Process-Based Floodplain Restoration of lower Lagunitas Creek *(Project ID:* ***1728115****)*
2022

Introduction:

The Salmon Protection and Watershed Network (SPAWN) will identify locations, perform needed surveys and assessments, modeling, and agency consultation for the creation of 3 (three) large floodplain/alcove areas within the lower reach of Lagunitas Creek. This project will develop final design plans, specifications, construction costs, and complete permitting applications necessary to implement the floodplain restoration actions, with planning done to accelerate additional phases.

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, Section I, II, III, V, and VI; Volume II, Section XI, XII and Appendix H – The Manning Roughness Coefficient. [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 objectives accomplish the restoration task by improving floodplain connectivity and in-channel cover and complexity by applying selective alcove width expansions and instream features in the channel to aggrade bedload, elevate the channel profile, and reverse channel incision while creating alcove, backwater, and floodplain habitats in the lower watershed of Lagunitas Creek. This project will create alcoves that will aggrade the channel and create bars/riffles that will help reverse incision, create a more variable channel profile, create more food resources for rearing Coho, and increase channel roughness that will promote floodplain creation and instream habitat cover and complexity.

Project Description:

Location:

This project covers the 3.5 mile stretch of Lower Lagunitas Creek from Point Reyes Station, upstream to the confludence of Lagunitas and Nicasio Creeks. The work areas are broken into 5 subreaches within the lower reach where alcove/floodplain expansions will be located.. Project coordinates are: 38.071078, -122.77000

Project Set Up:

SPAWN will lead a stakeholder coordination and outreach tasks focused on convening a Technical Working Group (TWG), made up on members of the Lagunitas Technical Advisory Committee (TAC) to create a forum for project oversight, tracking, input, and design. SPAWN will also provide coordiantion in partnership with the Marin Resource Conservation District (MRCD), to local stakeholders of Point Reyes Station and environmental groups including Marin Agricultural Land Trust, Natural Resources Conservation Service (NRCS), and others that are also involved with concerns of the ranch and riparian corridor. This task will also involve targeted direct mailing to stakeholders and nearby landowners in the community informing them of the project and opportunities for providing input and Q/A. SPAWN will retain a bookkeeper to assist with invoicing, budget tracking, payroll, and compliance. This will include a bookkeeping assistant and accountant. SPAWN staff included in this task include Project Supervisor, Project Manager, Project Foreman, Project Associate, and Interns I and II. This task includes subcontractor Environmental Science Associates (ESA) staff: Project Director

Restoration Options Analysis – The restoration options analysis will consist of identifying potential restoration site locations within the Lower Reach of Lagunitas Creek (Highway 1 to Nicasio Creek) to support and guide the project approach of widening the incised corridor at select and appropriate locations to create alcove/floodplain/wetland features. This task includes SPAWN Project Manager, Project Foreman, and Interns I and II. Subcontractor ESA Staff included are: Project Director, Senior Licensed Engineer, Project Manager, Lead Designer, Lead Field Technician, and Lead Biologist.

ESA and SPAWN, will compile, review, and synthesize relevant existing conditions information related to the site selection and design for this project. It is assumed a significant amount of existing conditions information will come from past and current projects and studies conducted in the Lagunitas Creek watershed including Lagunitas Creek Floodplain and Riparian Enhancement (SPAWN) and Lagunitas Creek Floodplain Activation Flow Study projects (SPAWN). For the purpose of supporting design, we will also identify data gaps that may require additional analyses to progress the design through Final (100%) Plans. SPAWN staff include Project Manager, Project Foreman, and Project Associate. Subcontractor ESA staff include: Project Manager, Project Manager / Lead Designer, and Lead Biologist. ESA will hire a subcontractor Geotechnical Consultant, A3GEO, who will perform a site reconnaissance observe surface

conditions, map exposed bedrock, identify areas of geotechnical/geologic concerns, and evaluate site accessibility for subsurface exploration.

Geomorphic Assessment – ESA will provide a qualitative assessment of geomorphology both in terms of pre-project conditions and the potential geomorphic response to post-project conditions. The geomorphic assessment, conducted by SPAWN and ESA staff will extend from Highway 1 bridge to Nicasio Creek. ESA will provide qualitative description of sediment supply, composition, and mode of transport through the project reach, and areas that may be impacted by the project within, upstream, and downstream of the project area. Based on this field assessment ESA will qualitatively evaluate the potential for vertical and lateral stability of the main channel pre- and post-project including impacts of aggradation or degradation. The geomorphic assessment will inform the design intent of creating self-maintaining habitat that benefit from sediment deposition. SPAWN staff included are Project Manager, Project Foreman, and Interns I and II. ESA staff include Project Manager, Project Manager / Lead Designer, and Lead Biologist.

Cultural Resource Surveys – An approximate project extent (APE) will be established to guide the cultural resources planning. ESA will conduct archival research and a records search at the Northwest Information Center of the California Historical Resources Information System to identify existing records, reports, and maps that have information about the prehistory and history of the project area and vicinity. ESA will conduct an intensive surface survey of the APE to identify any cultural resources and to report on existing site conditions. SPAWN also contact the Federated Indians of Graton Rancheria and the Marin Miwok Tribal Council to determine if there are sacred sites or Native American concerns about the project area and invite both groups to participate in project planning and provide input into restoration options. SPAWN staff include: Project Supervisor and Project Manager. ESA Staff include: Project Director, Senior Archaeologist, Lead Archaeologist, and Juior Archaeologist.

Conceptual (30%) – The Conceptual (30%) Design will articulate various critical restoration details regarding the off-channel habitats and large wood structures to be constructed, general dimensions, relation to the existing channel, the desired stream flows during which the habitat will be connected, site constraints and limits, and description of how geomorphic and hydraulic processes will maintain target habitat and functions. This will include a description of the desired flow engagement condition for the off-channel and large wood features, and desired feature evolution. Designs will be developed in CAD and will provide detailed layout and dimensions of the project elements based on available LiDAR topography of the project sites. Under this task project design will be assessed including identifying proposed potential soil disposal locations and hauling routes. SPAWN staff include: Project Supervisor, Project Manager, Project Foreman, Project Associate, Interns I and II. ESA staff include: Senior Licensed Engineer, Project Director, Senior Archologist, Senior Biologist, Project Manager/ Lead

Designer, Senior Hydraulic Engineer, Lead Field Technician, Lead Biologist, Lead Hydrologist/Modeler, Lead Engineer, Junior Hydrologist, Junior Engineer, Arborist, Junior Archeologist, and the Geotechnical Consultant, A3EGEO.

