

BIOLOGICAL RESOURCES REPORT

**3300 Industrial Drive Project,
Santa Rosa, Sonoma County, CA**

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Project No. 2037

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LIST OF ACRONYMS AND ABBREVIATIONS

CDFG/CDFW	California Department of Fish and Game/Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CTS	California Tiger Salamander
ESA	Federal Endangered Species Act
PRMD	Permit and Resource Management Department
RWQCB	Regional Water Quality Control Board
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

On June 11, 2020 Sol Ecology, Inc. (Sol Ecology) performed a wetland delineation and biological resources survey at the 3300 Industrial Drive Project in Santa Rosa, Sonoma County, California (Project Area or Site, see Appendix A – Figure 1).

The purpose of the Project Area visit was to gather information necessary to complete a review of potential biological resource impacts from development of the proposed Project, under the guidelines of the California Environmental Quality Act (CEQA) for the County of Sonoma Permit and Resource Management Department (PRMD). This report describes the results of the wetland delineation and biological resources survey of the Project Area for the presence of sensitive biological resources protected by local, state, and federal laws and regulations. This report also contains an evaluation of potential impacts to sensitive biological resources that may occur from the proposed project and potential mitigation measures to compensate for those impacts as warranted. This report is based on information available at the time of the survey and on-site conditions that were observed on the date of the site visit.

1.1 Project Setting

The Project Area is located at 3300 Industrial Drive, in Santa Rosa, Sonoma County, accessed via Center Drive, off of Airway Drive, west of Highway 101. The approximately 1.3-acre Project Area is located on two parcels (APNs 015-670-038 and -039; Appendix A, Figure 1). The parcels are located in the city of Santa Rosa and bounded by Center Drive, Industrial Drive. The site is surrounded by dense commercial development on all sides of the properties.

1.2 Project Description

The proposed project will provide the infrastructure to support both parcels and to construct a new office / warehouse structure on the southernmost parcel, located at 3300 Industrial Drive. This parcel has an area of 28,215 square feet (SF) with dimensions of approximately 135 feet by 209 feet. The project Applicant desires to construct a 9,282 SF single story office/warehouse building and relocate his electrical contracting business to this location. The site has a general plan designation of Light Industry with a zoning designation of IL (Light Industrial). Permitted land uses in the IL zones include Warehouse, wholesaling and distribution, and Office – Accessory. No structure is proposed at this time for the applicant's adjacent parcel. The infrastructure to support this future building, including the driveway access, will be constructed as part of this first phase of work.

The building is proposed to be constructed with tilt-up concrete panels with a lot coverage of 33 percent with 32 parking spaces provided. The existing site is currently unimproved and only vegetated with ruderal grassland species. The proposed site plan shows 5,167 SF of new landscaping designed to capture runoff per city low impact development standard requirements.

2.0 METHODS

On June 11, 2020, the Project Area was traversed on foot to determine the presence of (1) wetland and non-wetland waters, (2) plant communities both sensitive and non-sensitive, (3) special status plant and wildlife species, and (4) presence of essential habitat elements for any special status plant or wildlife species.

2.1 Literature Review

To evaluate whether special status species or other sensitive biological resources (e.g., wetlands) could occur in the Project Area and vicinity, Sol Ecology biologists reviewed the following:

- California Native Plant Society's (CNPS's) Inventory of Rare and Endangered Plants of California search for U.S. Geological Survey (USGS) 7.5-minute Santa Rosa quadrangle and eight adjacent quadrangles (CNPS 2020a);
- California Natural Diversity Database (CNDDB) records search for USGS 7.5-minute Santa Rosa quadrangle and eight adjacent quadrangles (California Department of Fish and Wildlife [CDFW] 2020);
- U.S. Fish and Wildlife Service (USFWS) list of threatened and endangered species for the Project Area (USFWS 2020a);
- CDFG publication "California's Wildlife, Volumes I-III" (Zeiner et al. 1990);
- CDFG publication California Bird Species of Special Concern (Shuford and Gardali 2008);
- CDFW and University of California Press publication California Amphibian and Reptile Species of Special Concern (Thomson et al. 2016);
- USFWS National Wetlands Inventory, Wetlands Mapper (USFWS 2020b); and
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), Web Soil Survey (USDA 2019).

Based on information from the above sources, Sol Ecology developed lists of special status species and sensitive natural communities that could be present in the project vicinity (Appendix B). Figures 3 and 4 (Appendix A) present the results of a 5-mile CNDDB record search around the study area for special status plants and wildlife. All biological resources are evaluated for their potential to occur within the study area in Section 3.0 of this report.

2.2 Field Survey

Sol Ecology biologists conducted a wetland delineation and biological resources surveys on June 11, 2020. Biologists walked through accessible portions of the Project Area identifying all plant and wildlife species encountered and mapping vegetation communities. Plant species were recorded and identified to a taxonomic level sufficient to determine rarity using the second edition of the *Jepson Manual* (Baldwin et al. 2012). Vegetation communities were identified using the online version of *A Manual of California Vegetation* (CNPS 2020b). Dispersal habitat, foraging habitat, refugia or estivation habitat, and breeding (or nesting habitat) were noted for wildlife species.

In cases where little information is known about species occurrences and habitat requirements, the species evaluation was based on best professional judgment of Sol Ecology biologists with experience working with the species and habitats. If a special status species was observed during the site visit, its presence is recorded and discussed. 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.

A formal wetland delineation was conducted at the time of the June 11, 2020 site visit. Concurrently with the botanical and wildlife surveys, biologists identified wetland and non-wetland waters potentially subject to regulation by the federal government (U.S. Army Corps of Engineers [USACE]) and the state of California (Regional Water Quality Control Board [RWQCB] and CDFW). The delineation of wetland boundaries was based on the presence/absence of indicators of hydrophytic vegetation, hydric soil, and wetland hydrology. The boundaries of non-wetland waters were identified by locating the ordinary high-water mark (OHWM).

The USACE and RWQCB recognize a three-parameter approach to wetland delineation where a feature must contain hydrophytic vegetation, hydric soils, and wetland hydrology.

The methodology for identifying wetland indicators followed the one described in the *USACE of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to the USACE of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008). Plant species within potential wetlands were assigned a wetland status according to the USACE list of plant species that occur in wetlands (Lichvar 2012). This wetland plant classification system is based on the expected frequency of occurrence of each species in wetlands. The classification system has the following categories, which determine the frequency with which plants occur in wetlands:

OBL	Obligate, almost always found wetlands	>99% frequency
FACW	Facultative wetland, usually found in wetlands	67-99%
FAC	Facultative, equal in wetland or non-wetlands	34-67%
FACU	Facultative upland, usually found in non-wetlands	1-33%
UPL/NL	Not found in local wetlands	<1%
NI	Wetland preference unknown	

Species with OBL, FACW, and FAC classifications are considered hydrophytic vegetation. If more than 50 percent of the dominant plant species are hydrophytic, the area meets the hydrophytic vegetation criterion.

Soils in the Project Area were examined for hydric soil indicators according to Natural Resources Conservation Service guidelines (USDA 2010). Soils formed under wetland (anaerobic) conditions generally have a low chroma matrix color, designated 0, 1, or 2, and contain mottles or other redoximorphic features. Soil profiles were characterized by depth, color, redoximorphic features, and texture. Soil color and chroma were determined using a Munsell soil color chart to determine if the soils in a particular area could be considered hydric.

