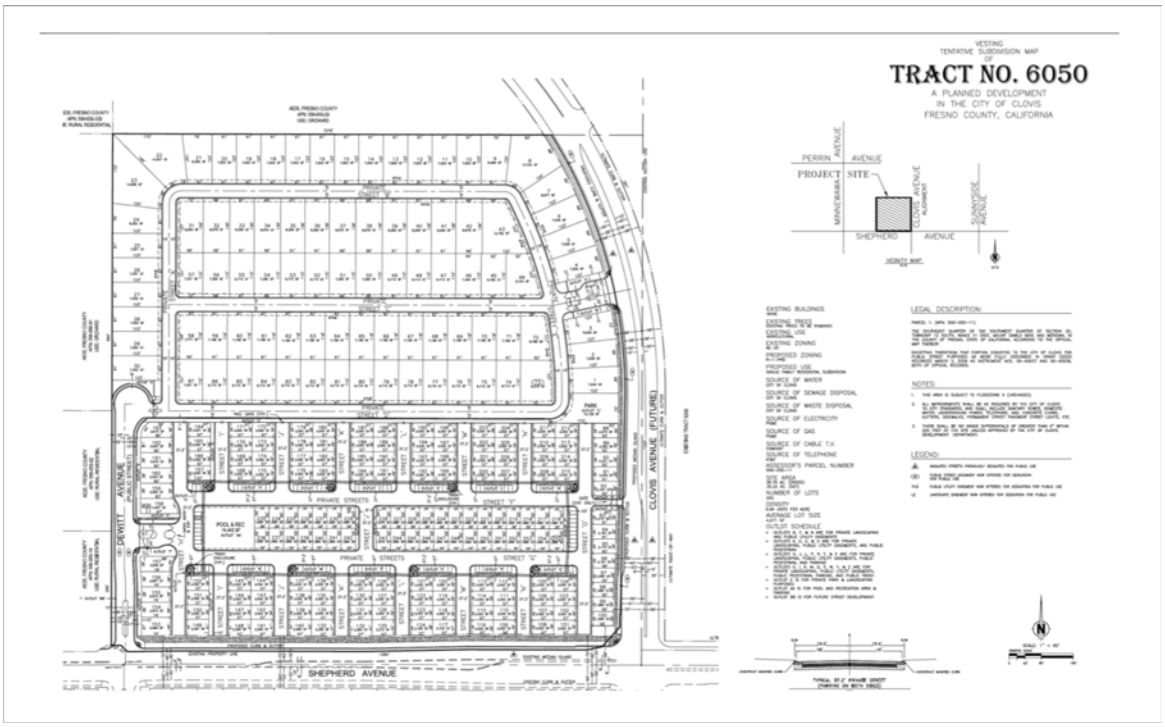
BIOLOGICAL HABITAT ASSESSMENT (Update)

Tract 6050 Development

Clovis, California



Prepared For:

6050 Enterprises, LP
7550 N. Palm Avenue, Suite 102
Fresno, CA 93711

February 19, 2020

APPENDIX D

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Clovis, California

Prepared For:

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Prepared By:

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February 19, 2020

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1.0 EXECUTIVE SUMMARY AND INTRODUCTION

EXECUTIVE SUMMARY

Argonaut Ecological, Inc. conducted a biological review of Tract 6050 located northwest of the intersection of N. Clovis Avenue, and Shepherd Avenue in Clovis, California. This parcel was evaluated in 2016 for biological resouces. However, because of the length of time that has passed since the last review, Argonaut was asked to update the previous biological habitat assessment. The parcels total 36.76 acre Study Area. The biological study focused on mapping existing habitat types based on a field review aerial photographs, and other published reports and available data. The study included assessment of the types of habitats present and sensitive species that may be associated with those habitats. The study found that the majority of the Study Area has been used and managed for decades as agricultural land.

The findings of this report are that the likelihood of the Study Area to support special status species is low. The site does not support any aquatic habitat or suitable habitat for any special status species. There is no suitable raptor nesting habitat within or adjacent to the site.

1.1 INTRODUCTION

The project area lies in the south half of the north half of the southeast quarter of section 20, Township 12 South, Range 21 East, mapped on the Clovis USGS topographic quadrangle (Figure 1).