Intermediate (65%) Designs – This task includes topographic mapping with a survey crew, tree survey, base map survey, geotechnical investigation, 2-dimensional hydraulic analyses, geomorphic analyses, and revegetation plan. These studies will be performed to support the completion of all design-related work for the Intermediate (65%) Design plans. All detailed design studies will be documented in the Basis of Design report. SPAWN staff include: Project Supervisor, Project Manager, Project Foreman, Project Associate, Interns I and II. ESA staff include: Senior Licensed Engineer, Project Director, Senior Archologist, Senior Biologist, Project Manager/ Lead Designer, Senior Hydraulic Engineer, Lead Field Technician, Lead Biologist, Lead Hydrologist/Modeler, Lead Engineer, Junior Hydrologist, Junior Engineer, Arborist, Junior Archeologist, and the Geotechnical Consultant, A3GEO.

Final (100%) Design Plans and Construction Documents – Following input from the intermediate plans, SPAWN and ESA will prepare draft final (90%) and Final (100%) design plans and construction documents. SPAWN staff include: Project Supervisor, Project Manager, Project Foreman, Project Associate, Interns I and II. ESA staff include: Senior Licensed Engineer, Project Director, Senior Archologist, Senior Biologist, Project Manager/ Lead Designer, Senior Hydraulic Engineer, Lead Field Technician, Lead Biologist, Lead Hydrologist/Modeler, Lead Engineer, Junior Hydrologist, Junior Engineer, Arborist, Junior Archeologist, and the Geotechnical Consultant, A3GEO.

Jurisdictional Wetland Deliniation – The 2020 FRGP PSN states that if wetlands are impacted that they be delinated by USACE jurisdictions. These surveys were included in the design/planning phase of the work because these elements will inform the location and footprints of the floodplain habitats created. Therefore, it was most appropriate to have these surveys performed during design and planning instead of at the implementation phase. Following submittal of the delineation report to the USACE, ESA will coordinate with the USACE to verify the extent of jurisdictional waters of the U.S. within the project boundary to enable an accurate assessment of impacts within USACE jurisdiction. SPAWN staff include: Project Manager. ESA staff include: Lead Field Technician, Lead Biologist, and Senior Biologist.

Materials:

Biological and Geomorphic Field Supplies:

- These supplies include (survey stadia rods, meter tapes)

Waders

- These supplies include waders.

- These materials will be provided by the applicant.

Survey Equipment
- These include total station and RTK.
- These materials will be provided by the subcontractor.

Field Cameras
- These include time-lapse cameras and fixed station cameras.
- These materials will be provided by the applicant.

Tasks:

Geomorphic Assessment

ESA will provide a qualitative assessment of geomorphology both in terms of pre-project conditions and the potential geomorphic response to post-project conditions. The geomorphic assessment, conducted by SPAWN and ESA staff will extend from Highway 1 bridge to Nicasio Creek. ESA will provide qualitative description of sediment supply, composition, and mode of transport through the project reach, and areas that may be impacted by the project within, upstream, and downstream of the project area. Based on this field assessment ESA will qualitatively evaluate the potential for vertical and lateral stability of the main channel pre- and post-project including impacts of aggradation or degradation. This task will require the use of biological and geomorphic field supplies to assist in the assessment, as well as the use of waders to use for project members to access select areas of the riparian corridor. lastly, this project task will utilize the Intern Housing Facility to provide housing for interns in order for them to participate in the project activities. The geomorphic assessment will inform the design intent of creating self-maintaining habitat that benefit from sediment deposition. Lastly, this task will include the use of mileage that project personnel will bill to the project to cover costs of traveling to and from the field sites.

Conceptual (30%) Design Plans

ESA will prepare Conceptual (30%) Design plans for up to three (3) restoration sites selected from the Lower Reach of Lagunitas Creek as part of the Restoration Options Analysis. The Conceptual (30%) Design will be informed by input from SPAWN, landowner, and stakeholders.

The Conceptual (30%) Design plans will provide restoration site locations, footprint, activities, layout, and elements. In addition to floodplain bench grading, the design will include constructed riffles to enhance floodplain inundation and sediment transport conditions, and large wood to provide floodplain cover and sediment sorting. The Conceptual (30%) Design will articulate various critical

restoration details regarding the off-channel habitats and large wood structures to be constructed, general dimensions, relation to the existing channel, the desired stream flows during which the habitat will be connected, site constraints and limits, and description of how geomorphic and hydraulic processes will maintain target habitat and functions. This will include a description of the desired flow engagement condition for the off-channel and large wood features, and desired feature evolution. Designs will be developed in CAD and will provide detailed layout and dimensions of the project elements based on available LiDAR topography of the project sites. Under this task project feasibility will be assessed including identifying proposed potential soil disposal locations and hauling routes.

Intermediate (65%)

Intermediate 65%:

This task includes the use of survey equipment, including (total station, and RTK GPS). ESA will perform detailed design studies to advance to Intermediate (65%) Design. Such studies include topographic mapping, tree survey, base map survey, geotechnical investigation, hydraulic analyses, and geomorphic analyses. All detailed design studies will be documented in the Basis of Design report. ESA will survey existing features to support creating a base map for the three (3) restoration sites. The survey will extend within the study areas to sufficiently capture key features within the proposed project limits such as utilities, buildings, fences, irrigation, paths, and any other items identified in the opportunities and constraints assessment. ESA will perform a channel thalweg and toe survey to augment the 2018 LiDAR data below creek water surface to support design and 2D hydraulic analysis. Additionally, tagged trees will be surveyed at a mapping grade accuracy of no greater than +/- 5 feet. All survey data will be used to develop a base map of the three study areas. The base map will incorporate property lines and easements obtained from publicly available geospatial data. This task will include printing and duplicating to submit copies of design plans to the TWG, have copies of the plans for field visits, and provide plans and related Basis of Design Report documents to interested stakeholders when visiting the sites.

An ESA certified arborist will perform the tree survey of the Study Area. The arborist will identify and tag all trees over 6? diameter at breast height (DBH) within the proposed project limit. An arborist report will be prepared that will include a table documenting species and DBH for each tree tagged. The tree data will support design refinements. The tree survey will also inform a future implementation project impacts analysis, environmental compliance, and permitting tasks not included as part of this project. The survey assumes up to 150 trees will need to be tagged within the study area. This effort will include a detailed revegetation plan consisting of a seeding and planting plan with a subsequent propagation plan. These will be included will the 65% designs.

Hydraulic Modeling:

ESA will perform two-dimensional (2-D) hydraulic modeling of Lagunitas Creek to guide the design. The 2-D hydraulic modeling will leverage available data and models from past studies and projects in the Lagunitas Creek watershed. Available hydrology data includes previously estimated peak flow hydrology and ecohydrology. Additionally, ESA will utilize the 2-D hydraulic model developed as part of the Lagunitas Creek Floodplain Activation Flow (FAF) Assessment project. The proposed design of the floodplain bench will be modeled to demonstrate that inundation criteria and general sediment transport conditions are achieved at each selected site. The 2-D hydraulic modeling will produce one (1) reach-scale model of existing conditions, and one (1) reach-scale model of design condition. However more detailed information, such as low flow channel bathymetry and constructed riffle and large wood locations, will only be included in the site-scale models.