Positive indicators of wetland hydrology can include direct evidence (primary indicators), such as visible inundation or saturation, surface sediment deposits, oxidized root channels, and drift lines, or indirect indicators (secondary indicators) such as algal mats, shallow restrictive layers in the soil, or vegetation meeting the FAC-neutral test. Depressions, seeps, and topographic low areas were examined for these hydrological indicators.

3.0 RESULTS

3.1 Existing Conditions and General Wildlife Use

The Project Area is relatively flat at approximately 39 to 43 meters (130 to 140 feet) above mean sea level. Soil at the site is mapped as Clear Lake clay, ponded, 0 to 2 percent slopes (USDA 2019). Clear Lake clay is poorly drained and occurs on basin floors. The parent material is alluvium derived from sedimentary rock. Clear Lake clay is listed as hydric. Minor components include Whight (6%), Huichica (6%), and Zamora (3%).

Vegetation communities present in the study area were classified using the online version of *A Manual of California Vegetation* (CNPS 2020b). However, in some cases it is necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature. Vegetation communities were classified as sensitive or non-sensitive as defined by CEQA and other applicable laws and regulations. The entire site is located in an area of dense commercial development. A single undeveloped lot lies to the southwest of the study. No other undeveloped land is contiguous to the Project Area. Photographs of the Project Area are provided in Appendix C.

The site is primarily fill and compacted soils, which leads to high runoff into any concave topography present. The majority of the site is dominated by non-native grassland/ruderal vegetation consistent with the placement of fill on the site. Vegetation is dominated by weedy species primarily mixed with annual grassland species including slender wild oat (*Avena barbata*), and Italian rye grass (*Festuca perennis*). One small seasonal wetland in a constructed drainage swale was observed in the northeast corner of the site as shown in Figure 2 (Appendix A). Precipitation and urban runoff from the surrounding area lead to the presence of surface water within this concavity and allows for annual hydrophytic vegetation to establish year to year despite the historic mowing and maintenance of vegetation on the site. The small seasonal wetland appears to have persisted from year to year due to runoff being directed to the area from adjacent buildings and impervious surfaces (parking and access lanes) during the months with precipitation and due to nuisance runoff from irrigation and cooling equipment in the drier Summer months.

Water from the small seasonal wetland within the Project Area does not drain into a traditional navigable water of the United States. The small seasonal wetland drains to the West in a constructed drainage swale that lacks indicators of wetlands.

Table 1. Summary of Potentially Jurisdictional Features Mapped within the Project Area

Habitat Type	Classification*	Acres	Potentially Jurisdictional
Seasonal Wetland Drainage Ditch	PEM2A	< 0.01	No**, < 0.01 ac.
Total:		< 0.01	< 0.01 ac.

*See Federal Geographic Data Committee 2013

** (33 CFR 328.3) 3(ii) ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands

3.2 Sensitive Vegetation Communities

Seasonal Wetland Drainage Ditch

One small seasonal wetland within a constructed drainage ditch was observed within the northeastern corner of the Project Area and was delineated using changes in vegetation and a discernible shift in topography (feature labelled “WDD-01”). This feature was filled with annual vegetation, some of which was the same ruderal vegetation found throughout the surrounding uplands. Vegetation within the remainder portion of the Project Area is regularly maintained (mowing) by the property owner. Wetland indicators were not found in the western portion of the drainage ditch, where elevations were too high and hydrology conditions were not sufficient to support wetlands.

The seasonal wetland within the drainage ditch contained a predominance of hydrophytic vegetation, including bristly ox-tongue (*Helminthotheca echioides*, FAC), tall flat sedge (*Cyperus eragrostis*, FACW), and Italian rye grass (*Festuca perennis*, FAC). Soils were light brown (7.5YR 2.5/1), gravelly clay and with increasing density of fill (gravel) with depth until shovel rejection at depths greater than 8 inches. Shovel rejection due to fill was approximately 8 to 10 inches for the wetland feature. Redoximorphic features as reduced masses in the soil matrix were observed, and hydric soil field indicator F3 was met, Depleted Matrix. Indicators of wetland hydrology consisted of primary indicators (B6) Surface Soil Cracks and (B7) Inundation Visible on Aerial Imagery (Google Earth 2020). Wetland (SP01) and paired upland (SP02) sample points data sheets can be found within Appendix D and photos of these features are found within Appendix C.

While the seasonal wetland drainage ditch feature (“WDD-01”) met the three indicator test outlined in the 1987 USACE Manual, the seasonal wetland drainage ditch within the Project Area is maintained, manmade, and built to convey stormwater, therefore, as defined by 33 CFR 328.3 (b) 3(ii), this feature has been determined to be non-jurisdictional and therefore not Waters of the U.S. Per 33 CFR 328.3 (b) 3(ii):

“The following are not “waters of the United States” even where they otherwise meet the terms of paragraphs (a)(4) through (8) of this section[...], ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands”

The small seasonal wetland would not likely qualify as Waters of the U.S., as a drainage ditch that was purpose built in an upland area to provide drainage and it is not a conversion of another stream or wetland. However, the seasonal wetland may meet the State’s new wetland definition and a notification to the Water Board would be required for any proposed modifications. While the policy includes an exemption for ‘artificial wetlands’, it is not clear if the definition can be broadly interpreted to apply directly to the Center Drive seasonal wetland drainage ditch, which formed as a result of its location in a constructed drainage feature adjacent to large impervious areas that direct runoff to the area. The Water Boards clearly do not intend to regulate larger stormwater management facilities when they meet the technical definition for ‘artificial wetlands’ given in the policy, however, the Policy does not address drainage ditches directly, and further consultations with the Water Board in regards to Center Drive seasonal wetland drainage ditch is advised. In order to confirm the jurisdictional status of the seasonal wetland, Water Board policy requires either submittal of a notification of discharge or a confirmed USACE-verified wetland delineation for such purposes.

3.3 Special Status Plants

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 species and those that are formal candidates for listing. Plant species on the California Native Plant Society (CNPS) Rare and Endangered Plant Inventory with California Rare Plant Ranks of 1 and 2 are also considered special status plant species and must be considered under CEQA.

Based upon a review of the resources and databases given in Section 2.1, sixty-four (64) special status plant species have been documented within a 9-quad search of the Project Area, of which none are likely to occur primarily due to past site disturbance. Other factors affecting potential for occurrence include:

- Hydrologic conditions (e.g. marsh habitat, seeps, pond habitat) necessary to support the special status plants do not exist on site;
- Edaphic (soil) conditions (e.g. volcanic, sandy soils) necessary to support the special status plants do not exist on site;
- Topographic conditions (e.g. slopes) necessary to support the special status plants do not exist on site;
- Unique pH conditions (e.g. serpentine) necessary to support the special status plant species are not present on the Project Area; and
- Associated vegetation communities (e.g. cismontane woodland, chaparral, broadleaved upland forest) necessary to support the special status plants do not exist on site.

3.4 Special Status Wildlife

In addition to wildlife listed as federal or state endangered and/or threatened, federal and state candidate species, CDFW Species of Special Concern, CDFW California Fully Protected species, USFWS Birds of Conservation Concern, and CDFW Special status Invertebrates are all considered special status species. Although these species generally have no special legal status, they are given special consideration under CEQA. The federal Bald and Golden Eagle Protection Act also provides broad protections to both eagle species that are roughly analogous to those of listed species. Bat species are also evaluated for conservation status by the Western Bat Working Group (WBWG), a non-governmental entity; bats named as a “High Priority” or “Medium Priority” species for conservation by the WBWG are typically considered special status and also considered under CEQA; bat roosts are protected under CDFW Fish and Game Code. In addition to regulations for special status species, most native birds in the United States (including non-status species) are protected by the federal Migratory Bird Treaty Act of 1918 (MBTA) and the California Fish and Game Code (CFGF), i.e., sections 3503, 3503.5 and 3513. Under these laws, deliberately destroying active bird nests, eggs, and/or young is illegal.