1.2 STUDY OBJECTIVES

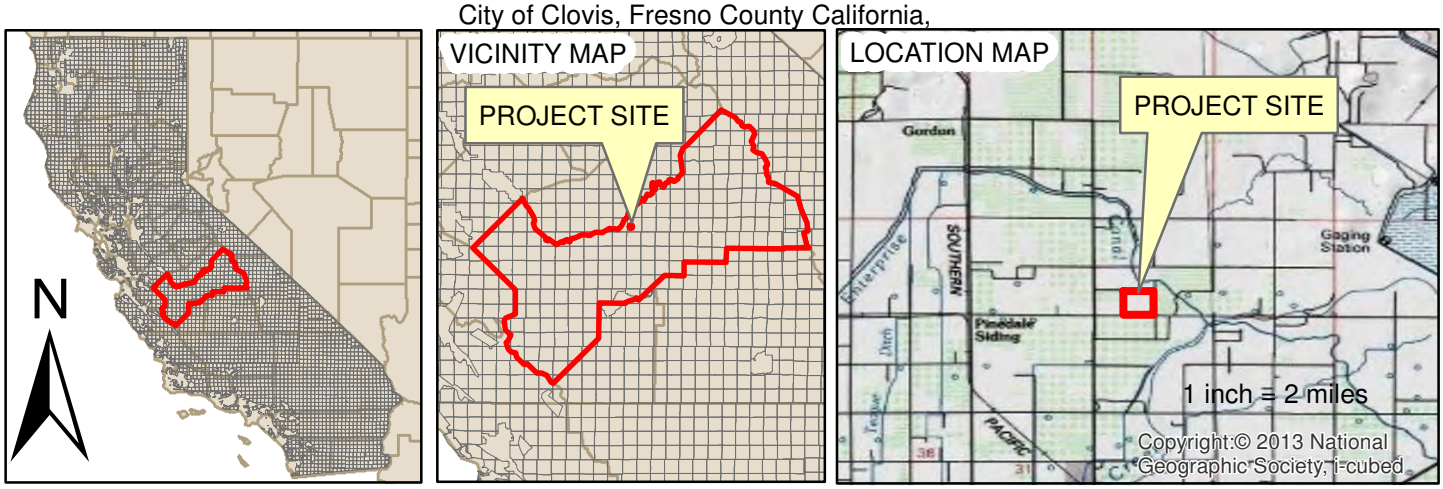
This biological assessment presents the findings of a biological study conducted within the study area. This report provides an overall assessment of the biological resources potentially present, describes the biological characteristics of the area, and the likelihood of the area to support sensitive biological resources (such as wetlands or creeks/drainages). This study used available literature, aerial photography, historic topographic and aerial maps, and a site visit to verify the aerial photography. The review focused on the potential for the study area to support habitat that may be used or occupied by special status species, especially within the Study Area. "Wetland habitat" for purposes of this study, includes those areas that may be considered both "Waters of the U.S., as defined by the U.S. Army Corps of Engineers, and or wetlands as defined by the Army

