

Appendix D

Biological Resource Evaluation for Performing Arts Theater, ACCEL Center, and Library Project, Tulare County, California

Appendices

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**BIOLOGICAL RESOURCE EVALUATION
FOR
PERFORMING ARTS THEATER, ACCEL CENTER, AND LIBRARY PROJECT
TULARE COUNTY, CALIFORNIA**

Prepared for:

PLACEWORKS

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October 9, 2025



CERTIFICATION STATEMENT

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

October 9, 2025

Date

Candace Reynolds

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Senior Biologist

October 9, 2025

Date

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Associate Biologist

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SECTION 1. INTRODUCTION

HANA Resources, Inc. (HANA) was retained by PlaceWorks to prepare this Biological Resources Evaluation (BRE) Report for the proposed Performing Arts Theater, AcCEL Center, and Library Project. Following completion of the reconnaissance-level biological evaluation, HANA prepared this BRE that: 1) summarized existing conditions; 2) assessed the potential presence of sensitive biological resources; 3) analyzed the potential impacts on those resources from project development; 4) recommended, as appropriate, best management practices (BMPs), avoidance and protection measures, and mitigation measures to avoid, eliminate and/or reduce environmental impacts to less than significant levels; and 5) identified biological permits or approvals that the project may need. The BRE includes: 1) methods and results of the literature review and field surveys; 2) figures depicting the size and location of plant communities and other sensitive biological resources; 3) a complete flora and fauna compendium; and 4) site photographs.

1.1. SITE LOCATION

The site covers approximately 15.63 acres of unincorporated Tulare County, CA (**Exhibit I, Project Vicinity Map**) and is located in the southwestern corner at the intersection of CA Highway 63 (AKA N. Mooney Boulevard) and Avenue 264 (AKA Liberty Road) and is on the APNs 149-030-005 and 149-030-008 (**Exhibit II, Project Area**). The site is located on the United States Geological Survey (USGS) Visalia Quadrangle, 7.5-Minute Topographic map. The surface elevation of the site ranges from approximately 295 to 320 feet above mean sea level (MSL). The site is located within Section 24 in Township 19 South-Range 24 East, Mt. Diablo Meridian.

1.2. PROJECT DESCRIPTION

The proposed project is for the construction of an Academic Collaborative for Exceptional Learners (AcCEL) center, library, and performing arts theater adjacent to the pre-existing County Office of Education's Liberty Campus (**Exhibit III, Site Plan**). The campus is already home to the Planetarium and Science Center, offices of Special Services' Bright Start Parent/Infant Program and related programs, Special Services Technology Center, and Hearing Center. Proposed development would support the school district, students, and residents of Tulare county and enhance the adjacent Liberty Campus.

The AcCEL center and library are proposed to be built in the northwestern corner of the project area and would include two ingress and egress driveways and a shared parking lot of 70-spaces. Included will be shade structures, walkways, landscaping, and a basketball court.

The performing arts theater is proposed to be built in the southeastern corner of the project area and have two driveways off N. Mooney Boulevard and a 568-space parking lot.

This project will also include connecting the existing parking lot of the Planetarium & Science Center with these proposed parking lots. It is also likely to include grading operations, construction of retaining walls, wet/dry utilities, street work, and flatwork.

Exhibit I: Project Vicinity Map



**Performing Arts Theater, AcCEL Center,
& Library Project**

Exhibit I: Project Vicinity



★ Project Location

1 inch = 15 miles
0 5 10 Miles

 **HANA**
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Exhibit II: Project Area



**Performing Arts Theater, AcCEL Center,
& Library Project**

Exhibit II: Project Area

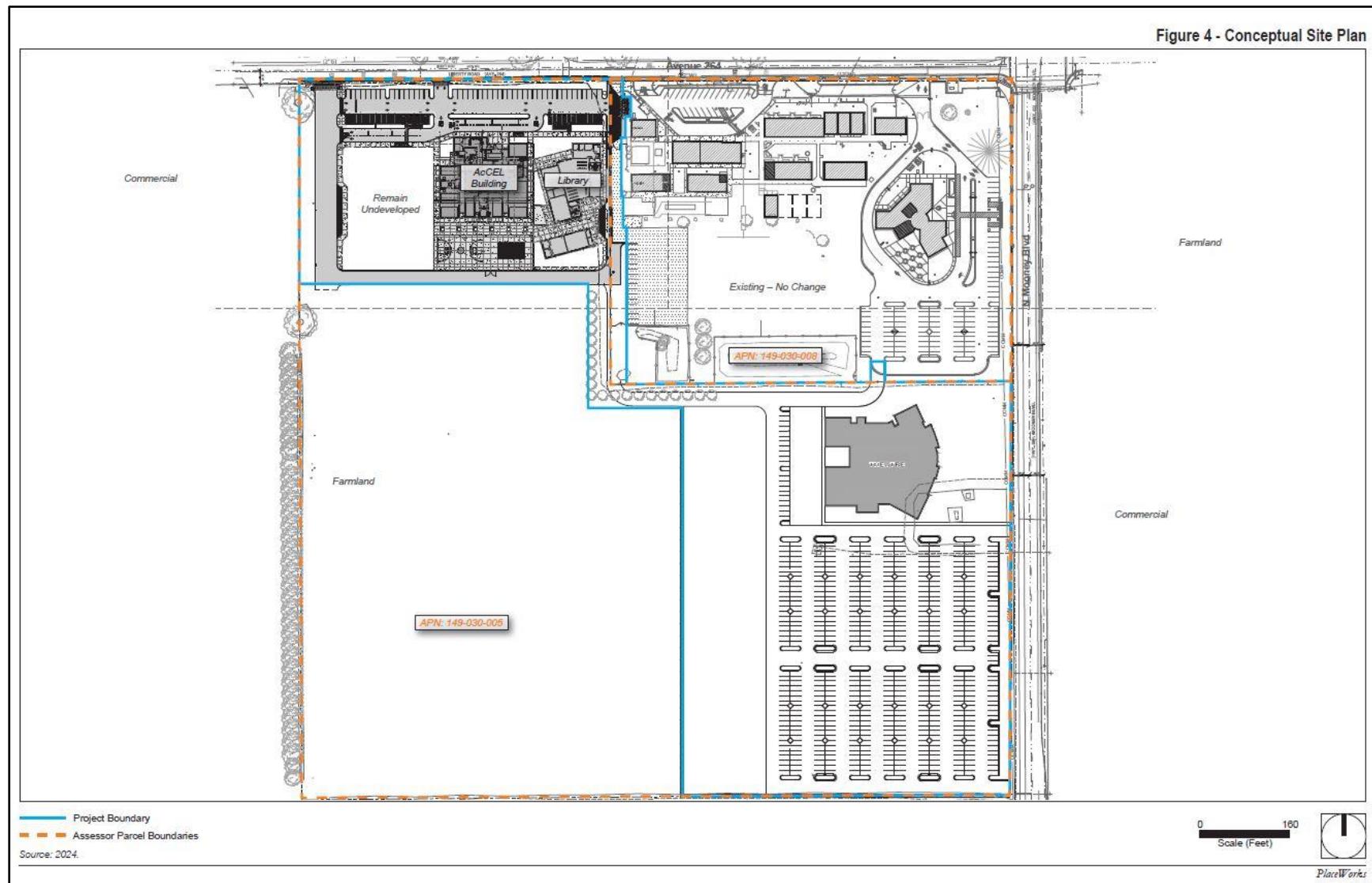


 **HANA**
RESOURCES[®]
Environmental Enterprise Solutions

- Project Area (15.63 Acres)
- BSA (Project Area w/ 500-Foot Buffer)

1 inch = 0 miles
0 0.03 0.07 Miles

Exhibit III: Site Plan



SECTION 2. REGULATORY OVERVIEW

2.1. Federal Statutes, Regulations and Executive Orders

Endangered Species Act (ESA)

The federal Endangered Species Act of 1973 (Title 16, United States Code [U.S.C.] §§ 1531-1543) (ESA), as amended, designates and provides for protection of listed threatened and endangered plant and animal species, and their critical habitat. The US Fish and Wildlife Service (USFWS), in the Department of the Interior, and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS), in the Department of Commerce, share responsibility for administration of the ESA. These responsibilities include listing and delisting species, designating critical habitat, and formulating recovery plans. The USFWS has primary responsibility for terrestrial and freshwater organisms, while the responsibilities of NMFS are mainly marine wildlife.

Section 9 (Prohibited Acts)

Once a species is listed, section 9 of the ESA makes it unlawful for any person, including private and public entities, to “take” species listed as endangered or without a permit issued pursuant to section 10 or an incidental take statement issued pursuant to section 7. Section 9 defines “take” as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct.” The term “harm” is defined as “an act which actually kills or injures wildlife. Such an act may include substantial habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.”

ESA section 9’s take prohibitions apply to listed wildlife and fish species, but not to plants. Endangered plants are not protected from take, although it is unlawful to remove, possess, or maliciously damage or destroy them on federal lands. Removing or damaging listed plants on state and private lands in knowing violation of state law, or in the course of violating a state criminal trespass law, also is illegal under the ESA.

Section 10 (Incidental Take Permits and Habitat Conservation Plans)

An incidental take permit pursuant to section 10(a)(1)(B) is required when non-Federal, otherwise lawful activities, including lawful project development, will result in take of threatened or endangered wildlife. Under this provision, the USFWS and/or NMFS may, where appropriate, authorize the taking of federally listed wildlife or fish if such taking occurs incidentally during otherwise legal activities. Section 10(a)(2)(B) requires an application for an incidental take permit to include a Habitat Conservation Plan (HCP). The purpose of the habitat conservation planning process associated with the permit is to ensure there is adequate avoidance, minimization and mitigation measures to address the effects of the authorized incidental take. Section 10 provides a clear regulatory mechanism to permit the incidental take of federally listed fish and wildlife species by private interests and non-Federal governmental agencies.

Migratory Bird Treaty Act (MBTA)

The Migratory Bird Treaty Act (MBTA) of 1918 (Title 16, U.S.C. sections 703 - 712), as amended, implements various treaties and conventions between the United States (U.S.) and Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. The MBTA makes it unlawful to pursue, hunt, take, capture, kill, possess, sell, purchase, barter, import, export, or transport any migratory bird, or any part, nest, or egg or any such bird, unless authorized under a permit issued by the Secretary of the

Interior. Some regulatory exceptions apply. Take is defined in regulations implementing the MBTA as “to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to carry out these activities.” The MBTA prohibits the collection and destruction of a migratory bird, its nest, and birds or eggs contained in the nest. The USFWS’ Migratory Bird Permit Memorandum (MBPM-2) dated April 15, 2003, clarifies that destruction of most unoccupied bird nests is permissible under the MBTA; exceptions include nests of federally listed threatened or endangered migratory birds, bald eagles, and golden eagles. Take under the MBTA does not include habitat destruction or alteration, as long as there is not a direct taking of birds, nests, eggs, or parts thereof. The USFWS has statutory authority and responsibility for enforcing the MBTA.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC Section 668) provides for the protection of the bald eagle (the national emblem) and the golden eagle by prohibiting, except under certain specified conditions, the taking, possession and commerce of such birds. If compatible with the preservation of bald and golden eagles, the Secretary of the Interior may permit the taking, possession and transportation of bald and golden eagles and nests for scientific or religious purposes, or for the protection of wildlife, agricultural or other interests. The Secretary of the Interior may authorize the take of golden eagle nests, which interfere with resource development or recovery operations. Bald eagles may not be taken for any purpose unless the Secretary issues a permit prior to the taking.

Clean Water Act (CWA)

The federal Clean Water Act (33 U.S.C. §§ 1251-1376) (CWA) is the principal federal law governing pollution control and water quality of the nation's waterways. It establishes the basic structure for regulating discharges of pollutants into “Waters of the United States” (Waters of the U.S.) and for regulating water quality and establishing water quality standards for surface waters. Sections 401, 402, and 404 of the CWA are pertinent to surface and coastal, Waters of the U.S. For purposes of Section 404 permitting under the CWA, “Waters of the U.S.”, are comprised of those wetland and non-wetland bodies of water that meet the criteria set forth in 33 Code of Federal Regulations (CFR) § 328.3, as interpreted by a number of court opinions and guidance, including Solid Waste Agency of Northern Cook County (SWANCC) v. U.S. Army Corps of Engineers, 531 U.S. 159 (2001) (SWANCC), consolidated cases Rapanos v. United States (Rapanos), and Carabell v. United States (Carabell), 547 U.S. 715 (2006), and joint guidance issued by USACE and United States Environmental Protection Agency (EPA) in light of judicial decisions, including the joint guidance memorandum regarding Clean Water Act Jurisdiction Following the U.S. Supreme Court’s Decision in Rapanos v. United States and Carabell v. United States (December 12, 2008)(2008 Regulatory Guidance).

Section 404 – Discharge of Dredge and Fill Requirements

Section 404 of the CWA establishes a program to regulate the discharge of dredged or fill material into Waters of the U.S. The USACE implementing regulations define “dredged material” as material that is excavated or dredged from Waters of the U.S. The CWA implementing regulations define “fill material” as material placed in Waters of the U.S. where the material has the impact of either replacing any portion of Waters of the U.S. with dry land or changing the bottom elevation of any portion of a Waters of the U.S. Examples include discharges of rock, sand, soil, clay, plastics, construction debris, wood chips, overburden from mining or other excavation activities, and materials used to create any structure or infrastructure for development projects in Waters of the U.S.

Section 401 – Water Quality Certification

Although the CWA is a federal law, Section 401 of that law recognizes that states have the primary

authority and responsibility for setting surface water quality standards and requires the U.S. Army Corps of Engineers to obtain a state certification that their permits for discharge or dredge and fill material do not violate state water quality standards. Section 401 of the CWA requires every applicant for a Section 404 permit resulting in any discharge of dredge or fill material into Waters of the U.S. to provide a certification that any discharges will comply with the applicable state water quality standards set pursuant to the CWA and applicable state law.

2.2. State Statutes and Regulations

California Endangered Species Act (CESA)

The California Endangered Species Act (CESA) (California Fish and Game Code § 2050 et seq.) was enacted in 1984 to parallel the federal ESA and allows the Fish and Game Commission to designate species, including plants, as “threatened” or “endangered.” The CESA states that all native species of fishes, amphibians, reptiles, birds, mammals, and plants, and their habitats, threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation, will be protected or preserved. Unlike the ESA, the CESA does not include listing provisions for invertebrate species.

CESA makes it illegal to import, export, take, possess, purchase, sell, or attempt to do any of those actions to species that are designated as threatened, endangered, or candidates for listing, unless permitted by CDFW. Section 2080 of the California Fish and Game Code prohibits take of any species that the Commission determines to be an endangered species or a threatened species. “Take” is defined in section 86 of the California Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

Under section 2081 of CESA, CDFW may permit take or possession of threatened, endangered, or candidate species for scientific, educational, or management purposes, and may also permit take of these species that is incidental to otherwise lawful activities if certain conditions are met. Some of the conditions for issuance of permits allowing incidental take are that the adverse effects of the take must be minimized and fully mitigated, adequate funding must be ensured for implementation of identified mitigation, and that the activity shall not jeopardize the continued existence of the listed species. CESA emphasizes early consultation to avoid potential impacts on candidate and listed endangered and threatened species, and to develop appropriate mitigation to offset project caused losses of listed species populations and their essential habitats.

California Fish and Game Code §§ 1600-1616

Pursuant to §§ 1600–1616 of the California Fish and Game Code, the CDFW regulates all substantial diversions, obstructions, or changes to the natural flow or the bed, channel, or bank of any river, stream, or lake, which provides habitat and supports fish or wildlife. CDFW defines a “stream” (including creeks and rivers) as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation” (California Code of Regulations, Title 14, Division 1, Subdivision 1, Chapter 1, § 1.72). “Bank” means the slope or elevation of land that bounds the bed of the stream in a permanent or longstanding way, and that confines the stream water up to its highest level. “Lake” includes “natural lakes or man-made reservoirs.”

