydrology & Engineering for Sonoma RCD; PCI will utilize their data and analyses to inform our habitat enhancement planning and design work.

Initial field data collection will support characterization of existing habitat conditions and development of appropriate habitat enhancement approaches. Data collection will include:

- Preparation of LiDAR-based digital elevation model (DEM) base maps of the project reach for use during site visits. Base map will include property lines and easements from publicly available records.
- Field identification and description of existing channel and floodplain features. Assessment will also define locations that may provide opportunities for enhancing rearing and outmigration habitat for salmonids. Findings will be noted on the map, as will locations for water level monitoring. A site assessment map will be developed for discussions with RCLC and SCRP about opportunities and constraints.
- Installation of up to three pressure transducers at key locations to collect water level data throughout an annual cycle to relate water surface elevations to channel and floodplain terrain during closed lagoon conditions, high flows, and open estuary low flow periods. This activity will require digging into the riverbed to place the transducers for data collection.
- Consultation with SCRP staff to inventory existing and planned recreational access/in-water uses. RCLC and PCI are currently developing an Integrated Conservation Plan for Mill Bend Preserve, which will provide up-to-date information about recreational access and in-water uses.

The hydrodynamic and geomorphic functioning of the estuary, coupled with the habitat descriptions will set the context for proposed salmonid habitat enhancement projects within specific areas of the Gualala River estuary. All information will be evaluated in the context of the current scientific understanding of the habitat needs of juvenile steelhead and coho salmon in the stream-estuary ecotone. The habitat needs of native wildlife and plant species of concern will also be incorporated into the evaluation. Access for fishing, swimming, and nonmotorized watercraft, and watercraft navigation will be considered in plan development. This will lead to identification and conceptual design several viable approaches and specific locations for habitat enhancement within the 1.5 miles of Gualala River estuary Project Area.

PCI and RCLC will work with SCRP, the stakeholders, and agency staff to define opportunities and constraints to potential habitat enhancement projects. PCI will develop a broad range of site enhancement alternatives for the entire Project Area. These alternatives will be schematically drawn on the base map(s), with design and implementation considerations developed for each based on initial evaluations by PCI experts in construction, regulatory compliance, geomorphology, biology, ecology, engineering, and recreation. These alternatives will be presented to RCLC and SCRP initially, and then the TAC at meeting #1 (Task 1) for review and comment. The preferred feasible alternative will be selected and then further developed in the Conceptual Plans (30% drawings), which will include a general location map, an overall layout map showing all proposed project elements, and site or reach specific conceptual drawings of the enhancement sites. Enhancement approaches are expected to

include engineered log jams to re-establish complex channel topography and provide pools with cover and shelter from predators, as well as grading to reconnect disconnected floodplains to create seasonally flooded wetlands and/or improve existing wetland inundation areas and duration. PCI will prepare a Gualala River Estuary Salmonid Habitat Enhancement Plan (Plan) that synthesizes the existing conditions, habitat needs of salmonids in the estuary, and descriptions of potential habitat
enhancement sites and actions that appear to be feasible. Diagrammatic figures and descriptions of the proposed enhancement sites and approaches will be included. The Conceptual (30%) Design drawings and alternatives analysis will be submitted with the draft Plan.

Based on owner and TAC review and input, select sites included in the Conceptual (30%) Design will be chosen during TAC Meeting #2 (Task 1) to be advanced through environmental studies, permitting strategy development, and Final (100%) Design for Phase 1 implementation (Tasks 3 and 4). The Plan will be finalized after receiving comments from the TAC.

Task 3: Phase 1 Designs and Construction Documents

PCI will take the sites selected for implementation in Phase 1 in Task 3 select sites through a formal design and technical review process. It is expected that the Phase 1 projects to be designed will fit into size and impact restrictions for small habitat restoration project exemptions and be fundable through current restoration grant opportunities. Complete construction documents will be produced (plans, technical specifications, and an engineer's cost estimate).