Forty-three (43) special status wildlife species have been documented within a 9-quadrant search of the Project Area, of which 15 have been documented within 5 miles (Appendix A, Figure 4). Based on the presence of biological communities described above, the Project Area has the potential to support none of these species. The site is not within any designated critical habitat such as the Santa Rosa Plain. Species found in the review of background literature were determined to be unlikely to occur due to absence of suitable habitat elements in and immediately adjacent to the Project Area as well as historic site disturbance and the urban environment surrounding the site. The site is not within designated critical habitat for species such as California tiger salamander. Habitat elements that were evaluated but found to be absent from the immediate area of the Project Area or surrounding habitats subject to potential indirect impacts include the following:

- No suitably sized burrows on or adjacent to the Project Area (e.g. for burrowing owl or American badger);
- No suitable stream or other aquatic habitat on or immediately adjacent to the property (e.g. for steelhead, Navarro roach, western pond turtle, California giant salamander, California red-legged frog, or foothill yellow-legged frog);
- No seasonally vernal habitats or connectivity to such habitats (e.g. for California tiger salamander or special status invertebrates);
- No suitable nesting substrate such as trees or shrubs for raptors such as white-tailed kite and/or special status bats;
- No dispersal corridors are present on the site and surrounding development poses a dispersal barrier to species elsewhere in the region.

4.0 POTENTIAL IMPACTS AND MITIGATION

The assessment of impacts under CEQA is based on the change caused by the Project relative to the existing conditions at the proposed Project Area. In applying CEQA Appendix G, the terms “substantial” and “substantially” are used as the basis for significance determinations in many of the thresholds but are not defined qualitatively or quantitatively in CEQA or in technical literature. In some cases, the determination requires application of best professional judgment based on knowledge of site conditions as well as the ecology and physiology of biological resources present in a given area. The CEQA and State CEQA Guidelines defines “significant effect on the environment” as “a substantial adverse change in the physical conditions which exist in the area affected by the proposed project.” Pursuant to Appendix G, Section IV of the State CEQA Guidelines, the proposed Project would have a significant impact on biological resources if it would:

- A. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- B. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service.
- C. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- D. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.
- E. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.1 Potentially Significant Impacts and Mitigation Measures

Sensitive Biological Communities

The small seasonal wetland found on the northeastern corner of the site would not likely qualify as Waters of the U.S., as a drainage ditch that was purpose built in an upland area to provide drainage and it is not a conversion of another stream or wetland. However, the seasonal wetland may meet the State’s new wetland definition and a notification to the Water Board would be required for any proposed modifications. While the policy includes an exemption for ‘artificial wetlands’, it is not clear if the definition can be broadly interpreted to apply directly to the Center Drive seasonal wetland drainage ditch, which formed as a result of its location in a constructed drainage feature adjacent to large impervious areas that direct runoff to the area. The Water

Boards clearly do not intend to regulate larger stormwater management facilities when they meet the technical definition for 'artificial wetlands' given in the policy, however, the Policy does not address drainage ditches directly, and further consultations with the Water Board in regards to Center Drive seasonal wetland drainage ditch is advised. In order to confirm the jurisdictional status of the seasonal wetland, Water Board policy requires either submittal of a notification of discharge or a confirmed USACE-verified wetland delineation for such purposes.

The results of this delineation of aquatic resources were based on conditions observed during the time of the assessment. It should be noted that the USACE and RWQCB make all final decisions regarding regulatory jurisdiction, and Sol Ecology recommends securing a Jurisdictional Determination from the USACE and RWQCB evaluation of State's jurisdiction before embarking on any project activities that could result in the alteration of the seasonal wetland drainage ditch.

Special Status Species

No special status plants or animals have potential to occur at the Project Area due to ruderal disturbed habitat and surrounding density of development. As such, there is no potential for impacts and no further recommendations are provided.

6.0 REFERENCES

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APPENDIX A

PROJECT FIGURES: SITE LOCATION MAP, WETLAND DELINEATION, AND CNDDDB MAP RESULTS

Figure 1: Location of Project Area

3300 Industrial Drive Project (APN#015-670-038, 015-670-039), Santa Rosa, CA






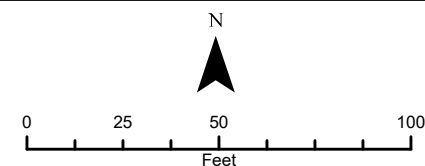


3300 Industrial Dr. Project

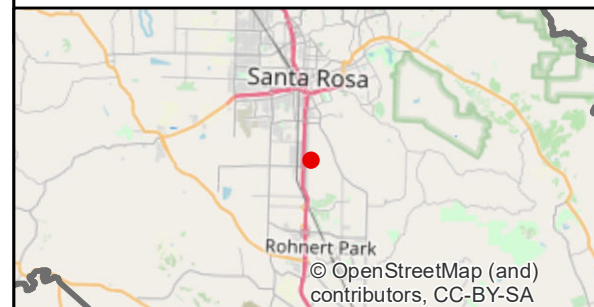
APN# 015-670-038 & 015-670-039
Santa Rosa, CA

Legend

-  Potential Jurisdictional Wetland (0.008 acre)
-  Delineaton Study Area
-  Parcel Boundary



1 inch = 50 feet



Coordinate System: NAD 1983 UTM Zone 10N
Projection: Universal Transverse Mercator
Datum: North American 1983
Vertical Datum: NAVD88, U.S. Feet

Delineator: Mark Kalnins, Sol Ecology Inc.
Date: 6-12-2020
Data: Sol Ecology Inc., Sonoma Co.,
Sonoma Co. Vegetation Mapping & LIDAR Prog.
Base: ESRI
Datum: NAD83
GIS: AJG2037