Rivers, streams, lakes, and riparian vegetation that provide habitat for fish and wildlife species are subject to jurisdiction by the CDFW under §§ 1600-1616 of the California Fish and Game Code. Riparian areas are

lands adjacent to streams, lakes, and estuarine-marine shorelines. Section 2785(e) defines "riparian habitat" as lands which contain habitat which grows close to and which depends upon soil moisture from a nearby freshwater source. CDFW regulates the bed, bank to bank, as well as associated riparian vegetation, and fish and wildlife resources. CDFW has interpreted jurisdictional boundaries to be defined by the tops of stream banks (i.e., the limit of stream influence) and/or the limit of the canopy of riparian vegetation (outer drip line) that is hydrologically connected to river, stream, or lake, whichever is greatest. As a result, the area of CDFW jurisdiction is usually greater than the active channel and overlaps and extends beyond the USACE jurisdiction. Isolated wetlands not associated with a river, stream or lake are not protected under §§ 1600 et seq. of the California Fish and Game Code. In addition, CDFW does not have regulatory authority on Tribal Lands.

2.3. Regional and Local Ordinances, Plans and Policies

Tulare County General Plan – 20230 Update

Chapter 8 Environmental Resources Management - Section 1 Biological Resources

ERM-1 To preserve and protect sensitive significant habitats, enhance biodiversity, and promote healthy ecosystems throughout the County.

ERM-1.1 **Protection of Rare and Endangered Species.** The County shall ensure the protection of environmentally sensitive wildlife and plant life, including those species designated as rare, threatened, and/or endangered by State and/or Federal government, through compatible land use development.

ERM-1.2 **Development in Environmentally Sensitive Areas.** The County shall limit or modify proposed development within areas that contain sensitive habitat for special status species and direct development into less significant habitat areas. Development in natural habitats shall be controlled so as to minimize erosion and maximize beneficial vegetative growth.

ERM-1.4 **Protect Riparian Areas.** The County shall protect riparian areas through habitat preservation, designation as open space or recreational land uses, bank stabilization, and development controls.

ERM-1.6 **Management of Wetlands.** The County shall support the preservation and management of wetland and riparian plant communities for passive recreation, groundwater recharge, and wildlife habitats.

ERM-1.7 **Planting of Native Vegetation.** The County shall encourage the planting of native trees, shrubs, and grasslands in order to preserve the visual integrity of the landscape, provide habitat conditions suitable for native vegetation and wildlife, and ensure that a maximum number and variety of well-adapted plants are maintained.

ERM-1.8 **Open Space Buffers.** The County shall require buffer areas between development projects and significant watercourses, riparian vegetation, wetlands, and other sensitive habitats and natural communities. These buffers should be sufficient to assure the continued existence of the waterways and riparian habitat in their natural state.

ERM-1.14 **Mitigation and Conservation Banking Program.** The County shall support the establishment and administration of a mitigation banking program, including working cooperatively with TCAG, Federal, State, not-for-profit and other agencies and groups to evaluate and identify appropriate lands for

protection and recovery of threatened and endangered species impacted during the land development process.

ERM-1.15 Minimize Lighting Impacts. The County shall ensure that lighting associated with new development or facilities (including street lighting, recreational facilities, and parking) shall be designed to prevent artificial lighting from illuminating adjacent natural areas at a level greater than one foot candle above ambient conditions.

ERM-1.16 Cooperate with Wildlife Agencies. The County shall cooperate with State and federal wildlife agencies to address linkages between habitat areas.

ERM-1.17 Conservation Plan Coordination. The County shall coordinate with local, State, and federal habitat conservation planning efforts (including Section 10 Habitat Conservation Plan) to protect critical habitat areas that support endangered species and other special-status species.

SECTION 3. METHODOLOGY

3.1. LITERATURE REVIEW

Prior to performing the field surveys, a desktop literature review was performed to review existing documentation relevant to the Biological Study Area (BSA). The BSA is defined as the site and a 500-foot buffer zone outside of but contiguous with the site. The most recent records of the Information for Planning and Consultation (IPaC) database, managed by the U.S. Fish and Wildlife Service (USFWS 2025); California Natural Diversity Database (CNDDDB), managed by the California Department of Fish and Wildlife (CDFW 2025); and the California Native Plant Society's Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2025) were reviewed for the quadrangles containing (i.e., Visalia, California USGS 7.5 minute quadrangles) and surrounding the Survey Area (i.e., Visalia, Tulare, Cairns Corner, Exeter, Monson, Ivanhoe, Paige, Goshen, Traver; California USGS 7.5 minute quadrangles). These databases contain records of reported occurrences of federal- or state-listed as endangered or threatened species, proposed endangered or threatened species, former Federal Special of Concern (FSC), California Species of Special Concern (CSC), or otherwise special-status species or sensitive habitat that may occur within or in the immediate vicinity of the BSA.

3.2. SOILS

Soil maps for the site were referenced online to determine the types of soil found on the site from the USDA Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2025). Soils are determined in accordance with categories set forth by the U.S. Department of Agriculture (USDA) Soil Conservation Service and by referencing the USDA Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2025).

3.3. WETLANDS

The project boundary and its 500-foot buffer were referenced online to determine presence or absence of wetlands through USFWS's Natural Wetland Inventory (NWI) Wetland Mapper (USFWS 2025). The USFWS is the principal federal agency tasked with monitoring and providing information on the extent, status, characteristics, and functions of the country's wetlands, deepwater, and other aquatic habitats (USFWS 2025). This inventory follows the national standard definition of wetlands as outlined in Cowardin et al. 2nd edition (2013). Wetlands are then categorized based upon landscape, substrate, vegetation cover, and hydrologic regime and is known as the Cowardin system (Cowardin et al. 2013).

3.4. POTENTIAL FOR OCCURRENCE

3.4.1. Criteria

A vegetation community or special-status species is considered to potentially occur in a BSA if its known geographic range includes part of the BSA or an adjacent USGS 7.5-minute quadrangle and/or if the general habitat or environmental conditions (e.g., soil type, etc.) required for the species are present. The criteria for evaluating the potential for occurrence (PFO) on a site is presented in **Table 1, Criteria for Evaluating Special-Status Species Occurrences**.

Table 1. Criteria for Evaluating Special-Status Species Occurrences

Potential for Occurrence	Criteria
Absent	Species was not observed during focused surveys conducted at an appropriate time for identification of the species, or species is restricted to habitats or environmental conditions that do not occur within the site.
Low	Historical records for this species do not exist within the immediate vicinity of the site (approximately 5-miles), and/or habitats or environmental conditions needed to support the species are of poor quality.
Moderate	Either a historical record exists of the species within the immediate vicinity of the site (approximately 5-miles) and marginal habitat exists on the site, or the habitat requirements or environmental conditions associated with the species occur within the site, but no historical records exist within 5-miles of the site.
High	Both a historical record exists of the species within the site or its immediate vicinity (approximately 5-miles), and the habitat requirements and environmental conditions associated with the species occur within the site.
Present	Species was detected within the site at the time of the survey.

3.4.2. Status Codes

A list of abbreviations used to help determine the significance of biological resources potentially occurring in the BSA is provided in **Table 2, Abbreviations for Federal- and State-listed Special-status Species**.

Table 2. Abbreviations for Federal- and State-listed Special-status Species

Designation	Abbreviation	Explanation
Federal	FE	Federally listed; Endangered
	FT	Federally listed; Threatened
	FC	Federal Candidate for listing
	BGEPA	Bald and Golden Eagle Protection Act
State	SE	State listed; Endangered
	ST	State listed; Threatened
	SC-T	State Candidate for Threatened listing
	SC-E	State Candidate for Endangered listing
	RARE	State listed; Rare (Listed “Rare” animals have been re-designated as Threatened, but Rare plants have retained the Rare designation.)
	SC-RARE	State Candidate for Rare listing
	SSC	State Species of Special Concern
	SNC	State Natural Communities rarity ranking: 1-3 are considered sensitive, R is Rare
CNPS CRPR	BCC	Bird of Conservation Concern
	List 1A	Plants presumed to Extinct in California
	List 1B	Plants Rare and Endangered in California and throughout their range
	List 2	Plants Rare, Threatened or Endangered in California but more common elsewhere in their range
	List 3	Plants about which we need more information; a review list
CNPS CRPR Extensions	List 4	Plants of limited distribution; a watch list
	0.1	Seriously Endangered in California (greater than 80 percent of occurrences threatened/high degree and immediacy of threat)
	0.2	Fairly Endangered in California (20-80 percent of occurrences threatened)
	0.3	Not Very Endangered in California (less than 20 percent of occurrences threatened)

3.5. BIOLOGICAL RECONNAISSANCE-LEVEL SURVEY

The field survey was conducted in the BSA to identify any potential for occurrence of sensitive species, vegetation communities, or habitats to support sensitive wildlife species. This also includes vegetation mapping, plant identification, and opportunistic wildlife surveys. The survey was conducted by HANA Associate Biologist, Mr. R. Austin Isakson on foot between 0730 and 0900 hours on January 21, 2025. Photographs of the BSA were recorded to document existing conditions (**Appendix A, Site Photographs**). Weather conditions during the survey included temperatures ranging from approximately 33 to 39 degrees Fahrenheit, 0 percent cloud cover, no precipitation, and varying wind speeds of 1-3 mph. The Biological Reconnaissance Survey Field Forms can be found in **Appendix B, Biological Reconnaissance Survey Field Forms**.

3.5.1. Vegetation

Plant communities in the BSA were identified, qualitatively described, and mapped onto an aerial photograph. Plant communities were determined in accordance with the categories set forth in Holland (1986) or Sawyer et al. (2009). Plant nomenclature follows that of *The Jepson Manual: Higher Plants of California* (Hickman 2012, Jepson 2025). A comprehensive list of the plant species observed during the survey is presented in **Appendix C, Plant & Wildlife Species Observed/Detected Onsite**.

3.5.2. Wildlife

All wildlife and wildlife signs observed and detected, including tracks, scat, carcasses, burrows, excavations, and vocalizations, were recorded. Additional survey time was spent in those habitats most likely to be utilized by wildlife (undisturbed native habitat, wildlife trails, etc.) or in habitats with the potential to support state- and/or federal-listed or proposed listed species. Notes were made on the general habitat types, species observed, and the conditions of the site. A list of the wildlife species observed during the site visit is included as **Appendix C, Plant & Wildlife Species Observed/Detected Onsite**.

3.5.3. USACE, SWRQCB, and CDFG Preliminary Jurisdictional Assessment

Prior to beginning the field preliminary delineation, a 50-foot-to-the-inch scaled topographic map, scaled aerial photograph, and the Visalia 7.5-minute USGS topographic quadrangle map were examined to determine the locations of potential areas of U.S. Army Corps of Engineers (USACE), California State Water Resources Quality Control Board (SWRQCB), and/or California Department of Fish and Game (CDFG) jurisdiction. HANA biologists examined the BSA to identify potential USACE jurisdiction pursuant to Section 404 and 401 of the Clean Water Act and CDFG jurisdiction pursuant to Section 1602 of the State of California Fish and Game Code. No jurisdictional drainages/areas were found onsite.

SECTION 4. RESULTS

4.1. LITERATURE REVIEW

4.1.1. Soils

After review of the USDA Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA 2025) (**Appendix D, USDA Natural Resources Conservation Service Web Soil Survey**), it was determined that the BSA is composed of the following two (2) soil types:

130 – Nord fine sandy loam, 0 to 2 percent slopes

The Nord fine sandy loam has a mean annual precipitation of 8 to 12 inches and mean annual air temperature of 61 to 64°F. The soils can be found at elevations of 190 to 520 feet. The Nord fine sandy loam is comprised of fine sandy loam, stratified sandy loam to loam, stratified loamy coarse sand to coarse sandy loam, and stratified sandy loam to silt loam. The parent material is alluvium derived from mixed. The soil is well drained. The soil is not hydric.

143 – Yettem sandy loam, 0 to 2 percent slopes

The Yettem sandy loam has a mean annual precipitation of 9 to 12 inches and mean annual air temperature of 62 to 65°F. The soil can be found at elevations of 270 to 530 feet. The Yettem sandy loam is comprised of sandy loam. The parent material is alluvium derived from granite. The soil is well drained. The soil is not hydric.

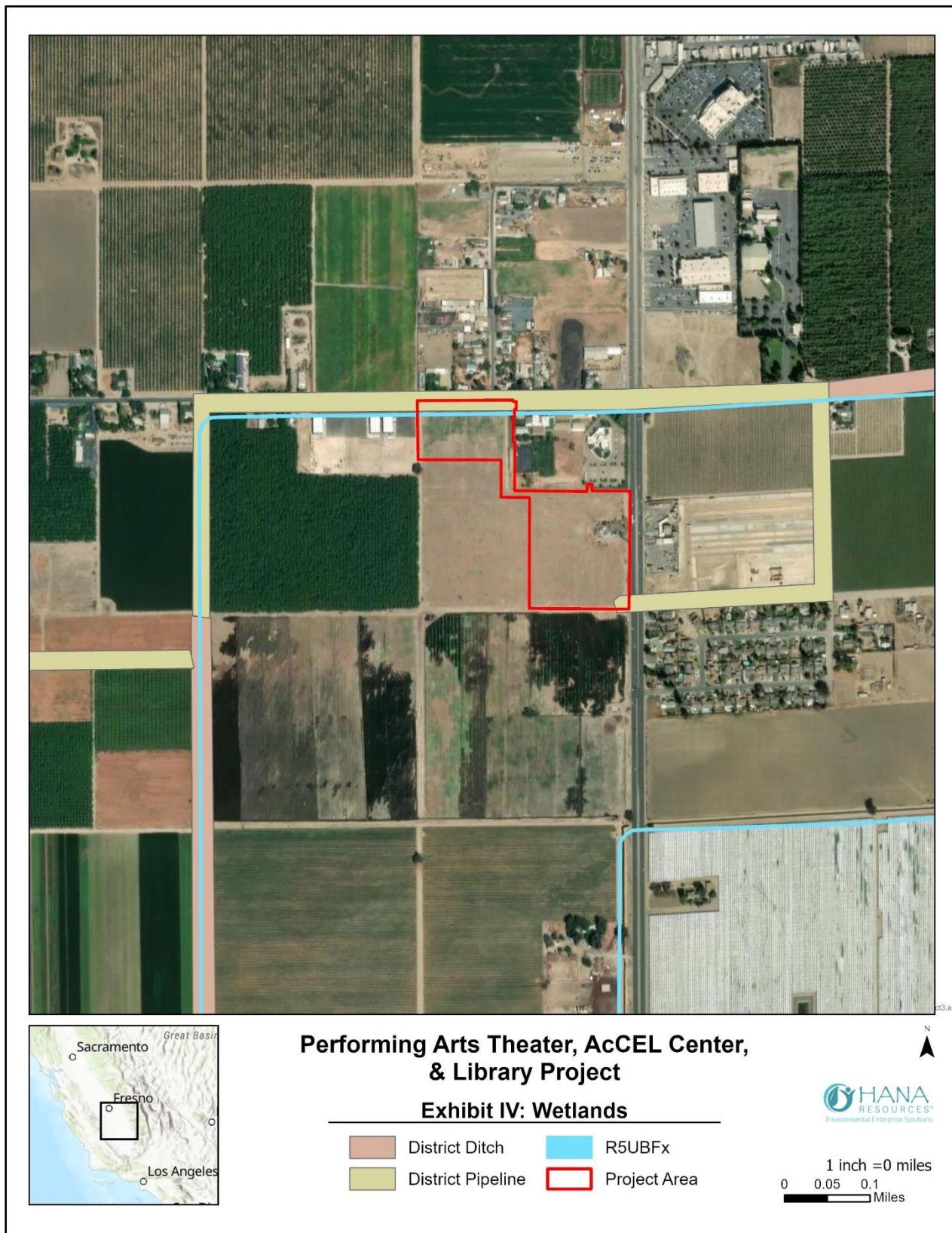
4.1.2. Wetlands

After review of the USFWS National Wetland Inventory's Wetland Mapper, it was determined that a single wetland occurred within the BSA. This wetland appears as a buried canal under the northern section of the property and runs parallel to Avenue 264 (**Exhibit IV, Wetlands**). This wetland is classified as R5UBFx and is described as follows:

NWI Code	Definition
Riverine (R)	Contained within a channel that periodically or continuously moves water and can be either naturally forming or man-made.
Unknown Perennial (5)	Insufficient data available to make a distinction between perennial types (lower, upper, or tidal)
Unconsolidated Bottom (UB)	Substrate is at least 25% smaller than stones (less than 6-7 cm) and vegetation cover less than 30%
Semi-permanently Flooded (F)	Surface water persists most of the year, when not present the water table is at or near the surface
Excavated (X)	Special modifier code to identify wetlands that have been excavated

Due to this wetland appearing buried and the surrounding area occurring as agricultural land, the Tulare Irrigation District's most recent district map was consulted (TID 2025). This revealed the wetland to be documented as a Tulare Irrigation District Pipeline that allows for underground movement for the Liberty Ditch.