Based on guidance provided by the TAC, PCI will produce and submit Intermediate (65%) Design plans that illustrate the design approach, intent, and locations for the select sites. The Intermediate (65%) Design drawings will include detailed design plan views, profiles, sections, and sheets articulating the project location, layout and configuration, construction limits and access, and a preliminary revegetation plan. The plans will be sufficiently detailed to accurately estimate and evaluate project impacts. Topographic surveys of the project sites will document details, check the elevation accuracy of the LiDAR terrain, and support hydraulic analysis and design. The ground surveys will capture existing features in the habitat enhancement design locations, including such features as utilities, trails, and trees over 6 inches diameter at breast height (DBH).

A 2-D hydraulic model will be developed at the 65% design phase to help refine the designs and quantify expected habitat conditions. We will utilize the U.S. Army Corp of Engineers Hydrologic Engineering Center River Analysis System (HECRAS) model for this effort. Topographic and water surface elevation data collected in Task 2 will be used in the model development. Model results will be

used to guide design of grading and large wood structures, analyze hydraulic effects during design flow events, and quantify changes in salmonid habitat conditions. The design conditions may be iteratively developed using model output until optimal habitat and sediment transport conditions are achieved. Biological design criteria and recreational considerations will help to guide the optimal design.

PCI will make any needed revisions to the site designs based upon RCLC, SCRP, and TAC review and comment during the TAC meeting #3 and submit a summary of changes made to the TAC. Draft (90%) Design Plans will then be developed that incorporate those revisions and refinements, and add details required for construction. The Draft (90%) Design Plan drawings will include construction related items such as water management, erosion control, and large wood structure installation details. Draft technical specifications will be provided with the Draft (90%) Design plan submittal. These submittals will be sent to select TAC members for comment and reviewed with the CDFW engineer.

PCI will prepare and submit Final (100%) Design Plans that incorporate comments and revisions to the Draft (90%) Design Plans. The Final (100%) Design submittal will consist of final signed and stamped drawings, technical specifications, and engineer's estimate of construction costs.
A Basis-of-Design technical memorandum (BOD memo) will be prepared that documents sites-specific existing habitat conditions, design intent and decision elements (terrain, water quality, seasonal water level patterns, and recreational access), engineering calculations, hydrology and hydraulic modeling results, and large wood design and stability analysis (CDFW Salmonid Stream Habitat Restoration Manual, National Wood Manual). The hydrology and hydraulic analyses and large stability calculations will be documented in detail as attachments to the BOD memo, with succinct summaries included in the body of the BOD memo. A draft BOD memo will be submitted with the Intermediate (65%) design package and will include information needed for design review approval by agency permitting and engineering staff. The final BOD memo will be submitted with the Final (100%) Design Plans

Deliverables:

Groundwater monitoring wells in the wetlands. Maximum 10 feet deep. Dug with a soil corer. Maximum area of surface disturbance will be 16 square feet per well. No heavy equipment will be used to access the site or excavate the well. Well placement will be determine after site surveys and will avoid ground-nesting animals, special status animals, and rare plants. No more than 6 monitoring wells total.

Final BOD memo will be submitted with the Final (100%) Design Plans

Timelines:

Installation of pressure transducers in the summer of 2023. Habitat Enhancement Plan and Concept Drawings delivered in September of 2024.
Final basis-of-design and 100% design plants will be provided by 1/30/2026

Additional Requirements:

The Permitee 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.

