



BIOLOGICAL RESOURCES REPORT

**6095 Bodega Avenue, Petaluma,
Sonoma County, CA**

Prepared For:

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Project No. 1915

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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
CRLF	California Red-Legged Frog
CTS	California Tiger Salamander
CWHR	California Wildlife Habitat Relationships
EPA	Environmental Protection Agency
ESA	Federal Endangered Species Act
Inventory	CNPS Inventory of Rare and Endangered Plants
PPT	Pacific Pond Turtle
PRMD	Permit & Resource Management Department
Rank	California Rare Plant Rank
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 April 15, 2019 Sol Ecology, Inc. performed a biological resources survey at 6095 Bodega Avenue, Petaluma in Sonoma County, California (Project Site; Appendix A – Figure 1a). Protocol-level plant surveys were also performed on March 11 (by Jane Valerius Environmental Consulting), and on April 25, and June 3, 2019 by Sol Ecology botanists. A bat roost assessment and emergence survey were performed on May 23, 2019. The proposed project includes the development of up to 3 greenhouses and processing facilities totaling approximately 0.77 acre of an approximately 7.0-acre parcel (Project Site)

The purpose of the assessment was to gather information necessary to complete a review of potential biological resource effects 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 site survey and assessment of the Project Site for the presence of sensitive biological resources protected by local, state, and federal laws and regulations. This report also contains an evaluation of potential effects to sensitive biological resources that may occur and potential mitigation measures to compensate for those effects. 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 visit.

1.1 Project Setting

The Project Site is located in rural residential Sonoma County in western Petaluma (Appendix A – Figure 1a). The Project Site is located within annual grassland habitat surrounded by non-native grasslands and a willow lined riparian area; a residence, barn, and several outbuildings are located east of the site. A stockpond is located to the west, off-site. The site is located west of Petaluma and east of Tomales, approximately 12.5 miles from the Pacific Ocean.

1.2 Project Description

The proposed project includes the development of up to 3 greenhouses and processing facilities associated with an indoor cannabis cultivation site. The greenhouses are to be constructed on an approximately 14,615 square foot concrete slab-on-grade floor. An additional 6,682 square feet of paving will be added for parking and access areas. Some minor road shoulder improvements would occur to Bodega Avenue at the intersection of Raven Road as shown in Figure 1b (Appendix A). An additional 10,000 square feet of canopy/flowering space and 2,500 of square feet of propagation space is also proposed. The applicant states the greenhouses will be constructed on existing grade. Additionally, a total of three (3) old container sheds and a single blue gum tree adjacent the Project Site are proposed for removal, along with several large pieces of concrete located immediately adjacent to the on-site drainage. No work within the drainage is proposed.

No chemical herbicides or pesticides will be employed per County requirements. No emission of lights would occur per state requirements. Perimeter fencing and fire controls will also be consistent with County requirements. The landowner proposes to use goat grazing as a method to control non-native and invasive species located along the drainage way (including Himalayan blackberry primarily).

A new well has been installed on the project site approximately 60 feet away (upslope) from the drainage ditch (midline) and is 300 feet deep. This well will be the primary well for operation of the cultivation site. Two other wells are present on the property but will not be used for cultivation purposes. Drip irrigation will be used to reduce/eliminate potential for waste discharge.

2.0 METHODS

On April 15, 2019, the Project Site was traversed on foot to determine the presence of (1) plant communities both sensitive and non-sensitive, (2) special status plant and wildlife species, and (3) presence of essential habitat elements for any special-status plant or wildlife species.

2.1 Literature Review

Prior to the site visit, the Soil Survey of Sonoma County, California [U.S. Department of Agriculture (USDA) Web Soil Survey], Google Earth aerial images, USGS topographic quadrangle maps, and Sonoma County lidar were examined to determine if any unique soil types that could support sensitive plant communities and/or aquatic features were present in the Project Site. A *Manual of California Vegetation, Online Edition* (CNPS 2019a) were reviewed to assess the potential for sensitive biological communities to occur in the Project Site. All alliances within the Project Site with a ranking of one (1) through three (3) were considered sensitive biological communities and mapped if present.

Potential occurrence of special-status species in the Project Site was evaluated by first determining which special-status species occur near the Project Site through a literature and database search. Database searches for known occurrences of special-status species focused on the Cotati 7.5-minute USGS quadrangle and the eight surrounding USGS quadrangles. The following sources were reviewed to determine which special-status plant and wildlife species have been documented to occur in the surrounding vicinity of the Project Site. Additional resources are provided in Section 6.0.:

- California Natural Diversity Database (CNDDDB) records (CDFW 2019)
- USFWS Information for Planning and Conservation Species Lists (USFWS 2019; Appendix B)
- CNPS Inventory records (CNPS 2019b)
- 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)
- *A Field Guide to Western Reptiles and Amphibians* (Stebbins 2003)

2.2 Field Survey

The Project Site was evaluated for the presence of sensitive biological communities, including riparian areas, sensitive plant communities recognized by CDFW, County-mapped riparian corridors, and habitat connectivity corridors. Sensitive communities were identified following A *Manual of California Vegetation, Online Edition* and includes California Wildlife Habitat

Relationships (CWHR) habitat classifications. The Project Site was also surveyed to determine if any wetlands and waters potentially subject to jurisdiction by the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), or CDFW are present. This preliminary assessment was based primarily on the presence of wetland plant indicators, hydrology or wetland soils. A preliminary waters assessment was based on the presence of unvegetated, ponded areas or flowing water, or evidence indicating their presence such as a high-water mark or a defined drainage course.

At the time of the assessment, Sol Ecology biologists also performed reconnaissance-level surveys for special status species on and immediately adjacent to the Project Site to identify whether suitable habitat elements for each of the special status species documented in the surrounding vicinity are present on the Project Site and whether the project would have the potential to result in effects to any of these species and/or their habitats either on- or off-site. Habitat elements examined for the potential presence of sensitive plant species included: soil type, elevation, vegetation community, and dominant plant species. For wildlife species, habitat elements examined included the presence of dispersal habitat, foraging habitat, refugia or (upland) estivation habitat, and breeding (or nesting) habitat. The surveys were performed by Sol Ecology biologists with appropriate qualifications and experience with plant and animal species occurring in the region (Appendix E).

Protocol-level plant surveys were performed on March 11 (by Jane Valerius Environmental Consulting), and on April 25, and June 3, 2019 by Sol Ecology in accordance with CDFW protocol (CDFW 2019b). The entire Project Site and existing road easement (Raven Lane) was traversed on foot and all observed plant species were recorded and identified with Jepson eFlora to a taxonomic level sufficient to determine rarity. All observed species were recorded (Appendix D – Observed Species Table). In cases where little information is known about species occurrences and habitat requirements, the species evaluation was based on best professional judgment the biologist. 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 bat assessment and nighttime emergence survey was also performed on May 23, 2019 in accordance with general guidelines from the Western Bat Working Group, which suggest surveys begin 30 minutes prior to sunset until approximately 45 minutes to one hour after sunset (depending on local sunset time). The roost assessment consisted of a visual examination of potential roost habitat on the Project Site including trees and sheds and noting conditions that may be favorable or unfavorable for bat use such as peeling or exfoliating bark, large cavities exhibiting appropriate thermal conditions, and evidence of use such as guano and urine staining. An emergence survey was performed and at least one surveyor was positioned at each potential roost so that emerging bats were silhouetted against the sky as they exited the roost. An ultrasonic acoustic survey was performed concurrently using a Pettersson D500X ultrasonic detector with real-time SonoBat call analysis.

3.0 RESULTS

3.1 Existing Conditions and General Wildlife Use

Biological communities present in the Project Site were classified based on existing plant community descriptions described in the California Native Plant Society Online Manual of California Vegetation (CNPS 2019). 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. Biological communities were classified as sensitive or non-sensitive as defined by CEQA and other applicable laws and regulations. Photographs of the Project Site are provided in Appendix C.

Soils at the site are mapped as Steinbeck loam, 2 to 9 percent slopes. This is a moderately well drained soil with a depth to water table more than 80 inches with a depth to restrictive layer 40 to 60 inches. This soil type is listed as hydric and is commonly used for rangeland. Typical vegetation includes non-native annual grasses, forbs, shrub, and scattered live oak. Elevations of the site range from 165 feet to 215 feet.

Valley and Foothill Grassland Habitat (Non-Native Grassland)

The Project Site is dominated valley and foothill grassland habitat, in which native bunch grass species have been largely or entirely supplanted by introduced, annual Mediterranean grasses (Non-Native Grassland). Stands rich in natives, however, can usually be found on unusual substrates, such as serpentinite or somewhat alkaline soils (CDFW 2019). This habitat type is dominated by non-native annual grassland (Holland/CDFW 1986) characterized by non-native (and invasive) annual grasses and native forbs and wildflowers in this case consist of: wild oat (*Avena barbata*), rattail sixweeks grass (*Festuca myuros*), Italian rye grass (*F. perennis*), ripgut brome (*Bromus diandrus*), and foxtail barley (*Hordeum murinum*). Non-native forbs observed included red-stemmed filaree (*Erodium cicutarium*), English plantain (*Plantago lanceolata*), and wild geranium (*Geranium dissectum*). A few ornamental trees and several blue gum species are also present. Common wildlife species in this habitat includes: Botta's pocket gopher (*Sceloporus occidentalis*), deer mouse (), western kingbird (), and western fence lizard (*Sceloporus occidentalis*). A complete list of plant species observed during the site visits is provided in Appendix D.

3.2 Sensitive Vegetation Communities

No sensitive vegetation communities are present on the Project Site. One sensitive community and two Waters of the U.S. are present in close proximity (Appendix A, Figures 1a and 1b). These communities/features are discussed in more detail below.

Willow Riparian/Waters of the State

One un-named drainage channel occurs approximately 50 feet of the southwestern boundary of the Project Site and supports a willow (*Salix* spp.) riparian vegetative community. However, only a few willows are present near the Project Site, and majority of this drainage is marked by the absence of vegetation and/or presence of non-riparian species including redwoods (which appear to be planted), non-native Himalayan blackberry (*Rubus armeniacus*), and poison hemlock (*Conium maculatum*). Appendix C contains photographs of this community.