Exhibit IV: Wetlands



4.2. POTENTIAL FOR OCCURRENCE

A map of the CNDDB database occurrences is included in **Exhibit V**, *Special-Status Species within 5 Miles of Site Location*. On two instances, multiple species were documented within the same geographic area resulting in two polygons (circles) on **Exhibit V** that contain multiple species. The species recorded within each circle are as follows:

- Multi-Species - Green Circle (north)
 - American bumble bee
 - Hopping's blister beetle
 - Brittlescale
 - Western yellow-billed cuckoo
 - California satintail
 - Northwestern pond turtle
 - Crotch's bumble bee
 - Northern California legless lizard
- Three Species - Blue Circle (South)
 - California jewelflower
 - Alkali-sink goldfields
 - San Joaquin adobe sunburst

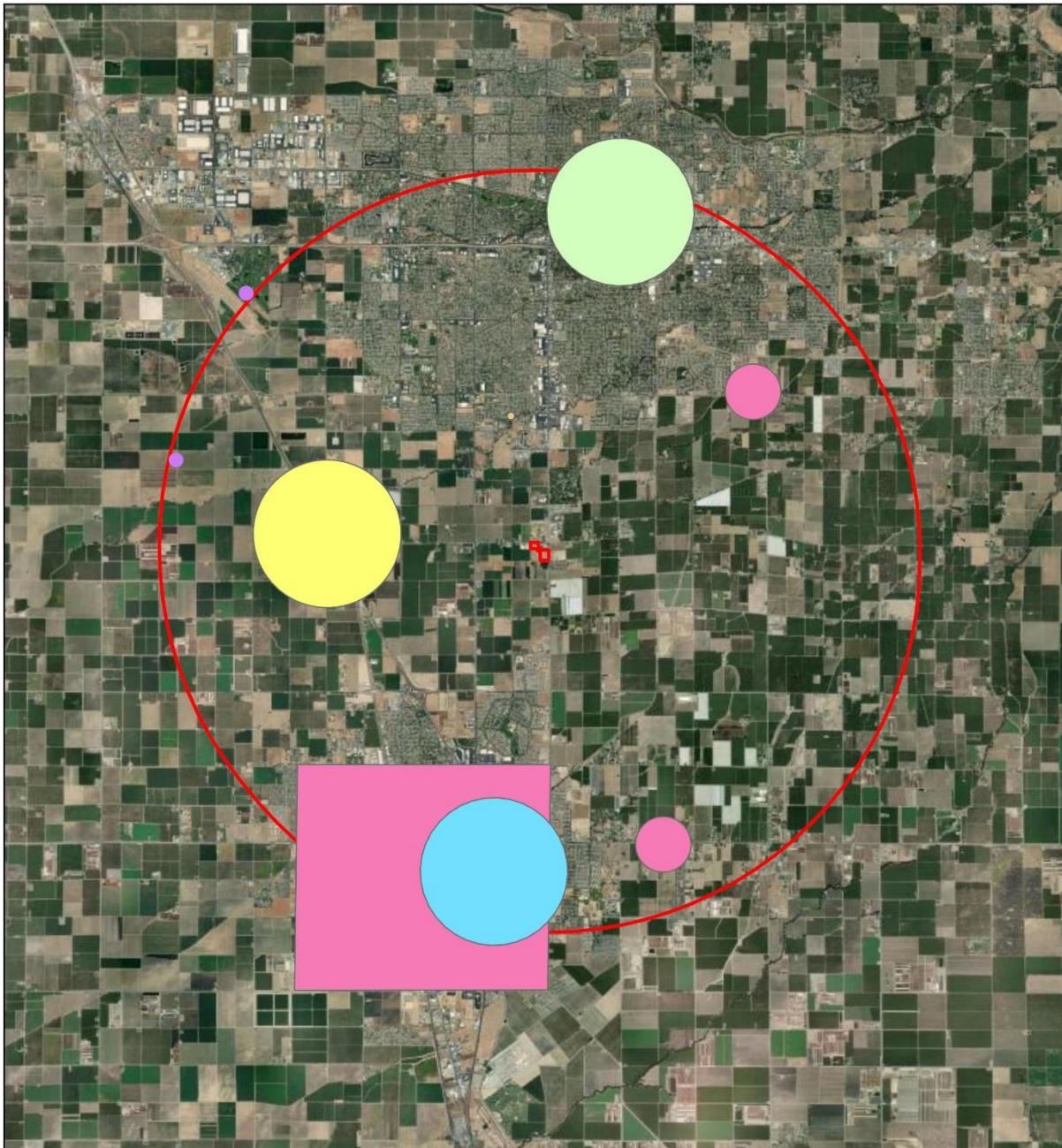
4.2.1. Vegetation

Vegetation

Sensitive natural communities are communities that are of limited distribution statewide or within a county or region and are often vulnerable. These communities may or may not contain special-status plants or their habitat.

The literature review found no sensitive vegetation communities within the five-mile area.

Exhibit V: Special-Status Species within 5 Miles of Site Location



**Performing Arts Theater, AcCEL Center,
& Library Project**

Exhibit V: CNDDB



American Bumble Bee	Three Species
San Joaquin Kit Fox	Multi-Species
Swainson's hawk	Project Area w/ 5-Mile Buffer
western mastiff bat	

 **HANA**
RESOURCES

Environmental Enterprise Solutions

1 inch = 2 miles

0 0.75 1.5 Miles

4.2.2. Plants

The literature review resulted in a list of twenty-one (21) special-status plant species that have been known to occur within the BSA and surrounding five-miles, presented in **Table 3, Special-Status Plant Species**. Of these twenty-one (21) species, five (5) have *low* potential for occurrence and sixteen (16) have *no* potential to occur in the BSA. Factors used to determine potential for occurrence include quality of habitat, soil type, impact from previous land use, and the date and location of prior CNDDB and Jepson eFlora occurrence records. Reconnaissance plant surveys were conducted to determine if they are present or absent in the BSA.

Table 3. Special-Status Plant Species

Scientific Name (=Synonym)	Common Name (=Synonym)	Status	General Habitat Description in California	BSA Contains Potential Suitable Habitats	Plant Elevation Range (feet amsl)	BSA is Located Within the Plant Species' Known:		Potential For Occurrence in the BSA						
						Elevation Range	General Distribution							
Listed Endangered, Threatened, Candidate and State Rare Plants:														
Plants with official status under the federal Endangered Species Act (ESA), the California Endangered Species Act (CESA), and/or the Native Plant Protection Act (NPPA). A species may have other sensitive designations in addition to their federal or state listing.														
<i>Caulanthus californicus</i>	California jewelflower	FE, SE CRPR:1B.1	California jewelflower is an annual herb that is found in open areas within several plant communities, including valley and foothill non-native grasslands, upper Sonoran subshrub scrub, and cismontane juniper woodlands and scrub. Historical records indicate that this species also occurred in the valley saltbush scrub community (chenopod scrub) in the past. Herbaceous cover is dense at most California jewel-flower sites. California jewel-flower has been reported from level terrain (flats) to gentle slopes of 25%. Primary soil types at known sites are sub alkaline, sandy loams. This listed plant flowers from February to May.	No	200-3280	Yes	No	No Potential for Occurrence in the BSA. The BSA is located in Tulare County where this species is presumed extirpated and contains only historical records (>20 years) of occurrence.						
<i>Euphorbia hooveri</i>	Hoover's spurge	FT CRPR: 1B.2	Hoover's spurge is an annual herb that grows in relatively large, deep vernal pools among the rolling hills, remnant alluvial fans and depositional stream terraces at the base of the Sierra Nevada foothills. This species occurs in large vernal pools in valley and foothill grasslands, growing only in the summer after the pools dry and blooming July to August. It tends to occur where competition from other species has been reduced by prolonged seasonal inundation or other factors. This listed plant flowers from July to October.	No	80-820	Yes	Yes	No Potential for Occurrence in the BSA. The BSA lacks the large vernal pools this species is known to occur in.						
<i>Orcuttia inaequalis</i>	San Joaquin Valley Orcutt grass	FT, SE CRPR: 1B.1	San Joaquin Valley Orcutt grass is an annual herb that grows in the bottom of drying vernal pools. It is often one of the few flowering plants remaining in dried pools in late summer. This listed plant flowers from April to September.	No	35-2475	Yes	Yes	Low Potential for Occurrence in the BSA. The BSA contains low quality habitat in the form of two drainages but lacks occurrences in the immediate area.						
<i>Pseudobahia peirsonii</i>	San Joaquin adobe sunburst	FT, SE CRPR:1B.1	San Joaquin adobe sunburst is an annual herb that is restricted to heavy adobe clay soils on low slopes of grassy valley floors and rolling foothills in blue oak woodlands. It grows in grasslands dominated by non-native annual plants. It is also occasionally found in cismontane woodlands. This listed plant flowers from March to April.	No	295-2625	Yes	Yes	No Potential for Occurrence in the BSA. The BSA lacks the heavy adobe clay soils for which this species is restricted to.						
Sensitive Plants:														
These plants have no official status under the ESA, the CESA, and/or the NPPA; however they are designated as sensitive or locally important by federal agencies, state agencies, and/or local conservation agencies and organizations.														
<i>Amaranthus watsonii</i>	Watson's amaranth	CRPR: 4.3	Watson's amaranth is an annual herb that grows in a multitude of habitats including coastal dunes, creosote desert scrub, riparian-wetland, and disturbed areas following rain. This sensitive plant flowers from April to September.	Yes	65-5580	Yes	Yes	Low Potential for Occurrence in the BSA. The BSA contains disturbed and limited wetland habitat, however sightings of this species are very limited with no modern records in the immediate area.						
<i>Atriplex cordulata var. <i>erecticaulis</i></i>	Earlimart orach	CRPR:1B.2	Earlimart orache is an annual herb that grows in valley and foothill grasslands in dry areas between vernal pools, but not actually in the pools or depressions. In addition, it can grow along roadsides. This sensitive plant flowers from August to November.	No	130-330	Yes	Yes	Low Potential for Occurrence in the BSA. The BSA contains limited habitat of low quality and has not been documented in the immediate area.						
<i>Atriplex cordulata</i>	heartscale	CRPR: 1B.2,	Heartscale is an annual herb that grows in chenopod scrub, meadows and	No	0-1835	Yes	Yes	Low Potential for Occurrence in the BSA.						

Scientific Name (=Synonym)	Common Name (=Synonym)	Status	General Habitat Description in California	BSA Contains Potential Suitable Habitats	Plant Elevation Range (feet amsl)	BSA is Located Within the Plant Species' Known:		Potential For Occurrence in the BSA
						Elevation Range	General Distribution	
<i>var. cordulata</i>		BLM: S	seeps, valley and foothill grasslands in sandy/saline or alkaline soils. Found in hard, trampled soil, grasslands, saline or alkaline soils. This sensitive plant flowers from April to October.					The BSA contains limited habitat of low quality, maintenance of the land decreases the likelihood of occurrence.
<i>Atriplex depressa</i>	Brittlescale	CRPR:1B.2	Brittlescale is an annual herb, which grows that typically can be found in valley and foothill grasslands, Chenopod scrub, and playas as well as moist meadows and vernal pools. This sensitive plant flowers from April to October.	No	5-1050	Yes	Yes	No Potential for Occurrence in the BSA. The BSA lacks suitable habitat and has no modern occurrences in the area.
<i>Atriplex minuscula</i>	Lesser saltscale	CRPR:1B.1	Lesser saltscale is an annual herb that grows on sandy soils in alkaline areas often in association with slough systems and river floodplains. However, it is found only in microhabitats that are not inundated year-round. This species has been found in the valley alkaline sink scrub, chenopod scrub, valley Sacaton grasslands, and non-native grasslands natural communities. It grows in alkaline soils. This sensitive plant flowers from May to October.	No	50-655	Yes	Yes	No Potential for Occurrence in the BSA. The BSA lacks the soil requirements this species requires.
<i>Atriplex persistens</i>	vernal pool smallscale	CRPR:1B.2	Vernal pool smallscale is an annual herb that is found in alkaline vernal pools throughout the central valley. This sensitive plant flowers from June to October.	No	35-375	Yes	Yes	No Potential for Occurrence in the BSA. The BSA does not contain alkali vernal pools which this species requires. Additionally, no modern records of this species occur within 5 miles of the BSA.
<i>Atriplex subtilis</i>	subtle orache	CRPR:1B.2	Subtle orache is an annual herb that generally is found in alkaline soils in valley and foothill grasslands and chenopod scrub, in vernal pools. This sensitive plant flowers from June to October.	No	130-330	Yes	Yes	Low Potential for Occurrence in the BSA. The BSA contains limited habitat and is of poor quality.
<i>Delphinium hansenii</i> ssp. <i>ewanianum</i>	Ewan's larkspur	CRPR:4.2	Ewan's larkspur is a perennial herb that grows on sandy soils of valley & foothill grassland and cismontane woodlands. This sensitive plant flowers from March to May.	No	195-1970	Yes	Yes	No Potential for Occurrence in the BSA. The BSA lacks the sandy soil this species is associated with. Additionally, no modern records of this species occur within 5 miles of the BSA.
<i>Delphinium recurvatum</i>	recurved larkspur	CRPR:1B.2, BLM:S	Recurved larkspur is a perennial herb that grows in chenopod scrub, cismontane woodlands, and valley and foothill grasslands. Found in poorly drained, fine alkaline soils. This sensitive plant flowers from March to June.	No	10-2590	Yes	Yes	No Potential for Occurrence in the BSA. The BSA lacks the vegetation and soil composition for which this species is associated. Additionally, no modern records of this species occur within 5 miles of the BSA.
<i>Eryngium spinosipalum</i>	spiny-sepaled button-celery	CRPR:1B.2, BLM:S	Spiny-sepaled button-celery is an annual/perennial herb that grows in valley and foothill grasslands and vernal pools within those grasslands. Some sites on clay soil of granitic origin. This sensitive plant flowers from April to May.	No	260-3200	Yes	Yes	No Potential for Occurrence in the BSA. The BSA lacks the grassland habitat and contains poor quality wetland habitat. Additionally, no modern records of this species occur within 5 miles of the BSA.
<i>Helianthus winteri</i>	Winter's sunflower	CRPR: 1.B2	Winter's sunflower is a perennial shrub typically found on steep, south-facing grassy slopes, rock outcrops, road-cuts in foothill/valley grasslands, and cismontane woodlands at elevations of 180-460 m. It inhabits a narrow range, growing within granitic, rocky substrates. Habitat generally has low canopy cover, oftentimes occurring near roadsides.	No	410-1510	No	Yes	No Potential for Occurrence in the BSA. The BSA lacks granitic rocky soils for which this species inhabits. Additionally, no modern records of this species occur within 5 miles of the BSA.
<i>Hordeum intercedens</i>	Vernal barley	CRPR: 3.2	Vernal barley is an annual herb that is associated with coastal dunes, vernal pools and saline flats and depressions in valley and foothill grasslands. In Riverside County, vernal barley is associated with alkali flats and flood plains within the alkali vernal plains community. Within this community vernal barley is primarily associated with alkali annual grasslands and vernal pools and to a lesser extent alkali scrub and alkali playa. This sensitive plant flowers from March to June.	No	15-3280	Yes	Yes	No Potential for Occurrence in the BSA. The BSA lacks granitic rocky soils for which this species inhabits. Additionally, no modern records of this species occur within 5 miles of the BSA.
<i>Imperata brevifolia</i>	California satintail	CRPR: 2B.1, USFS: S	California satintail is a perennial rhizomatous herb that occurs in mesic sites within chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps (often alkali), and riparian scrub. This sensitive plant flowers from September to May.	No	0-3985	Yes	No	No Potential for Occurrence in the BSA. The BSA lacks the habitats of which this species inhabits. No modern records exist for this species in the county.