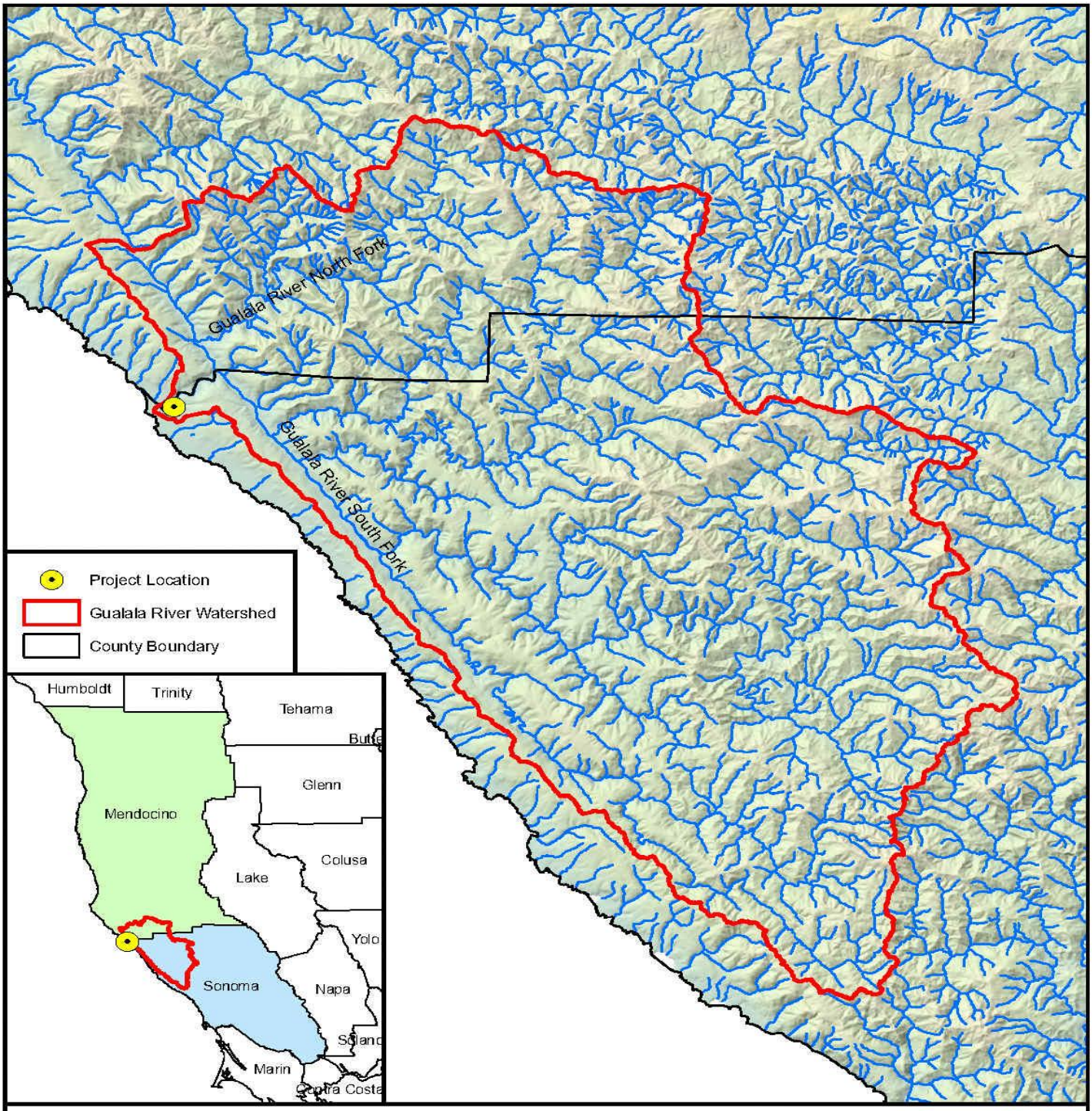
During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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