Water flow within the drainage is ephemeral, receiving waters only when the off-site upstream pond is spilling. However, this is not a blue-line drainage based on the USGS quadrangles for this site location as it is fed directly by an upstream stockpond. The channel has a bed and bank, but no mean water line is present and at times the channel disappears completely. Additionally, the drainage is highly eroded with limited wetland vegetation. However, this channel would qualify as waters of the State and would be regulated under Sections 1600-1616 of California Fish and Game Code as it eventually drains into a blue-line stream.

An unnamed drainage channel is also present and bisects the access road (Raven Road) via an existing culvert as shown in Figure 1b (Appendix A). This channel would likely be considered Waters of the U.S. and State and would be regulated under the Clean Water Act, Porter-Cologne Act and Sections 1600-1616 of California Fish and Game Code as it eventually drains into a blue-line stream. Standing water was also observed between Bodega Avenue and this channel; however, such ponding likely appears to be runoff from the adjacent road and no potentially jurisdictional wetlands are present.

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 (Inventory) with California Rare Plant Ranks (Rank) of 1, 2 and 4 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, 64 special-status plant species have been documented within a 9-quad search the Project Site (Appendix B); of these only 8 have been documented within 5 miles of the site (Appendix A, Figure 2). Based on the presence of biological communities described above and soils at the site, as well as recent site disturbance the Project Site has the potential to support 5 of these species; species with potential to occur on the Project Site are described below. Species documented in the area are unlikely or have no potential to occur on the Project Site for one or more of the following reasons:

- Hydrologic conditions (e.g. marsh habitat, seeps, wetland habitat) necessary to support the special-status plants do not exist on site;
- Edaphic (soil) conditions (e.g. rocky or 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 Site;
- Associated vegetation communities (e.g. cismontane woodland, chaparral, coniferous forest) necessary to support the special-status plants do not exist on site.

Protocol-level surveys for special status plants with potential to occur were performed by Sol Ecology on April 25 and June 3, 2019 which corresponded with the blooming period for all 5 species listed below; a reference site visit was also performed for congested-headed hayfield tarplant on Bodega Avenue in Petaluma on June 3 prior to the site visit to observe the species in bloom given the close proximity of occurrences to the site. A floristic survey was also performed on March 11, 2019 by Jane Valerius Consulting with negative findings (Valerius pers. comm. 2019). All plants observed during the site visit are provided in Appendix D - Observed Species Table. Adverse conditions from yearly weather patterns may prevent accurate identification of some special status plants in the Project Site. Disease, drought, predation, fire, herbivory, or other disturbances may also preclude presence in a given year. The timing of surveys was based on a determination of the blooming period for most special status plants in a normal (or average) rainfall year. No evidence of disease, drought, predation or herbivory was observed. The Project Site is located outside the footprint of recent fires in Sonoma County.

Plant Species with Potential to Occur on the Project Site:

Bent-flowered fiddleneck (*Amsinckia lunaris*), Rank 1B.2. Bent-flowered fiddleneck is an annual herb in the borage family (Boraginaceae) that blooms from March to June. It typically occurs in Valley and Foothill Grassland habitat at elevations ranging from 5 to 1,640 feet. Suitable habitat is present on the Project Site; however, there are no documented occurrences within 5 miles. This species was not identified during floristic surveys performed in March, April, and June 2019 and is therefore **presumed absent** from the site.

Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *Congesta*), Rank 1B.2. Congested-headed hayfield tarplant is an annual herb in the composite family () that blooms from April through November. It typically occurs in grassy valleys and hills, often in fallow fields; sometimes along roadsides in Valley and Foothill Grassland habitat at elevations ranging from 65 to 1,840 feet. Known associated species in the area include *Tritelia laxa*, *Layia chrysanthmoides*, *lupinus nanus*, *plantago lanceolate*, *Medicago hispida*, *Festuca perennis*, *Briza minor*, *Mentha pulegium*, and *Ranunculus muricatus*. Suitable habitat is present on the Project Site and there is a 1961 documented occurrence within 0.25 mile; this species was not identified during floristic surveys performed in March, April, and June 2019 and is therefore **presumed absent** from the site.

Bristly leptosiphon (*Leptosiphon acicularis*). Rank 4. Bristly leptosiphon is an annual herb in the Polemoniaceae family that blooms from April to July. It typically occurs in chaparral, cismontane woodland, coastal prairies, and valley and foothill annual grassland at elevations ranging from 50 to 5,000 feet. There are no documented occurrences of bristly leptosiphon in Sonoma County. Nonetheless, there is suitable habitat present. This species was not identified during floristic surveys performed in March, April, and June 2019 and is therefore **presumed absent** from the site.

Marsh microseris (*Microseris paludosa*), Rank 1B.2. Marsh microseris is a perennial herb in the composite family (Asteraceae) that blooms from April to June, sometime into July. It typically occurs in closed-cone coniferous forest, cismontane woodland, coastal scrub and valley and foothill grassland habitat, from elevations ranging from 10 to 2,000 feet. This species is more typically found on vernal mesic sites not present. There is one documented occurrence within 5 miles of the site and suitable annual grassland (not mesic) is present. This species was not identified during floristic surveys performed in March, April, and June 2019 and is therefore **presumed absent** from the site.

Two-fork clover (*Trifolium amoenum*), Federal Endangered, Rank 1B.1. Two-fork clover is a perennial herb in the pea family (Fabaceae) that blooms from May to July. It typically occurs in coastal bluff scrub and valley and foothill grassland habitats, sometimes on serpentine soil, open sunny sites, and swales, and was most recently cited on roadside and an eroding cliff face, at elevations ranging from 16 to 1,017 feet. Known associated species in the area include *Avena barbata*, *Bromus* spp, *Vulpia* spp, *Danthonia californica*, *Linum*, *Carduus pycnocephalus*, and *Aira caryophyllea*, with scattered Douglas-fir and coyote bush, and *Erigeron glaucus*, *Armeria maritima*, *Hordeum brachyantherum*, *Lolium multiflorum* (now *Festuca perennis*), and *Bromus carinatus*. There is one documented occurrence within 5 miles of the site and suitable annual grassland and associated species are present. This species was not identified during floristic surveys performed in March, April, and June 2019 and is therefore **presumed absent** from the 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.

A total of six (6) special-status wildlife species have been documented within five miles of the Project Site (Appendix A, Figure 3). Based on the presence of biological communities described above, the Project Site has the potential to support three (3) of these species plus an additional 4 species not documented but known to occur in similar habitats in the region. These species include western red bat (*Lasiurus blossevillii*), hoary bat (*Lasiurus cinereus*) white-tailed kite (*Elanus leucurus*), Pacific pond turtle (*Emys marmorata*), California tiger salamander (*Ambystoma Californiense*), and California red-legged frog (*Rana draytonii*). Species with potential to occur on the Project Site are described in more detail below. A discussion of potential effects or unlikelihood for effects to occur is also provided.

The remaining species found in the review of background literature were determined to be unlikely to occur and are not present due to absence of suitable habitat elements in and immediately adjacent to the Project Site. Habitat elements that were evaluated but found to be absent from the immediate area of the Project Site or surrounding habitats subject to potential indirect effects include the following:

- Suitable vegetation communities such tall grassland communities, coastal prairie, redwood forest, old growth forest, and dense woodland habitats are absent (e.g. yellow-billed cuckoo, northern spotted owl, oak titmouse, Nuttall’s woodpecker, Lewis’s woodpecker, Allen’s hummingbird, rufous hummingbird, tricolored blackbird, grasshopper sparrow, spotted towhee, song sparrow, wrenit, etc.);
- No suitable stream or wetland habitat is present on or immediately adjacent to the Project Site (e.g. for special status fish species, California freshwater shrimp, California

giant salamander, red-bellied newt, foothill yellow-legged frog, willet, or long-billed curlew).

- Some species are uncommon in Sonoma County or unlikely to occur based on distance from documented and confirmed occurrence records (e.g. golden eagle, Swainson's hawk, loggerhead shrike). There is only one documented and confirmed occurrence record for golden eagle (over 10 miles from the Project Site) within Sonoma County; the Project Site is more than 0.5 mile from the nearest suitable nesting habitat and thus outside the typical foraging range. There is only one extant documented and confirmed occurrence record of Swainson's hawk within Sonoma County (over 15 miles from Project Site); this species has not been documented to nest outside the Petaluma River which is further than the known foraging distance for most pairs (5 to 10 miles). There are no confirmed documented occurrence records of loggerhead shrike within Sonoma County and according to Shuford and Gardali, 2008, are uncommon residents.
- The Project Site is not within the known range of some species (e.g. coast range newt, western spadefoot toad, and burrowing owl*).
- Host plant (broadleaf stonecrop) is absent (e.g. San Bruno elfin butterfly),
- No suitably sized burrows or denning habitat is present on the Project Site (e.g. burrowing owl or American badger).
- Suitable roost habitats for most special status bat species is not present (e.g. Townsend's big-eared bat and pallid bat); bat roost emergence and acoustic surveys performed on May 23, 2019 were negative for both common and special status bats. Thermal temperatures of associated structures on the Project Site likely preclude most bats from roosting on the site.

*Note, that is highly unlikely that burrowing owl would occur on or within the vicinity of the Project Site despite the presence of grassland habitat and at least one documented occurrence within five miles. The Project Site is located outside of this species' known current breeding range and they have been observed "sparingly in Sonoma, Napa, Solano, and Marin counties (Shuford and Gardali 2008). There is only one documented and confirmed occurrence record (from 2005) of a wintering burrowing owl within 5 miles of the Project Site. No burrows capable of supporting nesting or wintering were observed on or adjacent to the Project Site. Furthermore, due to an abundance of perches including tall trees and buildings in close proximity, burrowing owl is not likely to occur on the Project Site due to the increased risk of predation and typically prefer more open terrain where they can hide from predators. Nonetheless, measures prescribed in Section 4.1 for other ground-dwelling species will ensure impacts to wintering burrowing owl are completely avoided.

Wildlife Species with Potential to Occur on the Project Site:

Mammals

Western red bat (*Lasiurus blossevillii*), CDFW Species of Special Concern, WBWG High Priority.