Scientific Name (=Synonym)	Common Name (=Synonym)	Status	General Habitat Description in California	BSA Contains Potential Suitable Habitats	Plant Elevation Range (feet amsl)	BSA is Located Within the Plant Species' Known:		Potential For Occurrence in the BSA
						Elevation Range	General Distribution	
<i>Lasthenia chrysanthia</i>	alkali-sink goldfields	CRPR:1B.1	Alkali-sink goldfields is an annual herb that grows in alkali vernal pools and wet saline flats throughout the central valley. This sensitive plant flowers from February to April.	No	0-655	Yes	Yes	No Potential for Occurrence in the BSA. The BSA does not contain the alkali vernal pools and saline flats for which this species is associated. Additionally, no modern records of this species occur within 5 miles of the BSA.
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	Coulter's goldfields	CRPR: 1B.1, BLM: S	Coulter's goldfields is an annual herb that is associated with low-lying alkali habitats along the coast and in inland valleys. The majority of the populations are associated with coastal salt marshes and swamps. Coulter's goldfields occur primarily in the alkali vernal plains community. These are floodplains dominated by alkali scrub, alkali playas, vernal pools, and alkali grasslands. These habitats form mosaics that are largely dependent on salinity and micro-elevational differences. This sensitive plant flowers from February to June.	No	5-4005	Yes	No	No Potential for Occurrence in the BSA. The BSA lacks the habitats of which this species inhabits. No modern records exist for this species in the county.
<i>Puccinellia simplex</i>	California alkali grass	CRPR:1B.2, BLM:S	California alkali grass is an annual herb that grows in valley and foothill grasslands along wet meadows, seeps, and alkaline vernal pools. This sensitive plant flowers from March to May.	No	5-3050	Yes	Yes	No Potential for Occurrence in the BSA. The BSA's lacks the wet meadows, seeps, and alkaline vernal pools for which this species is associated.
<i>Sagittaria sanfordii</i>	Sanford's arrowhead	CRPR: 1B.2, BLM: S	Sanford's arrowhead is an aquatic, perennial rhizomatous herb emergent from May to October. This species occurs in standing or slow-moving freshwater-marsh wetlands, ponds, and ditches, in association with the water plantain (<i>Alisma plantago-aquatica</i>), water primrose (<i>Ludwigia peploides</i>), and various species of cattail (<i>Typha</i> spp.). It is found below elevations of 300 m	No	0-2135	Yes	Yes	No Potential for Occurrence in the BSA. The BSA's lacks the aquatic habitat for which this species is associated.

Legend and Notes

Notes:

- The BSA contains approximate elevations of 295 to 320 feet above mean sea level (amsl).
- The BSA encompasses disturbed habitat including a developed areas containing ornamental plants, agricultural land, and a maintained field that was previously agricultural land.
- **Yes** = the BSA is located within the plant species' known distribution, elevation range, and/or the BSA contains suitable habitats and/or soils to support the plant species. The plant species has a potential to occur within the BSA. Further evaluation is needed.
- **No** = the BSA is located outside the plant species' known distribution, elevation range, and/or the BSA lacks suitable habitats and/or soils to support the plant species. It is highly unlikely for the plant species to have a potential to occur within the BSA. No further evaluation is needed.
- A CNPS elevation range is provided for each taxon in feet. The stated range is for the California portion of a plant's range only (if the taxon also occurs outside the state). These CNPS elevation range data are accumulated from literature, herbarium specimens, and field survey information.

Federal Endangered Species Act (ESA) Listing Codes: the ESA is administered by the USFWS and NMFS. The USFWS has primary responsibility for terrestrial and freshwater organisms, while the responsibilities of NMFS are mainly marine wildlife such as whales and anadromous fish such as salmon. For the purposes of the ESA, Congress defined species to include subspecies, varieties, and, for vertebrates, distinct population segments. The official federal listing of Endangered and Threatened plants is published in 50 CFR § 17.12.

- **FE = federally listed as endangered:** any species of plant or animal that is in danger of extinction throughout all or a significant portion of their range.
- **FT = federally listed as threatened:** any species of plant or animal that is considered likely to become endangered throughout all or a significant portion of its range within the foreseeable future.
- **FC = federal candidate for listing:** candidate species are plants and animals for which the USFWS has sufficient information on their biological status and threats to propose them for listing as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by higher priority listing actions to address species in greater need. A proposed regulation has not yet been published in the Federal Register for these species.
- **FPE = federally proposed for listing as endangered:** a candidate species that has been proposed by USFWS for listing as endangered and the proposed rule, but not a final rule, to list has been published in the Federal Register.
- **FPT = federally proposed for listing as threatened:** a candidate species that has been proposed by USFWS for listing as threatened and the proposed rule, but not a final rule, to list has been published in the Federal Register.
- **FPD = federally proposed for delisting:** a species that has been proposed by USFWS for delisting (or down listing from endangered to threatened) and the proposed rule to delist has been published in the Federal Register.

California Endangered Species Act (CESA) and California Native Plant Protection Act (NPPA) Listing Codes: the CESA and NPPA are administered by CDFW. The official listing of *Plants of California Declared to Be Endangered, Threatened or Rare* is contained in the California Code of Regulations, Title 14, § 670.2. Species, subspecies and varieties of California native plants are declared to be endangered, threatened as defined by § 2062 and § 2067 of the Fish and Game Code or rare as defined by § 1901 of the Fish and Game Code.

Legend and Notes

- **SE = state-listed as endangered:** "endangered species" means a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease (Fish and Game Code § 2062).
- **ST = state-listed as threatened:** "threatened species" means a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts (Fish and Game Code § 2067).
- **SCE = state candidate for listing as endangered:** a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Fish and Game Commission has formally noticed published in the California Regulatory Notice Register as being under review by CDFW for addition to the list of endangered species, or a species for which the Fish and Game Commission has published a notice of proposed regulation to add the species to the list (Fish and Game Code § 2068).
- **SCT = state candidate for listing as threatened:** a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Fish and Game Commission has formally noticed published in the California Regulatory Notice Register as being under review by CDFW for addition to the list of threatened species, or a species for which the Fish and Game Commission has published a notice of proposed regulation to add the species to the list (Fish and Game Code § 2068).
- **SCD = state candidate for delisting:** a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Fish and Game Commission has formally noticed published in the California Regulatory Notice Register as being under review by CDFW for removal from either the list of endangered species or the list of threatened species, or a species for which the Fish and Game Commission has published a notice of proposed regulation to remove the species to either list.
- **SR = state rare:** A species, subspecies, or variety of native plant is rare when, although not presently threatened with extinction, it is in such small numbers throughout its range that it may become endangered if its present environment worsens (Fish and Game Code § 1901).

California Rare Plant Ranks (Formerly known as CNPS Lists): the CNPS is a statewide, nonprofit organization that maintains, with CDFW, an Inventory of Rare and Endangered Plants of California. In the spring of 2011, CNPS and CDFW officially changed the name "CNPS List" or "CNPS Ranks" to "California Rare Plant Rank" (or CRPR). This was done to reduce confusion over the fact that CNPS and CDFW jointly manage the Rare Plant Status Review Groups and the rank assignments are the product of a collaborative effort and not solely a CNPS assignment.

- **CRPR: 1A = California Rare Plant Rank 1A - plants presumed extirpated in California and either rare or extinct elsewhere:** the plants with a CRPA of 1A are presumed extirpated because they have not been seen or collected in the wild in California for many years. This rank includes plants that are both presumed extinct as well as those plants which are presumed extirpated in California. All of the plants constituting CRPR 1A meet the definitions of § 2062 and § 2067 (CESA) of the Fish and Game Code, and are eligible for state listing. Should these taxa be rediscovered, it is mandatory that they be fully considered during preparation of environmental documents relating to CEQA.
- **CRPR 1B = California Rare Plant Rank 1B - plants rare, threatened, or endangered in California and elsewhere:** plants with a CRPR of 1B are rare throughout their range with the majority of them endemic to California. Most of the plants that are ranked 1B have declined significantly over the last century. All of the plants constituting CRPR 1B meet the definitions of § 2062 and § 2067 (CESA) of the Fish and Game Code, and are eligible for state listing. It is mandatory that they be fully considered during preparation of environmental documents relating to CEQA.
- **CRPR 2A = California Rare Plant Rank 2A - plants presumed extirpated in California, but more common elsewhere:** the plant taxa of CRPR 2A are presumed extirpated because they have not been observed or documented in California for many years. This list includes only those plant taxa that are presumed extirpated in California, but more common elsewhere in their range. All of the plants on List 2A meet the definitions of § 2062 and § 2067 (CESA) of the Fish and Game Code, and are eligible for state listing. Should these taxa be rediscovered, it is mandatory that they be fully considered during preparation of environmental documents relating to CEQA.
- **CRPR 2B = California Rare Plant Rank 2B - plants rare, threatened, or endangered in California, but more common elsewhere:** except for being common beyond the boundaries of California, plants with a CRPR of 2B would have been ranked 1B. From the federal perspective, plants common in other states or countries are not eligible for consideration under the provisions of the ESA. All of the plants constituting CRPR 2B meet the definitions of § 2062 and § 2067 (CESA) of the Fish and Game Code, and are eligible for state listing. It is mandatory that they be fully considered during preparation of environmental documents relating to CEQA.
- **CRPR 3 = California Rare Plant Rank 3 - plants about which more information is needed - a review list:** the plants that comprise CRPR 3 are united by one common theme – CNPS and CDFW lack the necessary information to assign them to one of the other ranks or to reject them. Nearly all of the plants constituting CRPR 3 are taxonomically problematic. Some of the plants constituting CRPR 3 meet the definitions of § 2062 and § 2067 (CESA) of the Fish and Game Code, and are eligible for state listing. CNPS strongly recommends that CRPR 3 plants be evaluated for consideration during preparation of environmental documents relating to CEQA.
- **CRPR 4 = California Rare Plant Rank 4 - plants of limited distribution - a watch list:** the plants in this category are of limited distribution or infrequent throughout a broader area in California. While CNPS and CDFW cannot call these plants "rare" from a statewide perspective, they are uncommon enough that their status should be monitored regularly. Should the degree of endangerment or rarity of a CRPR 4 plant change, CNPS and CDFW will transfer it to a more appropriate rank. Some of the plants constituting CRPR 4 meet the definitions of § 2062 and § 2067 (CESA) of the Fish and Game Code, and few, if any, are eligible for state listing. Nevertheless, many of them are significant locally, and CNPS strongly recommends that CRPR 4 plants be evaluated for consideration during preparation of environmental documents relating to CEQA.
- **Considered But Rejected =** plants that have been considered for inclusion into the CNPS Inventory, but were not included for various reasons.

California Native Plant Society (CNPS) Threat Ranks: The CNPS Threat Rank is an extension added onto the California Rare Plant Rank (CRPR) (as a decimal code) and designates the level of threats by a 1 to 3 ranking with 1 being the most threatened and 3 being the least threatened. A Threat Rank is present for all CRPR 1B's, 2B's, 4's, and the majority of CRPR 3's. CRPR 4 plants are seldom assigned a Threat Rank of .1, as they generally have large enough populations to not have significant threats to their continued existence in California; however, certain conditions exist to make the plant a species of concern and hence be assigned a CRPR. In addition, all CRPR 1A and 2A (presumed extirpated in California), and some CRPR 3 (need more information) plants, which lack threat information, do not have a Threat Rank extension.

- **.1 =** seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- **.2 =** moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
- **.3 =** not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Other:

- **Annual:** grows from seed and reproduce within a single year.
- **Perennial:** lives more than one year.
- **Deciduous:** plants shed their leaves for part of the year.
- **Evergreen:** plants retain their leaves for an entire year.

Legend and Notes
<ul style="list-style-type: none">• Mesic habitat: a habitat with a moderate or well-balanced supply of moisture.• Hemiparasitic: plants that are connected to host plants and derive energy, water, and minerals from them, but also maintain their own functional root systems or photosynthetic surfaces.• Parasitic: plants that are connected to host plants and rely solely on them for energy, water, and nutritional requirements.• Carnivorous: plants that trap insects and other small animals and derive nourishment from them.• Herbs: plants that are herbaceous and lack above-ground woody tissue.<ul style="list-style-type: none">○ Bulbiferous herb: plants that have fleshy underground storage organs typically derived from scale leaves (this category includes coniferous and other similar plants in which storage organs have other origins).○ Rhizomatous herb: plants that have underground stems (rhizomes), typically bearing shoots which develop into new plants.○ Stoloniferous herb: plants that have above-ground runners (stolons) which typically root and produce new plants.• Shrubs: smaller woody perennials that retain most of their above-ground woody tissue and are typically many-stemmed.<ul style="list-style-type: none">○ Leaf succulents: succulents with thick, fleshy leaves.○ Stem succulents: succulents with thick, fleshy stems and reduced or absent leaves.• Trees: larger woody perennials that retain all of their above-ground wood tissue and are typically single-stemmed.• Vines: twining woody perennials requiring external support for growth.• Mosses: small green plants (one of three groups of bryophytes) with structures that resemble miniature leaves and stems. The leaves generally have a midrib called a costa. The sporophyte (the spore-bearing structure) is persistent for weeks.• Liverworts: small green plants (one of three groups of bryophytes). There are both leafy and thalloid types - leafy liverworts lack a midrib on the leaves, while thalloid liverworts have no leaves. The sporophyte is short-lived.

4.2.3. Wildlife

The literature review resulted in a list of twenty-four (24) special-status wildlife species that have been known to occur within the BSA and surrounding five-miles, which is presented in **Table 4, Special-Status Wildlife Species**. Of these twenty-four (24) species, two (2) were considered to have *moderate* potential, fifteen (15) were considered to have *low* potential, and seven (7) had no potential to occur in the BSA. Factors used to determine potential for occurrence include quality of habitat, soil type, impact from previous land use, and the date and location of prior CNDB occurrence records. Reconnaissance wildlife surveys will be conducted to determine if they are present or absent in the BSA.