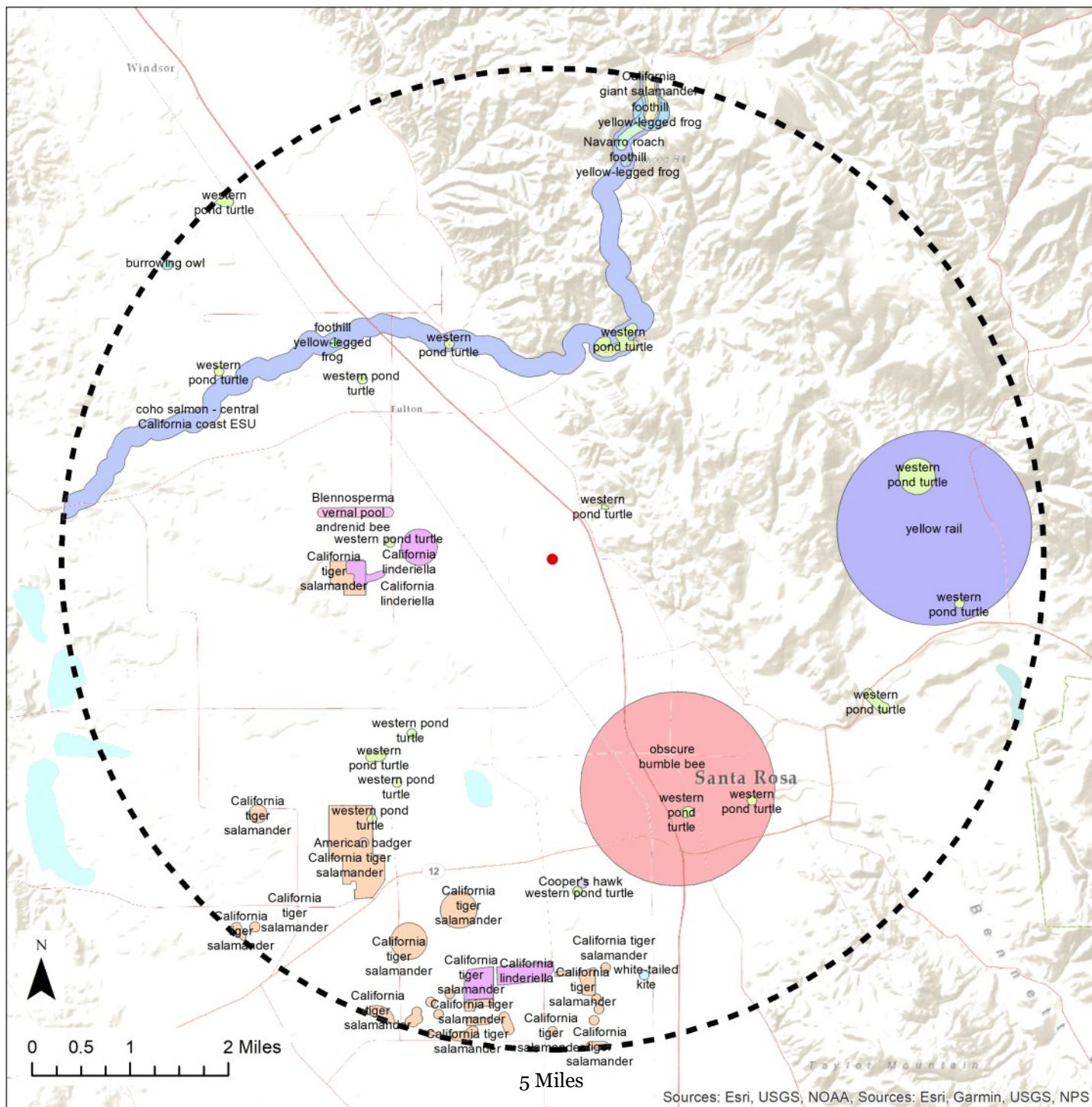
Pictometry International and County of Sonoma CA 2018 Accuplus Project

Figure 1: Wetland Delineation

[illegible]

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Figure 4: Special Status Plant Species within 5 Miles of the Project Area
 3300 Industrial Drive Project (APN#015-670-038, 015-670-039), Santa Rosa, CA



Sources: Esri, USGS, NOAA, Sources: Esri, Garmin, USGS, NPS

- | | | |
|---|--|----------------------------|
| ● Project Location | California tiger salamander (22) | ● obscure bumble bee (1) |
| ■ 5-Mile Buffer | ● Cooper's hawk (1) | ● red-bellied newt (1) |
| ● American badger (1) | ● Navarro roach (1) | ● western pond turtle (18) |
| ● Blennosperma vernal pool andrenid bee (1) | ● burrowing owl (1) | ● white-tailed kite (1) |
| ● California giant salamander (1) | ● coho salmon - central California coast ESU (1) | ● yellow rail (1) |
| ● California linderiella (4) | ● foothill yellow-legged frog (3) | |

APPENDIX B

CNPS, CNDDDB, AND USFWS IPAC RESULTS FOR THE PROJECT AREA



*The database used to provide updates to the Online Inventory is under construction. [View updates and changes made since May 2019 here.](#)

Plant List

62 matches found. [Click on scientific name for details](#)

Search Criteria

California Rare Plant Rank is one of [1A, 1B, 2A, 2B], Found in Quads 3812257, 3812256, 3812255, 3812247, 3812246, 3812245, 3812237 3812236 and 3812235;

[Modify Search Criteria](#) [Export to Excel](#) [Modify Columns](#) [Modify Sort](#) [Display Photos](#)

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Allium peninsulare var. franciscanum	Franciscan onion	Alliaceae	perennial bulbiferous herb	(Apr)May-Jun	1B.2	S2	G5T2
Alopecurus aequalis var. sonomensis	Sonoma alopecurus	Poaceae	perennial herb	May-Jul	1B.1	S1	G5T1
Amorpha californica var. napensis	Napa false indigo	Fabaceae	perennial deciduous shrub	Apr-Jul	1B.2	S2	G4T2
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	Mar-Jun	1B.2	S3	G3
Arctostaphylos densiflora	Vine Hill manzanita	Ericaceae	perennial evergreen shrub	Feb-Apr	1B.1	S1	G1
Arctostaphylos stanfordiana ssp. decumbens	Rincon Ridge manzanita	Ericaceae	perennial evergreen shrub	Feb-Apr(May)	1B.1	S1	G3T1
Astragalus claranus	Clara Hunt's milk-vetch	Fabaceae	annual herb	Mar-May	1B.1	S1	G1
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Blennosperma bakeri	Sonoma sunshine	Asteraceae	annual herb	Mar-May	1B.1	S1	G1
Brodiaea leptandra	narrow-anthered brodiaea	Themidaceae	perennial bulbiferous herb	May-Jul	1B.2	S3?	G3?
Calamagrostis crassiglumis	Thurber's reed grass	Poaceae	perennial rhizomatous herb	May-Aug	2B.1	S2	G3Q
Campanula californica	swamp harebell	Campanulaceae	perennial rhizomatous herb	Jun-Oct	1B.2	S3	G3
Castilleja uliginosa	Pitkin Marsh paintbrush	Orobanchaceae	perennial herb (hemiparasitic)	Jun-Jul	1A	SX	GXQ
Ceanothus confusus	Rincon Ridge ceanothus	Rhamnaceae	perennial evergreen shrub	Feb-Jun	1B.1	S1	G1
Ceanothus divergens	Calistoga ceanothus	Rhamnaceae	perennial evergreen shrub	Feb-Apr	1B.2	S2	G2
	Vine Hill ceanothus	Rhamnaceae	perennial evergreen shrub	Mar-May	1B.1	S1	G3T1