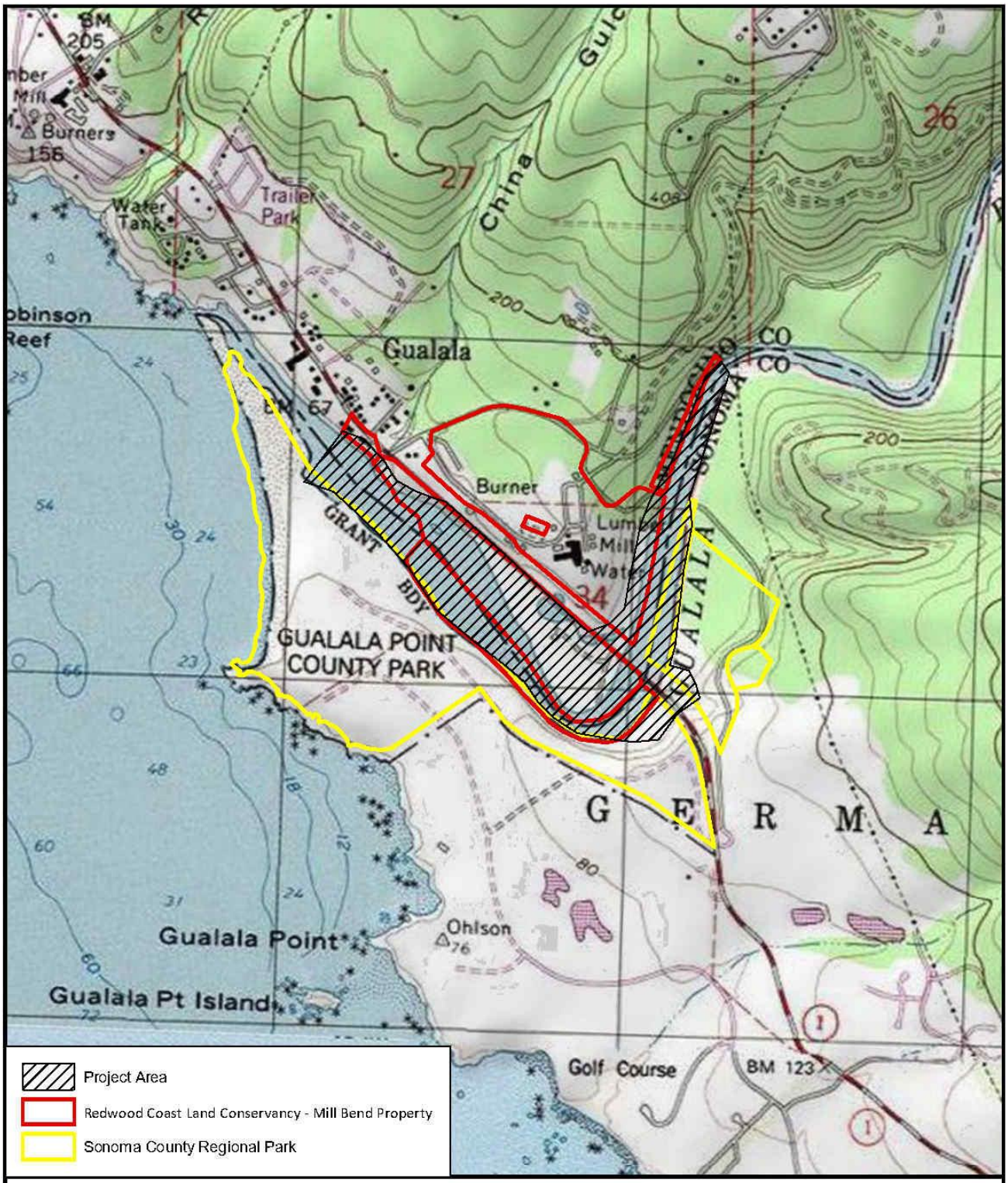
Project Site and Vicinity Map

2002-105 Gualala River

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS



Supplemental Document 5: Watershed Map
Gualala River Estuary Habitat Enhancement Planning Project
Redwood Coast Land Conservancy



Supplemental Document 4: Project Location Map
Gualala River Estuary Habitat Enhancement Project
Redwood Coast Land Conservancy

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE RareFind

Query Summary:
Quad IS (Gualala (3812375) OR Saunders Reef (3812376) OR McGuire Ridge (3812374) OR Stewarts Point (3812364) OR Point Arena (3812386) OR Eureka Hill (3812385) OR Zeni Ridge (3812384))