This species is highly migratory and broadly distributed, ranging from southern Canada through much of the western United States. Western red bats are believed to make seasonal shifts in their distribution, although there is no evidence of mass migrations (Pierson et al. 2006). They are typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas possibly and association with riparian habitat (particularly willows, cottonwoods, and sycamores; Pierson et al. 2006). It is believed that males and females maintain different distributions during pupping, where females take advantage of warmer inland areas and males occur in cooler areas along the coast.

Western red bat may roost in the foliage of a single blue gum tree on the Project Site during the warmer summer months, though none were detected during acoustic surveys on May 23, 2019.

Hoary bat (*Lasiurus cinereus*), WBWG Medium Priority.

Hoary bats are highly associated with forested habitats in the western United States, particularly in the Pacific Northwest. They are a solitary species and roost primarily in foliage of both coniferous and deciduous trees, near the ends of branches, usually at the edge of a clearing. Roosts are typically 10 to 30 feet above the ground. They have also been documented roosting in caves, beneath rock ledges, in woodpecker holes, in grey squirrel nests, under driftwood, and clinging to the side of buildings, though this behavior is not typical. Hoary bats are thought to be highly migratory, however, wintering sites and migratory routes have not been well documented. This species tolerates a wide range of temperatures and has been captured at air temperatures between 0 and 22 degrees Celsius. Hoary bats probably mate in the fall, with delayed implantation leading to birth in May through July. They usually emerge late in the evening to forage, typically from just over 1 hour after sunset to after midnight.

Hoary bat may roost in the foliage of a single blue gum tree on the Project Site during the warmer summer months, though none were detected during acoustic surveys on May 23, 2019.

Birds

White-tailed kite (*Elanus leucurus*). CDFW Fully Protected Species.

The white-tailed kite is resident in open to semi-open habitats throughout the lower elevations of California, including grasslands, savannahs, woodlands, agricultural areas and wetlands. Vegetative structure and prey availability seem to be more important habitat elements than associations with specific plants or vegetative communities (Dunk 1995). Nests are constructed mostly of twigs and placed in trees, often at habitat edges. Nest trees are highly variable in size, structure, and immediate

surroundings, ranging from shrubs to trees greater than 150 feet tall (Dunk 1995). This species preys upon a variety of small mammals, as well as other vertebrates and invertebrates.

Suitable nesting habitat is not present on the Project Site, but there are a few trees immediately adjacent to Project Site that kites may potentially nest in. There is ample foraging habitat on and adjacent to the proposed Project Site. There are no documented occurrence records of white-tailed kite within 5 miles of the Project Site.

Amphibians and Reptiles

California Red-legged Frog (*Rana draytonii*), Federal Threatened Species, CDFW Species of Special Concern. The California red-legged frog (CRLF) is dependent on suitable aquatic, estivation, and upland habitat. During periods of wet weather, starting with the first rainfall in late fall, red-legged frogs disperse away from their estivation sites to seek suitable breeding habitat. Aquatic and breeding habitat are characterized by dense, shrubby, riparian vegetation and deep, still or slow-moving water. Breeding occurs between late November and late April. Following breeding during the wet season, adult frogs may disperse into upland habitats which include areas up to 300 feet from aquatic and associated riparian habitat and are comprised of grasslands, woodlands, and/or vegetation that provide shelter, forage, and predator avoidance. Upland habitat can include structural features such as boulders, rocks and organic debris (e.g. downed trees, logs), as well as small mammal burrows and moist leaf litter (USFWS 2010). At the end of the wet season, CRLF may disperse up to one-mile overland from upland or breeding habitats (often via riparian corridors) to aquatic non-breeding habitats (Bulger 2003, Fellers and Kleeman 2007). Although CRLF is highly aquatic, this species has been documented to make overland movements of several hundred meters and up to one mile during a winter-spring wet season in Northern California (Bulger et al. 2003, Fellers and Kleeman 2007).

There was no evidence of upland habitat present on the Project Site. CRLF upland habitat as defined in the federal register and in the literature refers to an area outside suitable aquatic breeding or non-breeding aquatic habitat that CRLF may disperse to when aquatic habitat is not available. These uplands are generally within 200 to 300 feet of suitable aquatic habitat. The only suitable aquatic habitat for CRLF in the vicinity of the Project Site is a pond more than 400 feet away. Review of historical aerial photographs on Google Earth dating back to 1993 indicate that this pond is perennial and does not go dry resulting in CRLF to have to disperse to uplands except to disperse to other aquatic features (e.g. juveniles).

Additionally, the drainage feature located approximately 50 feet to the southwest of the site does not provide suitable aquatic habitat given its ephemeral nature (receiving waters only when the upstream pond is spilling) nor does it have indicators of ponding, even for a short duration, which would be capable of supporting CRLF. Riparian habitat located along this feature is sparse, limited to 2 or 3 willows and several pine or redwood trees, with limited understory and no pool or seep habitat. The channel has a bed and bank, but no mean water line is present and at times the

channel disappears completely. The Environmental Protection Agency (EPA) adds that such non-breeding aquatic and/or wetland habitat includes plunge pools within intermittent creeks, seeps, quiet water refugia, and springs of sufficient flow to withstand summer dry periods. Based on these criteria, the nearby drainage channel does not provide suitable aquatic habitat. Therefore, suitable upland habitat is not present and CRLF are not likely to aestivate within the footprint of the project.

Because of the proximity of the Project Site to suitable upland habitat (the drainage channel) and nearby aquatic habitat (more than 400 feet away), **CRLF may disperse** across the Project Site and/or through adjacent lands surrounding the site during the winter-spring wet season **but are otherwise not likely to be present**. The Project Site is not within designated critical habitat for this species.

California Tiger Salamander (*Ambystoma californiense*) – Sonoma County Distinct Population Segment. Federal Endangered Species. State Threatened Species. The California Tiger Salamander (CTS) Sonoma County Distinct Population Segment (DPS) was emergency listed as endangered on July 22, 2002. Critical Habitat for CTS on the Santa Rosa Plain was designated on July 2011 and revised on August 31, 2011. This population is geographically isolated from other CTS in the state and known to occur in the Santa Rosa area (or Plain) and possibly the Petaluma River watershed, historically. CTS in the Santa Rosa Plain inhabits low-elevation (below 500 feet) vernal pools and seasonal pools, associated grassland, and the grassy understory of oak savannah plant communities. CTS outside the Santa Rosa Plain are listed as Federal Threatened and are not part of the Distinct Population Segment.

CTS requires two primary habitat components: aquatic breeding sites and upland terrestrial estivation or refuge sites. Adult CTS spend most of their time underground in upland subterranean refugia (Trenham 2001). Underground retreats in the Santa Rosa Plain usually consist of small mammal burrows (namely pocket gophers), but also under logs and piles of lumber (Holland et al. 1990). CTS emerges from underground to breed and lay eggs primarily in vernal pools and other ephemeral water bodies. Pools must remain inundated for at least 10 weeks, the minimum time needed for larvae to complete metamorphosis. Following metamorphosis, juveniles move into the surrounding uplands where they may live for several years before returning to aquatic habitats to breed. CTS may disperse into uplands up to 1.3 miles from breeding ponds (USFWS 2004).

There are no occurrences of CTS within 1.3 miles of the site. The Project Site is in proximity to a small stockpond that may provide suitable breeding habitat for CTS (though stockponds are not generally preferred habitat by the Sonoma County DPS). Furthermore, burrow density on the Project Site is relatively low. Given the absence of preferred breeding habitat, lack of occurrences in the general vicinity, and the relatively low burrow densities on the Project Site, **CTS is unlikely to occur**. The Project Site is not within designated critical habitat for this species.

Pacific (Western) pond turtle (*Actinemys marmorata*), CDFW Species of Special Concern. The Pacific pond turtle (PPT) is the only native freshwater turtle in California. This turtle is uncommon to common in suitable aquatic habitat throughout California, west of the Sierra-Cascade crest and Transverse Ranges. Pacific pond turtle inhabits annual and perennial aquatic habitats, such as coastal lagoons, lakes, ponds, marshes, rivers, and streams from sea level to 5,500 feet in elevation. Pond turtle also occupies man-made habitats such as stock ponds, wastewater storage, percolation ponds, canals, and reservoirs. This species requires low-flowing or stagnant freshwater aquatic habitat with suitable basking structures, including rocks, logs, algal mats, mud banks and sand. Warm, shallow, nutrient-rich waters are ideal as they support PPT prey items, which include aquatic invertebrates and occasionally fish, carrion, and vegetation. Turtles require suitable aquatic habitat for most of the year; however, PPT often occupies creeks, rivers, and coastal lagoons that become seasonally unsuitable. To escape periods of high-water flow, high salinity, or prolonged dry conditions, PPT may move upstream and/or take refuge in vegetated, upland habitat for up to four months (Rathbun et al. 2002). Although upland habitat is utilized for refuging and nesting, this species preferentially utilizes aquatic and riparian corridors for movement and dispersal. Pacific pond turtle nests from late April through July. This species requires open, dry upland habitat with friable soils for nesting and prefer to nest on unshaded slopes within 5 to 100 meters of suitable aquatic habitat (Rathbun et al. 1992).

The nearest suitable aquatic habitat is more than 100 meters (400 feet) to the east of the site in a small stockpond. The adjacent drainage does not provide suitable aquatic habitat given its ephemeral nature (fed by the upstream pond overflow). While PPT may disperse through the Project Site, there is no suitable nesting habitat present. The nearest documented occurrence record of this species is approximately 2.4 miles to the north.

4.0 POTENTIAL EFFECTS AND MITIGATION

The assessment of effects under CEQA is based on the change caused by the Project relative to the existing conditions at the proposed Project Site. 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/Adverse Effects and Recommended Avoidance and Minimization Measures

Of the above listed criteria, only A, B, and D are discussed in further detail below. The project would not result in any effect to federally protected wetlands nor conflict with the provisions of any adopted Habitat Conservation plan. All of the potential effects described below will be mitigated to a less than significant level.