Ceanothus foliosus var. vineatus

<u>Ceanothus purpureus</u>	holly-leaved ceanothus	Rhamnaceae	perennial evergreen shrub	Feb-Jun	1B.2	S2	G2
<u>Ceanothus sonomensis</u>	Sonoma ceanothus	Rhamnaceae	perennial evergreen shrub	Feb-Apr	1B.2	S2	G2
<u>Centromadia parryi ssp. parryi</u>	pappose tarplant	Asteraceae	annual herb	May-Nov	1B.2	S2	G3T2
<u>Chorizanthe valida</u>	Sonoma spineflower	Polygonaceae	annual herb	Jun-Aug	1B.1	S1	G1
<u>Clarkia imbricata</u>	Vine Hill clarkia	Onagraceae	annual herb	Jun-Aug	1B.1	S1	G1
<u>Cordylanthus tenuis ssp. capillaris</u>	Pennell's bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Sep	1B.2	S1	G4G5T1
<u>Cuscuta obtusiflora var. glandulosa</u>	Peruvian dodder	Convolvulaceae	annual vine (parasitic)	Jul-Oct	2B.2	SH	G5T4?
<u>Delphinium luteum</u>	golden larkspur	Ranunculaceae	perennial herb	Mar-May	1B.1	S1	G1
<u>Downingia pusilla</u>	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
<u>Erigeron serpentinus</u>	serpentine daisy	Asteraceae	perennial herb	May-Aug	1B.3	S2	G2
<u>Eryngium constancei</u>	Loch Lomond button-celery	Apiaceae	annual / perennial herb	Apr-Jun	1B.1	S1	G1
<u>Fritillaria liliacea</u>	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	1B.2	S2	G2
<u>Gilia capitata ssp. tomentosa</u>	woolly-headed gilia	Polemoniaceae	annual herb	May-Jul	1B.1	S1	G5T1
<u>Gratiola heterosepala</u>	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	1B.2	S2	G2
<u>Hemizonia congesta ssp. congesta</u>	congested-headed hayfield tarplant	Asteraceae	annual herb	Apr-Nov	1B.2	S2	G5T2
<u>Horkelia tenuiloba</u>	thin-lobed horkelia	Rosaceae	perennial herb	May-Jul(Aug)	1B.2	S2	G2
<u>Lasthenia burkei</u>	Burke's goldfields	Asteraceae	annual herb	Apr-Jun	1B.1	S1	G1
<u>Lasthenia californica ssp. bakeri</u>	Baker's goldfields	Asteraceae	perennial herb	Apr-Oct	1B.2	S1	G3T1
<u>Lasthenia conjugens</u>	Contra Costa goldfields	Asteraceae	annual herb	Mar-Jun	1B.1	S1	G1
<u>Layia septentrionalis</u>	Colusa layia	Asteraceae	annual herb	Apr-May	1B.2	S2	G2
<u>Legenere limosa</u>	legenere	Campanulaceae	annual herb	Apr-Jun	1B.1	S2	G2
<u>Leptosiphon jepsonii</u>	Jepson's leptosiphon	Polemoniaceae	annual herb	Mar-May	1B.2	S2S3	G2G3
<u>Lilium pardalinum ssp. pitkinense</u>	Pitkin Marsh lily	Liliaceae	perennial bulbiferous herb	Jun-Jul	1B.1	S1	G5T1
<u>Limnanthes vinculans</u>	Sebastopol meadowfoam	Limnanthaceae	annual herb	Apr-May	1B.1	S1	G1
<u>Lupinus sericatus</u>	Cobb Mountain lupine	Fabaceae	perennial herb	Mar-Jun	1B.2	S2?	G2?
<u>Microseris paludosa</u>	marsh microseris	Asteraceae	perennial herb	Apr-Jun(Jul)	1B.2	S2	G2
<u>Navarretia leucocephala ssp. bakeri</u>	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G4T2
<u>Navarretia leucocephala ssp. plieantha</u>	many-flowered navarretia	Polemoniaceae	annual herb	May-Jun	1B.2	S1	G4T1
	Sonoma beardtongue	Plantaginaceae	perennial herb	Apr-Aug	1B.3	S2	G4T2

Penstemon newberryi var. sonomensis

<u>Plagiobothrys strictus</u>	Calistoga popcornflower	Boraginaceae	annual herb	Mar-Jun	1B.1	S1	G1
<u>Pleuropogon hooverianus</u>	North Coast semaphore grass	Poaceae	perennial rhizomatous herb	Apr-Jun	1B.1	S2	G2
<u>Poa napensis</u>	Napa blue grass	Poaceae	perennial herb	May-Aug	1B.1	S1	G1
<u>Potentilla uliginosa</u>	Cunningham Marsh cinquefoil	Rosaceae	perennial herb	May-Aug	1A	SH	GH
<u>Puccinellia simplex</u>	California alkali grass	Poaceae	annual herb	Mar-May	1B.2	S2	G3
<u>Rhynchospora alba</u>	white beaked-rush	Cyperaceae	perennial rhizomatous herb	Jun-Aug	2B.2	S2	G5
<u>Rhynchospora californica</u>	California beaked-rush	Cyperaceae	perennial rhizomatous herb	May-Jul	1B.1	S1	G1
<u>Rhynchospora capitellata</u>	brownish beaked-rush	Cyperaceae	perennial herb	Jul-Aug	2B.2	S1	G5
<u>Rhynchospora globularis</u>	round-headed beaked-rush	Cyperaceae	perennial rhizomatous herb	Jul-Aug	2B.1	S1	G4
<u>Sidalcea hickmanii ssp. napensis</u>	Napa checkerbloom	Malvaceae	perennial herb	Apr-Jun	1B.1	S1	G3T1
<u>Sidalcea oregana ssp. valida</u>	Kenwood Marsh checkerbloom	Malvaceae	perennial rhizomatous herb	Jun-Sep	1B.1	S1	G5T1
<u>Spergularia macrotheca var. longistyla</u>	long-styled sand-spurrey	Caryophyllaceae	perennial herb	Feb-May(Jun)	1B.2	S2	G5T2
<u>Trifolium amoenum</u>	two-fork clover	Fabaceae	annual herb	Apr-Jun	1B.1	S1	G1
<u>Trifolium buckwestiorum</u>	Santa Cruz clover	Fabaceae	annual herb	Apr-Oct	1B.1	S2	G2
<u>Trifolium hydrophilum</u>	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2	S2	G2
<u>Triquetrella californica</u>	coastal triquetrella	Pottiaceae	moss		1B.2	S2	G2
<u>Viburnum ellipticum</u>	oval-leaved viburnum	Adoxaceae	perennial deciduous shrub	May-Jun	2B.3	S3?	G4G5

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Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad> IS > (Santa Rosa (3812246)> OR > Mark West Springs (3812256)> OR > Calistoga (3812255)> OR > Kenwood (3812245)> OR > Glen Ellen (3812235)> OR > Cotati (3812236)> OR > Two Rock (3812237)> OR > Sebastopol (3812247)> OR > Healdsburg (3812257))
> AND > Taxonomic Group> IS > (Ferns> OR > Gymnosperms> OR > Monocots> OR > Dicots> OR > Lichens> OR > Bryophytes)

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Allium peninsulare</i> var. <i>franciscanum</i> Franciscan onion	G5T2 S2	None None	Rare Plant Rank - 1B.2	600 600	25 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Alopecurus aequalis</i> var. <i>sonomensis</i> Sonoma alopecurus	G5T1 S1	Endangered None	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	100 1,180	21 S:6	1	0	0	1	0	4	5	1	6	0	0
<i>Amorpha californica</i> var. <i>napensis</i> Napa false indigo	G4T2 S2	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden	200 2,100	76 S:28	7	4	3	2	0	12	7	21	28	0	0
<i>Amsinckia lunaris</i> bent-flowered fiddleneck	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_UCBBG-UC Berkeley Botanical Garden SB_UCSC-UC Santa Cruz		93 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Anomobryum julaceum</i> slender silver moss	G5? S2	None None	Rare Plant Rank - 4.2		13 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Arctostaphylos densiflora</i> Vine Hill manzanita	G1 S1	None Endangered	Rare Plant Rank - 1B.1	200 240	2 S:2	0	0	1	1	0	0	1	1	2	0	0
<i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i> Rincon Ridge manzanita	G3T1 S1	None None	Rare Plant Rank - 1B.1	300 900	12 S:7	0	1	2	1	1	2	4	3	6	0	1
<i>Astragalus claranus</i> Clara Hunt's milk-vetch	G1 S1	Endangered Threatened	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	500 1,165	6 S:3	0	1	1	0	0	1	0	3	3	0	0
<i>Balsamorhiza macrolepis</i> big-scale balsamroot	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive USFS_S-Sensitive	890 1,230	51 S:2	2	0	0	0	0	0	2	0	2	0	0