The model will also be used to estimate water surface elevations (WSEs) for existing and design conditions for the base flood (i.e., the 100-year recurrence interval flow). This scope includes providing the hydraulic modeling results to support county permits.

Large Wood and Constructed Riffle Design:

Large wood will be incorporated to provide cover and promote localized sediment storage and sorting. The proposed large wood structures will require engineering and stability analyses. With two bridges present, one public and one private, the Lower Reach of Lagunitas Creek could potentially be considered a high-risk setting. As result, the large wood structures are likely to be stabilized by being tightly anchored to boulders and/or embedded in the streambanks making them complex structures. For such complex structures in high-risk settings, a stability analysis of the large wood structures will be performed and reviewed by ESA's licensed engineers. The stability analysis will follow the latest standard guidelines on large wood structure design (USBR and USACE, 2016). The 2-D hydraulic model will be used to provide hydraulic values for stability analysis of large wood structures. The structures will also be qualitatively assessed for biological benefits, scour of embedded logs, and geomorphic influence. Constructed riffles adjacent to the off-channel floodplain benches will enhance inundation, provide spawning habitat, and kickstart natural self-maintenance processes. Riffles will be designed to control water levels to enhance hydrologic connectivity and composed of appropriately sized rounded gravel to support spawning.

Final (100%) Designs and Construction Documents

To support the final design considerations, ESA will retain a geotechnical engineer to evaluate the geotechnical construction feasibility of the project. This include searching a variety of published sources will be reviewed to evaluate

geotechnical data relevant to the subject site(s). These sources will include, but may not be limited to, geotechnical and geologic literature, reports, and maps published by various public agencies including the United States Geological Survey (USGS), California Geological Survey (CGS), and Marin County. This consultation includes a subsurface exploration will of borings, test pits and/or geophysical surveys. The type(s) of exploration will be determined after the data review and site reconnaissance visits and will depend on site access constraints, anticipated depths of improvements, groundwater conditions, and depth of proposed excavations. If test pits and/or borings are performed, geotechnical laboratory testing will be conducted on collected samples to evaluate the physical properties of the onsite soils. The types of laboratory tests performed will depend upon the materials encountered and the types of samples collected, but would most likely consist of strength, grain size distribution, plasticity, and/or moisture content. If geophysical surveys are performed, they will consist of seismic refraction and/or MASW surveys which involve measuring seismic velocity which is then used to evaluate thickness of sediments, depth to rock, hardness of rock, and excavation characteristics of rock (i.e., rippability).

ESA will prepare the Final Basis of Design to summarize existing conditions background review, opportunities and constraints, surveys, hydraulic modeling, off-channel habitat design assessment of biology and geomorphology, large wood and constructed riffle design, engineering, and assessment, and geotechnical review.

ESA will present a Draft Basis of Design Report with the Intermediate (65%) Design Plans to support review and input from project stakeholders and resource agencies. ESA anticipates SPAWN will solicit and consolidate all stakeholder and resource agency comments. ESA will provide a Final Basis of Design Report with the Final (100%) Design Plans, that will include input from SPAWN and project stakeholders. SPAWN will utilize a Field Vehicle for use traveling to the sites and assisting the survey crews with access to the project locations. This task will also use field cameras to deploy at the design locations to observe how storm flows and winter base flows engage with the existing conditions topography. These cameras will also be used to evaluate the accuracy of the hydraulic modeling.

ESA will submit Draft (90%) and later, Final (100%) Design documents that will incorporate comments and revisions to the Draft (90%) Design documents. The progression of the design documents represents the final set of design documents sufficient to support bidding and construction.

Deliverables:

Geomorphic Assessment

- Proposed restoration site locations figures
- Geomorphic Conditions Chapter of Basis of Design Report

Conceptual (30%) Design Plans

- Conceptual 30% Design Plans
- Study Area existing conditions topographic map (CAD files)
- Existing conditions base map (CAD files)

Intermediate (65%)

- Intermediate 65% Design Drawings
- Revegetation Plan
- Topographic Base Map (CAD Files)
- Arborist Report
- Hydraulic Modeling Summary Memo
- Draft Basis of Design Report

Final (100%) Designs and Construction Documents

- Final Basis of Design Report
- Final (100%) Design Plans
- Construction Specifications Packet

Timelines:

Geomorphic Assessment
Start Date 10/01/2023
End Date 11/01/2023

Task 6 Conceptual (30%) Design Plans
Start Date 12/12/2023
End Date 03/01/2024

Task 7 Intermediate (65%)
Start Date 04/01/2024
End Date 03/01/2025

Task 8 Final (100%) Designs and Construction Documents
Start Date 03/01/2025
End Date 07/01/2025

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).

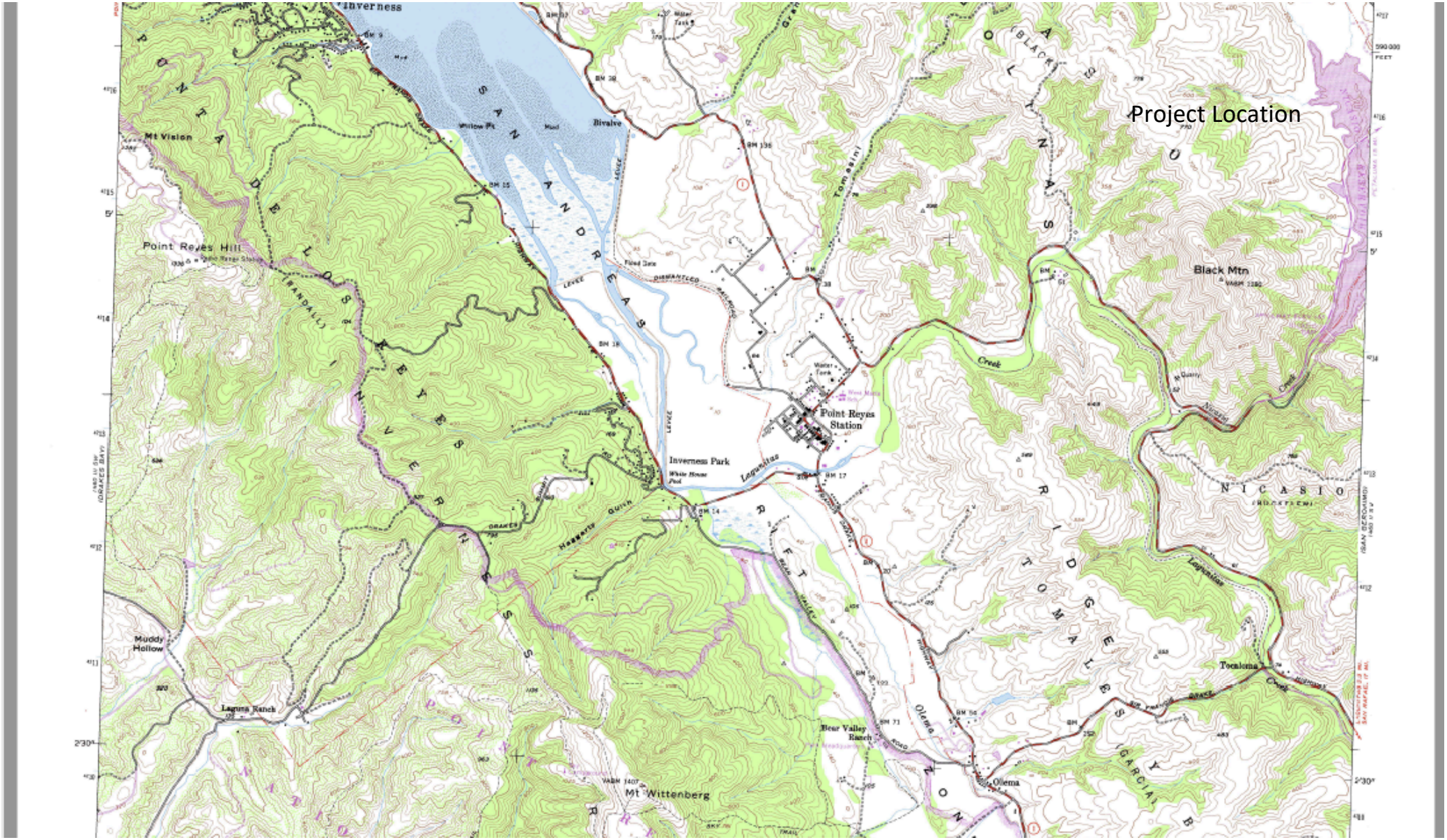
No equipment maintenance will be performed within or near the stream channel where pollutants (such as petroleum products) from the equipment may enter the channel via rainfall or runoff. Appropriate spill containment devices (e.g., oil absorbent pads, tarpaulins) will be used when refueling equipment. 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.
Figure 1