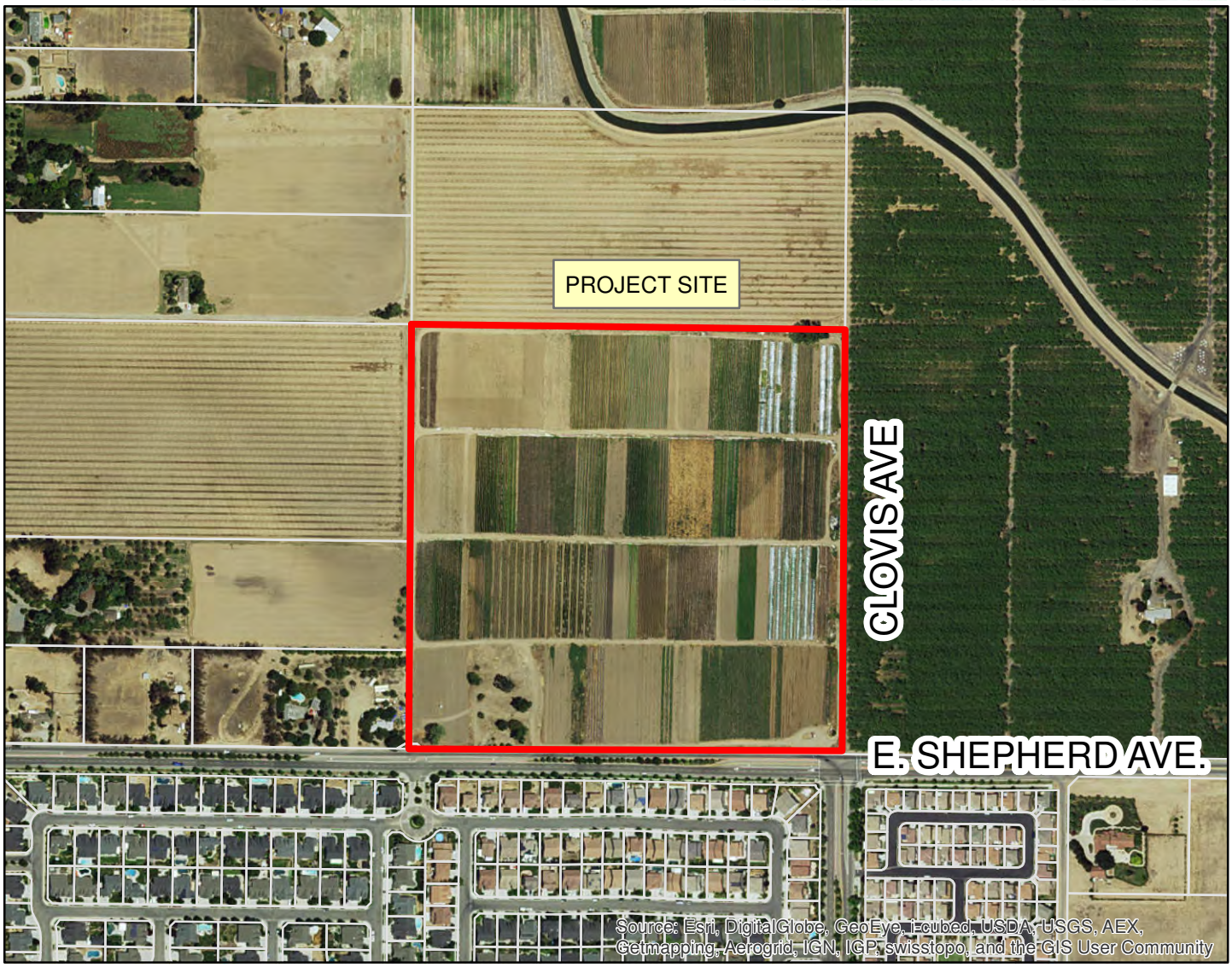
Corps and the State of California. As described in Section 1.2.1, wetlands are a subset of "Waters of the U.S." under the Federal Clean Water Act.

This report assesses the potential effects on biological resources if the current land use changes. The specific type of land use change would dictate the type of regulatory approvals or permits required. This review focused on the extent of the Waters of the U.S., including any wetlands or waters of the State. We considered any wetland that could be subject to regulation under Section 404 of the Clean Water Act or by the State of California. The review also focused on assessing and identifying any potential impacts site development may have o species protected by the Federal Endangered Species Act or protected under the California Environmental Quality Act or State Endangered Species.

FIGURE 1-VICINITY AND LOCATION MAP

CLIENT NAME: 6050 Enterprise, LP PROJECT NAME:Tract 6050,
PROJECT LOCATION: Section 20, T. 12S., R.21E., Mount Diablo Base and Meridian
City of Clovis, Fresno County California,





500 250 0 500 Feet

1 in = 500 ft

Legend

Approximate boundary(+/-36.1AC.)

ARGONAUT ECOLOGICAL CONSULTING, INC.

Date: 2/8/2020

1.3 REGULATORY JURISDICTION AND BACKGROUND

Several agencies share regulatory jurisdiction over biological resources within the Study Area. The following is a brief description of the primary agencies and their respective jurisdictions.

Wetland Protection

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (Army Corps) and the U.S. Environmental Protection Agency regulates the placement of fill into the Waters of the U.S. under Section 404 of the Federal Clean Water Act and Section 10 of the Rivers and Harbor Act. The term "Waters of the U.S." includes wetlands, special aquatic sites, and other non-wetland waters such as bays, rivers, and lakes. The jurisdictional limit of tidal Waters of the U.S. under Section 10 of the Rivers and Harbor Act is the Mean High-Water line. However, Section 404 of the Federal Clean Water Act extends the jurisdictional limit to the High Tide line. The High Tide Line is the highest elevation of the tide in a normal year, excluding storm events. Wetlands adjacent to the Mean High-Water line or High Tide Line are also under the USACE jurisdiction. For purposes of this document, the term "Waters of the U.S." is legally defined under Section 404 of the Federal Clean Water Act. It includes seasonal drainages that have a defined channel and support wetland species, but lack positive indicators of wetland soils.

As previously stated Waters of the U.S. includes wetlands. The Army Corps defines wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Environmental Laboratory 1987). Seasonally inundated areas that meet the criteria of all three wetland parameters, as defined in the recently issued Wetland Delineation Manual for the Arid West (USACE 2006), are also considered jurisdictional wetlands. However, drainage ditches excavated on dry land that does not convey flows from historical streams and/or channels are usually considered non-jurisdictional as defined in Title 33 CFR Part 328.3 (a). A determination of whether any particular area is considered non-jurisdictional varies on a case-by-case basis.

