BIOLOGICAL RESOURCES ASSESSMENT
VARTNAW LANDING
5300 REDWOOD HIGHWAY
149 MCNEAR AVE
PETALUMA, SONOMA COUNTY, CALIFORNIA
APN 019-300-019

Prepared for:

Mr. Geoffrey McComic
1500 3rd Street
Suite B1
Napa, California 94559

Prepared by:

Ms. Lucy Macmillan, M.S.
Environmental Scientist
108 Rising Road
Mill Valley, California 94941
(415) 389-9199

February 2021

This assessment is based on information available at the time of the study and on-site conditions that were observed on the date of the site visits referenced in the report. In cases where little information is known about species occurrences and habitat requirements, the species evaluation was based on best professional judgment of the biologist with experience working with the species and habitats. For some threatened and endangered species, a site survey at the level conducted for this report may not be sufficient to determine presence or absence of a species to the specifications of regulatory agencies.

EXECUTIVE SUMMARY

This report presents the results of a biological resources assessment conducted for approximately 4 acres located at 149 McNear Avenue in Petaluma, Sonoma County, California. The project site is south of Petaluma Hill Boulevard South, east of McNear Avenue, and north of Nadine Lane approximately 1 mile southeast of downtown Petaluma. A single-family residence is located at 55 McNear Avenue and a second residence is located just south of 1400 Petaluma Boulevard South. There is also an abandoned farmhouse south of the single-family residence at 55 McNear Ave and a dilapidated barn located in the south-central interior of the property. A dirt road, no longer actively used, provides access to the site from the southwest corner of the property off of McNear Avenue. Surrounding land uses are single-family residences to the north, east and south and the Petaluma Veterans Building to the west.

The purpose of the biological resource assessment is to identify special-status plant and wildlife species and sensitive habitats (including wetlands and creeks) that have the potential to occur on or in the vicinity of the study area and to determine if the proposed vineyard development would affect these resources. Recommendations are provided to minimize or avoid impacts to biological resources.

Based on background data collected and site visits conducted in June 2019 and on February 4, 2021, it was determined that the project site provides potential habitat for nesting birds and special-status bats. No potential wetlands were identified on the site. The site provides marginal habitat for special-status plants associated with disturbed grassland habitats.

1.0 INTRODUCTION

This report presents the results of a biological resources assessment conducted for approximately 4 acres located at 149 McNear Avenue in Petaluma, Sonoma County, California. The project site is south of Petaluma Hill Boulevard South, east of McNear Avenue, and north of Nadine Lane approximately 1 mile southeast of downtown Petaluma. A single-family residence is located at 55 McNear Avenue and a second residence is located just south of 1400 Petaluma Boulevard South. There is also an abandoned farmhouse south of the single-family residence at 55 McNear Ave and a dilapidated barn located in the south-central interior of the property. A dirt road, no longer actively used, provides access to the site from the southwest corner of the property off of McNear Avenue. Surrounding land uses are single-family residences to the north, east and south and the Petaluma Veterans Building to the west.

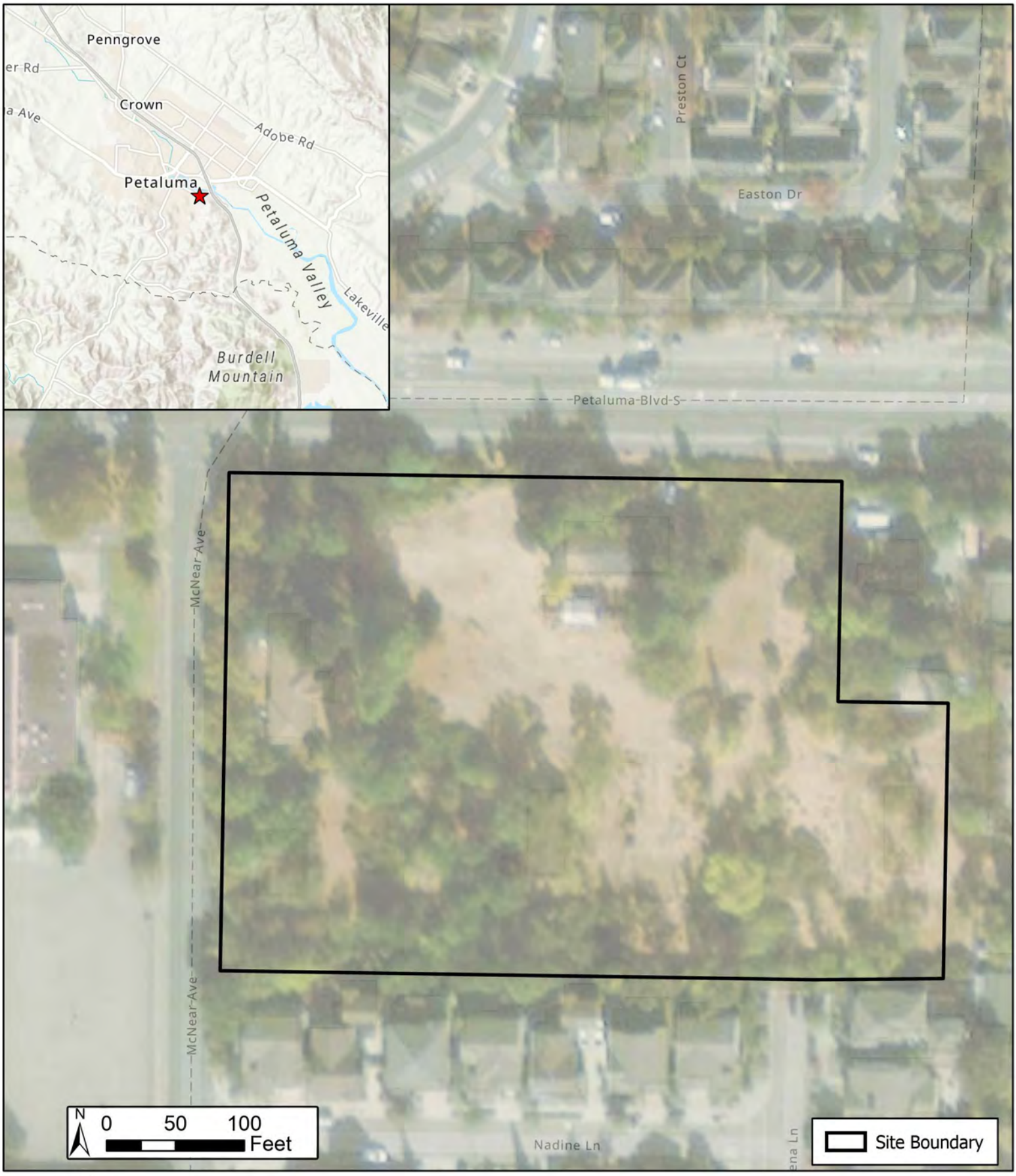
The purpose of the biological resource assessment is to identify special-status plant and wildlife species and sensitive habitats (including wetlands and creeks) that have the potential to occur on or in the vicinity of the study area and to determine if the proposed vineyard development would affect these resources. Recommendations are provided to minimize or avoid impacts to biological resources.

Based on background data collected and site visits conducted in June 2019 and on February 4, 2021, it was determined that the project site provides potential habitat for nesting birds and special-status bats. No potential wetlands were identified on the site. The site provides marginal habitat for special-status plants associated with grassland habitats.

Site Description

Habitat on the site consists of developed (the houses and barn), ruderal (disturbed areas associated with the structures), and mostly non-native grassland. There are several mature trees throughout the project site including but not limited to valley oak (Quercus lobata), coast live oak (*Quercus agrifolia*), cottonwood (*Populus* sp.), California bay (*Umbellularia californica*), walnut (*Juglans* sp.), and plum (*Prunus* sp.). There are large patches of non-native blackberry (*Rubus armeniacus*) and native coyote bush (*Baccharis pilularis*) intermixed with ornamentals and a variety of non-native herbs and grasses.

In the interior portions of the property there are several piles of fill that have been overgrown with non-natives and ornamentals.



ENVIRONMENTAL RESOURCE MANAGEMENT S2S

2246 Camino Ramon
San Ramon, CA 94583

Figure 1: Site Map
Vartnaw Landing
Petaluma, California

A summary of the method and results of our wetland and biological resource assessments follows.

2.0 WETLANDS ASSESSMENT

2.1 Corps of Engineers Jurisdictional Criteria Review

Unless exempt from regulation, all proposed discharges of dredged or fill material into waters of the United States require U.S. Army Corps of Engineers (Corps) authorization under Section 404 of the Clean Water Act (33 U.S.C. 1344) and Clean Water Act Section 401 authorization from the Regional Water Quality Control Board (RWQCB). Waters of the United States generally include tidal waters, lakes, ponds, rivers, streams (including ephemeral and intermittent streams), and farmed wetlands.

Unless exempt from regulation, all proposed discharges of dredged or fill material into waters of the United States require U.S. Army Corps of Engineers (Corps) authorization under Section 404 of the Clean Water Act (33 U.S.C. 1344) and Clean Water Act Section 401 authorization from the Regional Water Quality Control Board (RWQCB).

The Corps identifies wetlands using a "multi-parameter approach" which requires positive wetland indicators in three distinct environmental categories: hydrology, soils, and vegetation. The *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West*, which was released in early 2007 and revised in 2008 (version 2.0), is utilized when conducting jurisdictional wetland determinations in areas identified within the boundaries of the Arid West (U.S. Army Corps of Engineers, 2008). The project site falls within the Arid West region and so wetlands identified on the site were delineated using that guidance.

On June 22, 2020, the Environmental Protection Agency (EPA) and the Department of the Army's Navigable Waters Protection Rule: Definition of "Waters of the United States" (NWPR) became effective in 49 states and in all US territories. "Waters of the U.S." (WOTUS) are waters such as oceans, rivers, streams, lakes, ponds, and wetlands subject to Corps Regulatory Program jurisdiction under Section 404 of the Clean Water Act (CWA). The San Francisco District will use the NWPR definitions of WOTUS when making permit decisions and providing landowners written determinations of the limits of federal jurisdiction on their property (SPNUSACE, 2020). Under this new rule, jurisdictional features must have a direct surface connection to a navigable water. Certain features previously subject to potential regulation such as farm or roads side ditches, ephemeral streams, and isolated wetlands are excluded under the new rule. It should be noted, the State Water Resources Board in anticipation of this rule has developed its own wetland definition in efforts to maintain jurisdiction over certain wetland features including ephemeral drainages and isolated wetlands.

2.1.1 Potential Wetlands

Section 328.3 of the Federal Code of Regulations defines wetlands as:

"Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

EPA, 40 CFR 230.3 and CE, 33 CFR 328.3 (b)

intermittent streams), wetlands (excluding isolated wetlands for the Corps), and farmed wetlands.

The three parameters used to delineate wetlands are the presence of hydrophytic vegetation, wetland hydrology, and hydric soils. According to the Corps Manual, for areas not considered "problem areas" or "atypical situations":

"....[E]vidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland delineation."

<u>Vegetation</u>

Plant species identified are assigned a wetland status according to the U.S. Fish and Wildlife Service list of plant species that occur in wetlands (Reed 1988). This wetland classification system is based on the expected frequency of occurrence in wetlands as follows:

OBL	Always found in wetlands	>99% frequency
FACW	Usually found in wetlands	67-99%
FAC	Equal in wetland or non-wetlands	34-66%
FACU	Usually found in non-wetlands	1-33%
UPL/NL	Upland/Not listed (upland)	<1%

The Corps Manual and Supplements require that a three-step process be conducted to determine if hydrophytic vegetation is present. The first step is the Dominance Test (Indicator 1); the second is the Prevalence Index (Indicator 2); the third is Morphological Adaptations (Indicator 3). The Dominance Test requires the delineator to apply the "50/20 rule". The dominant species are chosen independently from each stratum of the community. In general, dominant species are determined for each vegetation stratum from a sampling plot of an appropriate size surrounding the sample point. Dominants are defined as the most abundant species that individually or collectively account for more than 50 percent of the total vegetative cover in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total cover. If greater than 50 percent of

the dominant species has an OBL, FACW, or FAC status, the sample point meets the hydrophytic vegetation criterion.

If the sample point fails the 50/20 rule and both hydric soils and wetland hydrology are not present, then the sample point does not meet the hydrophytic vegetation criterion, unless the site is a problematic wetland situation. However, if the sample point fails Indicator 1, but hydric soils and wetland hydrology are both present, the delineator must apply the Indicator 2, Prevalence Index. The Indicator 3, Morphological Adaptations, is rarely used in this region.

Hydrology

The Corps jurisdictional wetland hydrology criterion is satisfied if an area is inundated or saturated for a period sufficient to create anoxic soil conditions during the growing season (a minimum of 14 consecutive days). Evidence of wetland hydrology can include primary indicators, such as visible inundation or saturation or oxidized root channels, or secondary indicators such as the FAC-neutral test or the presence of a shallow aquitard. Only one primary indicator is required to meet the wetland hydrology criterion; however, if secondary indicators are used, at least two secondary indicators must be present to conclude that an area has wetland hydrology.

Soils

The Natural Resource Conservation Service (NRCS) defines a hydric soil as follows:

"A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part." Federal Register July 13, 1994, U.S. Department of Agriculture, NRCS

Soils formed over long periods under wetland (anaerobic) conditions often possess characteristics that indicate they meet the definition of hydric soils. The supplement provides a list of the hydric soil indicators that are known to occur in region. Soil samples were collected and described according to the methods provided in the supplements. Soil chroma and values were determined using a Munsell soil color chart (Kollmorgen 1975). If any of the soil samples met one or more of the hydric soil indicators described in the supplement hydric soils were determined to be present.

2.1.2 Waters of the U.S. (Other Waters)

"Other waters" or "Waters of the United States" (WUS) other than wetlands are also potentially subject to Corps jurisdiction. WUS subject to Corps jurisdiction include ponds, lakes, rivers, streams (including ephemeral and intermittent streams), and all areas below the High Tide Line (HTL) subject to tidal influence. Jurisdiction in non-tidal areas extends to the ordinary high-water mark (OHW) defined as:

"...that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

Federal Register Vol. 51, No. 219, Part 328.3 (e). November 13, 1986

2.2 San Francisco Regional Water Quality Control Board

The Regional Water Quality Control Board regulates waters of the State pursuant to Sections 13260(a)(1) and 13050(e) of the State Water Code, and the Porter Cologne Act. In addition, anyone proposing to conduct a project that requires a federal permit or involves dredge or fill activities that may result in a discharge to U.S. surface waters and/or "Waters of the State" are required to obtain a Clean Water Act (CWA) Section 401 Water Quality Certification and/or Waste Discharge Requirements (Dredge/Fill Projects) from the Regional Water Quality Control Board, verifying that the project activities will comply with state water quality standards. The most common federal permit for dredge and fill activities is a CWA Section 404 permit issued by the Corps of Engineers (North Coast Regional Water Quality Control Board, 2007). In general, the RWQCB employs similar wetland delineation techniques for identifying wetland areas potentially subject to its regulation.

Section 401 of the CWA grants each state the right to ensure that the State's interests are protected on any federally permitted activity occurring in or adjacent to Waters of the State. In California, the Regional Water Quality Control Boards (Regional Board) are the agency mandated to ensure protection of the State's waters. So if a proposed project requires a U.S. Army Corps of Engineers CWA Section 404 permit, falls under other federal jurisdiction, and has the potential to impact Waters of the State, the Regional Water Quality Control Board will regulate the project and associated activities through a Water Quality Certification determination (Section 401) (North Coast Regional Water Quality Control Board, 2007).

However, if a proposed project does not require a federal permit, but does involve dredge or fill activities that may result in a fill discharge to "Waters of the State", the Regional Board has the option to regulate the project under its state authority (Porter-Cologne) in the form of Waste Discharge Requirements or Waiver of Waste Discharge Requirements (North Coast Regional Water Quality Control Board, 2007). Waters of the State include isolated wetlands, which are not regulated by the Corps.

In June 2020, the State of California developed its definition of a wetland to address arid conditions in the west. The definition differs from the federal definition in that a wetland can include only wetlands soil and hydrology and not hydrophytic wetland vegetation.

However, if the area does have vegetation, it must include wetland vegetation in order to be classified a wetland.

2.3 California Department of Fish and Wildlife

Activities that result in the substantial modification of the bed, bank or channel of a stream or lake may require a Streambed Alteration Agreement from the California Department of Fish and Wildlife (CDFW) pursuant to Sections 1600-1607 of the California Fish and Game Code. On streams, creeks and rivers, the extent of CDFW jurisdiction extends from the top of bank to top of bank or the outer limits of the riparian canopy, whichever is wider.

2.4 Background review

Prior to conducting the on-site wetlands assessment within the study area, various background materials relating to the site were reviewed. These include aerials from Google earth and the Petaluma River U.S.G.S. 7.5-minute quadrangle. No potential wetlands were identified in the background review. In addition, historic aerials of the property were reviewed on historicaerials.com dating back to 1952. Those aerials showed that much of the property was a farm (likely a chicken farm) and no potential wetlands were observed on the historic aerials either .

Additionally, the Soil Survey of Sonoma County (web Soil Survey) was reviewed to determine if any of the soils on the project site are mapped as hydric soils. The presence of a hydric soil-mapping unit on a project site suggests the presence of potential wetland habitats and therefore is another tool used in potential wetland identification.

Soil within the Study Area is mapped as Yolo clay loam 0 to 5 percent slopes.
This soil is not listed as hydric on the County or National list.

2.5 Wetland Assessment and Results

On February 4, 2021 I conducted a wetland delineation within the Study Area. The entire project site was walked to identify potential wetlands based on visual observation. Several large patches of Himalayan blackberry (*Rubus armeniacus*) were observed. Because Himalayan blackberry is listed as a facultative species (meaning it is found 50 percent of the time in wetlands and 50 percent of the time in uplands), sample points were taken at these locations. A total of 9 soil sample points were dug to a depth of 16 inches. None of the soil pits showed evidence of hydric soils therefore these areas were determined not to be wetlands. Please refer to Appendix B for copies of the data sheets and Plate 1 for a map illustrating the sample point locations. No potential wetlands were identified on the site.

ENVIRONMENTAL RESOURCE MANAGEMENT S2S

2246 Camino Ramon
San Ramon, CA 94583

Plate 1: Soil Sampling Data Points
Vartnaw Landing
Petaluma, California

Blackberry patch north of the existing barn

Site looking southeast

Middle of site looking southwest. Note fill piles.

3.0 REGULATORY FRAMEWORK

Special-status plants and animals are legally protected under the State and Federal Endangered Species Acts or other regulations, and species that are considered rare by the scientific community. Special status species include those plants and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These acts afford protection to both listed and proposed species. In addition, California Department of Fish and Wildlife (CDFW) Species of Special Concern, which are species that face extirpation in California if current population and habitat trends continue, U.S. Fish and Wildlife Service (USFWS) Birds of Conservation Concern, and CDFW special status invertebrates are all considered special status species. Although CDFW Species of Special Concern generally have no special legal status, they are given special consideration under the California Environmental Quality Act (CEQA). In addition to regulations for special status species, most birds in the United States, including non-status species, are protected by the Migratory Bird Treaty Act of 1918. Under this legislation, destroying active nests, eggs, and young is illegal.