Sensitive Biological Communities

No sensitive vegetation communities are present on the Project Site. One un-named ephemeral drainage channel and its associated sparse willow riparian habitat occurs along the western boundary approximately 50 feet southwest of the Project Site. Additionally, an un-named ephemeral drainage channel bisects Raven Road via a culvert. The drainage channels are sensitive under California Fish and Game Code Section 1600 and work within this habitat requires notification to California Fish and Wildlife (CDFW) to determine whether a permit is necessary or not. Such work typically involves vegetation removal but may include encroachment onto creek banks as well. These channels may be considered Waters of the U.S. and State and activities within the channel may be subject to regulation under the Clean Water Act and/or Porter Cologne Act; however, no such work is proposed at this time. These features will be completely avoided by project activities and thus, no additional permitting is necessary.

BIO-1. Any work occurring in close proximity to sensitive vegetation communities can result in potentially adverse effects due to potential discharge of materials into these areas during construction-related activities.

MM-1A. Implementation of best management practices (BMPs) would ensure potential effects to riparian and wetland habitats (and/or Waters of the U.S. and State) as a result of potential discharge of construction related debris are less than significant. This would include temporary installation of fiber rolls and other measures as needed to prevent accidental discharge.

MM-1B. Implementation of a 50-foot setback from the edge of any riparian vegetation (or top of bank where no vegetation is present) will be maintained as required by the State Water Quality Control Board (SWQCB) General Order for Cannabis Activities to ensure potentially significant effects to the channel are avoided.

MM-1C. Notification to CDFW under Section 1600 is required for all new cannabis sites. Notification will ensure potentially adverse effects to sensitive habitats are less than significant.

Special-Status Plant Species

Five special status plant species were determined to potential to occur on the Project Site including: bent-flowered fiddleneck, congested-headed tarplant, bristly leptosiphon, marsh microseris, and two-fork clover. None of these species were observed during floristic surveys performed on March 11, 2019 by Jane Valerius Consulting, nor on April 25 or June 3, 2019 by Sol Ecology. The dates of these surveys corresponded with the blooming period for all 5 of these species. Based on negative findings from the protocol-level surveys, no effects are anticipated. As such no further recommendations are provided.

Special-Status Wildlife Species

Six special status species, including two mammals (western red bat and hoary bat), one bird (white-tailed kite), two listed amphibians (California red-legged frog and California tiger salamander), and one reptile (Pacific pond turtle) have potential to occur on the Project Site; though in some cases the potential for these species is relatively low. Potentially adverse effects and recommended avoidance and/or minimization measures to reduce and/or avoid adverse effects are provided below.

Mammals

Two special status bats may be adversely affected as a result of tree removal if present: **western red bat** and **hoary bat**. Removal of occupied roosts is considered a potentially significant effect under CEQA. Because the state does not allow for light emissions, no adverse effects from lighting are anticipated.

BIO-2. Removal of a single blue gum tree could result adversely affect special status bats if present, including any maternity roosting bats (with dependent young) (April 15 to September 1). The following measures are recommended to avoid and/or mitigate effects to a less than significant level.

MM-2A. To the extent possible, tree removal will be performed outside the summer (maternity) months (between September 1 to April 15) to **avoid** the period when bats may be present. If not possible, a follow-up acoustic survey should be performed to determine if bats are present including any solitary species. If present, the roost shall be avoided until after September 1 to ensure no adverse effects to maternity bat roosts.

MM-2B. Tree removal outside the maternity season should be performed using the two-step tree removal process which includes allowing any felled trees or tree limbs to be left overnight prior to removal from the site or on-site chipping to allow any bats to exit the roost. For the single blue gum species, it is recommended that tree is pruned from the bottom up to 30 feet on day 1,

followed by complete removal on day 2 to allow any bats to leave the site prior to felling. Implementation of this measure will ensure effects to bat species are less than significant.

Birds

Effects to nesting birds (both migratory and special status species including **white-tailed kite**) that result in direct mortality to eggs and/or chicks, nest failure, or nest abandonment are considered significant effects under CEQA.

BIO-3. Vegetation removal and ground disturbance may result in potentially adverse effects to nesting birds if present.

MM-3A. To the extent practical, all construction activities should be performed outside the nesting season (between September 1 and February 1). If work must be performed during the nesting season, a pre-construction nesting bird survey should be performed in all areas within 250 feet of project-related activities. If nests are found, an appropriately sized no-disturbance buffer should be placed around the nest at the direction of the qualified biologist conducting the survey. Buffers should remain in place until all young have fledged, or the biologist has confirmed that the nest has been naturally predated. Implementation of this measure will ensure potential effects to nesting birds are less than significant.

Amphibians and Reptiles

California red-legged frog (CRLF) (and Pacific pond turtle)

CRLF (and/or PPT) may potentially disperse across the Project Site during seasonal dispersal events (typically at night or during rain events in the late spring and mid to late fall). Direct mortality (or take, as defined under the Endangered Species Act or ESA) to CRLF if present on the Project Site during construction and/or creation of a permanent dispersal barrier are considered potentially significant effects under CEQA. Based on ample accessible grassland habitat surrounding the site and maintenance of a 50-foot setback from the nearby drainage, the proposed project would not result in any permanent barrier to dispersing animals from the nearby stockpond. The proposed project is not likely to result in substantial interference because the Project Site is not within any direct line between suitable aquatic habitats and given the availability of more suitable upland and dispersal habitat in the surrounding area. Those measures provided in italics will ensure “take” as defined under the ESA does not occur. With the avoidance of take and because the site is not within designated critical habitat, consultation with USFWS is not warranted.

BIO-4. Construction related activities could result in direct mortality to CRLF if present. Implementation of avoidance measures provided below will ensure direct mortality (or take) is

avoided and any potential interference with dispersal events is mitigated to a less than significant level.

MM-4A. *Pre-Construction Surveys:* A pre-construction survey for CRLF and PPT (and other ground-dwelling species such as American badger and burrowing owl) shall be conducted within 48 hours prior to the start of ground disturbance activities. Examination of burrows, dense vegetation, and/or other refugia shall be the focus of the surveys. Surveys are to be conducted by a qualified biologist with experience surveying for this species. If CRLF (or any other special status species) are found, no work shall occur until the animal has left the Project Site. If the animal does not leave the area on its own, work shall remain halted and USFWS contacted. If Project activities are stopped for greater than 7 days, a follow-up pre-construction survey may be required within 48 hours prior to re-initiation of Project activities.

MM-4B. *Exclusion fencing:* Prior to the start of activities, exclusion fencing should be installed around areas of construction or ground disturbance under the direction of the qualified biologist to prevent CRLF and PPT from entering the construction area. The following design specifications will be used for effective temporary exclusion fencing:

- Taut silt fencing extending at least 24 inches above ground;
- Buried a minimum of six inches below ground surface and constructed with a lip so that animals cannot scale and go over the barrier;
- No gaps or holes in the exclusion barrier except for access gates required for vehicular and pedestrian traffic or as designed for one-way exit points (e.g., ramps or doors) to allow animals to move out of the construction site but not back in;
- Exit points no more than 200 feet apart and flush to the ground to prevent CRLF from accessing the construction site;
- Redirection points at access gates at no greater than 100-foot intervals (for example, at least 5 feet of fencing perpendicular to the exclusion barrier) to redirect CRLF on the outside of the barrier away from entrances into the barrier.

MM-4C. *Biological Monitoring:* A qualified biologist shall be on site during all initial ground disturbance activities to halt work if any sensitive wildlife species is found on the site. If CRLF or PPT are detected during the survey, the animal should be allowed to leave the area on its own prior to resuming activities as described in MM-4A.

MM-4D. *Work only during dry weather:* No work shall take place during rain events when there is 40% chance or higher potential for precipitation to occur. In addition, no work shall occur for 48 hours following rain events in which 0.25 inch of rain accumulated within 24 hours to avoid animals that may be dispersing.

MM-4E. *Work only during daylight hours:* No work shall take place within 30 minutes before sunset to 30 minutes after sunrise to avoid animals that may disperse or forage during the night. Implementation of this measure will ensure effects to CRLF are less than significant.

MM-4F. Tightly woven fiber netting or similar material shall be used for erosion control or other purposes to ensure amphibian and reptile species do not get trapped. Plastic mono-filament netting (erosion control matting), rolled erosion control products, or similar material shall not be used.

MM-4G. Nighttime (security) lighting shall be directed downward away from surrounding habitats to avoid disrupting animals that may be dispersing.

MM-4H. *Environmental Training:* Environmental training shall be provided to all persons working on the Project Site prior to the initiation of Project-related activities. Training materials and briefings will include the following: a description of all biological resources that may be found on or in the vicinity of the Project Site, the laws and regulations that protect those resources, the consequences of non-compliance with those laws and regulations, instructions for inspecting equipment each morning prior to activities, and a contact person in the event that protected biological resources are discovered on the Project Site.

Implementation of the above measures will ensure **no effect to CRLF or PPT** individuals which may disperse onto the Project Site and any potential interference with CRLF or PPT dispersal events is mitigated to **a less than significant level**.

California Tiger Salamander (CTS)

California tiger salamander may potentially estivate and/or disperse across the Project Site, if present and breeding in the nearby stockpond habitat (located approximately 400 feet off-site). Direct mortality to CTS if present during construction and/or creation of a permanent dispersal barrier are considered potentially significant effects under CEQA. Because the Project Site is outside the known dispersal range of any extant breeding habitat, species presence on the site is unlikely and no effects are likely to occur during construction. Furthermore, in the unlikely event CTS are present in the nearby stockpond, implementation of avoidance measures for CRLF and PPT will ensure **no direct effects** (mortality/take) **to CTS occur**.

BIO-5. Future activities such as mowing, contaminant spills, vehicle access associated with the proposed Project may potentially adversely affect CTS if present in the future (as CTS recover and move into areas outside their current known dispersal range).

MM-5A. Avoid mowing land at night and when a greater than 40% chance of rain is forecast. Use light mowing equipment that would not crush burrows or impact the ground. Mow or grade in rows and not in a circular pattern.

MM-5B. A spill prevention plan is recommended to ensure practices avoid spills or leakage of any other hazardous materials, such as petroleum.

MM-5C. Speed limits of 10 mph or less shall be maintained on all roads within the property. If workers see wildlife, wildlife should be allowed to move out of the way before work continues.

The above measures will avoid potential effects to CTS in the future.