Table 4. Special-Status Wildlife Species

Scientific Name (=Synonym)	Common Name (=Synonym)	Status	General Habitat Descriptions in California	The BSA:		Potential For Occurrence in the BSA				
				Located Within Species' Distribution and/or Elevation Range (if known)	Contains Suitable Foraging, Roosting, and/or Breeding Habitats					
Listed Endangered, Threatened, and Candidate Wildlife:										
Wildlife with official status under the federal Endangered Species Act (ESA) and/or the California Endangered Species Act (CESA). A species may have other sensitive designations in addition to their federal or state listing.										
Listed Mammals										
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	FE, ST, SE	The San Joaquin kit fox inhabits arid grasslands and low shrublands in the San Joaquin Valley, California. It needs well-drained soil for burrowing and sparse vegetation for hunting. Its diet includes small mammals like kangaroo rats (<i>Dipodomys</i> spp.), insects, and occasionally birds.	Yes	No	Low Potential for Occurrence in the BSA. The BSA lacks the habitat for which this species is typically found but contains adequate prey species. Occurrences heavily favor the southern and western boundaries of the Central Valley.				
<i>Sorex ornatus relictus</i>	Buena Vista Lake ornate shrew	FE	The Buena Vista ornate shrew is a mouse-sized soricid endemic to the Tulare Basin of California's San Joaquin Valley. Historically, this species has inhabited the moist habitats associated with the Kern, Buena Vista, Goose, and Tulare lakes' wetlands, below elevations of 350 feet. Buena Vista ornate shrews depend on groundcover such as leaf litter, cattails, and fallen logs for protection and search for insects, worms, and other invertebrates in moist soil. Occasionally, the species can be found in drier grassland and desert scrub habitats within close range to water sources. Breeding season occurs from early spring through May.	Yes	No	No Potential for Occurrence in the BSA. The BSA lacks the wetland habitat and groundcover for which this species is associated with.				
<i>Dipodomys nitratoides nitratoides</i>	Tipton kangaroo rat	FE	Nocturnal species found in arid grasslands and desert scrub in the San Joaquin Valley in California. Requires extensive burrow systems to avoid extreme temperatures. Primarily feeds on grasses such as <i>Stipa</i> spp., and occasionally on insects. Requires loose, sandy soils for burrowing and sparse vegetation for foraging.	Yes	No	No Potential for Occurrence in the BSA. The BSA lacks the soft sandy soil for which this species requires for burrowing.				
Listed Amphibians										
<i>Spea hammondii</i>	Western spadefoot	PT	Found in coastal sage scrub, open chaparral, pine-oak woodlands, and grassland habitats, but is most common in grasslands with vernal pools or mixed grassland/coastal sage scrub areas. To reproduce, this species requires rain pools or vernal pools that persist with over three weeks of standing water to metamorphose successfully. They can also breed in slow-moving streams (e.g., areas flooded by intermittent streams). Water breeding sites must lack predators such as fish, bullfrogs (<i>Lithobates catesbeianus</i>), and crayfish. They estivate in sandy soil in upland habitats adjacent to potential breeding sites in burrows approximating 1 meter in depth.	Yes	No	Low Potential for Occurrence in the BSA. The BSA contains drainage basins which could be used by this species for breeding but lacks adjacent suitable habitat for burrowing. While this species can utilize other animals burrows, which are present, previous land use discouraged usage by this toad.				
Listed Reptiles										
<i>Actinemys marmorata</i> (=Actinemys marmorata marmorata)	Northwestern pond turtle (=northern western pond turtle)	FPT, SSC, BLM:S, USFS:S	Requires stagnant or slow-moving water in aquatic habitats. Uncommon in high gradient streams. Found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, and either rocky or muddy bottoms, in woodland, forest, and grassland. In streams, prefers pools to shallower areas. Logs, rocks, cattail (<i>Typha</i> sp.) mats, and exposed banks are required for basking. May enter brackish water and even seawater. This species has a versatile diet of invertebrates, small amphibians, algae, and carrion.	Yes	No	No Potential for Occurrence in the BSA. The BSA lacks suitable aquatic and upland habitat to support this species.				
<i>Gambelia silus</i>	Blunt-nosed leopard lizard	FE	The blunt-nosed leopard lizard is found in arid grasslands and shrublands in the San Joaquin Valley in California. It requires sandy soils for burrowing and sparse vegetation for foraging. Its diet includes insects such as ants (Formicidae) and beetles (e.g., Cicindelidae).	Yes	No	Low Potential for Occurrence in the BSA. The BSA lacks the sandy soils and vegetation composition for which this species is				

Scientific Name (=Synonym)	Common Name (=Synonym)	Status	General Habitat Descriptions in California	The BSA:		Potential For Occurrence in the BSA
				Located Within Species' Distribution and/or Elevation Range (if known)	Contains Suitable Foraging, Roosting, and/or Breeding Habitats	
						associated.
Listed Birds						
<i>Buteo swainsoni</i>	Swainson's hawk	ST, USFWS:BCC, Season of Concern: nesting	Swainson's hawks require large, open areas with abundant prey in association with suitable nest trees. Suitable foraging areas include native grasslands or lightly grazed pastures and croplands, open deserts, sparse shrub lands. Nests peripherally to riparian systems of valleys and utilize lone trees or groves of trees, such as oaks, cottonwoods (<i>Populus</i> sp.), California black walnuts (<i>Juglans californica</i>) and willows (<i>Salix</i> sp.), adjacent to their hunting areas. In the Great Basin of the western United States, they typically nest in juniper (<i>Juniperus</i>) trees of juniper-sage flats not near riparian zones.	Yes	No	Moderate Potential for Occurrence in the BSA. The BSA occurs within the breeding range for this species. The BSA lacks breeding/nesting habitat but offers foraging opportunities in the form of a large open field with prey species documented on site.
<i>Coccyzus americanus occidentalis</i>	Western yellow-billed cuckoo	FT, SE, BLM: S, USFS: S	The western yellow-billed cuckoo is a long-distance Neotropical migrant. This species inhabits riverine areas within California, Arizona, and New Mexico during the breeding season and winters in South America. It relies on riparian forests, often breeding in low- to moderate-elevation cottonwood-willow (<i>Populus</i> spp. - <i>Salix</i> spp.) habitats, or within other trees such as alder (<i>Alnus</i> spp.) and mesquite (<i>Prosopis</i> spp.). This cuckoo's diet is broad and includes caterpillars, cicadas, smaller flying insects, frogs and lizards, and fruit and seeds.	Yes	No	Low Potential for Occurrence in the BSA. The BSA lacks suitable breeding/nesting habitat but offers opportunities for foraging.
Listed Invertebrates						
<i>Bombus crotchii</i>	Crotch's bumble bee	ST	Inhabits open grassland and scrub habitats in California. While its historic range has declined by almost 98%, this species is still found in the Western Desert, Pacific Coast, and Mediterranean regions of the state. Food plant genera include <i>Antirrhinum</i> , <i>Phacelia</i> , <i>Clarkia</i> , <i>Dendromecon</i> , <i>Eschscholzia</i> , and <i>Eriogonum</i> .	Yes	No	Low Potential for Occurrence in the BSA. The BSA lacks the native plant genera associated with this species. Additionally, this species has largely declined from its range within the Central Valley.
<i>Danaus plexippus</i>	Monarch butterfly	PT	Monarch Butterflies are found in meadows, gardens, and open fields across North America. Breeds in summer and migrates to central Mexico for winter. Their diet consists primarily of milkweed (<i>Asclepias</i> spp.) during the larval stage, while adults feed on nectar from a variety of flowering plants, including goldenrod (<i>Solidago</i> spp.) and asters (<i>Aster</i> spp.).	Yes	No	Low Potential for Occurrence in the BSA. The BSA lack milkweed, a plant necessary as an egg-laying site and food source for larvae but adults will utilize a wide variety of flowering plants as a nectar source during migration.
<i>Vernal pool fairy shrimp</i>	Branchinecta luncti	FT	Vernal pool fairy shrimp inhabit ephemeral freshwater vernal pools in Oregon and California, where it can survive in water as shallow as 3 cm with temperatures between 43 and 68 °F. The species is well-adapted to seasonal dry periods, with eggs capable of lying dormant until the pools refill in the next wet season.	Yes	No	Low Potential for Occurrence in the BSA. The BSA formally occurred as agricultural land that altered conditions of the site that discouraged the occurrence of this species. While capable of lying dormant for some time, this species has no modern occurrences within 5 miles of the BSA.
Sensitive Wildlife:						
These animals have no official status under the ESA and/or the CESA; however they are designated as sensitive or locally important by federal agencies, state agencies, and/or local conservation agencies and organizations.						
Sensitive Invertebrates						
<i>Bombus pensylvanicus</i>	American bumble bee	IUCN: VU	Once one of the most widespread bumblebees in North America, the American bumblebee can now be found within the eastern U.S. and Great Plains regions, the central U.S., Southern California, and the southernmost regions of Canada. The American bumble bee is a foraging generalist and visits a variety of habitats, often inhabiting open fields and farmlands where it builds nests within tall grass or underground in abandoned rodent burrows. Common floral resource include milk-vetches (<i>Astragalus</i> spp.), thistles (<i>Cirsium</i> spp.), dogwoods (<i>Cornus</i> spp.), prairie-clovers (<i>Dalea</i> spp.), and sunflowers (<i>Helianthus</i> spp.).	Yes	Yes	Low Potential for Occurrence in the BSA. The BSA contains food resources used by this species, however the species lacks modern observations within the immediate area.
<i>Lytta hoppingi</i>	Hopping's blister beetle	NatureServe: G1G2, S2	Hopping's blister beetle is a species of meloid inhabiting the southern foothills of California's Central Valley. Observations have also been reported within Tulare and Fresno counties. Suitable habitat consists of sand dunes and desert scrub. The species is often found on flowers, exhibiting a preference for alfalfa (<i>Medicago sativa</i>). Like other meloids, the larvae are nest	Yes	No	No Potential for Occurrence in the BSA. The BSA lacks the habitat for which this species is associated.

Scientific Name (=Synonym)	Common Name (=Synonym)	Status	General Habitat Descriptions in California	The BSA:		Potential For Occurrence in the BSA
				Located Within Species' Distribution and/or Elevation Range (if known)	Contains Suitable Foraging, Roosting, and/or Breeding Habitats	
			parasites of solitary bees, feeding on pollen stores collected by female bees.			
Sensitive Reptiles						
<i>Anniella pulchra</i>	Northern California legless lizard	CDFW: SSC, USFS:S	This fossorial species is found in coastal sand dunes, chaparral, pine-oak woodland, desert scrub, open grasslands, and riparian zones. However, they are microhabitat specialists within these areas and require sandy or loose loam soils conducive for burrowing. They avoid gravel-size substrates and soils with greater than 10% clay composition. Breeding occurs from early spring to July, following a 4-month gestation they give birth to live young. They are rarely active on the surface but will utilize the soil-litter interface for feeding and mating. Along the coast they are likely active year-round, inland they may enter a period of dormancy during winter. This species is usually found near native plants from a few centimeters below the surface to 50-centimeters deep.	Yes	No	Low Potential for Occurrence in the BSA. The BSA contains soils this fossorial species requires, but it lacks the litter layer used for breeding and foraging.
Sensitive Birds						
<i>Passerculus sandwichensis beldingi</i>	Belding's savannah sparrow	USFWS:BCC SE	This small, inconspicuous, ground dwelling species is a subspecies of the Savannah sparrow (<i>P. sandwichensis</i>) and can be distinguished by its darker and heavier streaking as well its smaller beak profile. This species is a salt marsh specialist and commonly associated with pickleweed marshes of Southern California where they will reside year-round. This species has a small breeding territory and will nest semi-colonially or locally concentrated within the upper littoral or maritime zones, nests will be constructed near or on the ground.	No	No	No Potential for Occurrence in the BSA. The BSA does not contain the salt marsh or marsh habitat for which this species is known to inhabit.
<i>Icterus bullockii</i>	Bullock's oriole	BCC	This species is found in western North America, northeastern Mexico, and southwestern Canada. They breed in open deciduous woodlands, scrubland, and riparian corridors. Bullock's orioles nest from late spring to early summer in willows (<i>Salix</i> spp.), cottonwoods (<i>Populus</i> spp.), sycamores (<i>Platanus</i> spp.), madrones (<i>Arbutus</i> spp.), and mesquite trees (<i>Prosopis</i> spp.) at approximately 10-25' above ground at habitat edges. It migrates to Mexico and Central America for winter. Can adapt to pecan trees (<i>Carya illinoiensis</i>) in orchards, irrigated fields, ranches, parks, and street trees. Its diet includes caterpillars (e.g., <i>Lonomia obliqua</i>) and beetles (e.g., <i>Chrysomela scripta</i>), fruits like mulberries (<i>Morus</i> spp.) and cherries (<i>Prunus</i> spp.), and nectar from flowering plants, using the "gaping" method to extract juices with their brush-like tongues.	Yes	Yes	Low Potential for Occurrence in the BSA. The BSA lacks breeding/nesting habitat but offers some foraging opportunities.
<i>Larus californicus</i>	California gull	USFWS:BCC CDFW:WL	The California gull is commonly found near coastal areas, large inland lakes, and in urban areas with access to landfills across western North America. This species breeds in colonies near large bodies of water from April to July. This species is adaptable and can thrive in diverse environments including open spaces and areas with human activity. Its diet includes carrion, fish (e.g., <i>Gambusia affinis</i>), aquatic insects (e.g., <i>Chironomidae</i>), and scavenged food from human activities. They migrate to mudflats, estuaries, and beaches along coastal areas during the non-breeding season.	Yes	Yes	Low Potential for Occurrence in the BSA. The BSA lacks breeding/nesting habitat but has poor quality foraging opportunities. This species is an opportunistic forager and may travel far from its colony to forage.
<i>Spinus lawrencei</i>	Lawrence's goldfinch	USFWS:BCC	Habitats include oak woodland, chaparral, riparian woodland, valley foothill hardwood-conifer, pinyon-juniper woodlands, palm oasis, usually near water. Breeding occurs predominately in open woodlands of arid and semiarid foothills and valleys, usually near water from sea level near the coast and in some interior valleys to nearly 2,900 meters in southern California. Nearby herbaceous habitats are often used for feeding. Nests are in evergreen oaks, conifers, or deciduous trees.	Yes	No	Low Potential for Occurrence in the BSA. The BSA lacks breeding/nesting habitat and suitable foraging habitat but offers some foraging opportunities during migration.
<i>Limosa fedoa</i>	Marbled godwit	USFWS:BCC	The Marbled Godwit is a large, long-legged sandpiper. This species inhabits the northern Great Plains during the summer months, breeding in shortgrass prairies near wetlands. Short to long-distance migrants, these shorebirds winter in flocks within coastal regions across the United States, Mexico, and Central America. The species probes with its long, slightly upturned bill in soft substrates (mud or sand) for aquatic invertebrates, plant tubers, insects, and small fish.	Yes	No	No Potential for Occurrence in the BSA. The BSA does not contain foraging habitat and falls outside of this species breeding/nesting range.

Scientific Name (=Synonym)	Common Name (=Synonym)	Status	General Habitat Descriptions in California	The BSA:		Potential For Occurrence in the BSA
				Located Within Species' Distribution and/or Elevation Range (if known)	Contains Suitable Foraging, Roosting, and/or Breeding Habitats	
<i>Circus hudsonius</i>	Northern harrier	USFWS:BCC CDFW:SSC	Northern Harriers are found in open grasslands, fields, and marshes across North America. They breed in these habitats from April to August and migrate to the southern U.S. for winter, nesting on the ground in dense vegetation or tall grass. Their diet primarily consists of small mammals such as voles (<i>Microtus</i> spp.), insects, and the occasional small bird.	Yes	Yes	Moderate Potential for Occurrence in the BSA. The BSA lacks breeding/nesting habitat but offers foraging opportunities in the form of a large open field with prey species documented on site.
<i>Dryobates nuttallii</i>	Nuttall's woodpecker	USFWS:BCC	Nuttall's woodpeckers inhabit open oak woodlands at 900-5,000' in elevation, wooded suburban land, and riparian areas with fewer oak trees than surrounding areas. They are year-round residents that breed from March to July. This species feeds on insects such as beetles (e.g., <i>Acanthocinus aedilis</i>) and ants, as well as oak (<i>Quercus</i> spp.) sap and seeds. It prefers mature oak trees for nesting and foraging. Its diet primarily consists of insects (found on oak trees, cottonwoods, and willows) and occasionally fruit such as elderberries (<i>Sambucus canadensis</i>), poison oak (<i>Toxicodendron diversilobum</i>), blackberries (<i>Rubus</i> spp.).	Yes	No	Low Potential for Occurrence in the BSA. The BSA contains lacks quality habitat for this species; however nearby trees may offer foraging opportunities.
<i>Baeolophus inornatus</i>	Oak titmouse	USFWS:BCC	The oak titmouse inhabits a specific range between southwest Oregon to Baja California. They are primarily found in oak or pine woodlands, and will use scrub oaks and similar vegetation if they are near these preferred habitats. This species will exclusively live in open pine forests when in central California. This species breeds from March to August and nests in cavities up to 40' above ground. They prefer a warm and dry climate. Their diet includes insects such as caterpillars (e.g., <i>Geometridae</i>) and spiders, as well as seeds and acorns.	Yes	No	Low Potential for Occurrence in the BSA. The BSA lacks the specific oak/pine woodlands this species is associated with.
<i>Melospiza melodia graminea</i>	Channel Island song sparrow	CDFW:SSC USFWS:BCC	The Channel Island Song Sparrow, also commonly known as the Channel Island Song Sparrow, is a subspecies endemic to Santa Rosa and San Miguel islands and Islas Los Coronados off the coast of Baja California. The subspecies' habitat requirements are similar to that of mainland Song Sparrows: moderately dense scrubby vegetation for nesting, foraging, and cover or grasslands with scattered shrubs. The species is strongly associated with shrubs such as Goldenbush (<i>Isocoma menziesii</i>), Coyote Brush (<i>Baccharis pilularis</i>), and California Sagebrush (<i>Artemesia californica</i>). This species often forages for seed in low vegetation or gleans insects from leaf litter.	No	No	No Potential for Occurrence in the BSA. The BSA is not within the known range of this species.
Sensitive Mammals						
<i>Eumops perotis californicus</i>	western mastiff bat	CDFW:SSC, BLM:S	Western mastiff bats are found in a variety of habitats, such as semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban, but the species' distribution may be geomorphically determined, occurring primarily where there are significant rock features offering suitable roosting habitat. A cliff dwelling species, where maternity colonies of 30 to several hundred roost generally under exfoliating rock slabs and rock crevices along cliffs. Western mastiff bats can also be found in similar crevices in large boulders and buildings. When roosting in rock crevices they require a sizable drop from their roost in order to achieve flight. Western mastiff bats prefer deep crevices that are at least 15 or 20 feet above the ground.	Yes	No	Low Potential for Occurrence in the BSA. The BSA lacks the high roosting habitat necessary for this species but may utilize the site for foraging opportunities.