Sources consulted for up-to-date information on conservation status included the U.S. Fish and Wildlife Service (USFWS) (2021) for federally listed species (including Proposed and Candidate species) and California Department of Fish and Wildlife (CDFW) (2021) for State of California listed species. Special-status species also include species with California Rare Plant Rank (CRPR) 1A (Plants Presumed Extinct in California), CRPR 1B (Plants Rare, Threatened, or Endangered in California and Elsewhere), or CRPR 2 (Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere), as indicated by the CNPS *Inventory* (CNPS 2021). Impacts to these species must be reviewed under the provisions of the California Environmental Quality Act (CEQA) Guidelines.

Also considered special-status are those species with CRPR 3 (Plants About Which We Need More Information—A Review List) and CRPR 4 (Plants of Limited Distribution—A Watch List) of the CNPS Inventory. CRPR4 are considered to be of lower sensitivity, and generally do not fall under specific state or federal regulatory authority.

4.0 SPECIAL-STATUS PLANTS

4.1 Background Review for Special-status Plants

Prior to conducting the field reconnaissance, a focused review of literature and data sources was conducted to identify special-status plant species with a potential to occur in the study area. Sources reviewed included California Natural Diversity Database (CNDDB, 2021) occurrence records for the Petaluma USGS 7.5' quadrangle and the quadrangles surrounding it.

Based on information from the above sources, a target list of special-status plants with potential to occur in the vicinity of the study area was developed (Table 1). Special-status plants occurring with a 1- and 5- mile radius of the project site are illustrated on Figure 2.

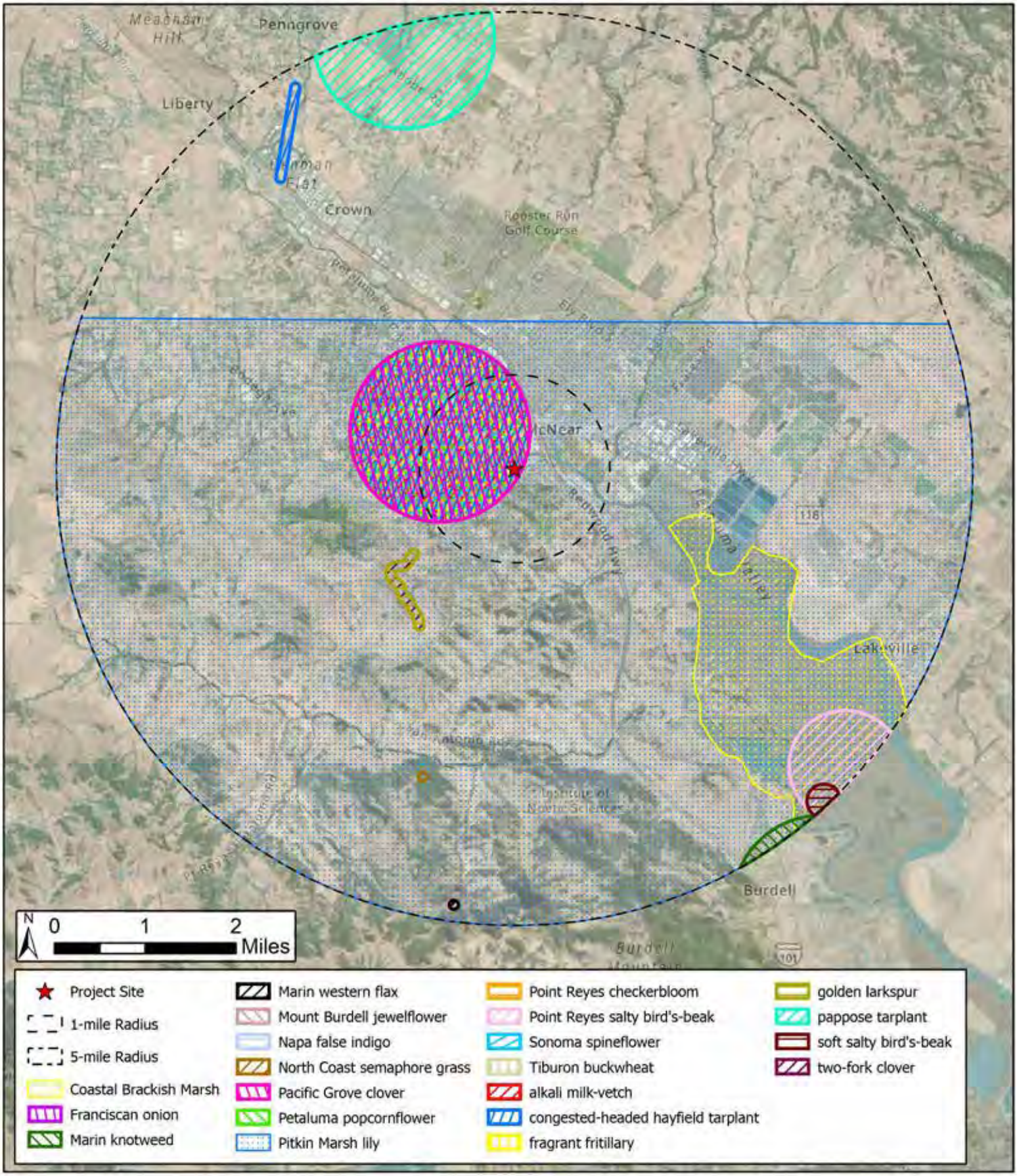
On February 4, 2021 a reconnaissance level survey of the site was conducted. The site was walked on foot and habitats characterized. The site is primarily dominated by non-native grasses, ornamentals, non-native blackberry, plum and palm trees and oaks.

4.2 Special-status Plants

Species associated with grasslands and disturbed areas have the potential to occur on the project site. Therefore, rare plant surveys are recommended for species with a moderate potential to occur on site the spring prior to ground disturbance.

4.3 Oaks

Several oak trees occur on the site especially along the southern property boundary. These include coast live oak (*Quercus agrifolia*) and valley oak (*Quercus lobata*). Potential impacts to oak trees and associated mitigation will be addressed in a separate report.



ENVIRONMENTAL RESOURCE MANAGEMENT S2S

2246 Camino Ramon
San Ramon, CA 94583

Figure 2: CNDDB Plant Occurrences Within 5-miles of Vartnaw Landing Petaluma, California

5.0 SPECIAL-STATUS ANIMALS

5.1 Background Review and Field Assessment for Special-status Animals

The California Department of Fish and Wildlife's Natural Diversity Database (CNDDB) was reviewed (Petaluma River and surrounding quadrangles) to identify special-status species potentially occurring on or in the vicinity of the project site. Based on information from the above sources, a target list of special-status animals with potential to occur in the vicinity of the study area was developed (Table 1).

5.2 Results

Special-status animal species occurring within a 1- and 5-mile radius of the project site are illustrated on Figure 3.

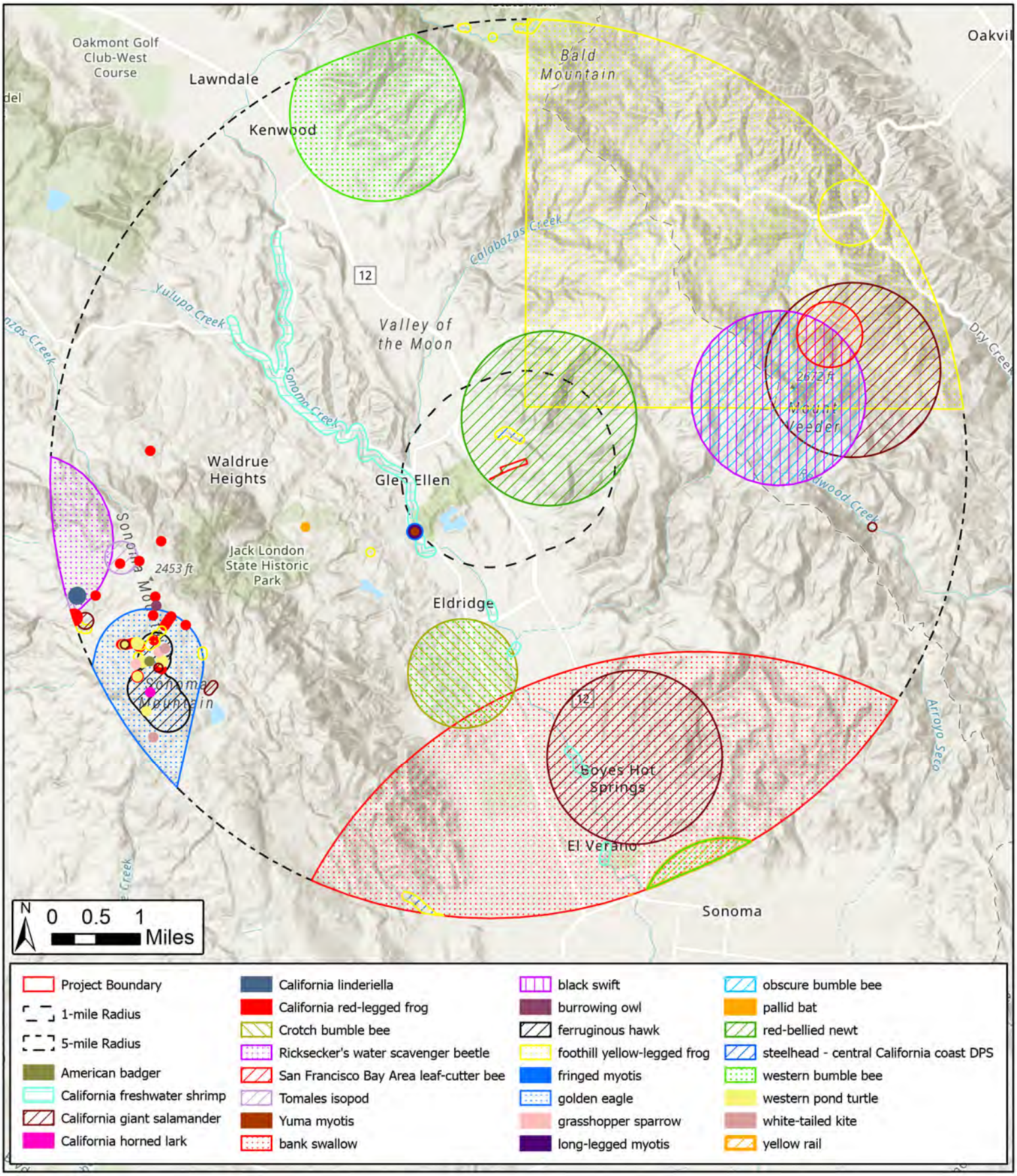
The trees, shrubs, and grasslands and structures on the project site provide nesting habitat for a variety of birds. The mature trees and structures on the property provide potential habitat for roosting special-status bats as well.

5.2.1 Nesting Birds and Raptors

The trees on the site provide habitat for a variety of nesting birds and raptors. Birds and raptors are protected under the federal Migratory Bird Treaty Act (50 CFR 10.13). Their nest, eggs, and young are also protected under California Fish and Wildlife Code (§3503, §3503.5, and §3800). In addition, raptors such as the white-tailed kite (*Elanus leucurus*) are "fully protected" under Fish and Wildlife Code (§3511). Fully protected raptors cannot be taken or possessed (that is, kept in captivity) at any time.

5.2.2 Special-status Bats

The trees and structures, particularly the old barn, provide potential roosting habitat for various special-status bat species known to occur in the project region including but not limited to pallid bat (*Antrozous pallidus*), Pacific western big- eared bat (*Corynorhinus townsendii townsendii*), and long-eared myotis (*Myotis evotis*). These bat species are California Species of Special Concern and may roost in mature trees, snags, crevices, cavities, and foliage within this habitat. Maternity roosting for bats is April through November.



ENVIRONMENTAL RESOURCE S2S MANAGEMENT

2246 Camino Ramon
San Ramon, CA 94583

Figure 2: CNNDB Wildlife Occurrences Within 5-miles of 14005 Highway 12 Glen Ellen, California

Table 1. Special-status plant species with potential to occur in the vicinity of 149 McNear Ave & Petaluma Blvd. S, Petaluma, Sonoma County

Plant Species	Status[1]	Habitat[2]	Flowering Period	Potential for Occurrence on Project Site
Franciscan onion (*Allium peninsulare* var. *franciscanum*)	CRPR 1B.2	Clay soil, volcanic or serpentine substrate; cismontane woodland, valley and foothill grassland.	May-June	Marginal habitat may occur on site. **Low Potential**
Napa false indigo (*Amorpha californica* var. *napensis*)	CRPR 1B.2	Broadleafed upland forest, chaparral, cismontane woodland, North Coast coniferous forest.	April-July	Not observed during February 4, 2021 reconnaissance. **No Potential**
Bent-flowered fiddleneck (*Amsinckia lunaris*)	CRPR 1B.2	Coastal bluff scrub, cismontane woodland, valley and foothill grassland, openings in broadleaved upland forest.	March-June	Marginal habitat may occur on site. **Low Potential**
Marin manzanita (*Arctostaphylos virgata*)	CRPR 1B.2	Sandstone or granitic substrate; broadleafed upland forest, closed-cone coniferous forest, chaparral, North Coast coniferous forest.	December-March	No manzanita observed in area proposed for development. **No Potential**
Alkali milk-vetch (*Astragalus tener* var. *tener*)	CRPR 1B.2	Alkaline, often adobe clay soil; playas, vernal pools, alkali flats within valley and foothill grassland, coastal salt marsh.	March-June	Suitable habitat not present. **No Potential**
Big-scale balsamroot (*Balsamorhiza macrolepis*)	CRPR 1B.2	Chaparral, cismontane woodland, valley and foothill grassland, sometimes serpentine substrate.	March-July	Marginal habitat may occur on site. **Low Potential**

Plant Species	Status[1]	Habitat[2]	Flowering Period	Potential for Occurrence on Project Site
Sonoma sunshine (*Blennosperma bakeri*)	FE, SE, CRPR 1B.1	Vernally moist to inundated places; vernal pools, valley and foothill grassland.	February-April	No suitable habitat occurs in survey area. **No Potential**
Narrow-anthered brodiaea (*Brodiaea leptandra* [*B. californica* var. *leptandra*])	CRPR 1B.2	Gravelly soil (?), volcanic substrate (?); broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland.	May-July	Suitable substrate not present. **Low Potential**
Seaside bittercress (*Cardamine angulata*)	CRPR 2B.1	Occurs usually in wetlands, occasionally in non-wetlands. Redwood forest and mixed Evergreen forest	April-June	Suitable substrate not present. **No- Potential**
Tiburon paintbrush (*Castilleja affinis* var. *neglecta*)	FE, ST, CRPR 1B.2	Rocky soil, serpentine substrate; valley and foothill grassland.	April-June	Suitable substrate not present. **No Potential**
Rincon Ridge ceanothus (*Ceanothus confusus*)	CRPR 1B.1	Dry sites, volcanic or serpentine substrate; closed-cone coniferous forest, chaparral, cismontane woodland.	February-June	No ceanothus observed during February 4, 2021 reconnaissance. **No Potential**
Nicasio ceanothus (*Ceanothus decornutus*)	CRPR 1B.2	Serpentinite, rocky, sometimes clay. Chaparral (maritime)	March-May	No ceanothus observed during February 4, 2021 reconnaissance. **No Potential**
Mason's ceanothus (*Ceanothus masonii*)	SR, CRPR 1B.2	Rocky places, serpentine substrate; openings in chaparral.	March-May	No ceanothus observed during February 4, 2021 reconnaissance. **No Potential**
Pappose tarplant (*Centromadia* [*Hemizonia*] *parryi* ssp. *parryi*)	CRPR 1B.2	Vernally moist sites, often alkaline soil; chaparral, coastal prairie, meadows, coastal salt marshes, valley and foothill grassland.	May-November	No suitable habitat occurs in survey area.

Plant Species	Status[1]	Habitat[2]	Flowering Period	Potential for Occurrence on Project Site
				No Potential
Point Reyes bird's-beak (*Chloropyron maritimum* ssp. *palustre*)	CRPR 1B.2	Coastal salt marshes.	May-October	No suitable habitat occurs in survey area. Low Potential
Soft bird's- beak (*Chloropyron molle* ssp. *molle*)	FE, SR, CRPR 1B.2	Coastal salt marshes.	July-November	No suitable habitat occurs in survey area. No Potential
Sonoma spineflower (*Chorizanthe valida*)	FE, SE, CRPR 1B.1	Sandy soil, coastal prairie.	June-August	Suitable substrate not present. No Potential
Mt. Tamalpais thistle (*Cirsium hydrophilum var. vaseyi*)	CRPR 1B.2	Serpentinite seeps. Broadleafed upland forest, chaparral and meadows and seeps.	May-August	No suitable habitat occurs in survey area. No Potential
Baker's larkspur (*Delphinium bakeri*)	FE, SE, CRPR 1B.1	Decomposed shale substrate; broadleafed upland forest, coastal scrub, valley and foothill grassland, possibly sometimes disturbed areas (e.g., fence lines).	March-May	Suitable substrate probably does not occur in survey area. Low Potential
Golden larkspur (*Delphinium luteum*)	FE, SR, CRPR 1B.1	± moist places, rocky soil, generally north-facing slopes; chaparral, coastal prairie, coastal scrub.	March-May	No suitable habitat occurs in survey area. No Potential
Western leatherwood (*Dirca occidentalis*)	CRPR 1B.2	Broadleafed upland forest, closed-cone coniferous forest, chaparral, North Coast coniferous forest, and Cismontane woodland.	Jan-Mar (Apr)	No suitable habitat occurs in survey area. No Potential
Dwarf downingia	CRPR 2B.2	Vernal pools, vernally moist places in valley and foothill grassland, sometimes ditches.	March-May	Suitable substrate not present.

Plant Species	Status[1]	Habitat[2]	Flowering Period	Potential for Occurrence on Project Site
(*Downingia pusilla*)				No Potential
Tiburon buckwheat (*Eriogonum luteolum* var. *caninum*)	CRPR 1B.2	Sandy or gravelly soil, serpentine substrate; chaparral, coastal prairie, valley and foothill grassland, cismontane woodland.	May-September	Suitable substrate not present. No Potential
Marin checker lily (*Fritillaria lanceolata* var. *tristulis*)	CRPR 1B.1	Sometimes rock outcrops, often serpentine substrate; coastal bluff scrub, coastal prairie, coastal scrub, riparian habitats (?).	February- May	Suitable substrate not present in survey area. No Potential
Fragrant fritillary (*Fritillaria liliacea*)	CRPR 1B.2	Generally heavy clay soil, often serpentine substrate; cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland.	February-April	Suitable substrate not present. No Potential
Woolly-headed gilia (*Gilia capitata* ssp. *tomentosa*)	CRPR 1B.1	Rocky places, rock outcrops, serpentine substrate; coastal bluff scrub, valley and foothill grassland.	May-July	Suitable substrate probably does not occur in survey area. Outside known range. Low Potential
Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*)	CRPR 1B.2	Grassy places, often disturbed areas, fallow fields, other ruderal areas; valley and foothill grassland, coastal scrub.	April-November	Grasslands provide potential habitat. Moderate Potential
Marin western flax (*Hesperolinon congestum*)	FT, ST, CRPR 1B.1	Sometimes barrens, serpentine substrate; valley and foothill grassland, chaparral.	April-August	Suitable substrate probably does not occur in survey area. Low Potential
Thin-lobed horkelia (*Horkelia tenuiloba*)	CRPR 1B.2	Moist places, open areas, sandy soil; broadleafed upland forest, chaparral, coastal scrub, valley and foothill grassland.	May-July (August)	Suitable substrate not present. No Potential
Burke's goldfields (*Lasthenia burkei*)	FE, SE, CRPR 1B.1	Wet or moist (at least vernally) places; generally vernal pools and swales, sometimes meadows.	April-June	Suitable substrate not present in survey area.