Applicant: Salmon Protection and Watershed Network
Topographic Map



Applicant: Salmon Protection and Watershed Network

Project Watershed & County Map


Project Reach
Legend
Major Roads
Public Lands
Marin Municipal Water District
Marin County Open Space
State Lands
Federal Lands
Tomales Bay
Highway 1
M1
M2
M3
T1
T2
Tocaloma
Devil's Gulch
Lagunitas Creek
Olema Creek
San Geronimo Creek
Dixon Weir
Shafter Bridge
Peters Dam
N
S
W
E
Lagunitas Creek Watershed
Pacific Ocean
San Francisco Bay
Miles

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE **RareFind**

Query Summary:
Quad IS (Inverness (3812217) OR Drakes Bay (3812218) OR San Geronimo (3812216) OR Tomales (3812228) OR Point Reyes NE (3812227) OR Petaluma (3812226) OR Bolinas (3712286) OR Double Point (3712287))

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	14	None	None	G4G5T2	S2	1B.1	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal dunes
Adela oplerella	Opler's longhorn moth	Insects	IILEE0G040	14	1	None	None	G2	S2	null	null	Ultramafic, Valley & foothill grassland
Agelaius tricolor	tricolored blackbird	Birds	ABPBXB0020	955	5	None	Threatened	G1G2	S1S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Marsh & swamp, Swamp, Wetland
Agrostis blasdalei	Blasdale's bent grass	Monocots	PMPOA04060	62	19	None	None	G2G3	S2	1B.2	BLM_S-Sensitive, SB_UCSC-UC Santa Cruz	Coastal bluff scrub, Coastal dunes, Coastal prairie
Allium peninsulare var. franciscanum	Franciscan onion	Monocots	PMLIL021R1	25	1	None	None	G5T2	S2	1B.2	null	Cismontane woodland, Ultramafic, Valley & foothill grassland
Alopecurus aequalis var. sonomensis	Sonoma alopecurus	Monocots	PMPOA07012	21	8	Endangered	None	G5T1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Freshwater marsh, Marsh & swamp, Riparian scrub, Wetland
Ambystoma californiense pop. 3	California tiger salamander - Sonoma County DPS	Amphibians	AAAAA01183	82	2	Endangered	Threatened	G2G3T2	S2	null	CDFW_WL-Watch List, IUCN_VU-Vulnerable	Cismontane woodland, Meadow & seep, Riparian woodland, Valley & foothill grassland, Vernal pool, Wetland
Amorpha californica var. napensis	Napa false indigo	Dicots	PDFAB08012	76	8	None	None	G4T2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, Chaparral, Cismontane woodland
Amsinckia lunaris	bent-flowered fiddleneck	Dicots	PDBOR01070	93	7	None	None	G3	S3	1B.2	BLM_S-Sensitive, SB_UCBG-UC Botanical Garden at Berkeley, SB_UCSC-UC Santa Cruz	Cismontane woodland, Coastal bluff scrub, Valley & foothill grassland
Antrozous pallidus	pallid bat	Mammals	AMACC10010	420	8	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
Aplodontia rufa phaea	Point Reyes mountain beaver	Mammals	AMAFA01012	9	9	None	None	G5T2	S2	null	CDFW_SSC-Species of Special	Coastal scrub, Meadow & seep