Legend and Notes

Notes

- **Yes** = the BSA is located within the wildlife species' known distribution, elevation range, and/or the BSA contains suitable habitats or conditions to support the species. The wildlife species has the potential to occur within the BSA. Further evaluation is needed.
- **No** = the BSA is located outside the wildlife species' known distribution, elevation range, and/or the BSA lacks suitable habitats or conditions to support the species. It is highly unlikely for the wildlife species to have a potential to occur within the BSA. No further evaluation is needed.
- **DPS = distinct population segment:** A DPS, or a distinct population segment, is a vertebrate population or group of populations that is discrete from other populations of the species and significant in relation to the entire species. The ESA provides for listing species, subspecies, or distinct population segments of vertebrate species.
- **ESU = evolutionarily significant unit:** a Pacific salmon population or group of populations that is substantially reproductively isolated from other conspecific populations and that represents an important component of the evolutionary legacy of the species.

Legend and Notes

Federal Endangered Species Act (ESA) Listing Codes: the ESA is administered by the USFWS and NMFS. The USFWS has primary responsibility for terrestrial and freshwater organisms, while the responsibilities of NMFS are mainly marine wildlife such as whales and anadromous fish such as salmon. For the purposes of the ESA, Congress defined species to include subspecies, varieties, and, for vertebrates, distinct population segments. The official federal listing of Endangered and Threatened animals is published in 50 CFR § 17.11.

- **FE = federally listed as endangered:** any species of plant or animal that is in danger of extinction throughout all or a significant portion of their range.
- **FT = federally listed as threatened:** any species of plant or animal that is considered likely to become endangered throughout all or a significant portion of its range within the foreseeable future.
- **FC = federal candidate for listing:** candidate species are plants and animals for which the USFWS has sufficient information on their biological status and threats to propose them for listing as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by higher priority listing actions to address species in greater need. A proposed regulation has not yet been published in the Federal Register for these species.
- **FPE = federally proposed for listing as endangered:** a candidate species that has been proposed by USFWS or NMFS for listing as endangered and the proposed rule, but not a final rule, to list has been published in the Federal Register.
- **FPT = federally proposed for listing as threatened:** a candidate species that has been proposed by USFWS or NMFS for listing as threatened and the proposed rule, but not a final rule, to list has been published in the Federal Register.
- **FPD = federally proposed for delisting:** a species that has been proposed by USFWS or NMFS for delisting (or down listing from endangered to threatened) and the proposed rule to delist has been published in the Federal Register.

United States Fish and Wildlife Service (USFWS) Designations:

- **FSC = federal species of concern:** federal species of concern is an informal term. It is not defined in the ESA. The term commonly refers to species that are declining or appear to be in need of conservation.
- **BCC = bird of conservation concern:** a bird of conservation concern is listed in the USFWS' 2008 *Birds of Conservation Concern* report. The report identifies species, subspecies, and populations of all migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that, without additional conservation actions, are likely to become candidates for listing under the ESA. While all of the bird species included in the report are priorities for conservation action, the list makes no finding with regard to whether they warrant consideration for ESA listing.

California Endangered Species Act (CESA) Listing Codes: the CESA is administered by CDFW. The official listing of *Animals of California Declared To Be Endangered or Threatened* is contained in the California Code of Regulations, Title 14, § 670.5. Species and subspecies of California native animals are declared to be endangered or threatened as defined by §§ 2062 and 2067 of the Fish and Game Code.

- **SE = state-listed as endangered:** "endangered species" means a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease (Fish and Game Code § 2062).
- **ST = state-listed as threatened:** "threatened species" means a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts (Fish and Game Code § 2067).
- **SCE = state candidate for listing as endangered:** a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Fish and Game Commission has formally noticed published in the California Regulatory Notice Register as being under review by CDFW for addition to the list of endangered species, or a species for which the Fish and Game Commission has published a notice of proposed regulation to add the species to the list (Fish and Game Code § 2068).
- **SCT = state candidate for listing as threatened:** a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Fish and Game Commission has formally noticed by publication in the California Regulatory Notice Register as being under review by CDFW for addition to the list of threatened species, or a species for which the Fish and Game Commission has published a notice of proposed regulation to add the species to the list (Fish and Game Code § 2068).
- **SCD = state candidate for delisting:** a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the Fish and Game Commission has formally noticed published in the California Regulatory Notice Register as being under review by CDFW for removal from either the list of endangered species or the list of threatened species, or a species for which the Fish and Game Commission has published a notice of proposed regulation to remove the species to either list.

California Department of Fish and Wildlife (CDFW) Designations:

For some wildlife species, the CNDB is only concerned with specific portions of the life history, such as roosts, rookeries, or nesting colonies. For many species of birds, the primary emphasis is on the breeding population in California. For some species which do not breed in California but winter here, emphasis is on wintering range. The SSC designation thus may include a comment regarding the specific protection provided such as nesting or wintering

- **SSC = species of special concern:** a species of special concern is a species, subspecies, or distinct population of an animal (fish, amphibian, reptile, bird and mammal) native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria: is extirpated from the state or, in the case of birds, in its primary seasonal or breeding role; is listed as federally-, but not state-, threatened or endangered; meets the state definition of threatened or endangered, but has not formally been listed; is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status; has naturally small populations exhibiting high susceptibility to risk from any factor(s), that if realized, could lead to declines that would qualify it for state threatened or endangered status.
- **Fully protected:** fully protected animal species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock. Lists were created for fish (Fish and Game Code § 5515), amphibians and reptiles (Fish and Game Code § 5050), birds (Fish and Game Code § 3511) and mammals (Fish and Game Code § 4700).
- **WL = watch list:** this list includes birds identified in the *California Bird Species of Special Concern* (Shuford and Gardali, 2008) report and are not on the current CDFW species of special concern list, but were on previous lists and they have not been state-listed under CESA; were previously state or federally listed and now are on neither list; or are on the list of fully protected species.
- **Special Animals List:** the CESA does not allow listing of insects, so despite the insect's precarious status, the insect has no protection under state legislation. CDFW includes this insect on its Special Animals List.
- **California Fish and Game Code §§ 4800 – 4810:** The mountain lion (genus *Puma*) is a specially protected mammal under the laws of California. It is unlawful to take, injure, possess, transport, import, or sell any mountain lion or any part or product thereof, except as specifically provided in California Fish and Game Code §§ 4800 - 4810.
- Protected by § 460 of the California Code of Regulations [CCR], Title 14.

NatureServe Conservation Status Ranks – Global Ranking & State Ranking (utilized when no other listing status is available)

CDFW's California Natural Diversity Database (CNDB) is a member of the NatureServe's network of natural heritage programs. This network is comprised of various agencies and agency programs across the United States and Canada, members use the same conservation status methodology. This ranking system was originally developed by The Nature Conservancy and is now maintained and revised by NatureServe. These ranking include a Global and State Rank to allow for status tracking between state's and across the whole network. **NatureServe is not a regulatory agency and thus their rankings are not a legal status, rather they are used to inform and influence these regulatory agencies.**

Legend and Notes
<p>Global Ranking: The Global Rank (G) is a reflection of the overall status of an element throughout its global range.</p> <ul style="list-style-type: none"> • GX: Presumed Extinct – Not located despite intensive searches and virtually no likelihood of rediscovery. • GH: Possibly Extinct – Known from only historical occurrences but still some hope of rediscovery. Examples of evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species has been searched for unsuccessfully, but not thoroughly enough to presume that it is extinct throughout its range. • G1: Critically Imperiled – At very high risk of extinction due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors. • G2: Imperiled – At high risk of extinction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors. • G3: Vulnerable – At moderate risk of extinction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors. • G4: Apparently Secure – At fairly low risk of extinction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors. • G5: Secure – At very low risk of extinction due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats. • GNR: Unranked – Global rank not yet assessed. <p>State Ranking: The State Rank (S) is assigned the same way as the global rank, but refers to status only within California's state boundaries.</p> <ul style="list-style-type: none"> • SX: Presumed Extirpated – Species is believed to be extirpated from the state. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered. • SH: Possibly Extirpated – Known from only historical records but still some hope of rediscovery. There is evidence that the species may no longer be present in the state, but not enough to state this with certainty. Examples of such evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdiction. • S1: Critically Imperiled – At very high risk of extirpation in the state due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors. • S2: Imperiled – At high risk of extirpation in the state due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors. • S3: Vulnerable – At moderate risk of extirpation in the state due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors. • S4: Apparently Secure – At a fairly low risk of extirpation in the state due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of recent declines, threats, or other factors. • S5: Secure – At very low or no risk of extirpation in the state due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats. • SNR: Unranked – State rank not yet assessed.

4.3. BIOLOGICAL RECONNAISSANCE SURVEY

4.3.1. Vegetation

4.3.1.1. Vegetation Communities Descriptions

Determining vegetation communities is critical for understanding the natural processes of the area and informs potentials for wildlife and plant species to occur. Due to the disturbed nature of the BSA the Holland vegetation classification was used (1986). This classification relies on more qualitative or descriptive analysis compared to the 2009 Manual of California Vegetation which relies on quantitative measurements (i.e. vegetation transects) (Sawyer et al.). One vegetation community was determined within the site. Description of this community found within are discussed below. A map that illustrates all onsite plant communities is included in **Exhibit VI, Vegetation Communities**.

Disturbed/Developed

Disturbed/Developed areas are those with a high percentage of non-native vegetation with a low to zero percentage of native vegetation. The project areas are largely dominated by non-native species like common mallow (*Malva neglecta*), lesser swine-cress (*Lepidium didymum*), greenstem filaree (*Erodium moschatum*) and non-native annual grasses like Bermuda grass (*Cynodon dactylon*) making up over 75% of ground cover. Other species such as Russian thistle (*Salsola australis*), Mexican fan palm (*Washingtonia robusta*), and stinkwort (*Dittrichia graveolens*) were found on the roadside and along the southern and western fence line of the developed area on the parcel.

Exhibit VI: Vegetation Communities



4.3.1.2. Sensitive Natural Communities

Sensitive natural communities are communities that are of limited distribution statewide or within a county or region and are often vulnerable. These communities may or may not contain special-status plants or their habitat. The literature review and survey found no sensitive vegetation communities within the BSA.

4.3.2. Plant Species

4.3.2.1. General

Plant species observed or detected during the site survey were characteristic of the existing site conditions. A full list of the plant species detected within the Survey Area is included in **Appendix C, Plant & Wildlife Species Observed/Detected Onsite**.

4.3.2.2. Special-Status Species

Of the twenty-one (21) special-status plant species found during the literature review, five (5) had low potential for occurrence and sixteen (16) had no potential for occurrence. Focused surveys are required for any federal and/or state listed endangered species with potential to occur on site when the species is in bloom to ensure it is both evident and identifiable during the survey. Because the project area has largely been converted and is maintained with minimal disturbed habitat dominated by non-native vegetation and its location next to agricultural land and residential and business development there is low to no potential for occurrence in the Survey Area for the sensitive species identified in the literature review. No focused surveys are required.

4.3.3. Wildlife

4.3.3.1. General

Wildlife species observed or detected during the site survey were characteristic of the existing site conditions. A full list of the wildlife species detected within the Survey Area is included in **Appendix C, Plant & Wildlife Species Observed/Detected Onsite**.

Birds

Eight (8) species were observed/detected within the BSA during the reconnaissance field surveys.

- American crow (*Corvus brachyrhynchos*)
- European starling (*Sturnus vulgaris*)
- cedar waxwing (*Bombycilla cedrorum*)
- killdeer (*Charadrius vociferus*)
- house finch (*Haemorhous mexicanus*)
- mourning dove (*Zenaida macroura*)
- song sparrow (*Melospiza melodia*)
- white-crowned sparrow (*Zonotrichia leucophrys*)

Mammals

The California ground squirrel (*Otospermophilus beecheyi*) was readily seen along the western edge of the property with their burrows seen across the property and along the southern fence line of the developed area.

Additional burrows were identified in the southeastern section of the property. These burrows exhibit

characteristics consistent with those of Botta's pocket gopher (*Thomomys bottae*) and should be presumed to indicate their presence.

4.3.3.2. Sensitive Wildlife Species

None of the twenty-four (24) special-status wildlife species identified in the literature review were present in the BSA. Two (2) sensitive species were considered to have moderate occurrence potential in the BSA: One Listed bird species, the Swainson's hawk; and one sensitive bird species, northern harrier.

All species are described and have regulatory listings as follows:

Swainson's Hawk (*Buteo swainsoni*)

Swainson's hawk is a state listed threatened species and a Bird of Conservation Concern. The Swainson's hawk is a medium-sized buteo with a dark head and breast band that contrasts with its lighter colored underparts. They have long, pointed wings that curve upward slightly, and the dark gray flight feathers are distinctive from the lighter colored linings.

The Swainson's hawk breeds in the western United States and Canada and winters in South America as far south as Argentina. They arrive on the breeding grounds between March and April, typically returning to the same territory year after year. Breeding pairs are generally monogamous and begin to build nests as soon as they arrive. Clutch size is between one to four eggs. Eggs are incubated for about 34 days and the young typically fledge about six weeks after hatching. The diet of the Swainson's hawk in California mainly consists of California voles (*Microtus californicus*), but also includes other small mammals, birds, and insects. Swainson's hawks often nest adjacent to riparian systems. They will also use snags (lone trees) in agricultural fields or pastures and roadside trees when available and adjacent to suitable foraging habitat.

The most recognized threat to Swainson's hawks is the loss of their native foraging and breeding grounds. As important foraging areas are converted to urban landscapes or other unsuitable habitat, the aptitude for the landscape to support breeding pairs decreases. Other threats include climate change, infrastructure placement, disease, pesticide poisoning, and electrocution. Suitable foraging habitat for Swainson's Hawk is present in the BSA.

Northern Harrier (*Circus hudsonius*)

The northern harrier is a USFWS Bird of Conservation Concern. The northern harrier is a medium-size raptor with a dark head, owl-like face, and sharply hooked bill. They have long, broad wings and long, rounded tail feathers. A sexually dimorphic species, the males have a dark trailing edge on their wings and have gray dorsally and white ventrally. Females and juveniles are largely brown with black bands on their tails, females have brown streaks and whitish coloring on their dorsum. Both sexes have a white rump patch that is most visible during flight and is a key characteristic for identification.

Occurring as both resident and long-distant migrants, the northern harrier breeds across much of North America. From Alaska and Canada in the north down into parts of California in the west to Michigan in the east and winter in the southern states of the United States and into Mexico and northern South America. A polygamous species, males usually have one to two mates but can have more if food resources are abundant. Clutch size is four to five eggs and incubated for 28 to 36 days. Young are precocial and fledge in about five to six weeks after hatching. The diet of the northern harrier consists primarily of small mammals, such as voles and mice, as well as birds, amphibians, and reptiles. They are often found in

habitats such as wetlands, grasslands, and agricultural fields where they can forage for prey and nest adjacent to these habitats.

The primary threat to northern harriers is the loss of their foraging and breeding habitats, especially wetlands and grasslands, due to agricultural expansion and urban development. Other threats include pesticide poisoning, habitat disturbance, and the effects of climate change, which may alter the availability of prey or suitable nesting sites. Conservation efforts to protect and restore these critical habitats are essential to supporting the northern harrier's long-term survival. Suitable foraging habitat for the Northern Harrier is present in the BSA.