Plant Species	Status[1]	Habitat[2]	Flowering Period	Potential for Occurrence on Project Site
				No Potential
Contra Costa goldfields (*Lasthenia conjugens*)	FE, CRPR 1B.1	Vernally moist, open, low-lying places, sometimes alkaline soil; vernal pools, wet meadows, valley and foothill grassland, cismontane woodland, alkaline playas.	March-June	Suitable substrate not present in survey area. No Potential
Legenere (*Legenere limosa*)	CRPR 1B.1	Vernal pools and swales.	April-June	No suitable habitat on site. No Potential
Jepson's leptosiphon (*Leptosiphon* [*Linanthus*] *jepsonii*)	CRPR 1B.2	Usually volcanic soil (sometimes periphery of serpentine), chaparral, cismontane woodland.	March-May	Suitable habitat not present. No Potential
Tamalpais lessingia (*Lessingia micradenia* var. *micradenia*)	CRPR 1B.2	Usually serpentine substrate, often roadsides, thin gravelly soil (?); chaparral, valley and foothill grassland.	(June) July-October	Suitable habitat not present. No Potential
Pitkin marsh lily (*Lilium pardalinum* ssp *pitkinense*)	FE, SE, CRPR 1B.1	Saturated places, sandy soil; cismontane woodland, meadows and seeps, freshwater marshes.	June-July	Suitable habitat not present. Low Potential
Sebastopol meadowfoam (*Limnanthes vinculans*)	FE, SE, CRPR 1B.1	Seasonally wet places, poorly drained, clay or sandy soil; meadows, valley and foothill grassland, vernal pools.	April-May	Suitable su bstrate not present. No Potential
Cobb Mountain lupine (*Lupinus sericatus*)	CRPR 1B.2	Open wooded areas, gravelly soil; broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest.	March-June	Suitable substrate not present. No Potential
Marsh microseris (*Microseris paludosa*)	CRPR 1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland.	April-June (July)	Suitable habitat not present on project site. No Potential
Baker's navarretia	CRPR 1B.1	Seasonally moist places, cismontane woodland, meadows and seeps, vernal	April-July	Suitable habitat not present.

Plant Species	Status[1]	Habitat[2]	Flowering Period	Potential for Occurrence on Project Site
(*Navarretia leucocephala* ssp. *bakeri*)		pools, valley and foothill grassland, lower montane coniferous forest.		No Potential
Marin County navarretia (*Navarretia rosulata*)	CRPR 1B.2	Chaparral, closed-cone Pine forest.	May-July	Suitable habitat.b not present. No Potential
Petaluma popcorn-flower (*Plagiobothrys mollis* var. *vestitus*)	CRPR 1A	Wet places; valley and foothill grassland, coastal salt marshes (?).	May-July	Suitable habitat not present on project site. Low Potential
North Coast semaphore grass (*Pleuropogon hooverianus*)	ST, CRPR 1B.1	Moist to wet, open or partly shaded places; broadleafed upland forest, meadows and seeps, North Coast coniferous forest, freshwater marsh.	March-June	Suitable habitat not present on project site. No Potential
Marin knotweed (*Polygonum marinense*)	CRPR 3.1	Coastal salt or brackish marshes.	(April) May-August (October)	Suitable habitat not present on project site. Low Potential
Tamalpais oak (*Quercus parvula var. tamalpaisensis*)	CRPR 1B.3	Near watersheds.	March-April	Not present on site. No Potential
Point Reyes checkerbloom (*Sidalcea calycosa* ssp. *rhizomata*)	CRPR 1B.2	Freshwater marsh.	April-September	Suitable habitat not present on project site. No Potential
Marin checkerbloom (*Sidalcea hickmanii* ssp. *viridis*)	CRPR 1B.1	Chaparral.	May-June	Suitable habitat not present. No Potential
Two-fork clover (*Trifolium amoenum*)	FE, CRPR 1B.1	Moist open sites, heavy soil, sometimes serpentine substrate, sometimes roadsides	April-June	Suitable substrate not present on project site.

Plant Species	Status[1]	Habitat[2]	Flowering Period	Potential for Occurrence on Project Site
		or eroded areas; coastal bluff scrub, valley and foothill grassland.		No Potential
Saline clover (*Trifolium hydrophilum*)	CRPR 1B.2	Moist or seasonally moist sites, alkaline or saline soil; marshes and swamps (including coastal salt marshes?), valley and foothill grassland, vernal pools.	April-June	Suitable substrate not present on project site. No Potential
Pacific Grove clover (*Trifolium polyodont*)	CRPR 1B.1	Occurs usually in wetlands, occasionally in non-wetlands. Found in meadows.	April-June	Suitable habitat does not occur in survey area. No Potential No Potential
Oval-leaved viburnum (*Viburnum ellipticum*)	CRPR 2B.3	Often north-facing slopes; chaparral, cismontane woodland, lower montane coniferous forest.	May-June (August)	Suitable habitat does not occur in survey area. No Potential

[1]Plant listing status:

Federal (USFWS 2017a): FE – endangered; FT – threatened

State of California (CDFW 2017): SE– endangered; ST – threatened; SR – rare

California Rare Plant Rank (CRPR) (CNPS 2016): CRPR 1A: Presumed extinct in California. CRPR 1B: Rare, Threatened, or Endangered in California and elsewhere. CRPR 2B: Rare, Threatened, or Endangered in California, more common elsewhere. CRPR 3: Plants about which more information is needed.

CRPR Threat Code extensions: .1: Seriously endangered in California. .2: Fairly endangered in California. .3 Not very endangered in California.

Table 2 - Special-status animal species with potential to occur in the vicinity of 149 McNear Ave & Petaluma Blvd. S Petaluma, Sonoma County, California

Animal*	Status	Habitat	Potential for Occurrence on of In Vicinity of Site
Amphibians and Reptiles			
California tiger salamander (*Ambystoma californiense*)	FE[1], FT	Needs underground refuges especially ground squirrel burrows and vernal pools or other seasonal water sources for breeding.	No potential. No suitable habitat on site. Not within critical habitat.
Western pond turtle (*Emmys marmorata*)	FSC, CSC	Associated with permanent or nearly permanent water in a wide variety of habitats. Requires basking sites, nest sites may be found up to 0.5 km from water.	No potential. No suitable habitat on site.
California red-legged frog (*Rana aurora draytonii*)	FT, CSC	Lowlands and foothills in or near permanent sources of deepwater with dense, shrubby or emergent riparian vegetation.	No potential. No suitable habitat on site.
Foothill yellow-legged frog (*Rana boylii*)	CSC in Sonoma Couny	Partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats.	No potential. No suitable habitat on site.
Red-bellied newt (*Taricha rivularis*)	CSC	Coastal drainages from Humboldt County to Sonoma County and inland to Lake County. Lives in terrestrial habitats and typically breeds in streams with moderate flow and clean, rocky substrate.	No potential. No suitable habitat on site.

[1] Listed as federally endangered in Sonoma County (Santa Rosa Plain) and Santa Barbara counties.

Animal*	Status	Habitat	Potential for Occurrence on of In Vicinity of Site
California giant salamander (*Dicamptodon ensatus)*	CSC	Known from coastal forests near streams and seeps from Mendocino County south to Monterey County and east to Napa County. Adults may be found under rocks, logs and other debris adjacent to water sources. Aquatic larvae are found in cold, clear streams, sometimes in lakes or ponds	No Potential. No suitable habitat on site.
Fish			
Steelhead-Central California Coast DPS (*Oncorhynchus mykiss*)	FT, NMFS	Anadromous. Adults and fry recorded in upstream portions of creeks north of San Pablo Bay. Juveniles may rear in lower reaches of larger river systems and Bay before moving out to sea.	No Potential. No suitable habitat on site.
Coho salmon - central CA coast ESU (*Oncorhynchus kisutch*)	FE, SE, NMFS	Federal listing includes populations between Punta Gorda and San Lorenzo River. State listing includes populations south of San Francisco Bay only. Occurs inland and in coastal marine waters. Requires beds of loose, silt-free, coarse gravel for spawning. Also needs cover, cool water and sufficient dissolved oxygen.	No Potential. No suitable habitat on site.

Animal*	Status	Habitat	Potential for Occurrence on of In Vicinity of Site
Sacramento Splittail *(Pogonichthys macrolepidotus)*	CSC	Prefers shallow water habitat in slow-moving sections of rivers and sloughs. Found primarily in Delta, Suisun Bay, Suisun Marsh, Napa River, occasionally Petaluma River. Primarily a freshwater fish but tolerant of moderate salinity. Spawns on submerged vegetation in temporarily flooded upland and riparian habitat.	No potential. No suitable habitat on site.
Birds**			
Tricolored blackbird (*Agelaius tricolor*)	CSC	Colonial nester. Most numerous in the Central Valley & Vicinity. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	No Potential. No suitable habitat on site.
Grasshopper sparrow (*Ammodramus savvanrum*)	CSC	Dense grasslands in rolling hills, lowland plains, in valleys and on hillsides on lower desert mountain slopes. Favors native grasses when nesting.	No Potential. No suitable habitat on site.
Burrowing owl (*Athene cunicularia*)	CSC	Open, dry annual or perennial grasslands; deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent on burrowing animals, most notably the California ground squirrel.	No Potential. No ground burrows observed during February 2021 assessment. Site is surrounded by development.

Animal*	Status	Habitat	Potential for Occurrence on of In Vicinity of Site
Golden eagle (*Aquila chrysaetos*)	FP,	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most part of its range although large tree in open areas, may be used.	No potential. No suitable habitat on site.
Swainson's hawk (*Buteo swainsoni*)	ST	Breeds in stands with few trees in juniper-sage flats, riparian areas and in oak savannah. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain field supporting rodent populations.	No potential. No suitable habitat on site.
Western snowy plover (*Charadrius alexandrinus nivosus*)	FT, CSC	Sandy beaches, salt ponds levees and shores of alkali flats.	No potential. No suitable habitat on site.
Western yellow billed cuckoo (*Coccyzus americanus occidentalis*)	FC, SE	(Nesting) Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with low story of blackberry, nettles or wild grape.	No potential. No suitable habitat on site.
Black swift (*Cypseloides niger*)	CSC	(Nesting) coastal belt of Santa Cruz & Monterey County; central and southern Sierra Nevada; San Bernadino and San Jacinto mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf.	No potential. No suitable habitat on site.
White-tailed kite (*Elanus leucurus*)	FP	(Nesting) rolling foothills/valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland.	Low potential. Site is small and surrounded by development.

Animal*	Status	Habitat	Potential for Occurrence on of In Vicinity of Site
Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*)	FSC, CSC	Mostly breeds and winters in wet meadows, fresh emergent wetland, and saline emergent wetland habitats in the San Francisco Bay region. Microhabitat includes thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	No potential. No suitable habitat on site.
Bald eagle (*Haliaeetus leucocephalus*)	SE	Ocean shore, lake margins, and rivers both for nesting and wintering within one mile of water. Nests in large, old growth or dominant live tree with open branches, especially Ponderosa pine.	No potential. No suitable habitat on site.
Yellow rail (*Coturnicops noveboracensis*)	BCC, CSC	Summer resident in eastern Sierra Nevada in Mono County, breeding in shallow freshwater marshes and wet meadows with dense vegetation.	No potential. No suitable habitat on site.
California black rail (*Laterallus jamaicensis coturniculus*)	FSC, ST	Mainly inhabits salt marshes bordering larger bays. Microhabitat includes tidal salt marsh, freshwater and brackish marshes, all at low elevations.	No potential. No suitable habitat on site.
San Pablo song sparrow (*Melospiza melodia samuelis*)	CSC	Residents of salt marshes along the north side of San Francisco and San Pablo Bays.	No potential. No suitable habitat on site.
California Ridgway's rail (*Rallus obsoletus*)	FE, SE	Salt-water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Microhabitats associated with abundant growths of pickleweed but feeds away from cover on invertebrates from mud-bottomed sloughs.	No potential. No suitable habitat on site.
Bank swallow (*Riparia riparia*)	ST	(Nesting) Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks or cliffs with fine-textured/sandy soils near streams, river, lakes, and ocean to dig nest hole.	No potential. No suitable habitat on site.

Animal*	Status	Habitat	Potential for Occurrence on of In Vicinity of Site
Mammals			
Pallid bat (*Antrozous pallidus*)	CSC, WGWB High Priority	Deserts, grasslands, woodlands and forests. Most common in open dry habitats with rocky areas for roosting. Very sensitive to disturbance of roosting sites.	Potential for occurrence.
Townsend's big-eared bat (*Corynorhinus townsendii*)	CSC	Throughout California in a variety of habitats. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Moderate Potential. Potential for occurrence due to existing structures on site.
Hoary bat (*Lasiurus cinereus*)	WBWG Medium Priority	Prefers open forested habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	Low to Moderate Potential. Potential for roosts in larger oak trees on site.
Fringed myotis (*Myotis thysanodes*)	WGWB High Priority	Associated with a wide variety of habitats including dry woodlands, desert scrub, mesic coniferous forest, grassland, and sage-grass steppes. Buildings, mines and large trees and snags are important day and night roosts.	Moderate Potential. Potential for roosts in larger oak trees on site and buildings.
Long-legged myotis (*Myotis Volans*)	WBWG High Priority	Primarily found in coniferous forests, but also occurs seasonally in riparian and desert habitats. Large hollow trees, rock crevices and buildings are important day roosts. Other roosts include caves, mines and buildings.	Moderate Potential. Potential for roosts in larger oak trees on site and buildings.
Point Reyes mountain beaver *(Aplodontia rufa phaea*)	CSC	Occurs only in western Marin County, almost entirely within Point Reyes National Sea shore. Found on moist, north-facing slopes within areas of coastal scrub. Lives in burrow systems and forages on a variety of herbaceous plants.	No suitable habitat on site. No potential.

Animal*	Status	Habitat	Potential for Occurrence on of In Vicinity of Site
Salt-marsh harvest mouse (*Reithrodontomys raviventris*)	FE, SE	Only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is primary habitat.	No suitable habitat on site. No potential.
American badger (*Taxidea taxus*)	CSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.	Low Potential. No badger burrows observed during February 2021 reconnaissance. Site is surrounded by development.
Suisun shrew (*Sorex ornatus sinuosus*)	CSC	Tidal marshes of the northern shores of San Pablo and Suisun bays. Require dense low-lying cover and driftwood and other litter above the mean high tide line for nesting and foraging.	No suitable habitat on site. No potential.
Invertebrates			
Tomales roach (*Lavinia symmetricus*)	CSC	Habitat generalists. Tolerant of relatively high temperatures and low oxygen levels, however unable to tolerate very saline water. Tributaries to Tomales Bay.	No suitable habitat on site. No potential.
California freshwater shrimp (*Syncaris pacifica*)	FE, SE	Endemic to Marin, Napa, and Sonoma counties. Found in low gradient streams where riparian cover is moderate to heavy	No suitable habitat on site. No potential.

*Note: FSC = U.S. Fish and Wildlife Service Species of Concern; FE = federally listed as endangered; FT = federally listed as threatened; SE = state listed as endangered; ST = state listed as threatened; SFP = State fully protected (may not be taken or possessed without a permit from the Fish and Game Commission and/or CDFW). CSC = California species of special concern; CDFS = considered sensitive by the California Department of Forestry. WBWG (Western Bat Working Group) high priority = represents those species considered the highest priority for funding, planning, and conservation actions. These species are imperiled or are at high risk of imperilment.

**All migratory birds are protected by the Migratory Bird Treaty Act (50 CFR 10), which makes it unlawful to take, possess, buy, sell, purchase or barter any migratory bird, including feathers or other parts, nests, eggs or products, except as allowed by implementing regulations (50 CFR 21). In addition, Section 2080 of

the California Fish and Game Code prohibits the killing of a listed species, and Sections 3503, 3503.5, and 3800 of the Fish and Game Code prohibit the take, possession, or destruction of birds, their nests, or eggs.

Table compiled based on review of California Department of Fish and Wildlife Natural Diversity Database for the Petaluma River and surrounding USGS quadrangles. February 2021.

6.0 RECOMMENDATIONS AND MITIGATION MEASURES

The following mitigation measures are recommended for avoiding potential impacts to special-status species potentially occurring on or in the vicinity of the project site.

6.1 Special-status Plants

Special status plants associated with grassland habitats listed in Table 1 as having a moderate potential to occur on the site should be surveyed for the spring prior to ground disturbance associated with project construction.

6.2 Nesting Birds

- If initial ground disturbance or vegetation removal occurs during the breeding season (February 1 through August 31), a qualified biologist will conduct a breeding bird survey no more than 7 days prior to ground disturbance to determine if any birds are nesting in trees adjacent to the study area.
- If active nests are found close enough to the study to affect breeding success, the biologist will establish an appropriate exclusion zone around the nest. This exclusion zone may be modified depending upon the species, nest location, and existing visual buffers. Once all young have become independent of the nest, vegetation removal and grading may take place in the former exclusion zone.
- If initial ground disturbance is delayed or there is a break in project activities of greater than 7 days within the bird-nesting season, then a follow-up nesting bird survey should be performed to ensure no nests have been established in the interim.

6.3 Maternity Roosting Bats

- If initial ground disturbance occurs during the bat maternity roosting season (May 1 through August 31), a qualified biologist will conduct a bat roost assessment of trees within 100 feet of the Study area.
- If the biologist determines there is potential for maternity roosting bats to be present within 100 feet of the Study area, nighttime emergence surveys should be performed to determine if maternity roosting bats are present.
- If bat maternity roosts are present, the biologist will establish an appropriate exclusion zone around the maternity roost.

References

Best, C., J. T. Howell, W. Knight, I. Knight, and M. Wells. 1996. A flora of Sonoma County. California Native Plant Society, Sacramento, CA. 347 pp.

California Department of Fish and Wildlife (CDFW). 2021. Natural Diversity Database, Wildlife and Habitat Data Analysis Branch. Sacramento.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx

(http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/news/tech_spt_doc_for_CWR.pdf)

Kollmorgen Instruments Corporation. 1975. Munsell Soil Book of Color. Kollmorgen Instruments Corporation, Baltimore, Maryland.