Print Close

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
Abronia umbellata var. breviflora	pink sand-verbena	Dicots	PDNYC010N4	61	2	None	None	G4G5T2	S2	1B.1	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal dunes
Agrostis blasdalei	Blasdale's bent grass	Monocots	PMPOA04060	62	10	None	None	G2G3	S2	1B.2	BLM_S-Sensitive, SB_UCSC-UC Santa Cruz	Coastal bluff scrub, Coastal dunes, Coastal prairie
Ammodramus savannarum	grasshopper sparrow	Birds	ABPBXA0020	27	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Valley & foothill grassland
Aplodontia rufa nigra	Point Arena mountain beaver	Mammals	AMAFA01011	39	25	Endangered	None	G5T1	S1	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Coastal scrub, Meadow & seep
Arborimus pomo	Sonoma tree vole	Mammals	AMAFF23030	222	24	None	None	G3	S3	null	CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	North coast coniferous forest, Oldgrowth, Redwood
Ascaphus truei	Pacific tailed frog	Amphibians	AAABA01010	491	6	None	None	G4	S3S4	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Aquatic, Klamath/North coast flowing waters, Lower montane coniferous forest, North coast coniferous forest, Redwood, Riparian forest
Astragalus agnicidus	Humboldt County milk-vetch	Dicots	PDFAB0F080	69	4	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
Bombus caliginosus	obscure bumble bee	Insects	IIHYM24380	181	5	None	None	G2G3	S1S2	null	IUCN_VU-Vulnerable	null
Bombus occidentalis	western bumble bee	Insects	IIHYM24250	306	1	None	None	G2G3	S1	null	USFS_S-Sensitive	null
Calystegia purpurata ssp. saxicola	coastal bluff morning-glory	Dicots	PDCON040D2	42	12	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	66	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 californica	California sedge	Monocots	PMCYP032D0	41	9	None	None	G5	S2	2B.2	null	Bog & fen, Closed-cone coniferous forest, Coastal prairie, Freshwater marsh, Marsh & swamp, Meadow & seep, Wetland
Carex lyngbyei	Lyngbye's	Monocots	PMCYP037Y0	37	1	None	None	G5	S3	2B.2	IUCN_LC-Least	Marsh & swamp,