5.0 CONCLUSION

On April 15, 2019, Sol Ecology, Inc. performed a biological resources survey at 6095 Bodega Avenue, Petaluma in Sonoma County, California (Project Site). Protocol-level plant surveys were also performed on March 11 (by Jane Valerius Environmental Consulting), and on April 25, and June 3, 2019 by Sol Ecology botanists. A bat roost assessment and emergence survey were performed on May 23, 2019. The proposed project includes the development of up to 3 greenhouses and processing facilities totaling approximately 0.77 acre of an approximately 7.0-acre parcel (Project Site)

The Project Site consists of non-native annual grassland habitat adjacent to a rural residential development. One sensitive biological community – an unnamed drainage and associated willow riparian community – is present on the property, outside the Project Site. A minimum 50-foot setback from the edge of vegetation (or top of bank where no vegetation is present) shall be maintained. Additionally, best management practices will be employed to ensure no direct impact occurs.

No rare plants were observed during protocol-level surveys conducted on the site in March by Jane Valerius Consulting, or on April 25 nor June 3, 2019 by Sol Ecology. These dates correspond with the blooming period of the 5 species with potential to occur. Based on negative findings, these plants are presumed absent and no further measures are provided.

Two special status bats, one special status raptor, one special status reptile, and two federal (one state) listed amphibians have the potential to occur on the Project Site. Effects including direct mortality and/or disruption of breeding (or nesting) behaviors are considered potentially significant effects under CEQA. Avoidance and minimization measures will ensure no take (of listed species) occurs and effects to non-listed species are reduced to a less than significant level.

6.0 REFERENCES

- Bulger J. B., J. S. Norman, And R. B. Seymour. 2003. Terrestrial Activity and Conservation Of Adult California Red-Legged Frogs *Rana aurora draytonii* In Coastal Forests And Grasslands. *Biological Conservation*, 110:85.-95.
- Burrige, B. (ed.) 1995. Sonoma County Breeding Bird Atlas. Madrone Audubon Soc., Santa Rosa, CA.
- California Department of Fish and Wildlife (CDFW). 2019. California Natural Diversity Database. Wildlife and Habitat Data Analysis Branch, Sacramento, CA. Most recently accessed: May 2019.
- CDFW. 2019b. Protocols for Surveying and Evaluating Effects to Special Status Native Plant Populations and Sensitive Natural Communities. March 20, 2019.
- California Invasive Plant Council (Cal-IPC). 2019. California Invasive Plant Inventory Database. California Invasive Plant Council, Berkeley, CA. Online at: <http://www.cal-ipc.org/paf/>; most recently accessed: May 2019.
- California Native Plant Society (CNPS). 2019a. A Manual of California Vegetation, Online Edition. Sacramento, California. Online at: <http://vegetation.cnps.org/>; most recently accessed: May 2019.
- CNPS. 2019b. Inventory of Rare and Endangered Plants (online edition, v8-02). Sacramento, California. Online at: <http://rareplants.cnps.org/>; most recently accessed: May 2019.
- Dunk, JR. 1995. White-tailed Kite (*Elanus leucurus*), The Birds of North America Online (A Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/178>.
- Fellers, G.M. and P.M. Kleeman. 2007. California red-legged frog (*Rana draytonii*) movement and habitat use: Implications for conservation. *Journal of Herpetology* 41(2): 276-286.
- Holland, D. C., M. P. Hayes, and E. McMillan. 1990. Late summer movement and mass mortality in the California Tiger Salamander (*Ambystoma californiense*). *Southwestern Naturalist* 35:217-220.

- Jepson Flora Project (eds.). 2019. Jepson eFlora. Online at: <http://ucjeps.berkeley.edu/UM.html>; most recently accessed: May 2019.
- Rathbun, GB, NJ Scott, Jr., and TG Murphey. 2002. Terrestrial habitat use by Pacific pond turtles in a Mediterranean climate. *The Southwestern Naturalist* 47: 225-235.
- Rathbun, GB, N Seipel and DC Holland. 1992. Nesting behavior and movements of western pond turtles, *Clemmys marmorata*. *The Southwestern Naturalist* 37: 319-324.
- Shuford, WD, and T Gardali (eds). 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. *Studies of Western Birds* 1. Western Field Ornithologists, Camarillo, California, and CDFG, Sacramento.
- Sonoma County Vegetation Mapping & LiDAR Program (Sonoma Veg Project). 2014. Vegetation, Habitat, and LiDAR Data For Sonoma County. Available at: <http://sonomavegmap.org/data-downloads/>. Most recently accessed: May 2019.
- Stebbins, RC. 2003. A Field Guide to Western Reptiles and Amphibians, third edition. The Peterson Field Guide Series, Houghton Mifflin Company, NY.
- Thomson, Robert C., Amber N. Wright, and H. Bradley Shaffer. 2016. California Amphibian and Reptile Species of Special Concern. California Department of Fish and Wildlife University Press.
- Trenham, P. C. 2001. Terrestrial habitat use by adult California Tiger Salamanders. *Journal of Herpetology* 35:343-346.
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service. 2011. Web Soil Survey. Online at <http://websoilsurvey.nrcs.usda.gov>; most recently accessed: May 2019.
- United States Fish and Wildlife Service (USFWS). 2019. Information for Conservation and Planning Database. Available online at: <https://ecos.fws.gov/ipac/>; most recently accessed: May 2019.
- USFWS. 2010. Endangered and Threatened Wildlife and Plants: Revised Designation of Critical Habitat for California Red-legged Frog; Final Rule. *Federal Register*, Vol. 75, No. 51. 12815-12959.

USFWS 2004. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the California Tiger Salamander; and Special Rule Exemption for Existing Routine Ranching Activities; Final Rule. August 4, 2004. Federal Register, Vol. 69, No.149: 47212 47248.

United States Geological Survey (USGS). 2019. North American Breeding Bird Atlas. Available online at: <https://www.pwrc.usgs.gov/bba/>; most recently accessed: May 2019.

Valerius, Jane. Pers. communication with Jane Valerius Consulting, April 2019.

[WBWG] Western Bat Working Group. 2015. Species Accounts. Available online at: <http://wbwg.org/western-bat-species/>; most recently accessed: May 2019.

Zeiner, DC, WF Laudenslayer, Jr., KE Juneer, and M White. 1990. California's Wildlife, Volume I-III: Amphibians and Reptiles, Birds, Mammals. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento, CA.

APPENDIX A

PROJECT FIGURES: SITE LOCATION MAP AND CNDDDB DATABASE RESULTS

Figure 1a: Location of Project Study Area

6095 Bodega Ave, Petaluma, CA



- Project Study Area
- Parcel Boundary
- Proposed Paved Apron
- Streams
- 50 Foot Setback off Stream Centerline