Macmillan, Lucy. 2016. Personal communication with Dana Riggs, Principal Wildlife Biologist, WRA, Inc. July 19.

Natural Resources Conservation Service. 2021. United States Department of Agriculture. Web Soil Survey. Accessed February. Available at http://websoilsurvey.nrcs.usda.gov.

North Coast Regional Water Quality Control Board, 2007. http://www.waterboards.ca.gov/northcoast/programs/wqwetcert.html

SPNUSACE, 2020. San Francisco Corps of Engineers Regulatory Webpage.

U.S. Army Corps of Engineers, 2008. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0.

Zeiner, David C., William F. Laudenslayer, Jr., Kenneth E. Mayer, and Marshall White. 1990. California's Wildlife, Volume I, Amphibians and Reptiles, Volume II, Birds, and Volume III, Mammals. California Statewide Habitat Relationships

Appendix A - Plant Species Observed on Site February 4, 2021

Common name	Scientific name
Coast live oak	Quercus agrifolia
Valley oak	Quercus lobata
California bay	Umbellularia californica
Redwood	Sequoia sempervirens
Plum	Prunus spp.
Palm	Phoenix carieensis
Olive	Olea europea
Coyote bush	Baccharis pilularis
Poison oak	Toxicodendron diversilobum
Fennel	Foeniculum vulgare
Flat-nut sedge	Cyperus eragrostis
Oat	Avena sp.
Yellow star thistle	Centaurea solstitialis
Sheep sorrel	Rumex acetosella
Italian thistle	Carduus pycnocephalus

Appendix B – Wetland Data Sheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vartnaw Landing City/County: Petaluma CA Sampling Date: 2/4/21
Applicant/Owner: Geoff McComit State: CA Sampling Point: 1
Investigator(s): Lucy Macmillan Section, Township, Range:
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): none Slope (%): 1-2%
Subregion (LRR): LRRC Lat: Long: Datum:
Soil Map Unit Name: Yolo clay loam 0-5% slope NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No ✓?	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes	No ✓	
Wetland Hydrology Present?	Yes	No ✓	

Remarks: Rainfall however has been less so far

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. grasses	100	Y	NA
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)
Total Number of Dominant Species Across All Strata: ____ (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No ____

Remarks:
grass not flowering so can't ID

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR3/3	100					silty clay loam	friable

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ___ No ✓

Remarks:

no mottling or oxidized rhizospheres

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vartnaw Landing City/County: Petaluma CA Sampling Date: 2/4/21
Applicant/Owner: Geoff McComit State: CA Sampling Point: 2
Investigator(s): Lucy Macmillan Section, Township, Range:
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): none Slope (%): 1-2%
Subregion (LRR): LRRC Lat: Long: Datum:
Soil Map Unit Name: Yolo clay loam 0-5% slope NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No ✓	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes	No ✓	
Wetland Hydrology Present?	Yes	No ✓	

Remarks: Rainfall however has been less so far

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Lilly (cultivar)	30	Y	UPL N.A
2. Vinca major	10	N	UPL
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover: 40			
Woody Vine Stratum			
1. Rubus armeniacus	60	Y	FAC
2.			
Total Cover: 60			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	60	x 3 =	180
FACU species		x 4 =	
UPL species	30	x 5 =	150
Column Totals:	90 (A)		330 (B)

Prevalence Index = B/A = 3.6

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR3/2	100					silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

no ors or mottles

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vartnaw Landing City/County: Petaluma CA Sampling Date: 2/4/21
Applicant/Owner: Geoff McComit State: CA Sampling Point: 3
Investigator(s): Lucey Macmillan Section, Township, Range:
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): none Slope (%): 1-2%
Subregion (LRR): LRRC Lat: Long: Datum:
Soil Map Unit Name: Yolo clay loam 0-5% slope NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No ✓	Is the Sampled Area within a Wetland? Yes ____ No ____
Hydric Soil Present?	Yes	No ✓	
Wetland Hydrology Present?	Yes	No ✓	

Remarks: Rainfall however has been less so far

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Vinca major	10	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1. Rubus armeniacus	80	Y	FAC
2.			
Total Cover: 80			

% Bare Ground in Herb Stratum Ø % Cover of Biotic Crust Ø

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	80	x 3 =	240
FACU species		x 4 =	
UPL species	10	x 5 =	50
Column Totals:	90	(A)	290 (B)

Prevalence Index = B/A = 3.2

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR3/2	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vartnaw Landing City/County: Petaluma CA Sampling Date: 2/4/21
Applicant/Owner: Geoff McComit State: CA Sampling Point: 4
Investigator(s): Lucy Macmillan Section, Township, Range:
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): none Slope (%): 1-2%
Subregion (LRR): LRRC Lat: Long: Datum:
Soil Map Unit Name: Yolo clay loam 0-5% slope NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No	Is the Sampled Area within a Wetland? Yes No
Hydric Soil Present?	Yes	No ✓	
Wetland Hydrology Present?	Yes	No ✓	

Remarks: Rainfall however has been less so far

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Cyperus eragrostis	2	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1. Rubus armeniacus	80	Y	FAC
2.			
Total Cover:	80		

% Bare Ground in Herb Stratum ~10 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14/16	10YR3/3	100					silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vartnaw Landing City/County: Petaluma CA Sampling Date: 2/4/21
Applicant/Owner: Geoff McComit State: CA Sampling Point: 5
Investigator(s): Lucy Macmillan Section, Township, Range:
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): none Slope (%): 1-2%
Subregion (LRR): LRRC Lat: Long: Datum:
Soil Map Unit Name: Yolo clay loam 0-5% slope NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	Is the Sampled Area within a Wetland? Yes ____ No ____
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: Rainfall however has been less so far

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus sp.	5	Y	UPL
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Rumex acetosella	5	Y	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1. Rubus armeniacus	90	Y	FAC
2.			
Total Cover:	90		

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust Ø

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100					silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vartnaw Landing City/County: Petaluma CA Sampling Date: 2/4/21

Applicant/Owner: Geoff McComit State: CA Sampling Point: 6

Investigator(s): Lucy Macmillan Section, Township, Range:

Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): none Slope (%): 1-2%

Subregion (LRR): LRRC Lat: Long: Datum:

Soil Map Unit Name: Yolo clay loam 0-5% slope NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	NA Yes ____	No ✓	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: Rainfall however has been less so far

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. grasses	100	Y	NA
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species		x 3 =	
FACU species		x 4 =	
UPL species		x 5 =	
Column Totals:	(A)		(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? NA Yes ____ No ____

Remarks:

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16							silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks: no mottles or oxidized rhizospheres

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: soils wet ~ 15"

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vartnaw Landing City/County: Petaluma, CA Sampling Date: 2/4/21
Applicant/Owner: Geoff McComit State: CA Sampling Point: 1
Investigator(s): Lucy Macmillan Section, Township, Range:
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): none Slope (%): 1-2%
Subregion (LRR): LRRC Lat: Long: Datum:
Soil Map Unit Name: Yolo clay loam 0-5% slope NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ✓	Is the Sampled Area within a Wetland? Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: Rainfall however has been less so far

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1. Rubus armeniacus	80	Y	FAC
2.			
Total Cover:	80		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR3/2	100					silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vartnaw Landing City/County: Petaluma CA Sampling Date: 2/4/21
Applicant/Owner: Groff McComit State: CA Sampling Point: 8
Investigator(s): Lucy Macmillan Section, Township, Range:
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): None Slope (%): 1-2%
Subregion (LRR): LRRC Lat: Long: Datum:
Soil Map Unit Name: Yolo clay loam 0-5% slope NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No ____	Is the Sampled Area within a Wetland? Yes ____ No ____
Hydric Soil Present?	Yes ____ No ____	
Wetland Hydrology Present?	Yes ____ No ____	

Remarks: Rainfall however has been less so far.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1. Rubus armeniacus	90	Y	FAC
2.			
Total Cover:			

% Bare Ground in Herb Stratum N 10 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:
✓ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR3/2	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Vartnaw Landing City/County: Petaluma, CA Sampling Date: 2/4/21
Applicant/Owner: Groff McComit State: CA Sampling Point: 9
Investigator(s): Lucy Macmillan Section, Township, Range:
Landform (hillslope, terrace, etc.): Local relief (concave, convex, none): none Slope (%): 1-2%
Subregion (LRR): LRRC Lat: Long: Datum:
Soil Map Unit Name: Yolo clay loam, 0-5% slope NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No ____
Hydric Soil Present? Yes ____ No ____
Wetland Hydrology Present? Yes ____ No ____
Is the Sampled Area within a Wetland? Yes ____ No ____

Remarks: Rainfall however has been less so far

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. olea europea	10	Y	UPL
2.			
3.			
4.			
Total Cover:	10		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1. Rubus armeniacus	100	Y	FAC
2.			
Total Cover:	100		

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	
FACW species		x 2 =	
FAC species	100	x 3 =	300
FACU species		x 4 =	
UPL species	10	x 5 =	50
Column Totals:	110	(A)	350 (B)

Prevalence Index = B/A = 3.2

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16	10YR3/2	100					silty clay loam	
			7.5YR/6	<5	M			

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No ✓

Remarks: minimal mottles <5% at 16"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✓ Depth (inches): _____

Water Table Present? Yes ____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C – CNDDB Printout