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<i>Blennosperma bakeri</i> Sonoma sunshine	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	70 330	24 S:19	0	8	4	1	3	3	6	13	16	2	1
<i>Brodiaea leptandra</i> narrow-anthered brodiaea	G3? S3?	None None	Rare Plant Rank - 1B.2	100 1,400	39 S:15	0	4	1	0	1	9	8	7	14	1	0
<i>Calamagrostis crassiglumis</i> Thurber's reed grass	G3Q S2	None None	Rare Plant Rank - 2B.1	150 150	15 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Calystegia collina ssp. oxyphylla</i> Mt. Saint Helena morning-glory	G4T3 S3	None None	Rare Plant Rank - 4.2	1,150 1,150	9 S:1	1	0	0	0	0	0	1	0	1	0	0
<i>Campanula californica</i> swamp harebell	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	150 150	139 S:2	0	0	0	0	2	0	2	0	0	1	1
<i>Castilleja uliginosa</i> Pitkin Marsh paintbrush	GXQ SX	None Endangered	Rare Plant Rank - 1A	150 200	2 S:2	0	0	0	0	2	0	2	0	0	2	0
<i>Ceanothus confusus</i> Rincon Ridge ceanothus	G1 S1	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden	510 2,700	33 S:9	0	0	1	0	1	7	4	5	8	0	1
<i>Ceanothus divergens</i> Calistoga ceanothus	G2 S2	None None	Rare Plant Rank - 1B.2	320 1,900	26 S:16	1	3	1	2	0	9	7	9	16	0	0
<i>Ceanothus foliosus var. vineatus</i> Vine Hill ceanothus	G3T1 S1	None None	Rare Plant Rank - 1B.1	150 250	6 S:3	0	0	1	0	0	2	1	2	3	0	0
<i>Ceanothus purpureus</i> holly-leaved ceanothus	G2 S2	None None	Rare Plant Rank - 1B.2 SB_SBBG-Santa Barbara Botanic Garden	475 475	43 S:2	0	0	0	0	0	2	2	0	2	0	0
<i>Ceanothus sonomensis</i> Sonoma ceanothus	G2 S2	None None	Rare Plant Rank - 1B.2 SB_SBBG-Santa Barbara Botanic Garden	475 1,900	30 S:14	2	0	0	0	0	12	10	4	14	0	0
<i>Centromadia parryi ssp. parryi</i> pappose tarplant	G3T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	80 750	39 S:5	0	1	0	0	0	4	3	2	5	0	0



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<i>Chorizanthe valida</i> Sonoma spineflower	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	150 150	6 S:1	0	0	0	0	1	0	1	0	0	1	0
<i>Clarkia imbricata</i> Vine Hill clarkia	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_UCBBG-UC Berkeley Botanical Garden	230 232	2 S:2	0	1	1	0	0	0	1	1	2	0	0
<i>Cuscuta obtusiflora</i> var. <i>glandulosa</i> Peruvian dodder	G5T4? SH	None None	Rare Plant Rank - 2B.2		6 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Delphinium luteum</i> golden larkspur	G1 S1	Endangered Rare	Rare Plant Rank - 1B.1 SB_UCBBG-UC Berkeley Botanical Garden		11 S:1	0	0	0	0	1	0	1	0	0	1	0
<i>Downingia pusilla</i> dwarf downingia	GU S2	None None	Rare Plant Rank - 2B.2	85 700	132 S:15	4	2	0	1	3	5	9	6	12	1	2
<i>Eryngium constancei</i> Loch Lomond button-celery	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	2,060 2,060	4 S:1	0	1	0	0	0	0	1	0	1	0	0
<i>Fritillaria liliacea</i> fragrant fritillary	G2 S2	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden USFS_S-Sensitive	150 800	82 S:10	0	2	1	0	3	4	7	3	7	3	0
<i>Gilia capitata</i> ssp. <i>tomentosa</i> woolly-headed gilia	G5T1 S1	None None	Rare Plant Rank - 1B.1	300 300	11 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	G2 S2	None Endangered	Rare Plant Rank - 1B.2 BLM_S-Sensitive		99 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Hemizonia congesta</i> ssp. <i>congesta</i> congested-headed hayfield tarplant	G5T2 S2	None None	Rare Plant Rank - 1B.2 SB_UCBBG-UC Berkeley Botanical Garden	90 1,705	52 S:22	0	3	0	1	3	15	17	5	19	2	1
<i>Horkelia tenuiloba</i> thin-lobed horkelia	G2 S2	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden	200 250	27 S:3	0	0	0	0	0	3	3	0	3	0	0



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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Lasthenia burkei</i> Burke's goldfields	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_UCBBG-UC Berkeley Botanical Garden	50 442	35 S:28	3	8	7	1	4	5	11	17	24	1	3
<i>Lasthenia californica ssp. bakeri</i> Baker's goldfields	G3T1 S1	None None	Rare Plant Rank - 1B.2	125 125	19 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Layia septentrionalis</i> Colusa layia	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_UCBBG-UC Berkeley Botanical Garden		57 S:2	0	0	0	0	0	2	1	1	2	0	0
<i>Legenere limosa</i> legenere	G2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_UCBBG-UC Berkeley Botanical Garden	90 1,400	83 S:2	0	0	1	0	1	0	2	0	1	0	1
<i>Leptosiphon jepsonii</i> Jepson's leptosiphon	G2G3 S2S3	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	400 1,900	51 S:18	1	2	1	0	0	14	5	13	18	0	0
<i>Lilium pardalinum ssp. pitkinense</i> Pitkin Marsh lily	G5T1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_BerrySB-Berry Seed Bank SB_RSABG-Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	150 200	4 S:3	0	2	0	0	0	1	2	1	3	0	0
<i>Limnanthes vinculans</i> Sebastopol meadowfoam	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_UCBBG-UC Berkeley Botanical Garden	50 320	46 S:44	2	7	6	3	7	19	18	26	37	5	2
<i>Lupinus sericatus</i> Cobb Mountain lupine	G2? S2?	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_UCSC-UC Santa Cruz	400 2,400	46 S:7	0	0	2	0	0	5	7	0	7	0	0



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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Microseris paludosa</i> marsh microseris	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden SB_UCSC-UC Santa Cruz	40 100	38 S:4	0	0	0	0	0	4	4	0	4	0	0
<i>Navarretia leucocephala ssp. bakeri</i> Baker's navarretia	G4T2 S2	None None	Rare Plant Rank - 1B.1	50 1,320	64 S:19	1	1	0	0	7	10	16	3	12	3	4
<i>Navarretia leucocephala ssp. plieantha</i> many-flowered navarretia	G4T1 S1	Endangered Endangered	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden	110 850	8 S:2	0	2	0	0	0	0	1	1	2	0	0
<i>Penstemon newberryi var. sonomensis</i> Sonoma beardtongue	G4T2 S2	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive	1,400 2,600	11 S:2	0	1	0	0	0	1	2	0	2	0	0
<i>Plagiobothrys strictus</i> Calistoga popcornflower	G1 S1	Endangered Threatened	Rare Plant Rank - 1B.1 SB_UCBBG-UC Berkeley Botanical Garden	300 400	3 S:3	0	2	0	0	0	1	1	2	3	0	0
<i>Pleuropogon hooverianus</i> North Coast semaphore grass	G2 S2	None Threatened	Rare Plant Rank - 1B.1 SB_BerrySB-Berry Seed Bank SB_RSABG-Rancho Santa Ana Botanic Garden	780 780	27 S:1	0	1	0	0	0	0	0	1	1	0	0
<i>Poa napensis</i> Napa blue grass	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	340 400	2 S:2	0	2	0	0	0	0	0	2	2	0	0
<i>Potentilla uliginosa</i> Cunningham Marsh cinquefoil	GH SH	None None	Rare Plant Rank - 1A	150 150	1 S:1	0	0	0	0	1	0	1	0	0	1	0
<i>Puccinellia simplex</i> California alkali grass	G3 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	400 400	80 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Rhynchospora alba</i> white beaked-rush	G5 S2	None None	Rare Plant Rank - 2B.2	200 200	11 S:1	0	1	0	0	0	0	1	0	1	0	0
<i>Rhynchospora californica</i> California beaked-rush	G1 S1	None None	Rare Plant Rank - 1B.1	150 150	9 S:3	0	0	0	0	1	2	3	0	2	0	1