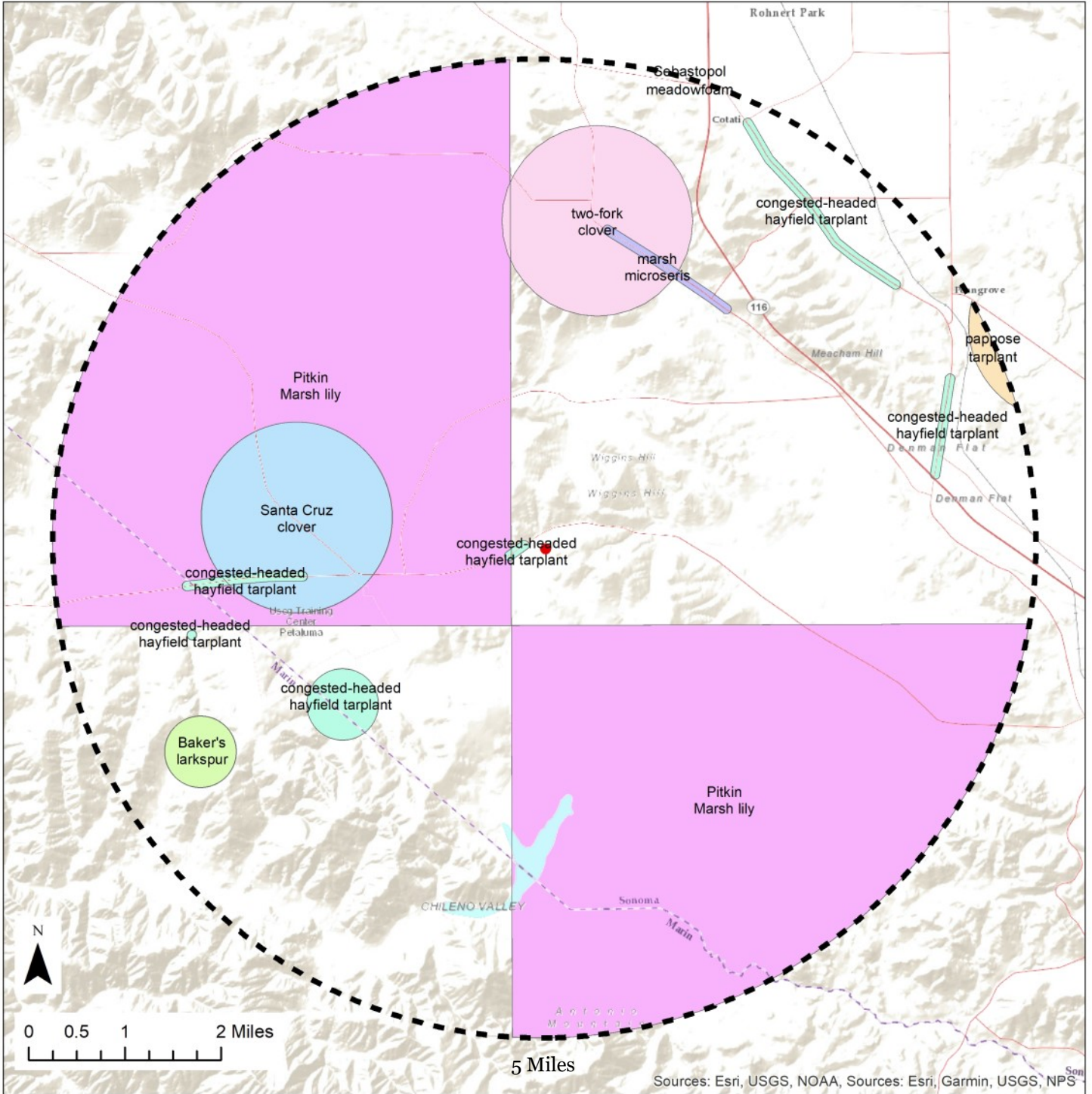
Figure 1b: Proposed Apron Improvement

6095 Bodega Ave, Petaluma, CA



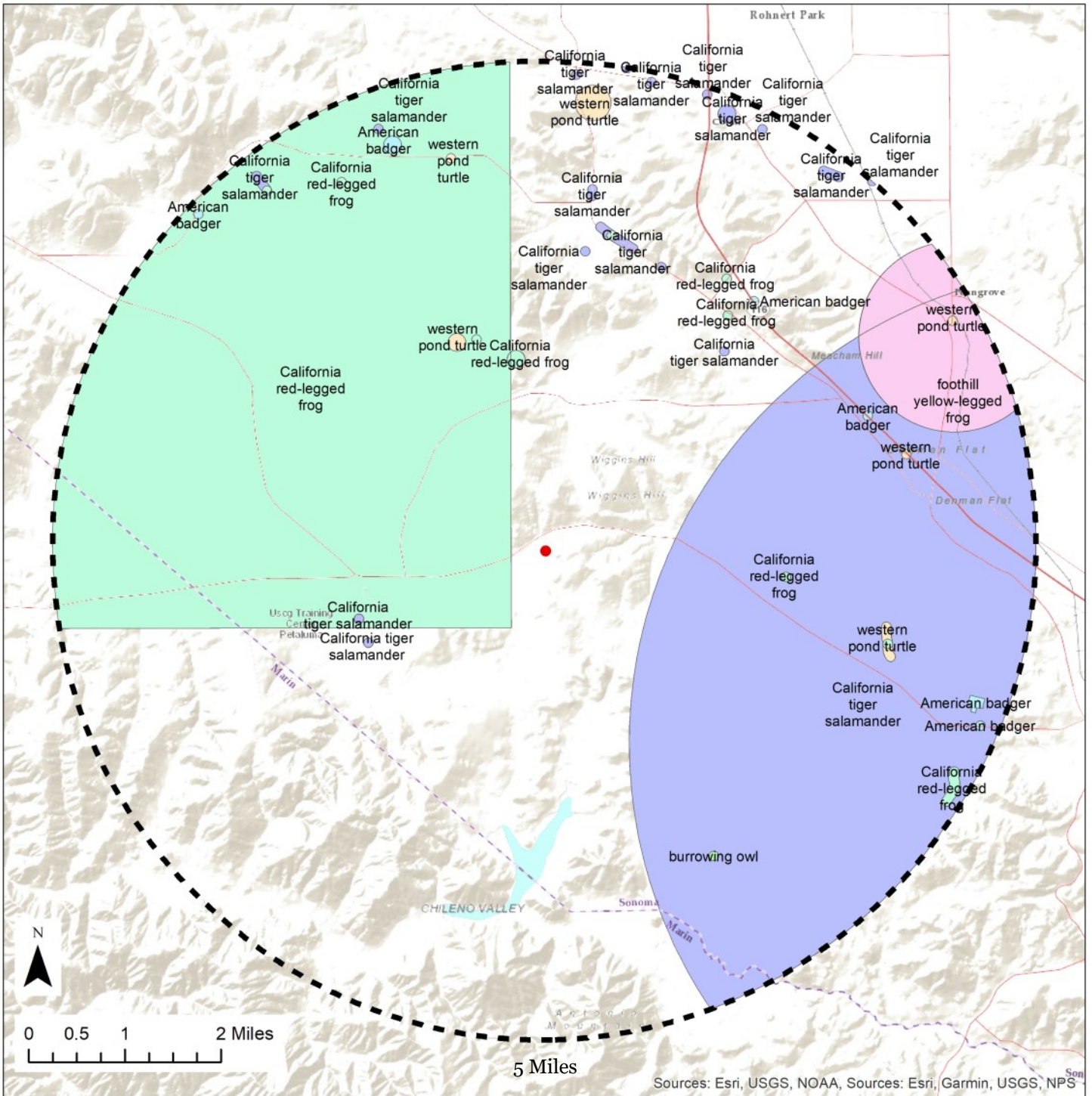
 Proposed Paved Apron  Streams

Figure 2: Special Status Plant Species within 5 Miles of the Project Site
 6095 Bodega Ave, Petaluma, CA



- Project Location
- 5-Mile Buffer
- Baker's larkspur (1)
- Pitkin Marsh lily (2)
- Santa Cruz clover (1)
- Sebastopol meadowfoam (1)
- congested-headed hayfield tarplant (6)
- marsh microseris (1)
- pappose tarplant (1)
- two-fork clover (1)

Figure 3: Special Status Animal Species within 5 Miles of the Project Site
 6095 Bodega Ave, Petaluma, CA



- Project Location
- 5-Mile Buffer
- American badger (5)
- California red-legged frog (11)
- California tiger salamander (18)
- burrowing owl (1)
- foothill yellow-legged frog (1)
- western pond turtle (6)

APPENDIX B

CNDDDB RESULTS AND USFWS IPAC WITHIN 5 MILES OF THE PROJECT SITE



Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria:

Quad< IS < Santa Rosa (3812246)> < Two Rock (3812237)> OR < Petaluma River (3812225)> < Point Reyes NE (3812227)> OR < Sebastopol (3812247)> OR < Kenwood (3812245)> < Cotati (3812236)> OR < Taxonomic Group> IS < Fish> OR < Amphibians> OR < Reptiles> OR < Birds> OR < Mammals> OR < Mollusks> OR < Insects> OR < Ferns> OR < Gymnosperms> OR < Monocots> OR < Dicots> OR < Lichens> OR < Bryophytes>

Name (Scientific/Common)	CNDDDB 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	117 S:1	0	1	0	0	0	0	0	0	0	0	0	1	0	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	952 S:2	0	0	0	0	1	1	2	0	0	0	0	1	1	1	0
<i>Allium peninsulare</i> var. <i>franciscanum</i> Franciscan onion	G5T2 S2	None None	Rare Plant Rank - 1B.2	600 600	25 S:2	0	0	0	0	0	2	2	0	0	0	0	2	0	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	0	0	0	6	0	0	0
<i>Ambystoma californiense</i> California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	50 475	1196 S:81	10	25	24	6	3	13	6	75	0	0	0	78	2	0	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	0	0	0	1	0	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	330 900	76 S:7	1	0	1	1	0	4	2	5	0	0	0	7	0	0	0
<i>Amsinckia lunaris</i> bent-flowered fiddleneck	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	400 400	93 S:2	0	0	0	0	0	2	2	0	0	0	0	2	0	0	0



Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



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.
<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	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	80 730	419 S:7	0	2	0	1	2	2	3	4	5	1
<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
<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
<i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i> Rincon Ridge manzanita	G3T1 S1	None None	Rare Plant Rank - 1B.1	300 800	12 S:6	0	0	2	1	1	2	4	2	5	0
<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	770 1,165	6 S:2	0	1	0	0	0	1	0	2	2	0
<i>Astragalus tener</i> var. <i>tener</i> alkali milk-vetch	G2T1 S1	None None	Rare Plant Rank - 1B.2	30 30	65 S:1	0	0	0	0	1	0	1	0	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	-1 2,400	1984 S:7	0	2	4	0	0	1	0	7	7	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



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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.			
<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:17	0	8	3	0	0	3	3	0	0	5	12	14	2	1
<i>Bombus caliginosus</i> obscure bumble bee	G4? S1S2	None None	IUCN_VU-Vulnerable	150 300	181 S:2	0	0	0	0	0	2	0	0	0	2	0	0	0	0
<i>Bombus crotchii</i> Crotch bumble bee	G3G4 S1S2	None None		300 300	234 S:1	0	0	0	0	0	1	0	0	1	0	1	0	0	0
<i>Bombus occidentalis</i> western bumble bee	G2G3 S1	None None	USFS_S-Sensitive XERCES_IM-Imperiled	0 750	282 S:7	0	0	0	0	0	7	0	0	7	0	7	0	0	0
<i>Brodiaea leptandra</i> narrow-anthered brodiaea	G3? S3?	None None	Rare Plant Rank - 1B.2	650 650	39 S:4	0	1	0	0	0	3	1	0	3	1	4	0	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	0	0	1	1	1	0	0
<i>Buteo swainsoni</i> Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	120 120	2474 S:1	0	0	0	0	1	0	0	0	1	0	0	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	2	0	0	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	1	0	0	0
<i>Calicina diminua</i> Marin blind harvestman	G1 S1	None None		150 150	1 S:1	0	0	0	0	0	1	1	0	1	0	1	0	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	2	0	0	1	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	2	0	0	2	0	0
<i>Ceanothus confusus</i> Rincon Ridge ceanothus	G1 S1	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive	510 2,700	33 S:7	0	0	1	0	1	5	3	4	6	0	6	0	1	1