SNAME	CNAME	ELMCODE	OCCNUMBER	MAPNDX	EONDX	KEYQUAD	KQUADNAME	KEYCOUNTY	PLSS	ELEVATION	PARTS	ELMTYPE	TAXONGROUP	EOCOUNT	ACCURACY	PRESENCE	OCCTYPE	OCCRANK	SENSITIVE	SITEDATE	ELMDATE
Lilium pardalinum ssp. pitkinense	Pitkin Marsh lily	PMLIL1A0H3	4	20323	93011	3812226	Petaluma	SON		0	1	1	Monocots	12	1 mile	Extirpated	Natural/Native occurrence	None	Y	188006XX	188006XX
Ambystoma californiense	California tiger salamander	AAAAA01180	1135	94460	91221	3812226	Petaluma	SON	T05N, R07W, Sec. 33 (M)	0	1	2	Amphibians	1	5 miles	Possibly Extirpated	Natural/Native occurrence	None	N	1856XXXX	1856XXXX
Riparia riparia	bank swallow	ABPAU08010	296	84455	85482	3812234	Sonoma	SON	T05N, R09W, Sec. 19 (M)	25	1	2	Birds	1	5 miles	Presumed Extant	Natural/Native occurrence	Unknown	N	18930523	18930523
Emys marmorata	western pond turtle	ARAAD02030	599	54262	54262	3812225	Petaluma River	SON		130	1	2	Reptiles	1	80 meters	Presumed Extant	Natural/Native occurrence	Good	Y	20040115	20040115
Reithrodontomys raviventris	salt-marsh harvest mouse	AMAFF02040	18	8474	14562	3812225	Petaluma River	SON	T04N, R06W, Sec. 20 (M)	3	1	2	Mammals	3	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	2005XXXX	2005XXXX
Coastal Brackish Marsh	Coastal Brackish Marsh	CTT52200CA	1	8474	16109	3812225	Petaluma River	SON	T04N, R06W, Sec. 20 (M)	0	1	3	Marsh	3	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	197706XX	197706XX
Tryonia imitator	mimic tryonia (=California brackishwater snail)	IMGASJ7040	13	8474	57939	3812225	Petaluma River	SON	T04N, R06W, Sec. 20 (M)	6	1	2	Mollusks	3	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	1984XXXX	1984XXXX
Rallus obsoletus obsoletus	California Ridgway's rail	ABNME05011	105	61749	61785	3812225	Petaluma River	SON	T04N, R06W, Sec. 18 (M)	3	1	2	Birds	1	non-specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	20140324	20140324
Geothlypis trichas sinuosa	saltmarsh common yellowthroat	ABPBX1201A	59	33859	14664	3812225	Petaluma River	SON	T04N, R06W, Sec. 18 (M)	0	1	2	Birds	1	non-specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	20040521	20040521
Melospiza melodia samuelis	San Pablo song sparrow	ABPBXA301W	25	61026	61062	3812225	Petaluma River	SON	T05N, R07W, Sec. 34 (M)	4	1	2	Birds	1	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19401006	19401006
Bombus occidentalis	western bumble bee	IIHYM24250	171	98473	99903	3812225	Petaluma River	MRN	T04N, R07W, Sec. 24 (M)	85	1	2	Insects	1	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19601001	19601001
Taxidea taxus	American badger	AMAJF04010	233	57122	57138	3812225	Petaluma River	SON	T04N, R07W, Sec. 14 (M)	200	1	2	Mammals	1	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19490720	19490720
Centromadia parryi ssp. parryi	pappose tarplant	PDAST4R0P2	13	56476	56492	3812236	Cotati	SON	T05N, R07W, Sec. 09 (M)	80	1	1	Dicots	1	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	1987XXXX	1987XXXX
Rana boylii	foothill yellow-legged frog	AAABH01050	1837	A8964	110772	3812236	Cotati	SON	T05N, R07W, Sec. 7 (M)	57	1	2	Amphibians	1	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19870903	19870903
Bombus occidentalis	western bumble bee	IIHYM24250	169	20323	99897	3812226	Petaluma	SON	T05N, R07W, Sec. 33 (M)	30	1	2	Insects	12	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19651021	19651021
Astragalus tener var. tener	alkali milk-vetch	PDFAB0F8R1	39	20323	9269	3812226	Petaluma	SON	T05N, R07W, Sec. 33 (M)	30	1	1	Dicots	12	1 mile	Extirpated	Natural/Native occurrence	None	N	19XXXXXX	188004XX
Taricha rivularis	red-bellied newt	AAAAF02020	136	20323	104578	3812226	Petaluma	SON	T05N, R07W, Sec. 33 (M)	20	1	2	Amphibians	12	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	XXXXXXXX	XXXXXXXX
Sidalcea calycosa ssp. rhizomata	Point Reyes checkerbloom	PDMAL11012	10	20323	9268	3812226	Petaluma	SON	T05N, R07W, Sec. 33 (M)	30	1	1	Dicots	12	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	18800506	18800506
Fritillaria liliacea	fragrant fritillary	PMLIL0V0C0	83	20323	94682	3812226	Petaluma	SON	T05N, R07W, Sec. 33 (M)	0	1	1	Monocots	12	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	18800403	18800403
Corynorhinus townsendii	Townsend's big-eared bat	AMACC08010	445	20323	93632	3812226	Petaluma	SON	T05N, R07W, Sec. 33 (M)	30	1	2	Mammals	12	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19381009	19381009
Plagiobothrys mollis var. vestitus	Petaluma popcornflower	PDBOR0V0Q2	1	20323	9265	3812226	Petaluma	SON	T05N, R07W, Sec. 33 (M)	20	1	1	Dicots	12	1 mile	Possibly Extirpated	Natural/Native occurrence	None	N	188007XX	188007XX
Chorizanthe valida	Sonoma spineflower	PDPGN040V0	5	20323	9266	3812226	Petaluma	SON	T05N, R07W, Sec. 33 (M)	30	1	1	Dicots	12	1 mile	Possibly Extirpated	Natural/Native occurrence	None	N	XXXXXXXX	XXXXXXXX
Hemizonia congesta ssp. congesta	congested-headed hayfield tarplant	PDAST4R065	38	20323	109811	3812226	Petaluma	SON	T05N, R07W, Sec. 33 (M)	20	1	1	Dicots	12	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	1930XXXX	1930XXXX
Allium peninsulare var. franciscanum	Franciscan onion	PMLIL021R1	10	20323	45129	3812226	Petaluma	SON	T05N, R07W, Sec. 33 (M)	0	1	1	Monocots	12	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	18800602	18800602
Trifolium polyodon	Pacific Grove clover	PDFAB402H0	24	20323	113568	3812226	Petaluma	SON	T05N, R07W, Sec. 33 (M)	20	1	1	Dicots	12	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	XXXXXXXX	XXXXXXXX
Polygonum marinense	Marin knotweed	PDPGN0L1C0	3	8464	20964	3812225	Petaluma River	MRN	T04N, R06W, Sec. 30 (M)	5	1	1	Dicots	1	1 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	19450708	19450708
Laterallus jamaicensis coturniculus	California black rail	ABNME03041	213	76085	77080	3812225	Petaluma River	SON	T04N, R06W, Sec. 19 (M)	7	1	2	Birds	1	non-specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	20110409	20110409
Buteo swainsoni	Swainson's hawk	ABNKC19070	2571	94447	91549	3812226	Petaluma	SON	T04N, R07W, Sec. 22 (M)	120	1	2	Birds	1	non-specific area	Possibly Extirpated	Natural/Native occurrence	None	N	1856XXXX	1856XXXX
Bombus occidentalis	western bumble bee	IIHYM24250	296	B6149	119187	3812224	Sears Point	SON	T04N, R06W, Sec. 14 (M)	145	1	2	Insects	1	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19530831	19530831
Chloropyron maritimum ssp. palustre	Point Reyes salty bird's-beak	PDSCR0J0C3	61	42155	42155	3812225	Petaluma River	SON	T04N, R06W, Sec. 20 (M)	4	1	1	Dicots	1	3/5 mile	Presumed Extant	Natural/Native occurrence	Excellent	N	19930917	19930917
Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS	AFCHA0209G	1	41863	41863	3812235	Glen Ellen	SON	T05N, R07W, Sec. 24 (M)	400	1	2	Fish	1	non-specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	20160408	20160408
Rallus obsoletus obsoletus	California Ridgway's rail	ABNME05011	89	59159	59195	3812225	Petaluma River	SON	T04N, R06W, Sec. 29, SE (M)	10	3	2	Birds	1	non-specific area	Presumed Extant	Natural/Native occurrence	Good	N	20110505	20110505
Melospiza melodia samuelis	San Pablo song sparrow	ABPBXA301W	24	60748	60784	3812225	Petaluma River	SON	T04N, R06W, Sec. 19 (M)	0	1	2	Birds	1	2/5 mile	Presumed Extant	Natural/Native occurrence	Unknown	N	1981XXXX	1981XXXX
Rana boylii	foothill yellow-legged frog	AAABH01050	159	36971	31968	3812235	Glen Ellen	SON	T05N, R07W, Sec. 13 (M)	325	1	2	Amphibians	1	non-specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	1998XXXX	1998XXXX
Laterallus jamaicensis coturniculus	California black rail	ABNME03041	216	76090	77085	3812225	Petaluma River	SON	T04N, R07W, Sec. 1, S (M)	0	1	2	Birds	1	non-specific area	Presumed Extant	Natural/Native occurrence	Good	N	20150318	20150318
Geothlypis trichas sinuosa	saltmarsh common yellowthroat	ABPBX1201A	58	16022	24806	3812225	Petaluma River	SON	T05N, R07W, Sec. 34, SE (M)	9	1	2	Birds	2	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	1985XXXX	1985XXXX
Reithrodontomys raviventris	salt-marsh harvest mouse	AMAFF02040	44	16022	23866	3812225	Petaluma River	SON	T05N, R07W, Sec. 34 (M)	8	1	2	Mammals	2	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19901222	19901222
Laterallus jamaicensis coturniculus	California black rail	ABNME03041	215	76089	77084	3812225	Petaluma River	SON	T04N, R07W, Sec. 12, NE (M)	7	1	2	Birds	1	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	20080527	20080527
Rallus obsoletus obsoletus	California Ridgway's rail	ABNME05011	115	97463	98760	3812225	Petaluma River	SON	T05N, R07W, Sec. 35, SW (M)	5	1	2	Birds	1	non-specific area	Presumed Extant	Natural/Native occurrence	Good	N	20140324	20140324
Trifolium amoenum	two-fork clover	PDFAB40040	19	8330	19163	3812226	Petaluma	SON	T04N, R07W, Sec. 09, W (M)	300	1	1	Dicots	2	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19690526	19690526
Delphinium luteum	golden larkspur	PDRAN0B0Z0	2	8330	21638	3812226	Petaluma	SON	T04N, R07W, Sec. 09, W (M)	150	1	1	Dicots	2	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19620419	19620419
Chloropyron molle ssp. molle	soft salty bird's-beak	PDSCR0J0D2	10	8469	17822	3812225	Petaluma River	SON	T04N, R06W, Sec. 19, SE (M)	0	1	1	Dicots	1	1/5 mile	Possibly Extirpated	Natural/Native occurrence	None	N	19930917	19781108
Hemizonia congesta ssp. congesta	congested-headed hayfield tarplant	PDAST4R065	13	72953	73865	3812236	Cotati	SON	T05N, R07W, Sec. 18 (M)	0	1	1	Dicots	1	non-specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19160723	19160723
Emys marmorata	western pond turtle	ARAAD02030	420	30180	4936	3812226	Petaluma	SON	T04N, R07W, Sec. 18, S (M)	120	1	2	Reptiles	1	specific area	Presumed Extant	Natural/Native occurrence	Fair	N	20020325	20020325
Emys marmorata	western pond turtle	ARAAD02030	1349	A4178	105855	3812226	Petaluma	SON	T04N, R07W, Sec. 8, SE (M)	273	1	2	Reptiles	1	specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	20160725	20160725
Emys marmorata	western pond turtle	ARAAD02030	764	70718	71627	3812225	Petaluma River	SON	T04N, R07W, Sec. 01 (M)	15	1	2	Reptiles	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20070726	20070726
Pogonichthys macrolepidotus	Sacramento splittail	AFCJB34020	8	42851	42851	3812226	Petaluma	SON	T05N, R07W, Sec. 28 (M)	1	1	2	Fish	1	specific area	Presumed Extant	Natural/Native occurrence	Unknown	N	19990823	19990823
Rana draytonii	California red-legged frog	AAABH01022	353	42674	42674	3812226	Petaluma	SON	T04N, R07W, Sec. 06, NW (M)	200	1	2	Amphibians	1	non-specific area	Presumed Extant	Natural/Native occurrence	Good	N	20010918	20010918
Emys marmorata	western pond turtle	ARAAD02030	183	46159	46159	3812226	Petaluma	SON	T05N, R07W, Sec. 30, SW (M)	45	1	2	Reptiles	1	non-specific area	Presumed Extant	Natural/Native occurrence	Good	N	20010524	20010524
Taxidea taxus	American badger	AMAJF04010	22	53938	53938	3812226	Petaluma	SON	T05N, R07W, Sec. 32, NW (M)	200	2	2	Mammals	1	specific area	Presumed Extant	Natural/Native occurrence	Fair	N	20090909	20090909
Laterallus jamaicensis coturniculus	California black rail	ABNME03041	313	A3442	105078	3812225	Petaluma River	SON	T04N, R07W, Sec. 2, NE (M)	7	1	2	Birds	1	1/10 mile	Presumed Extant	Natural/Native occurrence	Good	N	20120403	20120403
Laterallus jamaicensis coturniculus	California black rail	ABNME03041	312	A3439	105076	3812225	Petaluma River	SON	T04N, R07W, Sec. 2, NW (M)	4	1	2	Birds	1	1/10 mile	Presumed Extant	Natural/Native occurrence	Good	N	20150318	20150318
Rana draytonii	California red-legged frog	AAABH01022	1461	A4177	105854	3812226	Petaluma	SON	T04N, R07W, Sec. 8, SE (M)	248	3	2	Amphibians	1	specific area	Presumed Extant	Natural/Native occurrence	Excellent	N	20160805	20160805
Rana boylii	foothill yellow-legged frog	AAABH01050	1838	A8966	110777	3812225	Petaluma River	SON	T05N, R07W, Sec. 35, SE (M)	21	1	2	Amphibians	1	specific area	Presumed Extant	Natural/Native occurrence	Poor	N	20190424	20190424
Emys marmorata	western pond turtle	ARAAD02030	779	71249	72155	3812225	Petaluma River	SON	T05N, R07W, Sec. 35 (M)	12	1	2	Reptiles	1	non-specific area	Presumed Extant	Natural/Native occurrence	Good	N	20080118	20080118
Emys marmorata	western pond turtle	ARAAD02030	561	49246	49246	3812226	Petaluma	MRN	T04N, R07W, Sec. 19, NW (M)	210	1	2	Reptiles	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20020325	20020325
Streptanthus anomalus	Mount Burdell jewelflower	PDBRA2G520	2	B4790	117703	3812226	Petaluma	MRN	T04N, R07W, Sec. 28, SE (M)	535	1	1	Dicots	1	80 meters	Presumed Extant	Natural/Native occurrence	Unknown	N	20190628	20190628
Rana draytonii	California red-legged frog	AAABH01022	1563	A9426	111274	3812236	Cotati	SON	T05N, R08W, Sec. 24, SW (M)	51	1	2	Amphibians	1	80 meters	Presumed Extant	Natural/Native occurrence	Fair	N	20170516	20170516
Taxidea taxus	American badger	AMAJF04010	533	A3302	104932	3812236	Cotati	SON	T05N, R07W, Sec. 28, NW (M)	24	1	2	Mammals	1	80 meters	Presumed Extant	Natural/Native occurrence	Poor	N	20160814	20160814
Rana draytonii	California red-legged frog	AAABH01022	959	69220	70000	3812225	Petaluma River	SON	T04N, R07W, Sec. 01 (M)	10	1	2	Amphibians	1	80 meters	Presumed Extant	Natural/Native occurrence	Good	N	19940429	19940429
Emys marmorata	western pond turtle	ARAAD02030	563	49437	49437	3812226	Petaluma	MRN	T04N, R08W, Sec. 13 (M)	150	1	2	Reptiles	1	80 meters	Presumed Extant	Natural/Native occurrence	Good	N	20020325	20020325
Rana draytonii	California red-legged frog	AAABH01022	559	48729	48729	3812226	Petaluma	MRN	T04N, R07W, Sec. 18, SE (M)	180	1	2	Amphibians	1	80 meters	Presumed Extant	Natural/Native occurrence	Fair	N	20020617	20020617
Antrozous pallidus	pallid bat	AMACC10010	50	43657	43657	3812226	Petaluma	SON	T04N, R07W, Sec. 04, NE (M)	80	1	2	Mammals	1	80 meters	Presumed Extant	Natural/Native occurrence	Poor	N	19971011	19971011
Emys marmorata	western pond turtle	ARAAD02030	533	46138	46138	3812225	Petaluma River	SON	T05N, R06W, Sec. 33, NW (M)	200	1	2	Reptiles	1	80 meters	Presumed Extant	Natural/Native occurrence	Fair	N	20001027	20001027
Rana draytonii	California red-legged frog	AAABH01022	441	45553	45553	3812226	Petaluma	SON	T05N, R07W, Sec. 30 (M)	45	1	2	Amphibians	1	80 meters	Presumed Extant	Natural/Native occurrence	Good	N	20010524	20010524
Eriogonum luteolum var. caninum	Tiburon buckwheat	PDPGN08351	26	93241	94378	3812226	Petaluma	MRN	T04N, R07W, Sec. 28, SE (M)	550	1	1	Dicots	2	80 meters	Presumed Extant	Natural/Native occurrence	Excellent	N	20110603	20110603
Hesperolinon congestum	Marin western flax	PDLIN01060	34	93241	110974	3812226	Petaluma	MRN	T04N, R07W, Sec. 28, SE (M)	550	1	1	Dicots	2	80 meters	Presumed Extant	Natural/Native occurrence	Excellent	N	20110603	20110603
Amorpha californica var. napensis	Napa false indigo	PDFAB08012	57	96367	98056	3812226	Petaluma	MRN	T04N, R07W, Sec. 21, NW (M)	600	1	1	Dicots	2	80 meters	Presumed Extant	Natural/Native occurrence	Excellent	N	20110518	20110518
Pleuropogon hooverianus	North Coast semaphore grass	PMPOA4Y070	34	96367	97530	3812226	Petaluma	MRN	T04N, R07W, Sec. 21, NW (M)	460	1	1	Monocots	2	80 meters	Presumed Extant	Natural/Native occurrence	Excellent	N	20120409	20120409
Taxidea taxus	American badger	AMAJF04010	405	70325	71214	3812236	Cotati	SON	T05N, R07W, Sec. 18 (M)	48	1	2	Mammals	1	80 meters	Presumed Extant	Natural/Native occurrence	Fair	N	20061022	20061022
Rana draytonii	California red-legged frog	AAABH01022	840	61801	61837	3812226	Petaluma	SON	T04N, R07W, Sec. 04, NW (M)	85	1	2	Amphibians	1	80 meters	Presumed Extant	Natural/Native occurrence	Fair	N	20050429	20050429
Emys marmorata	western pond turtle	ARAAD02030	662	69484	70264	3812236	Cotati	SON	T05N, R07W, Sec. 18 (M)	29	1	2	Reptiles	1	80 meters	Presumed Extant	Natural/Native occurrence	Good	N	20070525	20070525
Rana draytonii	California red-legged frog	AAABH01022	968	69801	70624	3812226	Petaluma	SON	T04N, R07W, Sec. 05, NE (M)	171	1	2	Amphibians	1	80 meters	Presumed Extant	Natural/Native occurrence	Fair	N	20070819	20070819
Rana boylii	foothill yellow-legged frog	AAABH01050	476	73308	74273	3812225	Petaluma River	SON	T05N, R07W, Sec. 35, NE (M)	30	1	2	Amphibians	1	80 meters	Presumed Extant	Natural/Native occurrence	Fair	N	20080703	20080703
Emys marmorata	western pond turtle	ARAAD02030	619	57929	57945	3812226	Petaluma	SON	T04N, R07W, Sec. 05, SW (M)	400	1	2	Reptiles	1	80 meters	Presumed Extant	Natural/Native occurrence	Fair	N	19980807	19980807
Rana draytonii	California red-legged frog	AAABH01022	756	56889	56905	3812226	Petaluma	SON	T04N, R07W, Sec. 05, NW (M)	200	1	2	Amphibians	1	80 meters	Presumed Extant	Natural/Native occurrence	Good	N	20070607	20070607
Rana draytonii	California red-legged frog	AAABH01022	653	51771	51771	3812226	Petaluma	SON	T04N, R07W, Sec. 05, SE (M)	200	1	2	Amphibians	1	80 meters	Presumed Extant	Natural/Native occurrence	Excellent	N	20030602	20030602
Athene cunicularia	burrowing owl	ABNSB10010	769	64140	64235	3812226	Petaluma	SON	T04N, R08W, Sec. 02 (M)	260	1	2	Birds	1	80 meters	Presumed Extant	Natural/Native occurrence	Fair	N	20051124	20051124
Emys marmorata	western pond turtle	ARAAD02030	527	45420	45420	3812225	Petaluma River	SON	T05N, R06W, Sec. 31 (M)	160	1	2	Reptiles	1	specific area	Presumed Extant	Natural/Native occurrence	Good	N	20010506	20010506