	sedge										Concern	Wetland
Carex saliniformis	deceiving sedge	Monocots	PMCYP03BY0	18	6	None	None	G2	S2	1B.2	null	Coastal prairie, Coastal scrub, Marsh & swamp, Meadow & seep, Wetland
Castilleja ambigua var. humboldtiensis	Humboldt Bay owl's-clover	Dicots	PDSCR0D402	31	1	None	None	G4T2	S2	1B.2	BLM_S-Sensitive	Marsh & swamp, Salt marsh, Wetland
Castilleja mendocinensis	Mendocino Coast paintbrush	Dicots	PDSCR0D3N0	52	5	None	None	G2	S2	1B.2	BLM_S-Sensitive	Closed-cone coniferous forest, Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub
Cerorhinca monocerata	rhinoceros auklet	Birds	ABNNN11010	10	2	None	None	G5	S3	null	CDFW_WL-Watch List, IUCN_LC-Least Concern	null
Coastal Brackish Marsh	Coastal Brackish Marsh	Marsh	CTT52200CA	30	2	None	None	G2	S2.1	null	null	Marsh & swamp, Wetland
Coastal Terrace Prairie	Coastal Terrace Prairie	Herbaceous	CTT41100CA	8	1	None	None	G2	S2.1	null	null	Coastal prairie
Coastal and Valley Freshwater Marsh	Coastal and Valley Freshwater Marsh	Marsh	CTT52410CA	60	3	None	None	G3	S2.1	null	null	Marsh & swamp, Wetland
Coptis laciniata	Oregon goldthread	Dicots	PDRAN0A020	122	2	None	None	G4?	S3?	4.2	null	Meadow & seep, North coast coniferous forest, Wetland
Corynorhinus townsendii	Townsend's big-eared bat	Mammals	AMACC08010	635	1	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
Cuscuta pacifica var. papillata	Mendocino dodder	Dicots	PDCUS011A2	5	2	None	None	G5T1	S1	1B.2	null	Coastal dunes
Danaus plexippus plexippus pop. 1	monarch - California overwintering population	Insects	IILEPP2012	383	9	Candidate	None	G4T2T3	S2S3	null	IUCN_EN-Endangered, USFS_S-Sensitive	Closed-cone coniferous forest
Dicamptodon ensatus	California giant salamander	Amphibians	AAAAH01020	234	18	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	2	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
Erethizon dorsatum	North American porcupine	Mammals	AMAFJ01010	523	1	None	None	G5	S3	null	IUCN_LC-Least Concern	Broadleaved upland forest, Cismontane woodland, Closed-cone coniferous forest, Lower montane coniferous forest, North coast coniferous forest, Upper montane coniferous forest
Erigeron supplex	supple daisy	Dicots	PDAST3M3Z0	21	15	None	None	G2	S2	1B.2	SB_UCBG-UC Botanical Garden at Berkeley	Coastal bluff scrub, Coastal prairie
Erysimum concinnum	bluff wallflower	Dicots	PDBRA160E3	30	1	None	None	G3	S2	1B.2	BLM_S-Sensitive	Coastal bluff scrub, Coastal dunes, Coastal prairie
Eucyclogobius newberryi	tidewater goby	Fish	AFCQN04010	127	1	Endangered	None	G3	S3	null	AFS_EN-Endangered, IUCN_VU-Vulnerable	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters, South coast flowing waters
Eumetopias jubatus	Steller sea lion	Mammals	AMAJC03010	38	1	Delisted	None	G3	S2	null	IUCN_EN-Endangered, MMC_SSC-Species of Special Concern	Marine intertidal & splash zone communities, Protected deepwater coastal communities, Rock shore
Fratercula cirrhata	tufted puffin	Birds	ABNNN12010	17	1	None	None	G5	S1S2	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Protected deepwater coastal communities
Fritillaria roderickii	Roderick's fritillary	Monocots	PMLIL0V0M0	8	5	None	Endangered	G1Q	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal bluff scrub, Coastal prairie, Valley & foothill grassland
Gilia capitata ssp. pacifica	Pacific gilia	Dicots	PDPLM040B6	91	4	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
Glyceria grandis	American manna grass	Monocots	PMPOA2Y080	10	1	None	None	G5	S3	2B.3	null	Bog & fen, Marsh & swamp, Meadow & seep, Wetland
Hesperevax sparsiflora var. brevifolia	short-leaved evax	Dicots	PDASTE5011	72	8	None	None	G4T3	S3	1B.2	BLM_S-Sensitive	Coastal bluff scrub, Coastal dunes, Coastal prairie
Hesperocyparis pygmaea	pygmy cypress	Gymnosperms	PGCUP04032	37	9	None	None	G1	S1	1B.2	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Closed-cone coniferous forest
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 marinensis	Point Reyes horkelia	Dicots	PDROS0W0B0	36	1	None	None	G2	S2	1B.2	null	Coastal dunes, Coastal prairie, Coastal scrub
Horkelia tenuiloba	thin-lobed horkelia	Dicots	PDROS0W0E0	27	10	None	None	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, Chaparral, Valley & foothill grassland