											Concern, IUCN_LC-Least Concern	
Arctostaphylos montana ssp. montana	Mt. Tamalpais manzanita	Dicots	PDERI040J5	15	8	None	None	G3T3	S3	1B.3	SB_UCBG-UC Botanical Garden at Berkeley	Chaparral, Ultramafic, Valley & foothill grassland
Arctostaphylos virgata	Marin manzanita	Dicots	PDERI041K0	32	24	None	None	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_USDA-US Dept of Agriculture	Broadleaved upland forest, Chaparral, Closed-cone coniferous forest, North coast coniferous forest
Ardea alba	great egret	Birds	ABNGA04040	43	4	None	None	G5	S4	null	CDF_S-Sensitive, IUCN_LC-Least Concern	Brackish marsh, Estuary, Freshwater marsh, Marsh & swamp, Riparian forest, Wetland
Ardea herodias	great blue heron	Birds	ABNGA04010	156	9	None	None	G5	S4	null	CDF_S-Sensitive, IUCN_LC-Least Concern	Brackish marsh, Estuary, Freshwater marsh, Marsh & swamp, Riparian forest, Wetland
Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	Dicots	PDFAB0F7B2	24	11	None	None	G2T2	S2	1B.2	BLM_S-Sensitive, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley	Coastal dunes, Coastal scrub, Marsh & swamp, Wetland
Astragalus tener var. tener	alkali milk-vetch	Dicots	PDFAB0F8R1	65	1	None	None	G2T1	S1	1B.2	null	Alkali playa, Valley & foothill grassland, Vernal pool, Wetland
Athene cunicularia	burrowing owl	Birds	ABNSB10010	2011	3	None	None	G4	S3	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Coastal prairie, Coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, Valley & foothill grassland
Blennosperma nanum var. robustum	Point Reyes blennosperma	Dicots	PDAST1A022	13	12	None	Rare	G4T2	S2	1B.2	null	Coastal prairie, Coastal scrub
Bombus caliginosus	obscure bumble bee	Insects	IIHYM24380	181	16	None	None	G2G3	S1S2	null	IUCN_VU-Vulnerable	null
Bombus occidentalis	western bumble bee	Insects	IIHYM24250	306	10	None	None	G2G3	S1	null	USFS_S-Sensitive	null
Buteo swainsoni	Swainson's hawk	Birds	ABNKC19070	2548	1	None	Threatened	G5	S3	null	BLM_S-Sensitive, IUCN_LC-Least Concern	Great Basin grassland, Riparian forest, Riparian woodland, Valley & foothill grassland
Caecidotea tomalensis	Tomales isopod	Crustaceans	ICMAL01220	6	2	None	None	G2	S2S3	null	null	Aquatic, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters
Calamagrostis crassiglumis	Thurber's reed grass	Monocots	PMPOA17070	15	6	None	None	G3Q	S2	2B.1	null	Coastal scrub, Freshwater marsh, Marsh & swamp, Wetland
Callophrys mossii marinensis	Marin elfin butterfly	Insects	IILEPE2207	4	3	None	None	G4T1	S1	null	null	Redwood
Calystegia purpurata ssp. saxicola	coastal bluff morning-glory	Dicots	PDCON040D2	42	8	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	25	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
Cardamine angulata	seaside bittercress	Dicots	PDBRA0K010	38	1	None	None	G4G5	S3	2B.1	null	Lower montane coniferous forest, North coast coniferous forest, Wetland
Carex leptalea	bristle-stalked sedge	Monocots	PMCYP037E0	8	1	None	None	G5	S1	2B.2	IUCN_LC-Least Concern	Bog & fen, Freshwater marsh, Marsh & swamp, Meadow & seep, Wetland
Carex lyngbyei	Lyngbye's sedge	Monocots	PMCYP037Y0	37	4	None	None	G5	S3	2B.2	IUCN_LC-Least Concern	Marsh & swamp, Wetland
Castilleja affinis var. neglecta	Tiburon paintbrush	Dicots	PDSCR0D013	7	1	Endangered	Threatened	G4G5T1T2	S1S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley	Ultramafic, Valley & foothill grassland
Castilleja ambigua var. humboldtiensis	Humboldt Bay owl's-clover	Dicots	PDSCR0D402	31	4	None	None	G4T2	S2	1B.2	BLM_S-Sensitive	Marsh & swamp, Salt marsh, Wetland
Castilleja leschkeana	Point Reyes paintbrush	Dicots	PDSCR0D1R0	2	2	None	None	GX	SX	1A	null	Marsh & swamp, Wetland
Ceanothus decornutus	Nicasio ceanothus	Dicots	PDRHA04440	2	2	None	None	G1	S1	1B.2	null	Chaparral
Ceanothus gloriosus var. porrectus	Mt. Vision ceanothus	Dicots	PDRHA040F7	18	18	None	None	G4T2	S2	1B.3	null	Closed-cone coniferous forest, Coastal prairie, Coastal scrub, Valley & foothill grassland
Ceanothus masonii	Mason's ceanothus	Dicots	PDRHA04200	8	8	None	Rare	G1	S1	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_USDA-US Dept of Agriculture	Chaparral, Ultramafic
Central Dune Scrub	Central Dune Scrub	Dune	CTT21320CA	24	5	None	None	G2	S2.2	null	null	Coastal dunes
Charadrius nivosus nivosus	western snowy plover	Birds	ABNNB03031	138	5	Threatened	None	G3T3	S2	null	CDFW_SSC-Species of Special Concern, NABCI_RWL-Red Watch List	Great Basin standing waters, Sand shore, Wetland
Chloropyron maritimum ssp. palustre	Point Reyes salty bird's-beak	Dicots	PDSCR0J0C3	80	36	None	None	G4?T2	S2	1B.2	BLM_S-Sensitive	Marsh & swamp, Salt marsh, Wetland
Chorizanthe cuspidata var. cuspidata	San Francisco Bay spineflower	Dicots	PDPGN04081	17	1	None	None	G2T1	S1	1B.2	null	Coastal bluff scrub, Coastal dunes, Coastal prairie, Coastal scrub
Chorizanthe cuspidata var. villosa	woolly-headed spineflower	Dicots	PDPGN04082	17	12	None	None	G2T2	S2	1B.2	null	Coastal dunes, Coastal prairie, Coastal scrub
Chorizanthe valida	Sonoma spineflower	Dicots	PDPGN040V0	6	4	Endangered	Endangered	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Coastal prairie
Cicindela hirticollis gravida	sandy beach tiger beetle	Insects	IICOL02101	34	3	None	None	G5T2	S2	null	null	Coastal dunes
Cicuta maculata var. bolanderi	Bolander's water-hemlock	Dicots	PDAPI0M051	17	6	None	None	G5T4T5	S2?	2B.1	null	Marsh & swamp, Salt marsh, Wetland
Circus hudsonius	northern harrier	Birds	ABNKC11011	54	1	None	None	G5	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern	Coastal scrub, Great Basin grassland, Marsh & swamp, Riparian scrub, Valley & foothill grassland, Wetland
Cirsium andrewsii	Franciscan thistle	Dicots	PDAST2E050	31	13	None	None	G3	S3	1B.2	null	Broadleaved upland forest, Coastal bluff scrub, Coastal

												prairie, Coastal scrub, Ultramafic
Cirsium hydrophilum var. vaseyi	Mt. Tamalpais thistle	Dicots	PDAST2E1G2	14	7	None	None	G2T1	S1	1B.2	null	Broadleaved upland forest, Chaparral, Meadow & seep, Ultramafic, Wetland
Clarkia concinna ssp. raichei	Raiche's red ribbons	Dicots	PDONA050A2	1	1	None	None	G5?T1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley	Coastal bluff scrub
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	1	None	None	G3	S2.1	null	null	Marsh & swamp, Wetland
Coelus globosus	globose dune beetle	Insects	IICOL4A010	50	2	None	None	G1G2	S1S2	null	IUCN_VU-Vulnerable	Coastal dunes
Collinsia corymbosa	round-headed Chinese-houses	Dicots	PDSCR0H060	13	1	None	None	G1	S1	1B.2	null	Coastal dunes
Corynorhinus townsendii	Townsend's big-eared bat	Mammals	AMACC08010	635	7	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
Coturnicops noveboracensis	yellow rail	Birds	ABNME01010	45	1	None	None	G4	S1S2	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, NABCI_RWL-Red Watch List, USFS_S-Sensitive, USFWS_BCC-Birds of Conservation Concern	Freshwater marsh, Meadow & seep
Cypseloides niger	black swift	Birds	ABNUA01010	46	2	None	None	G4	S2	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, NABCI_YWL-Yellow Watch List, USFWS_BCC-Birds of Conservation Concern	null
Danaus plexippus plexippus pop. 1	monarch - California overwintering population	Insects	IILEPP2012	383	14	Candidate	None	G4T2T3	S2S3	null	IUCN_EN-Endangered, USFS_S-Sensitive	Closed-cone coniferous forest
Delphinium bakeri	Baker's larkspur	Dicots	PDRAN0B050	6	5	Endangered	Endangered	G1	S1	1B.1	SB_UCBG-UC Botanical Garden at Berkeley	Broadleaved upland forest, Coastal scrub, Valley & foothill grassland
Delphinium luteum	golden larkspur	Dicots	PDRAN0B0Z0	11	3	Endangered	Rare	G1	S1	1B.1	SB_UCBG-UC Botanical Garden at Berkeley	Chaparral, Coastal prairie, Coastal scrub
Dicamptodon ensatus	California giant salamander	Amphibians	AAAAH01020	234	22	None	None	G2G3	S2S3	null	CDFW_SSC-Species of Special Concern, IUCN_NT-Near Threatened	Aquatic, Meadow & seep, North coast coniferous forest, Riparian forest