SECTION 5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Wetlands

The single buried wetland identified from the NWI is defined as a pipeline by the Tulare Irrigation District and connects two stretches of an irrigation ditch. As this wetland is buried, and defined as a pipeline by the TID, the proposed project will have no impact.

Two basins occur on the existing Tulare County Office of Education parcel, likely occurring as stormwater retention basins. These fenced-off basins lack native vegetation and occur outside of the proposed projects scope, no Impact will occur.

5.2. Vegetation Communities & Habitat Conservation

The project area does not fall within any current Habitat Conservation Plan (HCP) or Natural Community Conservation Plan (NCCP) areas.

The parcel was formerly agricultural land and is now occupied by non-native plant species capable of growing in these highly disturbed soils with large patches of bare ground. This largely barren land offers poor quality habitat to native species resulting in no impacts to native habitat.

Riparian vegetation did not occur on the parcel or BSA.

5.3. Plants

None of the twenty-one (21) sensitive plant species identified in the literature review were present within the BSA. Five (5) have a low potential for occurrence on site with the remaining sixteen (16) having no potential for occurrence. Focused surveys are required for any federal and/or state listed endangered species with potential to occur on site when the species is in bloom to ensure it is both evident and identifiable during the survey. Because of the survey area's disturbed habitat dominated by non-native vegetation and its location next to development and agricultural land, there is low to no potential for occurrence in the survey area for the sensitive species identified in the literature review. No focused botanical surveys are required.

5.4. Wildlife

Of the twenty-four (24) sensitive wildlife species identified in the literature review, two (2) have a moderate potential to occur and twenty-two (22) have low-no potential to occur in the Survey Area. These two (2) species of moderate potential are the state threatened Swainson's hawk and the USFWS bird of conservation concern Northern harrier.

These two species have moderate potential for foraging habitat due to the presence of California ground squirrels, a known prey species. As the project area is comprised of an empty lot with prey species present, this offers an ideal hunting ground for both species. While this prey species is present, much of the surrounding farmland and open spaces show evidence of ground squirrel presence as well. The nesting and breeding habitat requirements of these two avian species are absent from the site due to the sites

condition as a undeveloped lot. The Northern Harrier requires dense grasses, sedges, and rushes which are absent and the Swainson's hawk requires tall solitary trees that don't occur on site.

As mentioned above, the California ground squirrel was documented on site with over ten (10) individuals seen along the western edge of the parcel with burrows seen across the property. Additionally, burrows were documented on site that were inconsistent with California ground squirrel burrow entrance design and most resembled that of the Botta's pocket gopher. While not seen during the survey, it should be treated as present due to the freshness of the excavated soil. No mitigation measures are required for the California ground squirrel and Botta's pocket gopher

While the BSA did not contain suitable breeding or nesting habitat to resident or migratory bird species, as a precautionary measure it should be treated with the potential for nesting to occur as birds are highly mobile and may attempt to nest in atypical or suboptimal locations. In-turn, if vegetation clearing or ground disturbing activities need to occur, we recommended it be conducted during the non-breeding season (September 1 to February 14) to reduce any potential for impacts to nesting birds. These impacts can include If these activities must occur during the breeding season (February 15 through August 31), a pre-construction nesting bird survey(s) will be required in order to remain in compliance with the Migratory Bird Treaty Act. The survey should be conducted a minimum of three days prior to the start of work.

SECTION 6. REFERENCES

California Department of Fish and Wildlife (CDFW)

2025 California Natural Diversity Database (CNDDDB). RareFind Version 5. Database Query for the Visalia, Tulare, Cairns Corner, Exeter, Monson, Ivanhoe, Paige, Goshen, Traver, California, USGS 7.5- minute quadrangles. Wildlife and Habitat Data Analysis Branch. Available URL: <https://apps.wildlife.ca.gov/rarefind/view/RareFind.aspx> [accessed 7 January 2025].

2016. Five-Year Status Review for Swainson's Hawk (*Buteo swainsoni*). Wildlife and Fisheries Division, Nongame Wildlife Division, Sacramento, California.

California Native Plant Society (CNPS)

A Manual of California Vegetation, Online Edition. California Native Plant Society, Sacramento, CA. Available URL: <https://vegetation.cnps.org> [accessed 7 January 2025].

2025. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Rare Plant Scientific Advisory Committee, California Native Plant Society, Sacramento, California. Available URL: <http://www.rareplants.cnps.org> [accessed 7 January 2025].

Cowardin, L. et al.

2013. Classification of Wetlands and Deepwater Habitats of the United States, Second Edition. Department of the Interior, Fish and Wildlife Service, Washington, D.C..

Hickman, J.C. (ed.)

2012 *The Jepson Manual: Higher Plants of California*. University of California Press, Berkeley, California.

Holland, R.F.

1986 *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Unpublished report available from the California Department of Fish and Game, Sacramento, California.

Jepson Herbarium (Jepson)

Jepson Flora Project (eds.) 2025. Jepson eFlora, Available at: <http://ucjeps.berkeley.edu/eflora/> [accessed 7 January 2025].

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. (Sawyer et al.)

2009. A Manual of California Vegetation, Second Edition. California Native Plant Society, Sacramento, CA.

Shuford, W. D., and Gardali, T.

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 California Department of Fish and Game, Sacramento

Tulare Irrigation District (TID).

2025. District Maps. Available URL: <https://tulareid.org/district-maps>. [accessed 8 October 2025].

U.S. Department of Agriculture (USDA)

2025 Web Soil Survey, Natural Resources Conservation Service, United States Department of Agriculture. Official Soil Series Descriptions. Available URL: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx> [accessed 7 January 2025].

U.S. Fish and Wildlife Service (USFWS)

2025 Information for Planning and Consultation (IPAC) database. U.S. Fish and Wildlife Service, Atlanta GA. Available URL: <https://ecos.fws.gov/ipac/location/index> [accessed 7 January 2025].

A large, stylized graphic composed of three concentric circles in varying shades of teal. Inside the innermost circle, the text "APPENDIX A" is written in bold, uppercase letters, and "SITE PHOTOGRAPHS" is written in a smaller, italicized, lowercase font directly below it.

APPENDIX A
SITE PHOTOGRAPHS



Photo 1: Site overview. View of the site from the southeast section of the parcel looking northeast.



Photo 2: Site overview. View of the site from the southeast section of the parcel looking north.



Photo 3: Site overview. View of the site from the southeast section of the parcel looking east-southeast along Mooney Boulevard.



Photo 4: Site overview. View of the site from the southeast section of the parcel looking south.



Photo 5: Site overview. View of the site from the southeast section of the parcel looking southwest.



Photo 6: Site overview. View of the site from the southeast section of the parcel looking west.



Photo 7: Site overview. View of the site from the southeast section of the parcel looking northwest.



Photo 8: Botta's pocket gopher burrows in the southeast section of the parcel.



Photo 9: California ground squirrel burrows in southeast section of the parcel.



Photo 10: California ground squirrel burrows along shared fence line of southeast section of parcel and planetarium/science center parking lot.



Photo 11: Drainage/Catchment basin along fence line of southeast section of parcel and developed area.



Photo 12: Second Drainage/catchment basin along fence line of southeast section of parcel and developed area.



Photo 13: Site overview. View from the center of the parcel looking west.



Photo 14: Site overview. View from the center of the parcel looking east.



Photo 15: Site overview. View of the site from the northwest section of the parcel looking south.



Photo 16: Site overview. View of the site from the northwest section of the parcel looking southeast.



Photo 17: Site overview. View of the site from the northwest section of the parcel looking east.



Photo 18: Site overview. View of the site from the northwest section of the parcel looking northeast.



Photo 19: Site overview. View of the site from the northwest section of the parcel looking north.



Photo 20: Site overview. View of the site from the northwest section of the parcel looking northwest.



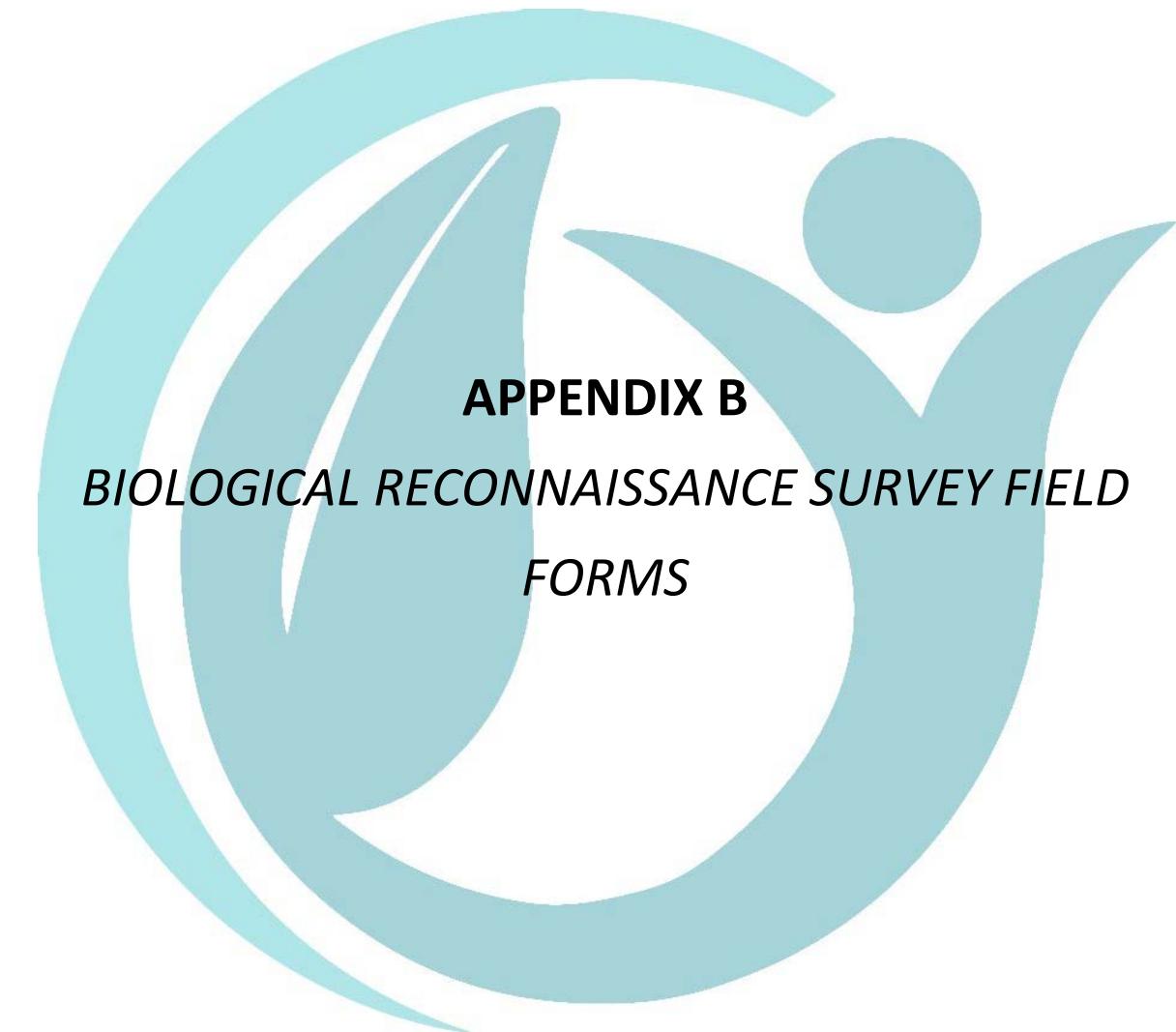
Photo 21: Site overview. View of the site from the northwest section of the parcel looking west.



Photo 22: Site overview. View of the site from the northwest section of the parcel looking southwest.



Photo 23: California ground squirrel burrows were located in the northwest section of the parcel, with over ten individuals observed in this area.



APPENDIX B
*BIOLOGICAL RECONNAISSANCE SURVEY FIELD
FORMS*



Biological Reconnaissance Survey Field Form

Date: 1/21/25 Project Name: 7102 Tulare COE

Job #: 7102 Client: Tulare COE

Surveyor(s): A. Isakson

LOCATION DESCRIPTION

Site Address: N/A City, State: Tulare Co, CA

Habitat Types Present: Disturbed / Former Ag land

Current Land Uses: Undeveloped

Start (time) 0735
Temp (°F) 33
Cloud Cover (%) 0 (Hazy)
Precipitation N
Wind (mph) 1

End (time) 0930 - 0900
Temp (°F) 39
Cloud Cover (%) 0 (Hazy)
Precipitation N
Wind (mph) 3

NOTES: (Nest locations and species behavioral notes, disturbances, habitat conditions, etc.)

- NW Section contains dozens of ground squirrel burrows + were seen.
- Multiple deciduous trees near edge of developed area, unable to ID due to lack of leaves/Fruit/Flowers
- SE section contains GS burrows
- Gopher burrows in SE Section
- unknown plants (photos taken for ID)



Biological Reconnaissance Survey Field Form

PLANT SPECIES OBSERVATIONS

PLANT SPECIES PRESENT

Specify plant layer as herb (h), shrub (s), or tree (t)

Species	Layer
Dwarf mallow	H
lesser swine-cress	H
Anabathmum	H
Russian thistle	S
Stinkwort	S
Festuca?	S H
Musk Storksbill	S H
False yellowhead	H
cheeseweed mallow	S
Tall flatsedge	H
horseweed	S
palm sp.	S H
Chinese flame tree	T
CITRUS	T
bermuda grass	H

PLANT SPECIES PRESENT

Specify plant layer as herb (h), shrub (s), or tree (t)

80~

Date: 1/21/25



Biological Reconnaissance Survey Field Form

WILDLIFE SPECIES OBSERVATIONS

WILDLIFE SPECIES PRESENT

Specify observation type as aural (a), sign (s), or visual (v)

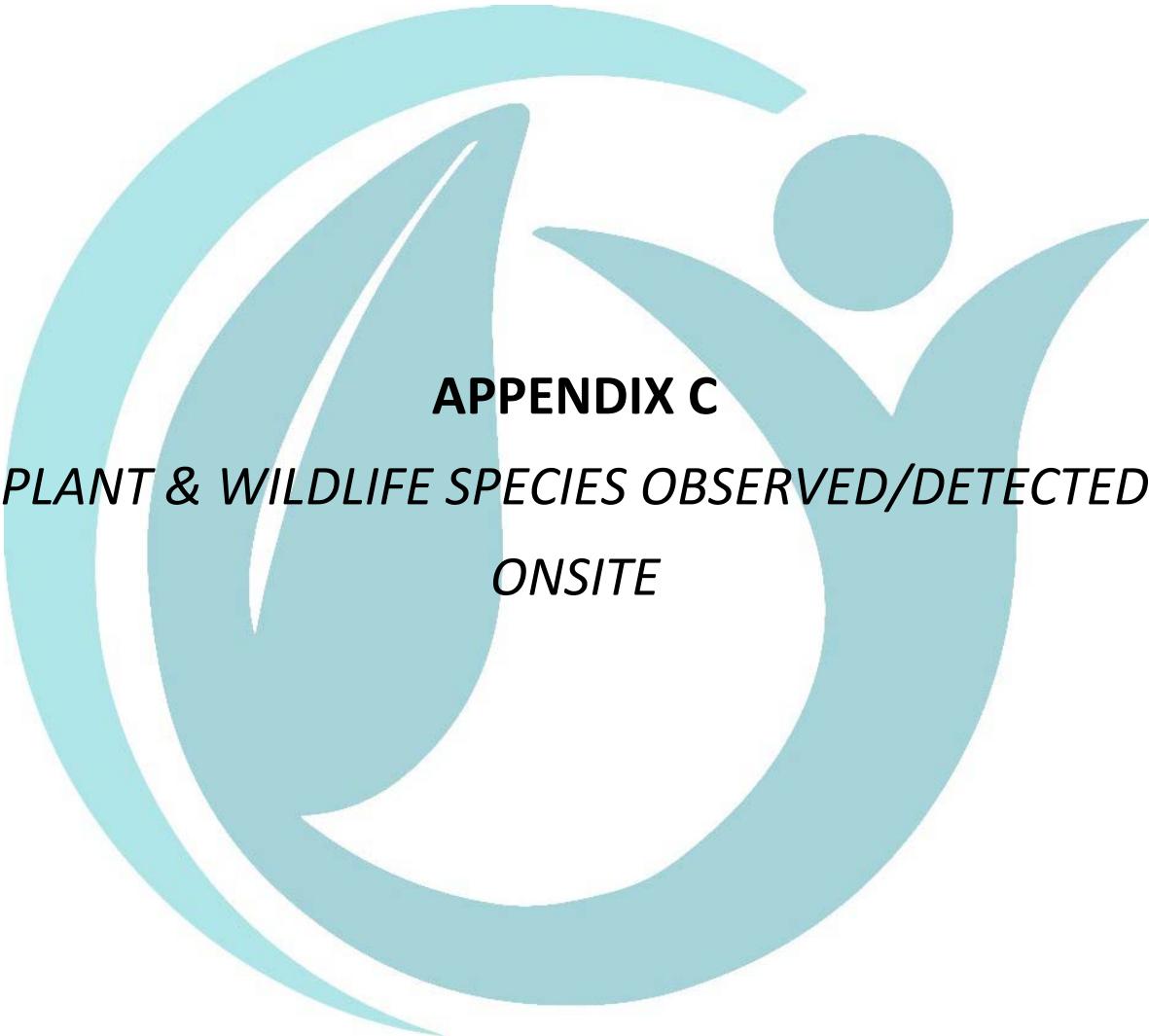
Species	Observation
European Starling	AV
MDDO	✓
Hoffi	A
YRWA	A
AMCR	AV
Cedar wax	AV
VCSP	AV
Kill	AV
ground squirrels (10+)	✓
at gopher	✓