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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Rhynchospora capitellata</i> brownish beaked-rush	G5 S1	None None	Rare Plant Rank - 2B.2	150 150	25 S:2	0	0	1	0	1	0	1	1	1	1	0
<i>Rhynchospora globularis</i> round-headed beaked-rush	G4 S1	None None	Rare Plant Rank - 2B.1	150 150	2 S:2	0	0	0	0	1	1	2	0	1	1	0
<i>Sidalcea hickmanii ssp. napensis</i> Napa checkerbloom	G3T1 S1	None None	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden		2 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Sidalcea oregana ssp. valida</i> Kenwood Marsh checkerbloom	G5T1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_UCBBG-UC Berkeley Botanical Garden	400 400	2 S:1	0	0	1	0	0	0	0	1	1	0	0
<i>Spergularia macrotheca var. longistyla</i> long-styled sand-spurrey	G5T2 S2	None None	Rare Plant Rank - 1B.2	350 400	22 S:2	0	0	0	0	0	2	1	1	2	0	0
<i>Trifolium amoenum</i> two-fork clover	G1 S1	Endangered None	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_UCBBG-UC Berkeley Botanical Garden SB_USDA-US Dept of Agriculture	160 200	26 S:5	0	0	0	0	0	5	5	0	5	0	0
<i>Trifolium buckwestiorum</i> Santa Cruz clover	G2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden SB_UCSC-UC Santa Cruz SB_USDA-US Dept of Agriculture		64 S:2	0	0	0	0	0	2	1	1	2	0	0
<i>Trifolium hydrophilum</i> saline clover	G2 S2	None None	Rare Plant Rank - 1B.2	75 400	56 S:7	0	2	0	1	2	2	4	3	5	1	1
<i>Trisetella californica</i> coastal triquetrella	G2 S2	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	328 328	13 S:1	0	0	0	0	0	1	0	1	1	0	0



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Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Viburnum ellipticum</i> oval-leaved viburnum	G4G5 S3?	None None	Rare Plant Rank - 2B.3	520 545	39 S:6	0	1	0	0	0	5	5	1	6	0	0



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Query Criteria: Quad< IS (Santa Rosa (3812246) OR Mark West Springs (3812256) OR Calistoga (3812255) OR Kenwood (3812245) OR Glen Ellen (3812235) OR Cotati (3812236) OR Two Rock (3812237) OR Sebastopol (3812247) OR Healdsburg (3812257))
 AND Taxonomic Group IS (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects)

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Accipiter cooperii</i> Cooper's hawk	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	133 133	118 S:1	0	1	0	0	0	0	0	1	1	0	0
<i>Accipiter striatus</i> sharp-shinned hawk	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	900 900	22 S:1	1	0	0	0	0	0	1	0	1	0	0
<i>Agelaius tricolor</i> tricolored blackbird	G2G3 S1S2	None Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_EN-Endangered NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	106 139	955 S:2	0	0	0	0	1	1	2	0	1	1	0
<i>Ambystoma californiense</i> California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	50 475	1262 S:82	10	25	24	5	4	14	7	75	78	3	1
<i>Ammodramus savannarum</i> grasshopper sparrow	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	2,150 2,150	27 S:1	1	0	0	0	0	0	0	1	1	0	0
<i>Andrena blennospermatis</i> Blennosperma vernal pool andrenid bee	G2 S2	None None		90 130	15 S:2	0	0	0	0	0	2	2	0	2	0	0
<i>Antrozous pallidus</i> pallid bat	G5 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	100 730	420 S:9	2	1	0	0	3	3	7	2	6	1	2



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Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Aquila chrysaetos</i> golden eagle	G5 S3	None None	BLM_S-Sensitive CDF_S-Sensitive CDFW_FP-Fully Protected CDFW_WL-Watch List IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	1,800 1,800	321 S:1	1	0	0	0	0	0	0	1	1	0	0
<i>Ardea herodias</i> great blue heron	G5 S4	None None	CDF_S-Sensitive IUCN_LC-Least Concern	120 120	156 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Athene cunicularia</i> burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	104 2,400	1989 S:3	0	1	1	0	0	1	0	3	3	0	0
<i>Bombus caliginosus</i> obscure bumble bee	G4? S1S2	None None	IUCN_VU-Vulnerable	150 150	181 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Bombus crotchii</i> Crotch bumble bee	G3G4 S1S2	None Candidate Endangered		300 300	276 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Bombus occidentalis</i> western bumble bee	G2G3 S1	None Candidate Endangered	USFS_S-Sensitive XERCES_IM-Imperiled	100 750	279 S:4	0	0	0	0	0	4	4	0	4	0	0
<i>Buteo regalis</i> ferruginous hawk	G4 S3S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	2,278 2,278	107 S:1	0	1	0	0	0	0	0	1	1	0	0
<i>Caecidotea tomalensis</i> Tomales isopod	G2 S2S3	None None		1,640 2,120	6 S:2	1	0	0	0	0	1	2	0	2	0	0
<i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo	G5T2T3 S1	Threatened Endangered	BLM_S-Sensitive NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	90 600	165 S:2	0	0	0	0	1	1	2	0	1	1	0



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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	G3G4 S2	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	124 730	635 S:8	0	1	1	0	0	6	7	1	8	0	0
<i>Coturnicops noveboracensis</i> yellow rail	G4 S1S2	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	283 283	45 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Dicamptodon ensatus</i> California giant salamander	G3 S2S3	None None	CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	350 2,185	234 S:14	4	2	0	0	0	8	4	10	14	0	0
<i>Elanus leucurus</i> white-tailed kite	G5 S3S4	None None	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern	120 2,160	180 S:4	2	1	0	0	0	1	1	3	4	0	0
<i>Emys marmorata</i> western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	29 2,240	1385 S:44	5	12	16	6	0	5	12	32	44	0	0
<i>Eremophila alpestris actia</i> California horned lark	G5T4Q S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	2,275 2,275	94 S:1	1	0	0	0	0	0	0	1	1	0	0
<i>Erethizon dorsatum</i> North American porcupine	G5 S3	None None	IUCN_LC-Least Concern	163 163	523 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Falco peregrinus anatum</i> American peregrine falcon	G4T4 S3S4	Delisted Delisted	CDF_S-Sensitive CDFW_FP-Fully Protected USFWS_BCC-Birds of Conservation Concern	1,700 2,000	56 S:2	1	0	1	0	0	0	1	1	2	0	0
<i>Hydrochara rickseckeri</i> Ricksecker's water scavenger beetle	G2? S2?	None None		1,500 1,500	13 S:1	0	0	0	0	0	1	1	0	1	0	0