Dirca occidentalis	western leatherwood	Dicots	PDTHY03010	90	7	None	None	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, Chaparral, Cismontane woodland, Closed-cone coniferous forest, North coast coniferous forest, Riparian forest, Riparian woodland
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	1404	14	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
Entosthodon kochii	Koch's cord moss	Bryophytes	NBMUS2P050	4	1	None	None	G1	S1	1B.3	BLM_S-Sensitive	Cismontane woodland
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	1	None	None	G2	S2	1B.2	SB_UCBG-UC Botanical Garden at Berkeley	Coastal bluff scrub, Coastal prairie
Eriogonum luteolum var. caninum	Tiburon buckwheat	Dicots	PDPGN083S1	26	6	None	None	G5T2	S2	1B.2	null	Chaparral, Cismontane woodland, Coastal prairie, Ultramafic, Valley & foothill grassland
Erysimum concinnum	bluff wallflower	Dicots	PDBRA160E3	30	10	None	None	G3	S2	1B.2	BLM_S-Sensitive	Coastal bluff scrub, Coastal dunes, Coastal prairie
Eucyclogobius newberryi	tidewater goby	Fish	AFCQN04010	127	2	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
Falco peregrinus anatum	American peregrine falcon	Birds	ABNKD06071	73	2	Delisted	Delisted	G4T4	S3S4	null	CDF_S-Sensitive, CDFW_FP-Fully Protected	null
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	Marin checker	Monocots	PMLIL0V0P1	32	31	None	None	G5T2	S2	1B.1	null	Coastal bluff

lanceolata var. tristulis	lily											scrub, Coastal prairie, Coastal scrub, Ultramafic
Fritillaria liliacea	fragrant fritillary	Monocots	PMLIL0V0C0	82	15	None	None	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, USFS_S-Sensitive	Cismontane woodland, Coastal prairie, Coastal scrub, Ultramafic, Valley & foothill grassland
Geothlypis trichas sinuosa	saltmarsh common yellowthroat	Birds	ABPBX1201A	112	14	None	None	G5T3	S3	null	CDFW_SSC-Species of Special Concern, USFWS_BCC-Birds of Conservation Concern	Marsh & swamp
Gilia capitata ssp. chamissonis	blue coast gilia	Dicots	PDPLM040B3	37	19	None	None	G5T2	S2	1B.1	SB_UCBG-UC Botanical Garden at Berkeley	Coastal dunes, Coastal scrub
Gilia capitata ssp. tomentosa	woolly-headed gilia	Dicots	PDPLM040B9	18	7	None	None	G5T2	S2	1B.1	null	Coastal bluff scrub, Riparian woodland, Ultramafic, Valley & foothill grassland
Gilia millefoliata	dark-eyed gilia	Dicots	PDPLM04130	54	13	None	None	G2	S2	1B.2	BLM_S-Sensitive	Coastal dunes
Helminthoglypta nickliniana awania	Peninsula coast range shoulderband	Mollusks	IMGASC2361	1	1	None	None	G3T1	S1	null	IUCN_DD-Data Deficient	Coastal prairie, Coastal scrub
Helminthoglypta stiversiana williamsi	Williams' bronze shoulderband	Mollusks	IMGASC2034	1	1	None	None	G1G2T1	S1	null	IUCN_DD-Data Deficient	null
Hemizonia congesta ssp. congesta	congested-headed hayfield tarplant	Dicots	PDAST4R065	52	10	None	None	G5T2	S2	1B.2	SB_UCBG-UC Botanical Garden at Berkeley	Valley & foothill grassland
Hesperevax sparsiflora var. brevifolia	short-leaved evax	Dicots	PDASTE5011	72	10	None	None	G4T3	S3	1B.2	BLM_S-Sensitive	Coastal bluff scrub, Coastal dunes, Coastal prairie
Hesperoleucus venustus subditus	southern coastal roach	Fish	AFCJB19032	10	4	None	None	GNRT2	S2	null	CDFW_SSC-Species of Special Concern	Aquatic, Klamath/North coast flowing waters, Sacramento/San Joaquin flowing waters, South coast flowing waters
Hesperolinon congestum	Marin western flax	Dicots	PDLIN01060	27	6	Threatened	Threatened	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley	Chaparral, Ultramafic, Valley & foothill grassland
Heteranthera dubia	water star-grass	Monocots	PMPON03010	9	1	None	None	G5	S2	2B.2	IUCN_LC-Least Concern	Marsh & swamp
Horkelia cuneata var. sericea	Kellogg's horkelia	Dicots	PDROS0W043	58	1	None	None	G4T1?	S1?	1B.1	SB_UCSC-UC Santa Cruz, USFS_S-Sensitive	Chaparral, Closed-cone coniferous forest, Coastal dunes, Coastal scrub
Horkelia marinensis	Point Reyes horkelia	Dicots	PDROS0W0B0	36	10	None	None	G2	S2	1B.2	null	Coastal dunes, Coastal prairie, Coastal scrub
Horkelia tenuiloba	thin-lobed horkelia	Dicots	PDROS0W0E0	27	1	None	None	G2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, Chaparral, Valley & foothill grassland
Hydrobates homochroa	ashy storm-petrel	Birds	ABNDC04030	21	1	None	None	G2	S2	null	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered, NABCI_RWL-Red Watch List, USFWS_BCC-Birds of Conservation Concern	Protected deepwater coastal communities
Hydrochara rickseckeri	Ricksecker's water	Insects	IICOL5V010	13	1	None	None	G2?	S2?	null	null	Aquatic, Sacramento/San Joaquin flowing