WILDLIFE SPECIES PRESENT

Specify observation type as aural (a), sign (s), or visual (v)

Biologist Signature:

Date: 1/21/25



APPENDIX C

*PLANT & WILDLIFE SPECIES OBSERVED/DETECTED
ONSITE*

Plants		
Scientific Name	Common Name	Special Status
EUDICOTS		
Amaranthaceae - Amaranth Family		
* <i>Salsola australis</i>	Russian thistle	
Asteraceae - Sunflower Family		
* <i>Dittrichia graveolens</i>	Stinkwort	
<i>Erigeron canadensis</i>	Horseweed	
Boraginaceae – Borage Family		
<i>Amsinckia menziesii</i>	Common fiddleneck	
Brassicaceae – Mustard Family		
* <i>Lepidium didymum</i>	Lesser swine-cress	
Geraniaceae - Geranium Family		
* <i>Erodium moschatum</i>	Greenstem filaree	
Malvaceae – Mallow Family		
* <i>Malva neglecta</i>	Common mallow	
* <i>Malva parviflora</i>	Cheeseweed mallow	
Onagraceae – Evening-Primrose Family		
<i>Epilobium brachycarpum</i>	Panicked willowherb	
Rutaceae – Rue Family		
* <i>Citrus</i> sp.	Citrus species	
Sapindaceae – Soapberry Family		
* <i>Koelreuteria bipinnata</i>	Chinese flame tree	
MONOCOTS		
Arecaceae - Palm Family		
* <i>Washingtonia robusta</i>	Mexican fan palm	
Poaceae – Grass Family		
* <i>Cynodon dactylon</i>	Bermuda grass	
<i>Poa</i> spp.	Unknown grass species	
Cyperaceae – Sedge Family		
<i>Cyperus eragrostis</i>	Tall flatsedge	
Legend		
*= Non-native/ invasive species	CRPR – California Rare Plant Rank	
	1A. Presumed extinct in California	
Special Status:	1B. Rare or Endangered in California and elsewhere	
Federal:	2. Rare or Endangered in California, more common elsewhere	
FE = Endangered	3. Plants for which we need more information - Review list	
FT = Threatened	4. Plants of limited distribution - Watch list	
State:	Threat Ranks	
SE = Endangered	.1 - Seriously endangered in California	
ST = Threatened	.2 - Fairly endangered in California	

WILDLIFE		
Common Name	Scientific Name	Special Status
Birds		
House Finch	<i>Haemorhous mexicanus</i>	
Mourning Dove	<i>Zenaida macroura</i>	
American Crow	<i>Corvus brachyrhynchos</i>	
Yellow-rumped Warbler	<i>Setophaga coronata</i>	
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	
European Starling	<i>Sturnus vulgaris</i>	
Cedar waxwing	<i>Bombycilla cedrorum</i>	
Killdeer	<i>Charadrius vociferus</i>	
Mammals		
California Ground Squirrel	<i>Otospermophilus beecheyi</i>	

Legend:

*=Non-native or invasive species

Federal:

FE = Endangered

FT = Threatened

State:

SE = Endangered

ST = Threatened

CSC = California Species of Special Concern

CFP = California Fully Protected Species





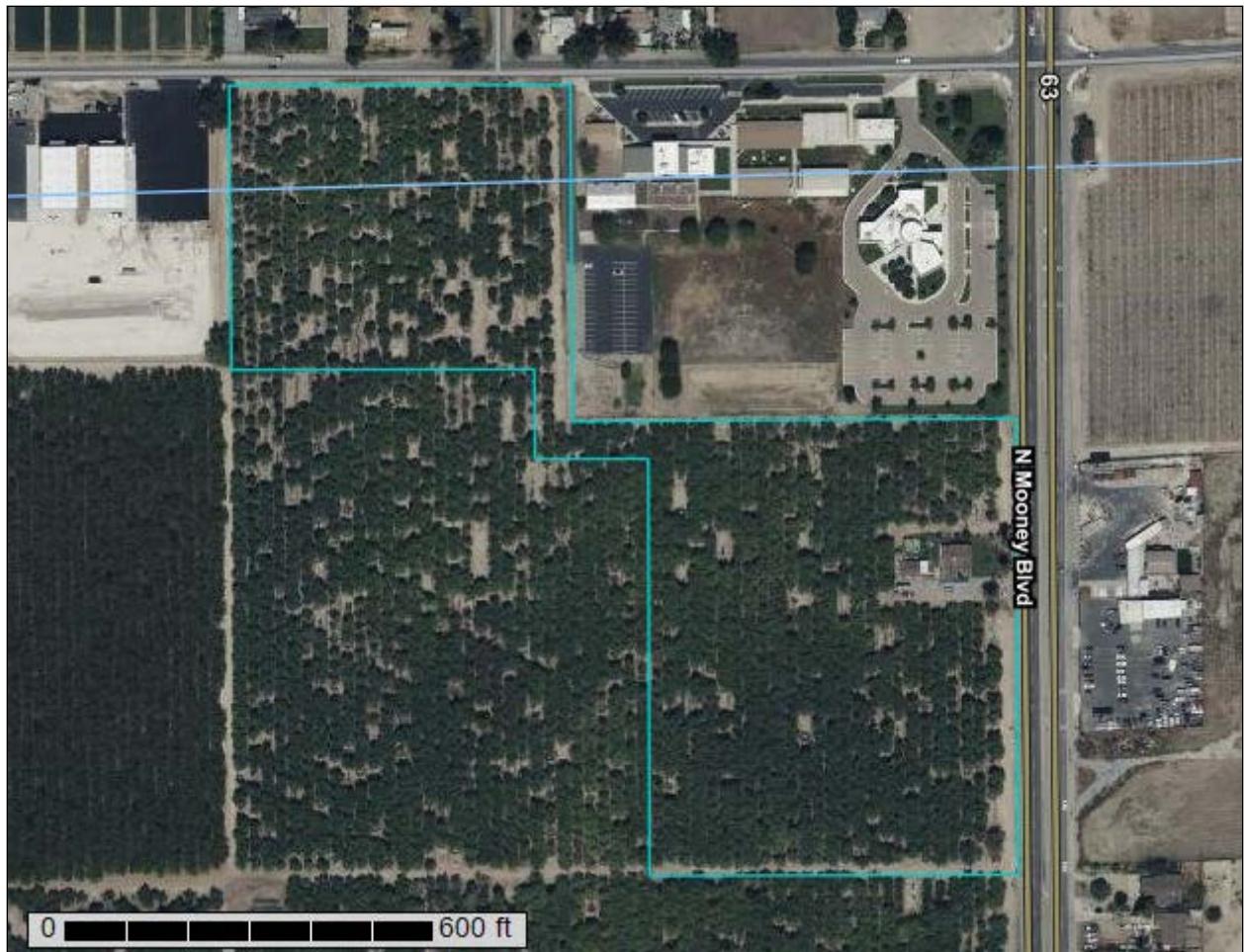
United States
Department of
Agriculture



Natural
Resources
Conservation
Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Tulare County, Western Part, California



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units).

Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

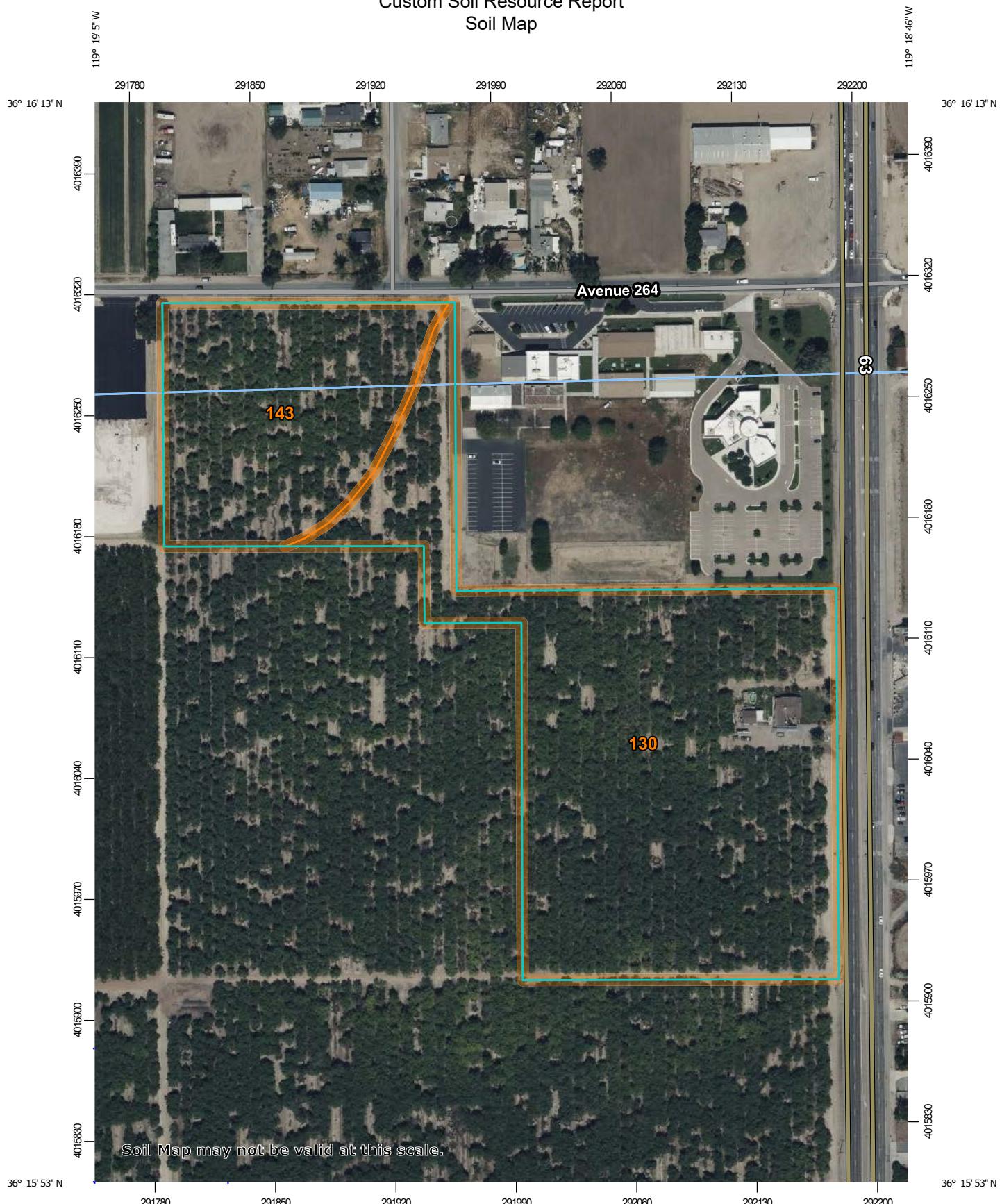
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

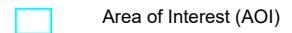
The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)



Area of Interest (AOI)

Soils



Soil Map Unit Polygons



Soil Map Unit Lines



Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot

Spoil Area



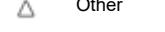
Spoil Area

Stony Spot



Stony Spot

Very Stony Spot



Very Stony Spot

Wet Spot



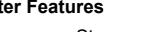
Wet Spot

Other



Other

Special Line Features



Special Line Features

Water Features

Streams and Canals



Streams and Canals

Transportation

Rails



Rails

Interstate Highways



Interstate Highways

US Routes



US Routes

Major Roads



Major Roads

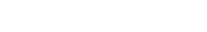
Local Roads



Local Roads

Background

Aerial Photography



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Tulare County, Western Part, California

Survey Area Data: Version 18, Aug 30, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 16, 2022—May 30, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
130	Nord fine sandy loam, 0 to 2 percent slopes	12.0	72.3%
143	Yettem sandy loam, 0 to 2 percent slopes	4.6	27.7%
Totals for Area of Interest		16.6	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Tulare County, Western Part, California

130—Nord fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hp51

Elevation: 190 to 520 feet

Mean annual precipitation: 8 to 12 inches

Mean annual air temperature: 61 to 64 degrees F

Frost-free period: 250 to 275 days

Farmland classification: Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

Map Unit Composition

Nord and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nord

Setting

Landform: Alluvial fans, flood plains

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Convex, linear

Parent material: Alluvium derived from mixed

Typical profile

Ap - 0 to 11 inches: fine sandy loam

C1 - 11 to 38 inches: stratified sandy loam to loam

C2 - 38 to 50 inches: stratified loamy coarse sand to coarse sandy loam

2Btb - 50 to 72 inches: stratified sandy loam to silt loam

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches; More than 80 inches

Drainage class: Well drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Very rare

Frequency of ponding: None

Calcium carbonate, maximum content: 4 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 10.0

Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 4c

Hydrologic Soil Group: B

Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert

Hydric soil rating: No

Minor Components

Grangeville, saline-sodic

Percent of map unit: 3 percent

Landform: Alluvial fans, flood plains

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: Yes

Hanford

Percent of map unit: 3 percent

Landform: Alluvial fans, flood plains

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

Tujunga

Percent of map unit: 3 percent

Landform: Flood plains

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

Tagus

Percent of map unit: 2 percent

Landform: Fan remnants

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

Akers

Percent of map unit: 2 percent

Landform: Fan remnants

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

Colpien

Percent of map unit: 2 percent

Landform: Fan remnants

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

143—Yettem sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hp5g

Elevation: 270 to 530 feet

Mean annual precipitation: 9 to 12 inches

Mean annual air temperature: 62 to 65 degrees F

Frost-free period: 250 to 300 days

Farmland classification: Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

Map Unit Composition

Yettem and similar soils: 85 percent

*Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Yettem

Setting

Landform: Alluvial fans, flood plains

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium derived from granite

Typical profile

Ap - 0 to 13 inches: sandy loam

C - 13 to 63 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Very rare

Frequency of ponding: None

Calcium carbonate, maximum content: 5 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 5.0

Available water supply, 0 to 60 inches: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): 1

Land capability classification (nonirrigated): 4c

Hydrologic Soil Group: A

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

Minor Components

Grangeville

Percent of map unit: 5 percent

Landform: Alluvial fans, flood plains

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: Yes

Kimberlina

Percent of map unit: 5 percent

Landform: Flood plains

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

Colpien

Percent of map unit: 3 percent

Landform: Fan remnants

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

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Tujunga

Percent of map unit: 2 percent

Landform: Flood plains

Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans

Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