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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Hydoporus leechi</i> Leech's skyline diving beetle	G1? S1?	None None		1,180 1,180	13 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Hysteroecarpus traskii</i> <i>pomo</i> Russian River tule perch	G5T4 S4	None None	AFS_VU-Vulnerable CDFW_SSC-Species of Special Concern	70 70	4 S:1	0	0	1	0	0	0	1	0	1	0	0
<i>Lasiurus blossevillii</i> western red bat	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern WBWG_H-High Priority	67 67	128 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Lasiurus cinereus</i> hoary bat	G5 S4	None None	IUCN_LC-Least Concern WBWG_M-Medium Priority		238 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Lavinia symmetricus navarroensis</i> Navarro roach	G4T1T2 S2S3	None None	CDFW_SSC-Species of Special Concern	80 400	4 S:2	0	1	0	1	0	0	2	0	2	0	0
<i>Linderiella occidentalis</i> California linderiella	G2G3 S2S3	None None	IUCN_NT-Near Threatened	90 776	496 S:7	0	2	0	0	0	5	5	2	7	0	0
<i>Myotis thysanodes</i> fringed myotis	G4 S3	None None	BLM_S-Sensitive IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	210 1,050	86 S:3	0	0	2	0	0	1	2	1	3	0	0
<i>Myotis volans</i> long-legged myotis	G5 S3	None None	IUCN_LC-Least Concern WBWG_H-High Priority	210 210	117 S:1	0	0	0	0	1	0	1	0	0	1	0
<i>Myotis yumanensis</i> Yuma myotis	G5 S4	None None	BLM_S-Sensitive IUCN_LC-Least Concern WBWG_LM-Low-Medium Priority	210 304	265 S:2	1	0	0	0	0	1	1	1	2	0	0
<i>Oncorhynchus kisutch</i> <i>pop. 4</i> coho salmon - central California coast ESU	G4 S2?	Endangered Endangered	AFS_EN-Endangered	70 445	23 S:4	0	0	1	0	0	3	1	3	4	0	0
<i>Oncorhynchus mykiss irideus</i> <i>pop. 8</i> steelhead - central California coast DPS	G5T2T3Q S2S3	Threatened None	AFS_TH-Threatened	75 600	44 S:7	1	4	1	1	0	0	0	7	7	0	0



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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Pandion haliaetus</i> osprey	G5 S4	None None	CDF_S-Sensitive CDFW_WL-Watch List IUCN_LC-Least Concern	200 200	504 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Rana boylei</i> foothill yellow-legged frog	G3 S3	None Endangered	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	57 2,100	2468 S:38	12	9	4	1	1	11	11	27	37	0	1
<i>Rana draytonii</i> California red-legged frog	G2G3 S2S3	Threatened None	CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	45 2,230	1543 S:26	3	10	9	0	1	3	2	24	25	0	1
<i>Riparia riparia</i> bank swallow	G5 S2	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern	25 25	298 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Syncaris pacifica</i> California freshwater shrimp	G2 S2	Endangered Endangered	IUCN_EN-Endangered	120 540	20 S:7	2	4	1	0	0	0	2	5	7	0	0
<i>Taricha rivularis</i> red-bellied newt	G4 S2	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	100 1,200	136 S:9	0	1	0	0	0	8	5	4	9	0	0
<i>Taxidea taxus</i> American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	24 2,200	592 S:10	2	4	1	2	0	1	1	9	10	0	0

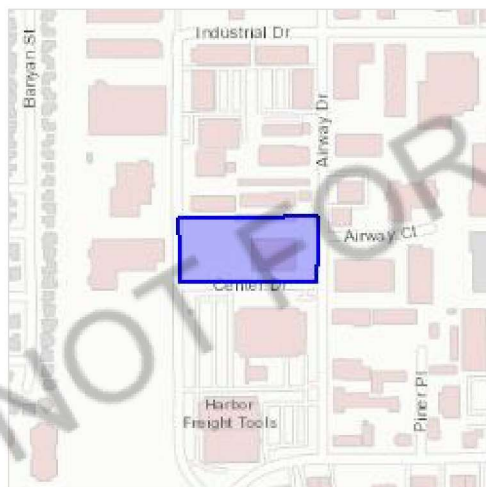
IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Sonoma County, California



Local office

Sacramento Fish And Wildlife Office

☎ (916) 414-6600

📠 (916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
------	--------

Northern Spotted Owl *Strix occidentalis caurina*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/1123>

Reptiles

NAME

STATUS

Green Sea Turtle *Chelonia mydas*

Threatened

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/6199>

Amphibians

NAME

STATUS

California Red-legged Frog *Rana draytonii*

Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/2891>

California Tiger Salamander *Ambystoma californiense*

Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/2076>

Insects

NAME

STATUS

San Bruno Elfin Butterfly *Callophrys mossii bayensis*

Endangered

There is **proposed** critical habitat for this species. The location of the critical habitat is not available.

<https://ecos.fws.gov/ecp/species/3394>

Crustaceans

NAME

STATUS

California Freshwater Shrimp *Syncaris pacifica*

Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/7903>

Flowering Plants

NAME

STATUS

Burke's Goldfields *Lasthenia burkei* Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/4338>

Clara Hunt's Milk-vetch *Astragalus clarianus* Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/3300>

Sebastopol Meadowfoam *Limnanthes vincularis* Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/404>

Showy Indian Clover *Trifolium amoenum* Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/6459>

Sonoma Sunshine *Blennosperma bakeri* Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/1260>

White Sedge *Carex albida* Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/3063>

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Allen's Hummingbird *Selasphorus sasin*

Breeds Feb 1 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9637>

Bald Eagle *Haliaeetus leucocephalus*

Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Burrowing Owl *Athene cunicularia*

Breeds Mar 15 to Aug 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/9737>

California Thrasher *Toxostoma redivivum*

Breeds Jan 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat *Geothlypis trichas sinuosa*

Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/2084>

Golden Eagle *Aquila chrysaetos*

Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1680>

Nuttall's Woodpecker *Picoides nuttallii*

Breeds Apr 1 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/9410>

Oak Titmouse *Baeolophus inornatus*

Breeds Mar 15 to Jul 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9656>

Rufous Hummingbird *Selasphorus rufus*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/8002>

Song Sparrow *Melospiza melodia*

Breeds Feb 20 to Sep 5

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Spotted Towhee *Pipilo maculatus clementae*

Breeds Apr 15 to Jul 20

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/4243>

Tricolored Blackbird *Agelaius tricolor*

Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/3910>

Wrentit *Chamaea fasciata*

Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

APPENDIX C

SITE PHOTOGRAPHS



Photo 1. Upland sample point taken next to wetland feature (on right)



Photo 2. Wetland sample point

APPENDIX D

WETLAND DETERMINATION DATA FORM

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: _____ Sampling Date: _____
Applicant/Owner: _____ State: _____ Sampling Point: _____
Investigator(s): _____ Section, Township, Range: _____
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ 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? Are "Normal Circumstances" present? Yes _____ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	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)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	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)
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No _____
2. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				

SOIL

Sampling Point: _____

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.²Location: PL=Pore Lining, 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 Soils³:

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

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

HYDROLOGY**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

☐ 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 Tilled Soils (C6)
☐ Thin Muck Surface (C7)
☐ 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)
☐ 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? Yes _____ No _____ Depth (inches): _____
(includes capillary fringe)**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: _____ City/County: _____ Sampling Date: _____
Applicant/Owner: _____ State: _____ Sampling Point: _____
Investigator(s): _____ Section, Township, Range: _____
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ 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? Are "Normal Circumstances" present? Yes _____ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (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:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	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)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	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)
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
_____ = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Herb Stratum (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No _____
2. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				

SOIL

Sampling Point: _____

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____ (includes capillary fringe)		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		