OWNERMGT	FEDLIST	CALLIST	GRANK	SRANK	RPLANTRANK	CDFWSTATUS	OTHRSTATUS	LOCATION
	Endangered	Endangered	G5T1	S1	1B.1		SB_BerrySB; SB_CalBG/RSABG; SB_USDA	
UNKNOWN	Threatened	Threatened	G2G3	S2S3		WL	IUCN_VU	PETALUMA.
UNKNOWN	None	Threatened	G5	S2			BLM_S; IUCN_LC	SONOMA CREEK NEAR THE TOWN OF SONOMA.
	None	None	G3G4	S3		SSC	BLM_S; IUCN_VU; USFS_S	
DFG-PETALUMA MARSH WA, PVT	Endangered	Endangered	G1G2	S1S2		FP	IUCN_EN	PETALUMA MARSH, ON WEST BANK OF PETALUMA RIVER FROM 2 MILES SOUTH OF PETALUMA TO BLACK POINT, NW OF SAN PABLO BAY.
DFG-PETALUMA MARSH WA, PVT	None	None	G2	S2.1				VICINITY OF NEILS ISLAND ON THE PETALUMA RIVER.
DFG-PETALUMA MARSH WA, PVT	None	None	G2	S2			IUCN_DD	PETALUMA RIVER MARSH, ABOUT 5.0 MI SOUTHEAST OF PETALUMA.
DFG-PETALUMA MARSH WA, UNK	Endangered	Endangered	G5T1	S1		FP	NABCI_RWL	AREA OF PETALUMA MARSH NORTH OF MUD HEN SLOUGH.
DFG-PETALUMA MARSH WA, PVT	None	None	G5T3	S3		SSC	USFWS_BCC	PETALUMA MARSH, BORDERED ON THE EAST BY THE PETALUMA RIVER, SE OF PETALUMA.
UNKNOWN	None	None	G5T2	S2		SSC	USFWS_BCC	VICINITY OF PETALUMA.
UNKNOWN	None	Candidate Endangered	G2G3	S1			USFS_S	4 MILES SOUTHEAST OF PETALUMA.
UNKNOWN	None	None	G5	S3		SSC	IUCN_LC	7 MILES NORTH OF NOVATO.
UNKNOWN	None	None	G3T2	S2	1B.2		BLM_S	WILLOW BROOK, NORTH OF PETALUMA.
UNKNOWN	None	Endangered	G3	S3		SSC	BLM_S; IUCN_NT; USFS_S	VINCINITY OF LICHAU CREEK, PENNGROVE.
UNKNOWN	None	Candidate Endangered	G2G3	S1			USFS_S	PETALUMA.
UNKNOWN	None	None	G2T1	S1	1B.2			PETALUMA.
UNKNOWN	None	None	G4	S2		SSC	IUCN_LC	PETALUMA.
UNKNOWN	None	None	G5T2	S2	1B.2			PETALUMA.
UNKNOWN	None	None	G2	S2	1B.2		SB_CalBG/RSABG; USFS_S	PETALUMA.
UNKNOWN	None	None	G3G4	S2		SSC	BLM_S; IUCN_LC; USFS_S; WBWG_H	PETALUMA.
UNKNOWN	None	None	G4?TX	SX	1A			VICINITY OF PETALUMA.
UNKNOWN	Endangered	Endangered	G1	S1	1B.1		SB_CalBG/RSABG	PETALUMA.
UNKNOWN	None	None	G5T2	S2	1B.2		SB_UCBG	PETALUMA.
UNKNOWN	None	None	G5T2	S2	1B.2			PETALUMA.
UNKNOWN	None	Rare	G1	S1	1B.1		BLM_S; SB_USDA	PETALUMA, SONOMA COUNTY.
UNKNOWN	None	None	G2Q	S2	3.1			BURDELL.
DFG-PETALUMA MARSH WA	None	Threatened	G3G4T1	S1		FP	BLM_S; IUCN_NT; NABCI_RWL; USFWS_BCC	ALONG W BANK OF THE PETALUMA RIVER, IMEDIATELY N & NW OF HOG ISLAND, S OF LAKEVILLE, PETALUMA MARSH WILDLIFE AREA.
UNKNOWN	None	Threatened	G5	S3			BLM_S; IUCN_LC; USFWS_BCC	SAN ANTONIO CREEK SOUTH OF PETALUMA.
UNKNOWN	None	Candidate Endangered	G2G3	S1			USFS_S	TOLAY CREEK.
DFG-PETALUMA MARSH WA	None	None	G4?T2	S2	1B.2		BLM_S	PETALUMA MARSH, BETWEEN WOLOKI AND MUD HEN SLOUGHS, ABOUT 5 MILES SOUTHEAST OF PETALUMA.
UNKNOWN	Threatened	None	G5T2T3Q	S2S3			AFS_TH	ADOBE CREEK, ON THE EAST SIDE OF PETALUMA.
SONOMA LAND TRUST, UNKNOWN	Endangered	Endangered	G5T1	S1		FP	NABCI_RWL	EAST SIDE OF PETALUMA RIVER FROM HWY 37 BRIDGE (CARLS MARSH) UPSTREAM ABOUT 6.5 MILES TO LAKEVILLE, NE OF NAVATO.
DFG-PETALUMA MARSH WA	None	None	G5T2	S2		SSC	USFWS_BCC	PORTION OF PETALUMA MARSH LOCATED BETWEEN MUD SLOUGH AND DONAHUE SLOUGH.
UNKNOWN	None	Endangered	G3	S3		SSC	BLM_S; IUCN_NT; USFS_S	ADOBE CREEK, RUNNING BETWEEN SONOMA MOUNTAIN AND NW EDGE OF PETALUMA.
CITY OF PETALUMA	None	Threatened	G3G4T1	S1		FP	BLM_S; IUCN_NT; NABCI_RWL; USFWS_BCC	MARSH SW OF SEWAGE PONDS, ABOUT 1.7 MI ESE OF HAYSTACK & 2.2 MI SE OF MIWOK VALLEY ELEMENTARY SCHOOL, PETALUMA.
CITY OF PETALUMA, PVT	None	None	G5T3	S3		SSC	USFWS_BCC	MCNEAR, ALONG THE PETALUMA RIVER, ESE OF PETALUMA.
CITY OF PETALUMA, PVT	Endangered	Endangered	G1G2	S1S2		FP	IUCN_EN	PETALUMA RIVER MARSH, 0.5 MILE SE OF INTERCHANGE OF HIGHWAYS 101 & 116, PETALUMA.
UNKNOWN	None	Threatened	G3G4T1	S1		FP	BLM_S; IUCN_NT; NABCI_RWL; USFWS_BCC	PETALUMA MARSH EAST OF NORTHWESTERN RAILROAD, NORTH OF SCHULTZ SLOUGH, & SOUTH OF PETALUMA RIVER CUT B.
CITY OF PETALUMA	Endangered	Endangered	G5T1	S1		FP	NABCI_RWL	AREA SE OF HWY 101 AT HWY 116, N OF PETALUMA RIVER.
UNKNOWN	Endangered	None	G1	S1	1B.1		SB_CalBG/RSABG; SB_UCBG; SB_USDA	POINT REYES ROAD, 2 MILES SOUTH OF PETALUMA.
UNKNOWN	Endangered	Rare	G1	S1	1B.1		SB_UCBG	2 MILES WEST OF PETALUMA ON D STREET EXTENSION TOWARD POINT REYES.
DFG-PETALUMA MARSH WA	Endangered	Rare	G2T1	S1	1B.2			PETALUMA MARSH, BETWEEN SAN ANTONIO & MUD HEN SLOUGH, ABOUT 1.3 MI NORTH OF BURDELL ISLAND.
UNKNOWN	None	None	G5T2	S2	1B.2		SB_UCBG	4 MILES NW OF PETALUMA.
PVT-SPALLETTA DAIRY	None	None	G3G4	S3		SSC	BLM_S; IUCN_VU; USFS_S	SAN ANTONIO CREEK, WEST OF POINT REYES-PETALUMA ROAD, 2.5 MILES SSW OF PETALUMA.
PVT	None	None	G3G4	S3		SSC	BLM_S; IUCN_VU; USFS_S	ABOUT 1.0 MI NE OF SAN ANTONIO RD AT D ST EXTENSION & 1.2 MI SE OF CHILENO VALLEY RD AT ARMSTRONG (RD), SW OF PETALUMA.
CITY OF PETALUMA, STATE	None	None	G3G4	S3		SSC	BLM_S; IUCN_VU; USFS_S	ELLIS CREEK, FROM LAKEVILLE HIGHWAY TO THE INTERTIDAL BOUNDARY ABOUT 3000 FT DOWNSTREAM, EAST OF PETALUMA.
UNKNOWN	None	None	GNR	S3		SSC	AFS_VU; IUCN_EN	PETALUMA RIVER, BETWEEN NORTHWESTERN PACIFIC RAILROAD AND LYNCH CREEK CONFLUENCE, PETALUMA.
UNKNOWN	Threatened	None	G2G3	S2S3		SSC	IUCN_VU	MARIN CREEK, AT WESTERN AVENUE, SW OF PETALUMA.
UNKNOWN	None	None	G3G4	S3		SSC	BLM_S; IUCN_VU; USFS_S	NW OF PETALUMA; 350 FT NORTH AND 0.25 MILE SOUTH OF MAGNOLIA AVE ALONG STREAM.
PVT	None	None	G5	S3		SSC	IUCN_LC	WEST OF PAULA LANE AND SOUTH OF SUNSET DRIVE, WEST OF PETALUMA.
CITY OF PETALUMA	None	Threatened	G3G4T1	S1		FP	BLM_S; IUCN_NT; NABCI_RWL; USFWS_BCC	ABOUT 0.3 MI SW OF CYPRESS DR AT PINE VIEW WAY, 0.7 MI SSE OF HWY 116 AT MCDOWELL RD, MCNEAR, ESE OF PETALUMA.
CITY OF PETALUMA	None	Threatened	G3G4T1	S1		FP	BLM_S; IUCN_NT; NABCI_RWL; USFWS_BCC	VICINITY OF PETALUMA RIVER & ADOBE CREEK CONFLUENCE, ABOUT 0.9 MI SE OF HWY 101 & HWY 116 INTERSECTION, E OF PETALUMA.
PVT	Threatened	None	G2G3	S2S3		SSC	IUCN_VU	ABOUT 1.0 MI NE OF SAN ANTONIO RD AT D ST EXTENSION & 1.2 MI SE OF CHILENO VALLEY RD AT ARMSTRONG (RD), SW OF PETALUMA.
SONOMA CO WATER AGENCY	None	Endangered	G3	S3		SSC	BLM_S; IUCN_NT; USFS_S	ADOBE CREEK NEAR LAKEVIEW HIGHWAY (HIGHWAY 116), PETALUMA.
CITY OF PETALUMA	None	None	G3G4	S3		SSC	BLM_S; IUCN_VU; USFS_S	SHOLLENBERGER PARK AT THE SOUTH END OF CADER LANE, PETALUMA.
PVT	None	None	G3G4	S3		SSC	BLM_S; IUCN_VU; USFS_S	0.5 MILE SOUTH OF SAN ANTONIO CREEK AND 0.5 MILE WEST OF POINT REYES-PETALUMA ROAD, 3 MILES SW OF PETALUMA.
PVT	None	None	G1	S1	1B.1			CORDA RANCH; SAN ANTONIO CREEK WATERSHED ON NORTH SIDE OF MT. BURDELL.
UNKNOWN	Threatened	None	G2G3	S2S3		SSC	IUCN_VU	WIGGINS CREEK, ABOUT 0.2 MILES NE OF SKILLMAN RD AT LIBERTY RD, NW OF PETALUMA.
CALTRANS	None	None	G5	S3		SSC	IUCN_LC	HWY 101 ABOUT 0.2 MI W OF COMMERCE ST AT TRANSPORT WAY & 0.3 MILES SSE OF N. MCDOWELL BLVD AT PALO VERDE WAY IN PETALUMA.
UNKNOWN	Threatened	None	G2G3	S2S3		SSC	IUCN_VU	ELLIS CREEK, BETWEEN SOUTH ELY ROAD AND PETALUMA MARSH, SE OF PETALUMA.
PVT	None	None	G3G4	S3		SSC	BLM_S; IUCN_VU; USFS_S	0.15 MILE SOUTH OF SAN ANTONIO CREEK AND 1 MILE WEST OF POINT REYES-PETALUMA ROAD, 3 MILES SW OF PETALUMA.
PVT	Threatened	None	G2G3	S2S3		SSC	IUCN_VU	SAN ANTONIO CREEK, WEST OF POINT REYES-PETALUMA ROAD, 2.5 MILES SSW OF PETALUMA.
PVT	None	None	G5	S3		SSC	BLM_S; IUCN_LC; USFS_S; WBWG_H	HOUSE, NW CORNER OF GLENDON WAY AND MOUNTAIN VIEW AVE, PETALUMA.
PVT	None	None	G3G4	S3		SSC	BLM_S; IUCN_VU; USFS_S	EAST OF PETALUMA. APPROX 0.16 MILES WEST OF INTERSECT OF ADOBE RD & STAGE GULCH RD. EAST SHORE OF RESERVOIR.
UNKNOWN	Threatened	None	G2G3	S2S3		SSC	IUCN_VU	SOUTH OF MAGNOLIA AVENUE, WEST SIDE OF PETALUMA.
PVT	None	None	G5T2	S2	1B.2			APPROXIMATELY 1.5 AIR MILES NW OF THE NW CORNER OF MT. BURDELL OPEN SPACE PRESERVE.
PVT	Threatened	Threatened	G1	S1	1B.1		SB_CalBG/RSABG; SB_UCBG	APPROXIMATELY 1.5 AIR MILES NW OF THE NW CORNER OF MT. BURDELL OPEN SPACE PRESERVE.
PVT	None	None	G4T2	S2	1B.2		SB_CalBG/RSABG	SOUTH OF SAN ANTONIO CREEK; ABOUT 1.5 AIR MILES SE OF THE JUNCTION OF SAN ANTONIO ROAD AND POINT REYES PETALUMA ROAD.
PVT	None	Threatened	G2	S2	1B.1		SB_BerrySB; SB_CalBG/RSABG	SOUTH OF SAN ANTONIO CREEK, ABOUT 3.4 AIR MILES NORTHWEST OF SUMMIT OF BURDELL MOUNTAIN.
PVT, CALTRANS	None	None	G5	S3		SSC	IUCN_LC	HWY 101, 0.5 MI NW OF INTERSECTION WITH OLD REDWOOD HWY.
PVT	Threatened	None	G2G3	S2S3		SSC	IUCN_VU	KELLY CREEK, SOUTH OF THE D STREET CROSSING, SOUTH EDGE OF PETALUMA.
SONOMA CO WATER AGENCY	None	None	G3G4	S3		SSC	BLM_S; IUCN_VU; USFS_S	WILLOW BROOK, JUST WEST OF HIGHWAY 101, 0.4 MILE NW OF THE OLD REDWOOD HIGHWAY EXIT, BETWEEN PETALUMA AND PENNGROVE.
PVT	Threatened	None	G2G3	S2S3		SSC	IUCN_VU	RESIDENTIAL AREA ALONG B STREET, PETALUMA.
CITY OF PETALUMA, PVT	None	Endangered	G3	S3		SSC	BLM_S; IUCN_NT; USFS_S	ADOBE CREEK, EAST SIDE OF PETALUMA.
SON COUNTY	None	None	G3G4	S3		SSC	BLM_S; IUCN_VU; USFS_S	FISH POND AT HELEN PUTNAM REGIONAL PARK, WEST OF PETALUMA.
PVT	Threatened	None	G2G3	S2S3		SSC	IUCN_VU	3 POOLS WITHIN A TRIBUTARY TO MARIN CREEK, 0.3 MILE UPSTREAM FROM THE CONFLUENCE, WEST OF PETALUMA.
PVT-UNIVERSITY OF THE PACIFIC	Threatened	None	G2G3	S2S3		SSC	IUCN_VU	0.2 MILE WEST OF POINT REYES-PETALUMA ROAD, JUST SOUTH OF PETALUMA.
PVT	None	None	G4	S3		SSC	BLM_S; IUCN_LC; USFWS_BCC	SOUTH SIDE OF BURNS VALLEY ROAD, 0.6 MILE SW OF THE INTERSECTION WITH SPRING HILL ROAD, 3 MILES SW OF PETALUMA.
PVT	None	None	G3G4	S3		SSC	BLM_S; IUCN_VU; USFS_S	1.2 MILES NNE OF THE INTERSECTION OF HIGHWAY 116 AND BROWNS LANE, EAST OF PETALUMA.

LOCDETAILS
SPECIMEN LOCALITY STATED AS "PETALUMA." REFERENCES CLARIFY COLLECTION BY E. SAMUELS IN 1856 & THAT SAMUELS COLLECTED WIN 20 MI OF PETALUMA, THOUGH NEARLY ALL CATALOGED AS "PET
LOCATION STATED AS "SONOMA, SONOMA CO." NEST LOCATED SIX FEET UP IN GRAVEL BANK ON "SONOMA RIVER." MAPPED GENERALLY TO SONOMA CREEK BY THE TOWN OF SONOMA.
ALSO A NARROW PORTION OF THE EAST BANK PETALUMA RIVER OPPOSITE THE MOUTH OF BLACK JOHN SLOUGH AND IN THE BAHIA-NOVATO.
1897 AND 1899 LOCATIONS STATED AS "PETALUMA CREEK.""
MAPPED TO PROVIDED MAP, SHAPEFILES FOR SITES ELCR, FASL, TUSL & WOSL, AND TRS.
1985. OBSERVED THROUGHOUT THE MARSH. 2004: DETECTIONS NEAR MIRA MONTE SLOUGH.
MVZ LOCATIONS: "PETALUMA" (1908, 1917), "1.5 MI S PETALUMA" AND "0.7 MI S PETALUMA" (1927), "0.7 MI S OF THE CHINESE CENTER OF PETALUMA", "0.25 MI S PETALUMA" (1940). CAS LOCATION: "PETALUMA
EXACT LOCATION UNKNOWN. MAPPED BY CNDDB 4 ROAD MILES SOUTHEAST OF PETALUMA, ALONG HIGHWAY 101, EAST OF DONAHUE SLOUGH.
EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB, IN THE VICINITY OF WILLOW BROOK, APPROXIMATELY 1.0 MILE SW OF PENNGROVE.
GIVEN LOCALITY: "LOWER LICHUA CREEK, SONOMA CO." EXACT LOCATION UNKNOWN. MAPPED NON-SPECIFICALLY TO LOWER PART OF CREEK NEAR PENNGROVE.
EXACT LOCATION UNKNOWN. MAPPED BY CNDDB IN THE GENERAL VICINITY OF THE CITY OF PETALUMA.
MAPPED NON-SPECIFICALLY TO PETALUMA, EXACT LOCATION UNKNOWN. MOST LIKELY COLLECTED FROM FOOTHILLS TO THE SOUTH OR NORTH.
EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS IN THE VICINITY OF PETALUMA.
MAPPED GENERALLY TO SPECIMEN LOCALITY ""PETALUMA."" EXACT COLLECTION LOCATION UNKNOWN.
EXACT LOCATION UNKNOWN. MAPPED IN THE GENERAL VICINITY OF PETALUMA.
EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB IN THE VICINITY OF PETALUMA, BASED ON A 1930 CRUM COLLECTION.
EXACT LOCATION UNKNOWN. MAPPED IN THE GENERAL VICINITY OF PETALUMA.
EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB AROUND PETALUMA BASED ON SITE NAME GIVEN BY MORGAN.
MAPPED TO GENERAL MAP LOCATIONS AND SHAPEFILES FOR 2009-2010 SURVEY SITES (6 TOTAL SITES W/ POSITIVE DETECTIONS). SOUTHERN HALF OF SITE REFERRED TO AS THE PETALUMA MARSH. DETECT
EXACT LOCATION UNKNOWN. SPECIMEN COLLECTED BY E. SAMUELS LABLED AS "PETALUMA" HOWEVER OTHER REFERENCES (BRES7A0001) DETAIL THAT THE NEST WAS FROM "SAN ANTONIO CREEK, NEAR P
MAPPED NON-SPECIFICALLY ALONG THE EXTENT OF TOLAY CREEK. EXACT COLLECTION LOCATION UNKNOWN.
NEAR POND EDGE ON RAISED BED OF ORGANIC SOIL.
1984-1997: FISH OBSERVED FROM PETALUMA RIVER TO 1600 FOOT ELEVATION. 2016: OBSERVATIONS AT SITE PROPOSED FOR PARK, ABOUT 0.7 MILES NE OF THE JUNCTION OF SONOMA MOUNTAIN RD AND PA
MAPPED TO PROVIDED SHAPEFILE FOR SITES LAMA, PETE, AND PRM. NARROW STRIP OF HABITAT ON EAST SIDE OF PETALUMA RIVER FROM HWY 37 BRIDGE TO ABOUT 6.5 MILES UPSTREAM, JUST SOUTH OF
MAPPED TO 1997'S SURVEY REACH. ATTRIBUTED SPECIMEN COLLECTED FROM "3.5 MI ENE PETALUMA", EXACT LOCATION UNKNOWN.
LOCATION DESCRIBED AS T4N R7W SEC 1 SE 1/4, JUST WEST OF SEWAGE PONDS. MAPPED TO SE 1/4 OF SEC 1, EXCLUDING THE SEWAGE PONDS. SURVEYS CONDUCTED AS PART OF AN INVASIVE SPARTINA E
10 TRAP GRIDS, 75 TO 100 TRAPS PER GRID AT 10 METER INTERVALS.
SITE REFERRED TO AS GAMA. 6 SURVEY POINTS IN 2007 (GAMA 1-6, ARRANGED COUNTER-CLOCKWISE FROM NW CORNER OF FEATURE). MAPPED TO ENTIRE GAMA SURVEY SITE BASED ON PROVIDED SHAPE
MAPPED TO PROVIDED COORDINATES FOR PETALUMA RIVER - UPPER.
ON ROAD BANK OUTSIDE FENCE. MAPPED BY CNDDB FROM 1.5-2.5 MILES SOUTH OF PETALUMA ALONG POINT REYES PETALUMA ROAD.
MAPPED BY CNDDB ALONG THE D STREET EXTENSION ABOUT 2 ROAD MILES SW OF PETALUMA.
A 1945 HOWELL COLLECTION FROM "SALT MARSH BORDERING SAN ANTONIO CRK NEAR SAN ANTONIO STATION, MRN CO" ALSO ATTRIBUTED HERE BUT MAY BE REFERRING TO EO #5 NEARBY. A 1945 LESCHK
EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AS A BEST GUESS FOUR ROAD MILES NORTH OF PETALUMA ALONG OLD REDWOOD HIGHWAY.
OBSERVED IN A HALF-MILE STRETCH OF CREEK. LANDOWNER REPORTS THAT TURTLES ALSO USE A DAIRY WASTE POND NEARBY.
NEELY RANCH. MAPPED TO PROVIDED DETECTION LOCATIONS.
2003: SURVEYED FROM 100 YDS UPSTREAM FROM THE MOUTH TO 1000 YDS DOWN FROM LAKEVILLE HWY. CITY OF PETALUMA WASTEWATER OXIDATION PONDS TO THE EAST; HAY FIELD & PETALUMA PARK LA
INTERTIDAL ZONE, CHANNELIZED PORTION IN DOWNTOWN PETALUMA.
1998 WELL SITE PROVIDES GOOD COVER, BUT IT IS UNLIKELY AS A BREEDING SITE. SHAFFER ET AL. LOCALITY 29.
SITE CONSISTS OF ABOUT 10 ACRES OF GRASSLAND AND ABOUT 1 ACRE OF WOODLAND (NORTH POLYGON). 2009 SIGHTING AT JUNCTION OF BODEGA AVE AND PAULA LN (CIRCLE).
MAPPED TO PROVIDED LOCATION DESCRIPTION OF ""20 METERS SOUTH"" OF PROVIDED COORDINATES. SITE DESCRIBED AS BEING ADJACENT TO SCHOLLENBERGER COUNTY PARK ONLY A FEW HUNDRED M
MAPPED TO PROVIDED COORDINATES FOR TRANSECT SURVEYS CONDUCTED AS PART OF AN INVASIVE SPARTINA PROJECT. SITE NAME WAS PETALUMA RIVER - UPPER.
NEELY RANCH. MAPPED TO PROVIDED DETECTION LOCATIONS.
BETWEEN SARTORI DRIVE AND SOUTH MCDOWELL BLVD.
MAPPED BY CNDDB BASED ON COORDINATES PROVIDED BY ARTHUR IN THE SE 1/4 SECTION 28. POPULATION IS ON PRIVATE LAND WITHIN NORTH BAY HIGHLAND CONSERVATION BANK.
MAPPED TO PROVIDED COORDINATES.
MAPPED TO PROVIDED COORDINATES.
DOWNTOWN RESIDENTIAL.
FROG OBSERVED BY A POOL ABOUT 2.5 FT DEEP.
LOCATED ON 3 FINGERS OF A SERPENTINE RIDGE...AND 1 RIDGE NOT MAPPED AS SERPENTINE BUT SERPENTINE PRESENT.** MAPPED ACCORDING TO 2011 ARTHUR COORDINATES BUT POPULATION MAY BE
LOCATED ON 3 FINGERS OF A SERPENTINE RIDGE...AND 1 RIDGE NOT MAPPED AS SERPENTINE BUT SERPENTINE PRESENT.** MAPPED ACCORDING TO 2011 ARTHUR COORDINATES BUT POPULATION MAY BE
MAPPED ACCORDING TO 2011 ARTHUR COORDINATES. POPULATION LIKELY EXTENDS OUTSIDE OF MAPPED AREA SINCE JUST A SINGLE POINT WAS GIVEN FOR WHAT WAS REPORTED AS A LARGE ROBUST PO
MAPPED IN THE SE 1/4 OF THE NW 1/4 OF SECTION 21 ACCORDING TO 2011 MATHERS COORDINATES.
SITE IS LOCATED ON A 0.75-ACRE RESIDENCE AT 1237 B STREET, PETALUMA. FROGS WERE FOUND IN A BACKYARD SWIMMING POOL. USFWS ADVISED THE LANDOWNER TO MOVE THE FROGS TO A NEARBY C
LOCATED BETWEEN CASA GRANDE ROAD AND FRATES ROAD, SOUTH OF ELY BLVD.
ONE POOL IS LOCATED AT THE UPSTREAM PORTION OF A CULVERT AT WINDSOR DRIVE; SECOND POOL IS UNDERNEATH AN QUERCUS LOBATA; THIRD POOL IS UPSTREAM, WITH TYPHA LATIFOLIA, RUMEX CRI
WINTERING BURROW SITE.