	scavenger beetle											waters, Sacramento/San Joaquin standing waters
Hypogymnia schizidiata	island tube lichen	Lichens	NLT0032640	10	1	None	None	G2G3	S2	1B.3	null	Chaparral, Closed-cone coniferous forest
Icaricia icarioides parapheres	Point Reyes blue butterfly	Insects	IILEPG801D	2	2	None	None	G5T1T2	S1S2	null	null	Coastal dunes
Ischnura gemina	San Francisco forktail damselfly	Insects	IIODO72010	7	3	None	None	G2	S2	null	IUCN_VU-Vulnerable	null
Lasionycteris noctivagans	silver-haired bat	Mammals	AMACC02010	139	2	None	None	G3G4	S3S4	null	IUCN_LC-Least Concern, WBWG_M-Medium Priority	Lower montane coniferous forest, Oldgrowth, Riparian forest
Lasiurus blossevillii	western red bat	Mammals	AMACC05060	128	1	None	None	G4	S3	null	CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, WBWG_H-High Priority	Cismontane woodland, Lower montane coniferous forest, Riparian forest, Riparian woodland
Lasiurus cinereus	hoary bat	Mammals	AMACC05030	238	6	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. bakeri	Baker's goldfields	Dicots	PDAST5L0C4	19	2	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	17	None	None	G3T2	S2	1B.2	BLM_S-Sensitive	Coastal bluff scrub, Coastal dunes, Coastal scrub
Laterallus jamaicensis coturniculus	California black rail	Birds	ABNME03041	303	13	None	Threatened	G3T1	S1	null	BLM_S-Sensitive, CDFW_FP-Fully Protected, IUCN_NT-Near Threatened, NABCI_RWL-Red Watch List	Brackish marsh, Freshwater marsh, Marsh & swamp, Salt marsh, Wetland
Layia carnosa	beach layia	Dicots	PDAST5N010	25	6	Threatened	Endangered	G2	S2	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_SBBG-Santa Barbara Botanic Garden	Coastal dunes, Coastal scrub
Leptosiphon rosaceus	rose leptosiphon	Dicots	PDPLM09180	31	24	None	None	G1	S1	1B.1	null	Coastal bluff scrub
Lessingia micradenia var. micradenia	Tamalpais lessingia	Dicots	PDAST5S063	9	5	None	None	G2T2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_USDA-US Dept of Agriculture	Chaparral, Ultramafic, Valley & foothill grassland
Lichnanthe ursina	bumblebee scarab beetle	Insects	IICOL67020	8	4	None	None	G2	S2	null	null	Coastal dunes
Lilaeopsis masonii	Mason's lilaeopsis	Dicots	PDAPI19030	198	1	None	Rare	G2	S2	1B.1	null	Freshwater marsh, Marsh & swamp, Riparian scrub, Wetland
Lilium maritimum	coast lily	Monocots	PMLIL1A0C0	84	3	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
Lilium pardalinum ssp. pitkinense	Pitkin Marsh lily	Monocots	PMLIL1A0H3	4	1	Endangered	Endangered	G5T1	S1	1B.1	SB_BerrySB-Berry Seed Bank, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_USDA-	Cismontane woodland, Freshwater marsh, Marsh & swamp,

											US Dept of Agriculture	Meadow & seep, Wetland
Limnanthes douglasii ssp. sulphurea	Point Reyes meadowfoam	Dicots	PDLIM02038	12	11	None	Endangered	G4T1	S1	1B.2	null	Cismontane woodland, Coastal prairie, Freshwater marsh, Marsh & swamp, Vernal pool, Wetland
Linderiella occidentalis	California linderiella	Crustaceans	ICBRA06010	508	1	None	None	G2G3	S2S3	null	IUCN_NT-Near Threatened	Vernal pool
Lupinus tidestromii	Tidestrom's lupine	Dicots	PDFAB2B3Y0	21	12	Endangered	Endangered	G1	S1	1B.1	null	Coastal dunes
Melospiza melodia samuelis	San Pablo song sparrow	Birds	ABPBXA301W	41	2	None	None	G5T2	S2	null	CDFW_SSC-Species of Special Concern, USFWS_BCC-Birds of Conservation Concern	Salt marsh
Microseris paludosa	marsh microseris	Dicots	PDAST6E0D0	38	11	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
Mielichhoferia elongata	elongate copper moss	Bryophytes	NBMUS4Q022	20	1	None	None	G5	S3S4	4.3	USFS_S-Sensitive	Cismontane woodland
Monardella sinuata ssp. nigrescens	northern curly-leaved monardella	Dicots	PDLAM18162	25	12	None	None	G3T2	S2	1B.2	SB_SBBG-Santa Barbara Botanic Garden	Chaparral, Coastal dunes, Coastal scrub, Lower montane coniferous forest
Navarretia rosulata	Marin County navarretia	Dicots	PDPLM0C0Z0	15	7	None	None	G2	S2	1B.2	BLM_S-Sensitive	Chaparral, Closed-cone coniferous forest, Ultramafic
Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	Marsh	CTT52110CA	53	2	None	None	G3	S3.2	null	null	Marsh & swamp, Wetland
Northern Maritime Chaparral	Northern Maritime Chaparral	Scrub	CTT37C10CA	17	1	None	None	G1	S1.2	null	null	Chaparral
Northern Vernal Pool	Northern Vernal Pool	Herbaceous	CTT44100CA	20	1	None	None	G2	S2.1	null	null	Vernal pool, Wetland
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. 8	steelhead - central California coast DPS	Fish	AFCHA0209G	44	2	Threatened	None	G5T2T3Q	S2S3	null	AFS_TH-Threatened	Aquatic, Sacramento/San Joaquin flowing waters
Pandion haliaetus	osprey	Birds	ABNKC01010	504	1	None	None	G5	S4	null	CDF_S-Sensitive, CDFW_WL-Watch List, IUCN_LC-Least Concern	Riparian forest
Phacelia insularis var. continentis	North Coast phacelia	Dicots	PDHYD0C2B1	15	6	None	None	G2T2	S2	1B.2	SB_UCBG-UC Botanical Garden at Berkeley	Coastal bluff scrub, Coastal dunes
Piperia elegans ssp. decurtata	Point Reyes rein orchid	Monocots	PMORC1X011	3	3	None	None	G4T1	S1	1B.1	null	Coastal bluff scrub, Coastal prairie
Plagiobothrys mollis var. vestitus	Petaluma popcornflower	Dicots	PDBOR0V0Q2	1	1	None	None	G4?TX	SX	1A	null	Marsh & swamp, Salt marsh, Valley & foothill grassland, Wetland
Pleuropogon hooverianus	North Coast semaphore grass	Monocots	PMPOA4Y070	27	4	None	Threatened	G2	S2	1B.1	SB_BerrySB-Berry Seed Bank, SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Broadleaved upland forest, Meadow & seep, North coast coniferous forest, Wetland
Pogonichthys macrolepidotus	Sacramento splittail	Fish	AFCJB34020	15	1	None	None	G3	S3	null	AFS_VU-Vulnerable, CDFW_SSC-Species of Special Concern, IUCN_EN-Endangered	Aquatic, Estuary, Freshwater marsh, Sacramento/San Joaquin flowing waters
Polygonum marinense	Marin knotweed	Dicots	PDPGN0L1C0	32	21	None	None	G2Q	S2	3.1	null	Brackish marsh, Marsh & swamp,