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<i>Ceanothus divergens</i> Callistoga ceanothus	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	680 1,900	26 S:9	1	1	0	2	0	5	3	6	9	0	0
<i>Ceanothus foliosus</i> var. <i>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 masonii</i> Mason's ceanothus	G1 S1	None Rare	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	600 900	8 S:3	0	1	0	0	0	2	2	1	3	0	0
<i>Ceanothus purpureus</i> holly-leaved ceanothus	G2 S2	None None	Rare Plant Rank - 1B.2	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	475 1,900	30 S:14	2	0	0	0	0	12	10	4	14	0	0
<i>Centromadia parryi</i> ssp. <i>parryi</i> pappose tarplant	G3T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	80 80	39 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Chloropyron maritimum</i> ssp. <i>palustre</i> Point Reyes salty bird's-beak	G4?T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	2 4	68 S:2	1	0	1	0	0	0	1	1	2	0	0
<i>Chloropyron molle</i> ssp. <i>molle</i> soft salty bird's-beak	G2T1 S1	Endangered Rare	Rare Plant Rank - 1B.2	5 5	27 S:2	0	0	0	0	2	0	2	0	0	2	0
<i>Chorizanthe valida</i> Sonoma spineflower	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	30 150	6 S:2	0	0	0	0	2	0	2	0	0	2	0
<i>Cirsium andrewsii</i> Franciscan thistle	G3 S3	None None	Rare Plant Rank - 1B.2	300 300	31 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Clarkia imbricata</i> Vine Hill clarkia	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	200 250	3 S:3	1	1	0	0	1	0	3	0	2	0	1
<i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo	G5T2T3 S1	Threatened Endangered	BLM_S-Sensitive NAABC LWLR-Red Watch List USFS S-Sensitive USFWS_BCC-Birds of Conservation Concern	90 600	156 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	30 120	628 S:2	1	0	0	0	0	0	1	1	2	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	1	0	0	0	0	1	1	0	1	0	0
<i>Cuscuta obtusiflora</i> var. <i>glandulosa</i> Peruvian dodder	G5T4? SH	None None	Rare Plant Rank - 2B.2		6 S:1	1	0	0	0	0	1	1	0	1	0	0
<i>Delphinium bakeri</i> Baker's larkspur	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_UCBBG-UC Berkeley Botanical Garden	350 400	6 S:4	0	0	0	1	0	3	0	4	4	0	0
<i>Delphinium luteum</i> golden larkspur	G1 S1	Endangered Rare	Rare Plant Rank - 1B.1 SB_UCBBG-UC Berkeley Botanical Garden	150 150	11 S:2	2	0	0	0	0	2	2	0	2	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:9	4	2	0	0	0	3	0	9	9	0	0
<i>Downingia pusilla</i> dwarf downingia	GU S2	None None	Rare Plant Rank - 2B.2	85 700	132 S:12	4	1	0	1	2	4	7	5	10	1	1
<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:3	2	1	0	0	0	0	0	3	3	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	12 2,240	1367 S:42	6	12	15	6	0	3	9	33	42	0	0



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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extrtp.	Extrtp.	
<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	0	0	1	0	0
<i>Erethizon dorsatum</i> North American porcupine	G5 S3	None None	IUCN_LC-Least Concern	163 200	508 S:2	0	0	0	0	0	2				2	0	0
<i>Eriogonum luteolum var. caninum</i> Tiburon buckwheat	G5T2 S2	None None	Rare Plant Rank - 1B,2	550 550	26 S:2	1	0	0	0	0	1				2	0	0
<i>Fritillaria lanceolata var. tristulisi</i> Marin checker lily	G5T2 S2	None None	Rare Plant Rank - 1B,1	70 70	32 S:1	0	0	0	0	0	1				1	0	0
<i>Fritillaria liliacea</i> fragrant fritillary	G2 S2	None None	Rare Plant Rank - 1B,2 USFS_S-Sensitive	150 900	82 S:14	0	3	1	0	3	7				11	3	0
<i>Geothlypis trichas sinuosa</i> saltmarsh common yellowthroat	G5T3 S3	None None	CDFW_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern	0 9	112 S:3	2	0	0	0	0	1				3	0	0
<i>Gilia capitata ssp. 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	0
<i>Hemizonia congesta ssp. congesta</i> congested-headed hayfield tarplant	G5T2 S2	None None	Rare Plant Rank - 1B,2	20 1,705	52 S:19	1	2	0	0	2	14				17	2	0
<i>Hesperolinon congestum</i> Marin western flax	G1 S1	Threatened Threatened	Rare Plant Rank - 1B,1 SB_RSABG-Rancho Santa Ana Botanic Garden	200 560	27 S:4	2	1	0	0	0	1				4	0	0
<i>Horkelia tenuiloba</i> thin-lobed horkelia	G2 S2	None None	Rare Plant Rank - 1B,2 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden	200 250	27 S:3	0	0	0	0	0	3				3	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				0	1	0
<i>Hydroporus 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	0



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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extrap.	Extrap.
<i>Lasius blossevillei</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	0	1	0	1	0	0
<i>Lasius 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	0	0	0
<i>Lasthenia burkei</i> Burke's goldfields	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	50 442	35 S:23	3	8	5	1	4	2	7	16	19	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>Lasthenia conjugens</i> Contra Costa goldfields	G1 S1	Endangered None	Rare Plant Rank - 1B.1 SB_UCBBG-UC Berkeley Botanical Garden	280 280	36 S:1	0	1	0	0	0	0	0	1	1	0	0
<i>Laterallus jamaicensis coturniculus</i> California black rail	G3G4T1 S1	None Threatened	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_NT-Near Threatened NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	0 7	303 S:7	1	5	0	0	0	1	0	7	7	0	0
<i>Lavinia symmetricus ssp. 2</i> Tomales roach	G4T2T3 S2	None None	CDFW_SSC-Species of Special Concern	160 160	4 S:1	1	0	0	0	0	0	1	0	1	0	0
<i>Layia septentrionalis</i> Colusa layia	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive		57 S:2	0	0	0	0	0	2	1	1	2	0	0
<i>Legeneria limosa</i> legenere	G2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive	90 1,400	83 S:2	0	0	1	0	1	0	2	0	1	0	1
<i>Leptosiphon jepsonii</i> Jepson's leptosiphon	G3 S3	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	180 1,900	39 S:7	0	0	0	0	0	7	3	4	7	0	0



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<i>Lilium pardalinum</i> ssp. <i>pitkinense</i> Pitkin Marsh lily	G5T1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_Berry/SB-Berry Seed Bank SB_RSABG-Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	150 200	4 S:4	0	2	0	0	1	1	3	1	3	1	0
<i>Limnanthes vincularis</i> Sebastopol meadowfoam	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	50 135	46 S:41	2	7	6	3	6	17	16	25	35	5	1
<i>Lindriella occidentalis</i> California linderiella	G2G3 S2S3	None None	IUCN_NT-Near Threatened	90 776	438 S:6	0	1	0	0	0	5	4	2	6	0	0
<i>Melospiza melodia samuelis</i> San Pablo song sparrow	G5T2 S2	None None	CDFW_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern	0 9	41 S:5	2	1	0	0	0	2	2	3	5	0	0
<i>Microseris paludosa</i> marsh microseris	G2 S2	None None	Rare Plant Rank - 1B.2	40 80	38 S:3	0	0	0	0	0	3	3	0	3	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	210 210	86 S:1	0	0	0	0	0	1	1	0	1	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	210 210	265 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Navarretia leucocephala</i> ssp. <i>bakeri</i> Baker's navarretia	G4T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive	50 1,320	58 S:15	1	1	0	0	5	8	12	3	10	3	2
<i>Oncorhynchus kisutch</i> pop. 4 coho salmon - central California coast ESU	G4 S2?	Endangered Endangered	AFS_EN-Endangered	445 445	23 S:1	0	0	0	0	0	1	0	1	1	0	0



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<i>Oncorhynchus mykiss irideus</i> pop. 8 steelhead - central California coast DPS	G5T2T3Q S2S3	Threatened None	AFS_TH-Threatened	260 400	44 S:4	1	2	0	1	0	0	0	0	0	4	0	0
<i>Penstemon newberryi</i> var. <i>sonomensis</i> Sonoma beardtongue	G4T2 S2	None None	Rare Plant Rank - 1B,3	2,600 2,600	11 S:1	0	1	0	0	0	0	1	0	0	1	0	0
<i>Plagiobothrys mollis</i> var. <i>vestitus</i> Petaluma popcornflower	G4?TX SX	None None	Rare Plant Rank - 1A	20 20	1 S:1	0	0	0	0	1	0	1	0	0	0	1	0
<i>Pleuropogon hooverianus</i> North Coast semaphore grass	G2 S2	None Threatened	Rare Plant Rank - 1B,1 BLM_S-Sensitive SB_BerrySB-Berry Seed Bank SB_RSABG-Rancho Santa Ana Botanic Garden	460 780	27 S:2	1	1	0	0	0	0	0	0	2	2	0	0
<i>Pogonichthys macrolepidotus</i> Sacramento splittail	GNR S3	None None	AFS_VU-Vulnerable CDFW_SSC-Species of Special Concern IUCN_EN-Endangered	1 1	15 S:1	0	0	0	0	0	1	0	0	1	1	0	0
<i>Polygonum marinense</i> Marin knotweed	G2Q S2	None None	Rare Plant Rank - 3.1	5 5	32 S:1	0	0	0	0	0	1	1	0	0	1	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	0	1	0
<i>Rallus obsoletus obsoletus</i> California Ridgway's rail	G5T1 S1	Endangered Endangered	CDFW_FP-Fully Protected NABCI_RWL-Red Watch List	3 18	99 S:6	1	4	0	0	0	1	0	0	6	6	0	0
<i>Rana boylei</i> foothill yellow-legged frog	G3 S3	None Candidate Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	21 2,100	2379 S:26	10	4	5	2	0	5	8	18	26	0	0	0
<i>Rana draytonii</i> California red-legged frog	G2G3 S2S3	Threatened None	CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	10 2,230	1519 S:38	7	16	12	0	0	3	3	35	38	0	0	0
<i>Reithrodontomys raviventris</i> salt-marsh harvest mouse	G1G2 S1S2	Endangered Endangered	CDFW_FP-Fully Protected IUCN_EN-Endangered	3 8	144 S:2	0	0	0	0	0	2	1	1	2	0	0	0



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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.
<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	0	0
<i>Rhynchospora californica</i> California beaked-rush	G1 S1	None None	Rare Plant Rank - 1B,1 BLM_S-Sensitive	150 150	9 S:3	0	0	0	0	1	2	3	0	0	1
<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	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	0
<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
<i>Sidalcea calycosa ssp. rhizomata</i> Point Reyes checkerbloom	G5T2 S2	None None	Rare Plant Rank - 1B,2	30 30	34 S:1	0	0	0	0	0	1	1	0	1	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
<i>Spirinchus thaleichthys</i> longfin smelt	G5 S1	Candidate Threatened		0 0	46 S:1	0	0	0	0	0	1	1	0	1	0
<i>Syncaris pacifica</i> California freshwater shrimp	G2 S2	Endangered Endangered	IUCN_EN-Endangered	120 300	20 S:5	2	2	1	0	0	0	1	4	5	0
<i>Talanites ubicki</i> Ubick's gnaphosid spider	G1 S1	None None		150 150	1 S:1	0	0	0	0	0	1	1	0	1	0
<i>Taricha rivularis</i> red-bellied newt	G4 S2	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	20 800	136 S:3	0	0	0	0	0	3	3	0	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	589 S:12	1	4	2	2	0	3	3	9	12	0



Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



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.
<i>Trifolium amoenum</i> two-fork clover	G1 S1	Endangered None	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	160 300	26 S:6	0	0	0	0	0	6	6	0	0	0
<i>Trifolium buckwestiorum</i> Santa Cruz clover	G2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_USDA-US Dept of Agriculture		58 S:2	0	0	0	0	2	1	2	0	0	0
<i>Trifolium hydrophilum</i> saline clover	G2 S2	None None	Rare Plant Rank - 1B.2	100 100	49 S:4	0	0	0	3	1	1	1	1	2	0
<i>Trifolium polyodon</i> Pacific Grove clover	G1 S1	None Rare	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_USDA-US Dept of Agriculture	20 20	21 S:1	0	0	0	0	1	1	1	0	0	0
<i>Triquetrella 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	1	0	1	0	0	0
<i>Tryonia imitator</i> mimic tryonia (=California brackishwater snail)	G2 S2	None None	IUCN_DD-Data Deficient	6 6	39 S:1	0	0	0	0	1	1	0	0	0	0
<i>Vespericola marinensis</i> Marin hesperian	G2 S2	None None		80 80	23 S:1	0	0	0	0	1	1	0	0	0	0
<i>Viburnum ellipticum</i> oval-leaved viburnum	G4G5 S3?	None None	Rare Plant Rank - 2B.3		38 S:2	0	0	0	0	2	2	0	0	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>

Yellow-billed Cuckoo *Coccyzus americanus* Threatened
There is **proposed** critical habitat for this species. Your location is outside the critical habitat.
<https://ecos.fws.gov/ecp/species/3911>

Reptiles

NAME	STATUS
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Green Sea Turtle <i>Chelonia mydas</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6199	Threatened
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Amphibians

NAME	STATUS
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California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
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California Tiger Salamander <i>Ambystoma californiense</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2076	Endangered
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Insects

NAME	STATUS
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San Bruno Elfin Butterfly <i>Callophrys mossii bayensis</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/3394	Endangered
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Crustaceans

NAME	STATUS
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California Freshwater Shrimp <i>Syncaris pacifica</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7903	Endangered
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Flowering Plants

NAME	STATUS
Burke's Goldfields <i>Lasthenia burkei</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4338	Endangered
Sebastopol Meadowfoam <i>Limnanthes vincularis</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/404	Endangered
Showy Indian Clover <i>Trifolium amoenum</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6459	Endangered
Sonoma Alopecurus <i>Alopecurus aequalis</i> var. <i>sonomensis</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/557	Endangered
Sonoma Sunshine <i>Blennosperma bakeri</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1260	Endangered

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:

APPENDIX C

SITE PHOTOGRAPHS

Appendix C – Site Photographs



Drainage channel and riparian habitat (including planted redwoods).



Grassland habitat in the foreground depicts conditions on the Project Site.

Appendix C – Site Photographs



Understory of drainage channel shows poison hemlock and absence of water.



Nearby ephemeral drainage channel lacks bed and bank in some portions of the drainage feature.

APPENDIX D

OBSERVED SPECIES TABLE

Appendix D. Observed Species table. Plant species observed on the Project Site during the March 11, April 25, and June 3, 2019 surveys.

Scientific Name	Common Name	Origin	Form	Rarity Status
<i>Avena barbata</i>	Slim oat	non-native (invasive)	annual, perennial grass	-
<i>Brachypodium distachyon</i>	false brome	non-native (invasive)	annual grass	-
<i>Brassica rapa</i>	Common mustard	non-native (invasive)	annual herb	-
<i>Briza maxima</i>	Rattlesnake grass	non-native (invasive)	annual grass	-
<i>Briza minor</i>	Little rattlesnake grass	non-native	annual grass	-
<i>Bromus diandrus</i>	Ripgut brome	non-native (invasive)	annual grass	-
<i>Bromus hordeaceus</i>	Soft chess	non-native (invasive)	annual grass	-
<i>Calandrinia menziesii</i>	Red maids	native	annual herb	-
<i>Carduus pycnocephalus ssp. pycnocephalus</i>	Italian thistle	non-native (invasive)	annual herb	-
<i>Cerastium glomeratum</i>	Large mouse ears	non-native	annual herb	-
<i>Conium maculatum</i>	Poison hemlock	non-native (invasive)	perennial herb	-
<i>Convolvulus arvensis</i>	bindweed	non-native (invasive)	vine	
<i>Crepis capillaris</i>	Smooth hawksbeard	non-native	annual, perennial herb	-
<i>Cynosurus echinatus</i>	Dogtail grass	non-native (invasive)	annual grass	-
<i>Cyperus eragrostis</i>	Tall cyperus	native	perennial grasslike herb	-
<i>Erodium cicutarium</i>	Coastal heron's bill	non-native (invasive)	annual herb	-
<i>Eschscholzia californica</i>	California poppy	native	annual herb	-
<i>Eucalyptus globulus</i>	Blue gum	non-native (invasive)	tree	-
<i>Festuca bromoides</i>	Brome fescue	non-native	annual grass	-

Scientific Name	Common Name	Origin	Form	Rarity Status
<i>Festuca myuros</i>	Rattail sixweeks grass	non-native (invasive)	annual grass	-
<i>Geranium dissectum</i>	Wild geranium	non-native (invasive)	annual herb	-
<i>Holcus lanatus</i>	Common velvetgrass	non-native (invasive)	perennial grass	-
<i>Hordeum murinum</i>	Foxtail barley	non-native (invasive)	annual grass	-
<i>Hypochaeris radicata</i>	Hairy cats ear	non-native (invasive)	perennial herb	-
<i>Juncus bufonius</i>	Common toad rush	native	annual grasslike herb	-
<i>Lupinus bicolor</i>	Lupine	native	annual, perennial herb	-
<i>Lupinus nanus</i>	Valley sky lupine	native	annual herb	-
<i>Lysimachia arvensis</i>	Scarlet pimpernel	non-native	annual herb	-
<i>Lythrum hyssopifolia</i>	Hyssop loosestrife	non-native	annual herb	-
<i>Medicago polymorpha</i>	California burclover	non-native (invasive)	annual herb	-
<i>Mentha pulegium</i>	Pennyroyal	non-native (invasive)	perennial herb	-
<i>Oxalis pes-caprae</i>	Burmuda buttercup	non-native	annual herb	-
<i>Parentucellia viscosa</i>	Yellow parentucellia	non-native (invasive)	annual herb	-
<i>Plantago lanceolata</i>	Ribwort	non-native (invasive)	perennial herb	-
<i>Poa annua</i>	Annual blue grass	non-native	annual grass	-
<i>Ranunculus muricatus</i>	Buttercup	non-native	annual, perennial herb	-
<i>Raphanus sativus</i>	Jointed charlock	non-native (invasive)	annual, biennial herb	-
<i>Rubus armeniacus</i>	Himalayan blackberry	non-native (invasive)	shrub	-
<i>Rumex acetosella</i>	Sheep sorrel	non-native (invasive)	perennial herb	-

Scientific Name	Common Name	Origin	Form	Rarity Status
<i>Rumex crispus</i>	Curly dock	non-native (invasive)	perennial herb	-
<i>Salix sp.</i>	-	-	-	-
<i>Silene gallica</i>	Common catchfly	non-native	annual herb	-
<i>Silybum marianum</i>	Milk thistle	non-native (invasive)	annual, perennial herb	-
<i>Spergula arvensis</i>	Corn spurry	non-native	annual herb	-
<i>Stachys ajugoides</i>	Hedge nettle	native	perennial herb	-
<i>Stellaria media</i>	Chickweed	non-native	annual herb	-
<i>Taraxia ovata</i>	Sun cup	native	perennial herb	-
<i>Torilis arvensis</i>	Field hedge parsley	non-native (invasive)	annual herb	-
<i>Trifolium cernuum</i>	Nodding clover	non-native	annual herb	-
<i>Trifolium subterraneum</i>	Subterranean clover	non-native	annual herb	-
<i>Vicia sp.</i>	-	-	-	-

APPENDIX E

FIELD SURVEYOR QUALIFICATIONS

Appendix E - Field Surveyor Qualifications:

Biological Assessment and Wildlife Surveys

Dana Riggs, Principal Biologist for Sol Ecology received her Bachelor of Science degree in Earth Systems, Science and Policy at California State University of Monterey Bay in 2001. Prior to founding Sol Ecology, she was a principal biologist and head of the Wildlife and Fisheries Department at WRA, a mid-size environmental consulting firm in San Rafael, California. She has 19 years of experience directing a broad range of resource studies from planning level to post-construction including: biological habitat assessments and mapping, special status species surveys, corridor studies, site restoration and monitoring, federal and state regulatory permitting, local permitting, mitigation and restoration planning for aquatic species, and NEPA and CEQA documentation for a variety of public and private sector clients. Dana has extensive experience working with species including California red-legged frog and California tiger salamander and has been approved by USFWS and CDFW to monitor for these species on projects throughout the state. Dana was assisted by **Bill Arnerich, Associate Wildlife Biologist** who has more than 15 years working with California tiger salamander on the Santa Rosa Plain and various other species including California red-legged frog elsewhere in the state.

Biological Assessment and Botanical Surveys

Andrew Georgeades, Senior Ecologist for Sol Ecology received his Bachelor of Science degree in Natural Resource Management and Conservation at San Francisco State University in 2005. Prior to co-founding Sol Ecology, Andrew worked as a natural resources' specialist for the Golden Gate National Recreation Area where he was responsible for monitoring native and rare plant populations and planning and supervising revegetation projects within the park. Andrew also previously worked for the California Native Plant Society as a vegetation project lead on the "Manual of California Vegetation, 2nd Ed." Publication. As a lead, he performed plant surveys, identified vegetation habitat types, landforms, environmental conditions, and plant species following the project protocol. Andrew currently is responsible for overseeing all floristic and focused plant surveys at Sol Ecology and maintains a CDFW scientific collecting permit. Andrew was assisted by **Emily Allen, Botanist** who has more than a decade of experience working for Hedgerow Farms and is an expert identifying grassland species.