ECOLOGICAL
THE RECENT KNOWN DISTRIBUTION OF THE ENDANGERED SONOMA DPS FROM SANTA ROSA PLAIN IS WITHIN 20 MILES OF PETALUMA. THOUGH UNCERTAIN, IT IS POSSIBLE THAT SAMUELS COLLECTED THES
HABITAT CONSISTS OF A SLOW-MOVING STREAM, VEGETATED BY CATTAILS AND EMERGENT VEGETATION (E.G. JUNCUS); BANKS OF MOSTLY EXPOSED SOIL WITH EASY ACCESS TO WATER. SURROUNDING ARE
ONE OF THE LARGEST CONTIGUOUS SALT MARSHES IN THE SAN FRANCISCO BAY AREA. COASTAL BRACKISH MARSH DOMINATED BY PICKLEWEED, SOME DIKED WETLANDS. HABITAT QUALITY VARIES FROM E
UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO.
ABUNDANT ON EMERGENT WIGEON GRASS (RUPPIA MARITIMA) AND FLOATING ALGAE MATS (ENTEROMORPHA SPP) IN A SHALLOW POND ABOUT 0.2 METERS DEEP. COPEPODS, OSTRACODS, AMPHIPODS AND
HABITAT CONSISTS OF SALICORNIA AND SPARTINA. CALIFORNIA BLACK RAIL ALSO DETECTED IN THE AREA.
HABITAT CONSISTS OF COASTAL SALT MARSH. VEGETATION INCLUDES SALICORNIA VIRGINICA, GRINDELIA STRICTA, SCIRPUS MARITIMUS AND DISTICHLIS SPICATA. CURRENT/SURROUNDING LAND USE: AGRIC
OCCASIONAL IN LOW, ALKALINE FIELDS.
IN SALT MARSH.
COASTAL SALT MARSH. VEGETATION INCLUDES SALICORNIA VIRGINICA, GRINDELIA STRICTA, SCIRPUS SPP. & SPARTINA FOLIOSA. SURROUNDING LAND INCLUDES AGRICULTURAL LAND & LANDFILL. SITE QUAL
THIS HISTORIC OCCURRENCE IS OUTSIDE WHAT IS GENERALLY CONSIDERED TO BE THE PRESENT BREEDING RANGE OF THE SPECIES IN CALIFORNIA. "THE NEST WAS ON A LARGE WHITE-OAK, OVER A DEEP R
COASTAL SALT MARSH. ASSOCIATED WITH SALICORNIA VIRGINICA, DISTICHLIS SPICATA, FRANKENIA SALINA, POLYPOGON SPP., LIMONIUM CALIFORNICUM, AND CUSCUTA SALINA.
CREEK FLANKED BY OAK, MADRONE & BAY FOREST IN UPPER REACHES (>800'), TRANSITIONING TO WILLOW, OAK, & ALDER LOWER DOWN (ADOBE RD TO PETALUMA RIV). 2016: CREEK ONCE DIVERTED, NOW R
COASTAL SALT MARSH DOMINATED BY SALICORNIA VIRGINICA AND SPARTINA FOLIOSA. OTHER PLANTS INCLUDE GRINDELIA STRICTA AND SCIRPUS SPP. MELOSPIZA MELODIA SAMUELIS AND CA BLACK RAIL
VEGETATION DOMINATED BY SALICORNIA VIRGINICA, AND ALSO INCLUDES SPARTINA FOLIOSA, DISTICHLIS SPICATA, JAUMEA CARNOSA, FRANKENIA GRANDIFOLIA, GRINDELIA HUMILIS AND BACCHARIS PILUL
HABITAT CONSISTS OF A SEASONAL CREEK WITH RESTORED (10 YEARS PREVIOUSLY) RIPARIAN HABITAT.
TIDAL SALT MARSH HABITAT ADJACENT TO SEWAGE PONDS. CLAPPER RAILS ALSO DETECTED. LAND OUTSIDE OF SEWAGE PONDS IS PROTECTED BY CITY OF PETALUMA. HABITAT DOMINATED BY ALKALI BULR
COASTAL BRACKISH MARSH HABITAT.
MOST PRODUCTIVE AREAS TRAPPED WERE BETWEEN PICKLEWEED AND UPLAND ANNUAL GRASSLAND. THE NORTHERN MARSH WAS CONSIDERED THE BEST HABITAT.
MARSH.
DOMINATE VEGETATION INCLUDE SCIRPUS SP. AND PICKLEWEED.
IN MOIST SOIL ON HILLSIDE UNDER OAKS AND LAURELS.
DISTICHLIS AND SALICORNIA PRESENT.
HABITAT CONSISTS OF A NARROW CORRIDOR OF ALDER RIPARIAN HABITAT, SURROUNDED BY RUDERAL GRASSLAND AND PASTURE.
SERIES OF 7 PONDS PROVIDING AQUATIC HABITAT WITH UPLAND NON-NATIVE GRASSLAND SUITABLE FOR NESTING. SURROUNDING LAND USED FOR GRAZING, RURAL RESIDENTIAL. VISIBLE DISTURBANCE FR
2003: HABITAT CONSISTS OF A LOW-GRADIENT FRESHWATER STREAM, WITH A SANDS/SILT/GRAVEL BOTTOM, POOLS UP TO 8' DEEP, LOTS OF DOWNED LOGS/TREES ACROSS THE STREAM, A 60-70% RIPARIAN
SURROUNDING LAND USE IS URBAN.
HABITAT CONSISTS OF A TRIBUTARY WITHIN MARGINAL HABITAT (DUE TO CATTLE GRAZING).
HABITAT CONSISTS OF FLOOD CHANNEL WITH SANDY LOAM BANKS 5-7 FT HIGH. WATER FILLED WITH EMERGENTS, GRASSES AND DUCKWEED. RANA AURORA ALSO OBSERVED.
HABITAT CONSISTS OF NON-NATIVE GRASSLAND AND ROLLING HILLS OF GRASSLAND/OAK WOODLAND. SURROUNDING LAND USES INCLUDE PASTERLAND AND RESIDENTIAL.
RESTORED TIDAL MARSH; SUBJECT TO DAILY TIDAL INFLUENCE ALTHOUGH SOMEWHAT MUTED. THE CALL TYPE AND PHENOLOGY AS WELL AS THE APPARENT TENACITY OF THE BIRD TO A SPECIFIC SITE WIT
SALT MARSH DOMINATED BY SPARTINA FOLIOSA AND TULES.
SERIES OF 7 PONDS USED FOR BREEDING & ESCAPING PREDATORS. PONDS HAD 1-5% EMERGENT AND 10-20% AQUATIC VEGETATION. LAND USE: GRAZING & RURAL RESIDENTIAL. PONDS HAVE HIGH POPULA
CHANNELIZED CREEK WITH RESTORED RIPARIAN VEGETATION. SURROUNDING LAND IS A COMMERCIAL COMPLEX AND OPEN FIELD. FROGS OBSERVED ON SHORELINE OF SMALL POOL WITH UNDERCUT BANK
HABITAT IS MARSHY CHANNELS THAT BORDER THE NORTH SIDE OF THE PARK. THESE ARE HIGHLY MODIFIED/RESTORED WETLANDS. ENCROACHED UPON BY COMMERCIAL DEVELOPMENT FROM THE NORTH.
HABITAT CONSISTS OF AN AGRICULTURAL RESERVOIR.
SERPENTINE OUTCROP IN SERPENTINE GRASSLAND.
SMALL EPHEMERAL CREEK WITH DENSE AND PATCHY WILLOW RIPARIAN. SURROUNDING LAND USED FOR GRAZING. CREEK HISTORICALLY CHANNELIZED.
ROADSIDE BORDERED BY AGRICULTURE AND URBAN LAND USE. THE CENTER MEDIAN OF HWY 101 IS A WILDLIFE BARRIER.
HABITAT CONSISTS OF A SMALL STREAM, FLOWING INTO PETALUMA MARSH, WITH SOME SALTWATER INTRUSION. WESTERN POND TURTLE ALSO FOUND AT THIS SITE.
HABITAT CONSISTS OF AN AGRICULTURAL RESERVOIR.
HABITAT CONSISTS OF AGRICULTURAL RESERVOIRS AND DRAINAGES ALONG SAN ANTONIO CREEK; CREEK IS VEGETATED BY A NARROW CORRIDOR OF ALDER RIPARIAN HABITAT, SURROUNDED BY RUDERAL
NON-NATIVE VEGETATION.
AREA SURROUNDING RESERVOIR HAS LITTLE EMERGENT/RIPARIAN VEGETATION. RESERVOIR CONTAINS LARGEMOUTH BASS AND BULLFROGS. SUITABLE BREEDING AREA ALONG NORTH SHORE, BUT GRAZED
HABITAT CONSISTS OF A SEASONAL FLOOD CONTROL CHANNEL WITH SANDY / LOAM BANKS (5-7 FEET HIGH), VEGETATED BY GRASSES. OVERSTORY OF PATCHY WILLOW WHERE FROG WAS OBSERVED.
SOILS ARE THIN, SHALLOW, VERY COBBLY/GRAVELLY CLAY LOAMS. LOCATED IN CHAMISE CHAPARRAL, LEATHER OAK SCRUB, PURPLE NEEDLEGRASS GRASSLAND, AND NON-NATIVE ANNUAL GRASSLAND. AS
SOILS ARE THIN, SHALLOW, VERY COBBLY/GRAVELLY CLAY LOAMS. LOCATED IN CHAMISE CHAPARRAL, LEATHER OAK SCRUB, PURPLE NEEDLEGRASS GRASSLAND, AND NON-NATIVE ANNUAL GRASSLAND. AS
NORTH-FACING FORESTED RIDGE UNDERLAIN BY TOCALOMA-MCMULLIN COMPLEX. SOILS ARE DEEP, WELL-DRAINED, SOMEWHAT GRAVELLY CLAY LOAMS. COAST LIVE OAK WOODLAND, OREGON WHITE OAK
SEEPY WET MEADOW OPENING WITHIN COAST LIVE OAK WOODLAND/CALIFORNIA BAY FOREST HABITAT. SOILS ARE DEEP, POORLY DRAINED CLAY LOAM. 30% SLOPE. ASSOC W/ QUERCUS AGRIFOLIA, Q. GARR
GRASSLAND, FARMING, AND PUMPKIN LOT SURROUNDING HWY 101 ON BOTH SIDES.
HABITAT CONSISTS OF A PERENNIAL, ALMOST-SHADED STREAM, WITH AN AVERAGE WETTED CHANNEL WIDTH OF ~1.5 METERS AND AN AVERAGE DEPTH OF 0.2 METERS; SUBSTRATE DOMINATED BY COBBLE
HABITAT CONSISTS OF A SLUGGISH, LOW-GRADIENT STREAM, WITH LIMITED RIPARIAN VEGETATION WITHIN A MANAGED FLOOD CHANNEL.
HABITAT CONSISTS OF DEVELOPED RESIDENTIAL PROPERTY SURROUNDED BY CATTLE RANCHES, VEGETATED BY NATIVE AND NON-NATIVE GRASSLAND, AND RIPARIAN AREAS, VEGETATED BY OAKS AND FRUIT
HABITAT CONSISTS OF A PERENNIAL POOL WITHIN A CREEK. DEPTH WAS FROM 1-3 FEET DURING JULY 2008. NARROW RIPARIAN BENCH COMPOSED OF COBBLES, GRAVEL. SIGNIFICANT RIPARIAN GROWTH C
HABITAT CONSISTS OF A CONSTRUCTED POND ALONG THE HEADWATERS OF A SMALL DRAINAGE; SURROUNDED BY OAK WOODLAND. WARM-WATER FISH PRESENT, INCLUDING BASS, BLUEGILL, AND MOSQU
HABITAT CONSISTS OF PERENNIAL POOLS WITHIN A CREEK; POOLS HAVE UNDERCUT BANKS WITH TYPHA LATIFOLIA AND RUBUS DISCOLOR. POOLS PRESENT IN 2005-2006 WERE LOST WHEN WETLAND MITIG
HABITAT CONSISTS OF A CATTLE POND (125' X 75' X 5' DEEP), VEGETATED BY WILLOWS, CATTAILS, AND WATERCRESS. NON-NATIVE GRASSLANDS SURROUND THE POND, WITH AN EPHEMERAL TRIBUTARY ON T
BURROW IS LOCATED UNDER/NEAR AN ABANDONED CEMENT WATER TROUGH. HABITAT SURROUNDING THE BURROW SITE CONSISTS OF PASTORAL GRASSLAND ON AN OLD DAIRY.
HABITAT CONSISTS OF A RESERVOIR; SURROUNDED BY GRAZED GRASSLANDS/ROLLING HILLS. RESERVOIR CONTAINS MATURE STANDS OF SCIRPUS AND LOTS OF FLOATING EMERGENTS.