												Salt marsh, Wetland
Pomatiopsis binneyi	robust walker	Mollusks	IMGASJ9010	2	1	None	None	G1	S1	null	null	null
Pomatiopsis californica	Pacific walker	Mollusks	IMGASJ9020	4	1	None	None	G1	S1	null	null	null
Quercus parvula var. tamalpaisensis	Tamalpais oak	Dicots	PDFAG051Q3	19	5	None	None	G4T2	S2	1B.3	null	Cismontane woodland, Lower montane coniferous forest
Rallus obsoletus obsoletus	California Ridgway's rail	Birds	ABNME05011	99	2	Endangered	Endangered	G3T1	S1	null	CDFW_FP-Fully Protected, NABCI_RWL-Red Watch List	Brackish marsh, Marsh & swamp, Salt marsh, Wetland
Rana boylii	foothill yellow-legged frog	Amphibians	AAABH01050	2478	24	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	156	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
Rhynchospora californica	California beaked-rush	Monocots	PMCYP0N060	9	1	None	None	G1	S1	1B.1	null	Freshwater marsh, Lower montane coniferous forest, Marsh & swamp, Meadow & seep, Wetland
Sagittaria sanfordii	Sanford's arrowhead	Monocots	PMALI040Q0	143	1	None	None	G3	S3	1B.2	BLM_S-Sensitive	Marsh & swamp, Wetland
Serpentine Bunchgrass	Serpentine Bunchgrass	Herbaceous	CTT42130CA	22	1	None	None	G2	S2.2	null	null	Valley & foothill grassland
Setophaga petechia	yellow warbler	Birds	ABPBX03010	78	1	None	None	G5	S3S4	null	CDFW_SSC-Species of Special Concern	Riparian forest, Riparian scrub, Riparian woodland
Sidalcea calycosa ssp. rhizomata	Point Reyes checkerbloom	Dicots	PDMAL11012	34	21	None	None	G5T2	S2	1B.2	null	Freshwater marsh, Marsh & swamp, Wetland
Sidalcea hickmanii ssp. viridis	Marin checkerbloom	Dicots	PDMAL110A4	1	1	None	None	G3TH	SH	1B.1	null	Chaparral, Ultramafic
Sidalcea malviflora ssp. purpurea	purple-stemmed checkerbloom	Dicots	PDMAL110FL	19	2	None	None	G5T1	S1	1B.2	BLM_S-Sensitive	Broadleaved upland forest, Coastal prairie
Silene scouleri ssp. scouleri	Scouler's catchfly	Dicots	PDCAR0U1MC	23	3	None	None	G5T4T5	S2S3	2B.2	null	Coastal bluff scrub, Coastal prairie, Valley & foothill grassland
Speyeria zerene myrtleae	Myrtle's silverspot butterfly	Insects	IILEPJ608C	17	4	Endangered	None	G5T1	S1	null	null	Coastal dunes
Spirinchus thaleichthys	longfin smelt	Fish	AFCHB03010	46	2	Candidate	Threatened	G5	S1	null	null	Aquatic, Estuary
Stebbinsoseris	Santa Cruz	Dicots	PDAST6E050	19	1	None	None	G2	S2	1B.2	SB_CalBG/RSABG-	Broadleaved

decipiens	microseris										California/Rancho Santa Ana Botanic Garden, SB_UCSC-UC Santa Cruz	upland forest, Chaparral, Closed-cone coniferous forest, Coastal prairie, Coastal scrub, Ultramafic, Valley & foothill grassland
Streptanthus anomalus	Mount Burdell jewelflower	Dicots	PDBRA2G520	2	1	None	None	G1	S1	1B.1	null	Cismontane woodland, Ultramafic
Streptanthus batrachopus	Tamalpais jewelflower	Dicots	PDBRA2G050	8	3	None	None	G2	S2	1B.3	SB_UCSC-UC Santa Cruz	Chaparral, Closed-cone coniferous forest, Ultramafic
Streptanthus glandulosus ssp. pulchellus	Mt. Tamalpais bristly jewelflower	Dicots	PDBRA2G0J2	24	16	None	None	G4T2	S2	1B.2	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	Chaparral, Ultramafic, Valley & foothill grassland
Stygobromus hyporheicus	Hypoheic amphipod	Crustaceans	ICMAL05D80	1	1	None	None	G1	S1	null	null	Aquatic
Syncaris pacifica	California freshwater shrimp	Crustaceans	ICMAL27010	20	3	Endangered	Endangered	G2	S2	null	IUCN_EN-Endangered	Aquatic, Sacramento/San Joaquin flowing waters
Taricha rivularis	red-bellied newt	Amphibians	AAAAF02020	136	1	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	6	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
Thamnolia vermicularis	whiteworm lichen	Lichens	NLTES43860	1	1	None	None	G5	S1	2B.1	null	Chaparral, Valley & foothill grassland
Trachusa gummifera	San Francisco Bay Area leaf-cutter bee	Insects	IIHYM80010	3	1	None	None	G1	S1	null	null	null
Trifolium amoenum	two-fork clover	Dicots	PDFAB40040	26	5	Endangered	None	G1	S1	1B.1	SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden, SB_UCBG-UC Botanical Garden at Berkeley, SB_USDA-US Dept of Agriculture	Coastal bluff scrub, Ultramafic, Valley & foothill grassland
Trifolium polyodon	Pacific Grove clover	Dicots	PDFAB402H0	21	2	None	Rare	G1	S1	1B.1	BLM_S-Sensitive, SB_USDA-US Dept of Agriculture	Closed-cone coniferous forest, Coastal prairie, Meadow & seep, Valley & foothill grassland, Wetland
Triphysaria floribunda	San Francisco owl's-clover	Dicots	PDSCR2T010	50	32	None	None	G2?	S2?	1B.2	null	Coastal prairie, Coastal scrub, Ultramafic, Valley & foothill grassland
Triquetrella californica	coastal triquetrella	Bryophytes	NBMUS7S010	13	1	None	None	G2	S2	1B.2	USFS_S-Sensitive	Coastal bluff scrub, Coastal scrub
Vespericola marinensis	Marin hesperian	Mollusks	IMGASA4140	23	18	None	None	G2	S2	null	null	Chaparral, Meadow & seep, North coast coniferous forest, Riparian woodland
Zapus trinotatus orarius	Point Reyes jumping mouse	Mammals	AMAFH01031	5	3	None	None	G5T1T3Q	S1S3	null	CDFW_SSC-Species of Special Concern	Coastal scrub, Marsh & swamp, Meadow & seep, Valley & foothill grassland