Hypogymnia schizidiata	island tube lichen	Lichens	NLT0032640	10	1	None	None	G2G3	S2	1B.3	null	Chaparral, Closed-cone coniferous forest
Kopsiopsis hookeri	small groundcone	Dicots	PDORO01010	21	1	None	None	G4?	S1S2	2B.3	null	North coast coniferous forest
Lasthenia californica ssp. bakeri	Baker's goldfields	Dicots	PDAST5L0C4	19	5	None	None	G3T1	S1	1B.2	null	Closed-cone coniferous forest, Coastal scrub, Marsh & swamp, Meadow & seep
Lasthenia californica ssp. macrantha	perennial goldfields	Dicots	PDAST5L0C5	59	7	None	None	G3T2	S2	1B.2	BLM_S-Sensitive	Coastal bluff scrub, Coastal dunes, Coastal scrub
Lasthenia conjugens	Contra Costa goldfields	Dicots	PDAST5L040	36	1	Endangered	None	G1	S1	1B.1	SB_UCBG-UC Botanical Garden at Berkeley	Alkali playa, Cismontane woodland, Valley & foothill grassland, Vernal pool, Wetland
Lathyrus palustris	marsh pea	Dicots	PDFAB250P0	13	2	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	39	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
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
Microseris paludosa	marsh microseris	Dicots	PDAST6E0D0	38	1	None	None	G2	S2	1B.2	BLM_S-Sensitive, SB_SBBG-Santa Barbara Botanic Garden, SB_UCSC-UC Santa Cruz	Cismontane woodland, Closed-cone coniferous forest, Coastal scrub, Valley & foothill grassland
Northern Coastal Bluff Scrub	Northern Coastal Bluff Scrub	Scrub	CTT31100CA	1	1	None	None	G2	S2.2	null	null	null
Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	Marsh	CTT52110CA	53	1	None	None	G3	S3.2	null	null	Marsh & swamp, Wetland
Oenothera wolfii	Wolf's evening-primrose	Dicots	PDONA0C1K0	29	1	None	None	G2	S1	1B.1	SB_BerrySB-Berry Seed Bank	Coastal bluff scrub, Coastal dunes, Coastal prairie
Oncorhynchus gorbuscha	pink salmon	Fish	AFCHA02010	1	1	None	None	G5	S1	null	null	Aquatic
Oncorhynchus kisutch pop. 4	coho salmon - central California coast ESU	Fish	AFCHA02034	23	2	Endangered	Endangered	G5T2Q	S2	null	AFS_EN-Endangered	Aquatic
Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	Fish	AFCHA0209Q	12	3	Threatened	None	G5T2T3Q	S2S3	null	AFS_TH-Threatened	Aquatic, Klamath/North coast flowing waters
Piperia candida	white-flowered rein orchid	Monocots	PMORC1X050	222	7	None	None	G3?	S3	1B.2	null	Broadleaved upland forest, Lower montane coniferous forest, North coast coniferous forest, Ultramafic
Plebejus anna lotis	lotis blue butterfly	Insects	IILEPG5013	2	1	Endangered	None	G4TH	SH	null	null	Bog & fen, Meadow & seep, Wetland
Potamogeton	Nuttall's	Monocots	PMPOT03080	25	1	None	None	G5	S2S3	2B.2	IUCN_LC-Least	Marsh & swamp,

epihydrus	ribbon-leaved pondweed										Concern	Wetland
Rana boylii	foothill yellow-legged frog	Amphibians	AAABH01050	2478	40	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	9	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
Rhyacotriton variegatus	southern torrent salamander	Amphibians	AAAAJ01020	416	1	None	None	G3G4	S2S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive	Lower montane coniferous forest, Oldgrowth, Redwood, Riparian forest
Sidalcea calycosa ssp. rhizomata	Point Reyes checkerbloom	Dicots	PDMAL11012	34	6	None	None	G5T2	S2	1B.2	null	Freshwater marsh, Marsh & swamp, Wetland
Sidalcea malachroides	maple-leaved checkerbloom	Dicots	PDMAL110E0	136	12	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	6	None	None	G5T1	S1	1B.2	BLM_S-Sensitive	Broadleaved upland forest, Coastal prairie
Speyeria zerene behrensii	Behren's silverspot butterfly	Insects	IILEPJ6088	12	9	Endangered	None	G5T1	S1	null	null	Coastal prairie
Sulcaria spiralifera	twisted horsehair lichen	Lichens	NLT0042560	18	2	None	None	G3G4	S2	1B.2	BLM_S-Sensitive	Coastal dunes, North coast coniferous forest
Taricha rivularis	red-bellied newt	Amphibians	AAAAF02020	136	2	None	None	G2	S2	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern	Broadleaved 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, Ione 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
Trifolium buckwestiorum	Santa Cruz clover	Dicots	PDFAB402W0	64	22	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
Trifolium trichocalyx	Monterey clover	Dicots	PDFAB402J0	6	3	Endangered	Endangered	G1	S1	1B.1	SB_USDA-US Dept of Agriculture	Closed-cone coniferous forest
Usnea longissima	Methuselah's beard lichen	Lichens	NLLEC5P420	206	1	None	None	G4	S4	4.2	BLM_S-Sensitive	Broadleaved upland forest, North coast coniferous forest, Oldgrowth, Redwood