GENERAL	THREAT
	MUCH DEVELOPMENT IN THE PETALUMA AREA SINCE 1880; SITE LIKELY EXTIRPATED.
2 COLLECTED (USNM #4081 & 270516) BY E. SAMUELS W/IN 20 MILES OF PETALUMA BETWEEN DEC 1855 - JUL 1856. THIS IS THE 2ND COLLECTION RANGE-WIDE, & 1ST FROM THE SONOMA DPS. NONE FOUND	
EGG SET COLLECTED ON 23 MAY 1893.	
MANY HISTORIC TRAPPING RECORDS FROM THIS VICINITY. SITE PARTIALLY PRIVATELY OWNED. 2005, 2-5 SIMHM OBSERVED IN NEST ABOUT 0.50 MI N OF HWY 37 BRIDGE.	MAIN DISTURBANCES/THREATS ARE FROM HUMANS, DOGS, AND CATS. SOME ORV ACTIVITY, ADJACENT SUBDIVISIONS.
SEE WWW.DFG.CA.GOV/BIOGEODATA/VEGCAMP/NATURAL_COMM_BACKGROUND.ASP TO INTERPRET AND ADDRESS THE PRESENCE OF RARE COMMUNITIES.	
SBMNH SPECIMEN #101743 COLLECTED IN 1897. ANSP SPECIMEN #73997 (QTY 10), COLLECTED BY J.B. DAVY ON 31 JAN 1899. FOUND PRESENT IN 1984 BY KELLOGG.	
7 DETECTED ON 1 MAY 1973. 3 TO 4 ADULTS HEARD ON EACH OF 4 SURVEYS CONDUCTED MAR & APR 2006 IN TIADAL SALT MARSH JUST W OF SEWAGE PONDS. 2-5 DETECTED ON 17 MAR & 13 APR 2009. AT LE	
40 BREEDING PAIRS LOCATED DURING A 1985 SURVEY. A TOTAL OF 9 DETECTIONS AT 8 LOCATIONS ON 12 APR AND 21 MAY 2004 COMBINED. SITE PARTIALLY PRIVATELY OWNED.	THREAT: ATTRACTION OF PREDATORS/SCAVENGERS DUE TO LANDFILL.
1 COLLECTED (CAS), 1901. 18 COLLECTED (MVZ #5047-5062, 7097, 7098), 1908. 1 COLLECTED (MVZ #83183), 1917. 4 COLLECTED (CAS), 1918. 24 COLLECTED (MVZ #51599-51619, 51621, 51622), 1927. 11 COLLECT	
COLLECTED 1 OCT 1960.	
MALE (MVZ #113572) COLLECTED BY ALDEN H. MILLER ON 20 JUL 1949.	
ONLY INFORMATION FOR THIS SITE IS REFERENCE TO THIS COLLECTION IN 1996 FLORA OF SONOMA COUNTY. UNKNOWN NUMBER OF PLANTS SEEN IN 1987. NEEDS FIELDWORK.	
5 COLLECTED ON 3 SEP 1987.	
COLLECTIONS FROM 6 AUG 1960 AND 21 OCT 1965.	
OCCURRENCE BASED ON A SINGLE COLLECTION BY J. CONGDON IN 1880. 1992 CORRESPONDENCE BY B. GUGGOLZ INDICATES THAT SITE IS EXTIRPATED.	
COLLECTED ON UNKNOWN DATE.	
ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1880 COLLECTION BY CONGDON.	
ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS AN 1880 CONGDON COLLECTION. NEEDS FIELDWORK.	
5 MALES COLLECTED ON 9 OCT 1938 BY J. VON BLOEKER (LACM #5069-5073).	
BASED ON ONE COLL. BY CONGDON (SN; UC, G) NEAR HIS HOME IN PETALUMA. IN 1932 JOHNSTON SPECULATED THAT IT WAS EXTIRPATED BY "EXTENSIVE CULTIVATION OF LAND". SPECIMEN SHOULD BE EXA	
SITE IS BASED ON AN ANONYMOUS COLLECTION FROM AN UNKNOWN DATE, CITED IN A 1989 REVEAL ARTICLE. AT 1996 RECOVERY WORKSHOP, PARTICIPANTS AGREED THAT IT'S UNLIKELY PLANTS STILL OCC	
ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1930 CRUM COLLECTION. NEEDS FIELDWORK.	
SITE BASED ON AN 1880 CONGDON COLLECTION. NEEDS FIELDWORK.	
OCCURRENCE IS BASED ON SITE NAME GIVEN IN A 2017 MORGAN REPORT, UNKNOWN WHEN PLANTS SEEN. THIS IS AN UNDESCRIBED VAR. OF T. POLYODON, CALLED "VAR. OLIGODON" BY R. MORGAN. NEED	
ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1945 HOWELL COLLECTION. NEEDS FIELDWORK.	
DETECTED IN 1977 & 1985. HIGH ABUNDANCE (>2.12 RAILS/HA) IN 1986, 1988 & 2001-02. 10 DETECTED IN APR-MAY 2004. 2 DETECTIONS ON 13 APR &12 DETECTIONS ON 17 MAR 2009. DETECTIONS OF 3, 7, & 12	PREDATORS ATTRACTED BY THE LANDFILL.
EGG(S) COLLECTED BY E. SAMUELS DURING HIS COLLECTING PERIOD FROM DEC 1855 TO JUL 1856.	
COLLECTED ON 31 AUG 1953.	
1675 PLANTS OBSERVED IN 1993. COLLINS HAS SEEN THIS SPECIES AT OTHER NEARBY LOCATIONS IN PREVIOUS YEARS; NOT FOUND AT THOSE LOCATIONS IN 1993 BY RUGYT. 1980 COLLECTION BY BALLING	SITE IN AREA OF DRAINAGE STRUCTURES, BUT THREATS UNKNOWN.
OBSERVATIONS MADE ALONG THE STREAM REACH FROM 1984 TO 1997. 3 ADULTS AND 10 JUVENILES OBSERVED ON 8 APR 2016.	POACHING, LITTER, HABITAT DESTRUCTION, LANDSLIDES, WATER DIVERSIONS, FERTILIZER RUNOFF (1997). DEVELOPMENT (1997, 2016).
1-2 DETECTED 15 JUN 1993. 3-4 DETECTED 28 JAN-15 JUN 2004. 2 DETECTED ON 24 MAR 2008. 1-13 DETECTED 20 FEB & 4 APR 2009. 3-9 DETECTED 3-19 FEB 2010. 7-16 DETECTED ON 9 FEB-5 MAY 2011.	THE MARSH IS VERY NARROW, AND POSSIBLY THREATENED BY DEVELOPMENT PRESSURES.
14 COLLECTED IN 1918 & 1 COLLECTED IN 1921 & 1922 (CAS). PLOTS SURVEYED BIWEEKLY APR-JUN AND AUG -OCT, 1981. MEAN NESTING PAIR DENSITY (N/HA) FOR 7 MAR 1981: NATURAL CHANNEL, 24.5+/-4; S	
COLLECTED FROM VICINITY IN 1940. 1 ADULT FROG OBSERVED ON 14 APR 1997, BY 10 JUN 1997 "LOTS" OF FROGS WERE FOUND. 1 FROG OBSERVED IN 1998.	THREATS INCLUDE RUN-OFF FROM ADOBE CREEK GOLF COURSE AND CULVERT CLEARING.
1-2 ADULTS HEARD ON 3 OF 4 SURVEYS CONDUCTED IN MARCH & APRIL 2006. 4-5 DETECTED ON 4 MAR 2011; EXACT LOCATION UNK, BUT WITHIN LARGER MASH. AT LEAST 1 DETECTED AURALLY ON 21 FEB AI	
ONE BREEDING PAIR LOCATED DURING A 1985 SURVEY.	
NUMEROUS SPECIMENS COLLECTED AT MCNEAR BRIDGE AREA BETWEEN 1927 AND 1940. 19 TRAPPED IN 915 TRAPNIGHTS NOV-DEC 1990. SALT MARSH YELLOW THROAT AND CALIFORNIA BLACK RAIL ALSO	
2 DETECTED FROM GAMA1, 3 FROM GAMA2, 4 FROM GAMA3, 2 FROM GAMA4, 1 FROM GAMA5 & 1 FROM GAMA6 ON 6 MAY 2007. 2 ESTIMATED FROM DETECTIONS ON 12 APR 2008. 1 DETECTED DURING POINT	
DETECTED ON 16 FEB AND 8 APR 2010. 1 DETECTED ON 2 APR 2012. 2 RESPONDED TO BROADCAST 24 MAR 2014.	
CONSIDERED "LOCALLY PLENTIFUL ON ROADBANK" IN 1969; EXTERMINATED IN ADJACENT PASTURE. 1921 TRACY COLLECTION FROM "NEAR PETALUMA ON LOW, RICH FIELDS" ATTRIBUTED TO THIS SITE.	
ONLY SOURCE OF INFORMATION FOR THIS SITE IS A 1962 GOOD COLLECTION. QUESTIONABLE IDENTIFICATION ACCORDING TO CHARLES QUIBELL.	
SEEN IN SAN ANTONIO CRK MARSH IN 1977. 1-2 PLANTS IN 1978. NONE IN 1982, 1986, OR 1993. SOME SUITABLE HABITAT STILL EXISTS. RUYGT SUGGESTS THAT THIS OCCURRENCE MAY BE A MIS-ID; C. MARIT	THREATENED BY FILLING.
ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1916 COLLECTION BY HALL. NEEDS FIELDWORK.	THERE HAS BEEN EXTENSIVE DEVELOPMENT IN THIS VICINITY.
SITE IS DEGRADED BY PAST AGRICULTURAL PRACTICES. 4 ADULTS WERE OBSERVED ON 8 JUN 1994; ALTHOUGH NO JUVENILES WERE OBSERVED, LANDOWNER REPORTS THAT THE TURTLES ARE REPRODUCI	THREATENED BY PROPOSED VINEYARD EXPANSION.
30 ADULTS AND 15 JUVENILES OBSERVED BASKING AND FLOATING IN FOUR PONDS ON 25 JUL 2016.	VINEYARD ENCROACHMENT.
8 APR 2003: 4 ADULTS, INCLUDING 3 LARGE MALES AND 1 LARGE FEMALE, OBSERVED. 2003 MAPPED AS A. MARMORATA, 2008 REMAPPED AS A. MARMORATA MARMORATA. 26 JUL 2007: 1 ADULT OBSERVED IN	
143 CAPTURED; FORK LENGTH RANGE: 60-315 MM; MAJORITY IN 2 AGE GROUPS: 60-70 MM AND 140-180 MM. FISH RELOCATED UNDER EMERGENCY PERMIT FROM USFWS.	FISH WERE FOUND IN DEWATERED REACH DURING USACE FLOOD CONTROL PROJECT.
ON 2 JUN 1998, 1 ADULT FOUND IN AN ABANDONED 4-FT DIAMETER BRICK WELL ADJACENT TO THE TRIBUTARY. 4 ADULTS FOUND IN A PERENNIAL POOL ALONG THE CREEK ON 18 SEP 2001. A COLLECTION W	THREATS INCLUDE PRESENCE OF BULLFROGS, CATTLE GRAZING, AND PROPOSED RESIDENTIAL DEVELOPMENT.
9 ADULTS (POSSIBLY SOME OLDER JUVENILES, 5 IN) AND 1 JUVENILE (35 MM CARAPACE LENGTH).	THREAT INCLUDES PROPOSAL TO CLEAR CHANNEL OF DEBRIS AND BRUSH.
SITE HAS BEEN OCCUPIED BY BADGERS FOR AN ESTIMATED 100 YEARS BY LOCAL RESIDENTS; CURRENT DENS, TRAILS, AND FORAGING AREAS MAPPED IN 2003. AN ADULT FEMALE FOUND EMACIATED AND H	THREATENED BY PROPOSED DEVELOPMENT, TRAFFIC, AND HUMAN & DOG ACTIVITIES.
1-2 BIRDS AURALLY DETECTED ON 3 APR 2012; ""KURP"" CALL HEARD SEVERAL TIMES IN RESPONSE TO BROADCAST TAPED ""KIK-KIK-KERR"" VOCALIZATION.	FERAL CATS AND RAPTORS.
2 AURAL DETECTIONS MADE ON 21 FEB 2014 DURING WALKING TRANSECT SURVEYS. AT LEAST 1 AURALLY DETECTED ON 18 MAR 2015.	
2 ADULTS AND 27 YOUNG-OF-YEAR OBSERVED IN 3 PONDS ON 5 AUG 2016.	CONVERSION TO VINEYARDS.
2 ADULTS OBSERVED ON 3 MAY 2010. 1 ADULT AND 2 EGG MASSES OBSERVED ON 10 MAY 2018. 1 OBSERVED ON 10 JUN 2018. 1 EGG MASS OBSERVED ON 24 APR 2019.	FREQUENT DISTURBANCE FROM FLOOD CONTROL ACTIVITIES AND SURROUNDING URBANIZATION.
7 WPT AND 1 SLIDER OBSERVED IN MARSHY CHANNELS ON NORTH SIDE OF SHOLLENBERGER PARK. TURTLES WERE BASKING ON DOWNED CATTAILS AND LOGS.	EXOTIC RED-EARRED SLIDERS PRESENT.
AN UNKNOWN NUMBER OBSERVED ON 25 MAR 2002.	THREATENED BY PROPOSED VINEYARD EXPANSION; STREAM WILL BE PROVIDED AS A SETBACK AND PONDS WILL BE EXPANDED.
POPULATION FIRST SEEN IN 2011, REVISITED IN 2012, 2013 & 2019. UNKNOWN NUMBER OF PLANTS OBSERVED, THOUGH THIS POPULATION IS REPORTEDLY LARGER THAN OCCURRENCE #1 WITH A COMBINED	POSSIBLE THREAT FROM GRAZING DISTURBANCE.
3 TADPOLES CAUGHT AND RELEASED ON 16 MAY 2017 FROM MARSHY AREA OF CREEK IN RIPARIAN CLEARING.	
1 DEAD ADULT OBSERVED ON SIDE OF ROAD ON 14 AUG 2016.	VEHICLE COLLISIONS, AGRICULTURE.
2 ADULTS OBSERVED ON 29 APR 1994.	THREATENED BY WASTEWATER TREATMENT PLANT EXPANSION.
AN UNKNOWN NUMBER OBSERVED ON 25 MAR 2002.	THREATENED BY PROPOSED VINEYARD EXPANSION; STREAM WILL BE PROVIDED AS A SETBACK AND PONDS WILL BE EXPANDED.
~10 INDIVIDUALS OBSERVED ON 17 JUN 2002.	THREATENED BY VINEYARD EXPANSION ON SUITABLE SOILS AND SLOPES.
1 BAT FOUND AND KILLED BY ROOFING CONTRACTOR DURING RE-ROOFING OF 2 STORY VICTORIAN.	ROOFING.
1 ADULT OBSERVED BASKING ALONG SHORE.	THREATS INCLUDE LARGEMOUTH BASS & BULLFROGS.
1 INDIVIDUAL (3"" SV LENGTH) OBSERVED ON 24 MAY 2001.	THREATENED BY DREDGING (SITE WAS DREDGED IN 2000) AND PROPOSED CHANNEL / DEBRIS / VEGETATION CLEARING.
10,000 PLANTS OBSERVED IN 2011 WITH 100S TO 1000S OF INDIVIDUALS IN EACH SUBPOPULATION. ID OF PLANTS NEEDS FURTHER STUDY; PLANTS OUTSIDE OF TIBURON AND OAKLAND HILLS ARE DIFFICULT	INVASIVE GRASSES: AVENA BARBATA, BRACHYPODIUM DISTACHYON (MINOR THREAT).
10,000 PLANTS OBSERVED IN 2011 WITH 100S TO 1000S OF INDIVIDUALS IN EACH SUBPOPULATION. PROVIDED INFORMATION IS EXACTLY THE SAME AS THAT PROVIDED FOR ERIOGONUM LUTEOLUM VAR. CAN	INVASIVE GRASSES: AVENA BARBATA, BRACHYPODIUM DISTACHYON (MINOR THREAT).
10,000 PLANTS ESTIMATED IN 2011. OVERALL POPULATION APPEARS TO BE VERY HEALTHY WITH 1000S OF INDIVIDUALS. PLANTS WERE OBSERVED IN 6 SUB-POPULATIONS WITHIN ONE GREATER POPULATION.	
75 PLANTS OBSERVED IN 2011. ARTHUR PHOTOS FROM ""NEAR MT BURDELL"" IN 2011 AND ""SAN ANTONIO"" IN 2012 ARE ATTRIBUTED TO THIS OCCURRENCE.	
ON 22 OCT 2006, P. KOBERNUS FOUND 1 ADULT BADGER DOR ON HWY 101, NEAR MEDIAN, KILLED BY A CAR.	TRAFFIC ON HWY 101, DISKING OF GRASSLANDS AND FIELDS.
1 ADULT AND 2 JUVENILES OBSERVED (EACH OCCUPYING A SEPARATE POOL) ON 29 APR 2005.	THREATENED BY RUNOFF FROM UPLAND HOUSES (CHEMICAL YARD TREATMENTS, FERTILIZERS).
1 ADULT OBSERVED ON 25 MAY 2007.	THREATENED BY HIGHWAY 101 BRIDGE WORK PROPOSED FOR 2009 OR 2010.
2 ADULTS CAPTURED ON 19 AUG 2007.	
2 ADULTS OBSERVED ON 3 JULY 2008. RESIDENTIAL DEVELOPMENT LOCATED ON BOTH SIDES OF CHANNEL. THERE IS BANK EROSION UPSTREAM AND SOME STORM DRAIN CULVERTS. QUALITY COMPARED T	THREATS MAY INCLUDE FUTURE MAINTENANCE ACTIVITIES OR PUBLIC ACCESS.
2 ADULTS OBSERVED BASKING ON 7 JUN 1998.	
20 ADULTS OBSERVED ON 19 AUG 2004. 24 ADULTS AND 8 EGG MASSES OBSERVED ON 24 FEB 2005. 3 ADULTS OBSERVED ON 7 JUN 2007.	POSSIBLE THREAT FROM RESIDENTIAL DEVELOPMENT, ALTHOUGH MITIGATION SHOULD CREATE 0.7-ACRE OF CREATED WETLANDS.
20 ADULTS AND OVER 100 JUVENILES OBSERVED ON 2 JUN 2003.	THREATENED BY POTENTIAL DEVELOPMENT ON THE EAST SIDE OF THE PROPERTY.
1 ADULT OBSERVED AT THE BURROW ON 24 NOV 2005.	THREATENED BY CONVERSION TO VINEYARDS (PROPERTY IS FOR SALE AND VINEYARDS ARE FOUND IN THE VICINITY).
10 ADULTS AND 5 JUVENILES OBSERVED ON 6 MAY 2001.	THREATENED BY AGRICULTURAL CONVERSION FROM CATTLE TO VINEYARDS.

THREATLIST	LASTUPDATE	AREA	PERIMETER	AVLCODE	NEAR_DIST
Development	20200703	303895230.8	71530.80344	99912	0
	20141112	201051721.9	50264.84445	21001	0
	20111206	201051719.3	50264.844	21001	3.893976113
	20040204	151947286.4	49660.90904	99901	0
Development; ORV activity; Other	20150226	20584793.24	39915.38494	20303	1.758081157
	20000120	20584793.24	39915.38494	30303	1.758081157
	20121203	20584793.24	39915.38494	20303	1.758081157
	20150911	10221517.23	16219.24922	20301	1.634973086
Landfill	20050204	9239924.347	22818.77343	20301	1.758642754
	20050419	8042068.898	10052.9689	20901	0
	20151210	8042068.818	10052.96885	20901	3.074052364
	20040930	8042068.815	10052.96885	20901	1.582104089
	20040825	8042067.242	10052.96821	10901	3.861381953
	20180411	8041668.925	10052.84377	20901	4.181181512
	20151210	8007705.943	10044.12068	20912	0
	20080102	8007705.943	10044.12068	10912	0
	20161208	8007705.943	10044.12068	20912	0
	19960507	8007705.943	10044.12068	10912	0
	20140822	8007705.943	10044.12068	10912	0
	20140529	8007705.943	10044.12068	20912	0
	19941012	8007705.943	10044.12068	10912	0
	20160606	8007705.943	10044.12068	10912	0
	20180109	8007705.943	10044.12068	10912	0
	20180220	8007705.943	10044.12068	10912	0
	20181214	8007705.943	10044.12068	10912	0
	19890811	8007670.556	10044.10748	10901	4.841194409
	20170328	7931234.206	18995.19798	20301	3.289810565
	20141107	7551675.067	16591.15132	20301	2.69466687
	20200909	5781464.333	38772.04175	20301	4.795487741
	20000114	3141465.583	6283.154181	10701	4.223567123
Development; Erosion/runoff; Other; Over-collecting/poaching; Surface water diversion; Vandalism/dumping/litter	20160823	1917060.711	23980.66972	20301	0.780253117
Development	20150928	1251620.92	22803.27469	20301	4.64277149
	20050330	1130890.878	3769.842451	20601	4.252375682
Erosion/runoff	20190325	991697.7465	12471.06836	20301	2.251852042
	20170125	745996.1614	3429.463636	20301	1.838523442
	20000120	578241.2618	3753.896786	20302	0.343180672
	20150227	578241.2618	3753.896786	20302	0.343180672
	20170125	324516.2995	3242.123416	20301	2.006389389
	20150911	303220.0096	2440.448677	20301	0.617301342
	20110816	290945.0709	3884.514104	10302	1.337492052
	20140321	290945.0709	3884.514104	10302	1.337492052
Other	20130605	281519.114	1883.266656	10501	4.760689503
Development	20081120	280309.6611	3755.828475	10301	4.008000594
Agriculture	20021119	187814.7307	2588.996153	20201	3.656444928
Agriculture	20170405	172687.2711	1693.421331	20201	2.047563747
	20080225	168624.7421	2354.788075	20201	2.102566482
Altered flood/tidal/hydrologic regime; Surface water diversion	20000502	148862.5572	2111.749815	20201	1.276547405
Development; Grazing; Non-native animal impacts	20190919	109337.3561	1597.193226	20301	2.305152762
Other	20011016	102830.9307	1536.713954	20301	3.230401443
Development	20110315	71435.60642	1525.149143	20201	2.112165442
Non-native animal impacts; Other	20170119	70685.16679	942.4754353	20401	1.455740414
	20170119	70685.11837	942.5840719	20401	0.795684486
Agriculture	20170405	60218.63211	1507.339564	20201	2.178929131
Altered flood/tidal/hydrologic regime; Development	20190703	58970.59215	988.1293805	20201	1.245499648
	20080505	56446.24861	950.5667638	20301	1.15965369
Agriculture	20021104	26400.32991	789.757791	20201	4.27406029
Grazing	20200123	20105.9731	502.6743697	10101	4.787801926
	20180516	20105.88305	502.6530409	20101	4.570067708
Agriculture; Vehicle collisions	20170106	20105.84508	502.6525662	20101	2.281113846
Development	20070510	20024.44073	502.1718435	20101	2.212148276
Agriculture	20021119	20023.4709	502.1382455	20101	4.099310299
Agriculture	20020905	20023.46746	502.1382044	20101	3.964128011
Other	20000829	20023.39326	502.1372717	20101	0.305054464
Non-native animal impacts	20011015	20023.35169	502.1367507	20101	4.939182912
Channelization	20010809	20023.34723	502.1366929	20101	3.311905373
Non-native plant impacts	20140721	20023.32626	502.136431	10102	4.772253745
Non-native plant impacts	20180424	20023.32626	502.136431	10102	4.772253745
	20150717	20023.32622	502.136431	10102	3.451772218
	20150618	20023.32622	502.136431	10102	3.451772218
Agriculture; Road/trail construction/maint.	20071217	20023.32514	502.1364268	20101	4.94527078
Biocides; Pollution	20050629	20023.32453	502.1364014	20101	1.09306443
Road/trail construction/maint.	20070606	20023.32449	502.1364014	20101	4.380283417
	20070823	20023.3244	502.1364014	20101	1.420900201
Other; Recreational use (non-ORV)	20090313	20023.32432	502.1364014	20101	1.544505105
	20041108	20023.32432	502.1364014	20101	2.086193086
Development	20070725	20023.32386	502.1364014	20101	2.029550305
Development	20030715	20023.32386	502.1364014	20101	1.480055279
	20060307	20023.32386	502.1364014	20101	4.872596265
Agriculture	20011010	11064.44969	526.3340751	20201	3.310320976