Since 2001, the U.S. Supreme Court found in several court rulings that regulation of isolated, intrastate waters by the Army Corps under the Migratory Bird Rule and other arguments is unconstitutional and impinges on state rights to regulate intrastate commerce. The decisions, which include both Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (SWANCC) and Rapanos v. United States (Rapanos) limited the scope of federal jurisdiction and excluded many California wetlands from federal regulation.

In May 2015, the U.S. Environmental Protection Agency and the U.S. Army finalized the "Clean Water Rule "with the intent of clarifying what constitutes waters of the U.S., and presumably, acts to define and make permitting more predictable. The rule was not intended to create any new permitting requirements for agriculture and maintains all previous exemptions and exclusions. However, many in the regulated community believe the rule expands the definition of

waters/wetlands and broadens the Federal government's regulatory reach. The new Clean Water Rule went into effect at the end of August 2015. On October 9, 2015, the Sixth U.S. Circuit Court of Appeals issued a nationwide stay of the rule pending further court action. Therefore, currently, application of the Clean Water Rule is not enforced in 11 states, and the current regulatory definition of waters of the U.S. remains unchanged in 22 states. California is one of the states where the rule is in effect.

Executive Order 11990

Executive Order 11990 (signed May 24, 1977) directs all federal agencies to refrain from assisting in or giving financial support to projects that encroach on publicly or privately-owned wetlands. It requires federal agencies to support a policy to minimize the destruction, loss, or degradation of wetlands. A federal project that encroaches on wetlands may not be undertaken unless the agency in question has determined that: (1) there are no practicable alternatives to such construction; (2) the project includes all practicable measures to minimize harm to wetlands that would be affected by the project; and (3) the resulting impact will be minor.

The Executive Order does not apply to issuance by Federal Agencies of permits, licenses, or allocation to private parties for activities involving wetland on non-Federal property. Executive Order 1190 is also not intended to be applied on a project by project basis. Section 1 of the order states the following: "This Order does not apply to the issuance by Federal agencies of permits, licenses, or allocations to private parties for activities involving wetlands on non-Federal property."

California State Water Resources Control Board

Since 1993, California has had a Wetlands Conservation Policy (a.k.a., the Executive Order W-51 59-93). Commonly referred to as the No Net Loss Policy for wetlands, this order establishes for the State the mandate that it develops and adopt a policy framework and strategy to protect the State's wetland ecosystems. However, contrary to common belief, and the State Water Resources Control Board's insistence, this policy was only meant to be implemented voluntarily and is was expressly not to be implemented on a "project-by-project" basis (See EO W-59-93, Section III).

In April 2019, the State adopted its proposed State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. According to the State, these new procedures" (i.e., regulation by anyone's definition but the State's) conform with EO W-59-93. However, in conflict with EO W-59-93, there is nothing "voluntary" about the procedures, and they are applied on a project by project basis. The newly adopted "procedure" is intended to bring uniformity throughout the State concerning wetland regulation and to capture those waters/wetland not subject to jurisdiction under Section 404. The Procedure is also supposed to use the same definition of "wetlands" as the federal definition, but it does not (it's much broader).

The wetland fill procedures (the Procedure) was adopted by the State Water Quality Control Board on August 28, 2019 and will be in effect on May 28, 2020. The Procedures are implemented through the existing State permitting structures. Most often, they are applied through regional

water board sign-off (or "certification") of Corps of Engineers wetland permits. They are applied where the federal government has no jurisdiction.

Listed Protected Species and Habitat Protection

U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS) implements the Migratory Bird Treaty Act (16 USC Section 703-711), Bald and Golden Eagle Protection Act (16 United States Code [USC] Section 668), and Federal Endangered Species Act (FESA; 16 USC § 153 et seq.). Authorization of "take" of any federally-listed threatened or endangered species is obtained from the USFWS through either Section 7 (interagency consultation) or Section 10(a) (incidental take permit) of FESA, depending on whether the federal government is involved in permitting or funding the project. The authorization process determines if a project would jeopardize the continued existence of a listed species and the mitigation measures required to avoid jeopardizing the species.

The Migratory Bird Treaty Act (MBTA) of 1916 protects migratory birds. The MBTA makes it illegal for anyone to take, possess, import, transport, purchase, barter, or offer for sale or purchase any migratory birds, its nests or eggs unless the federal agency has issued a permit. The USFWS has statutory authority and responsibility for enforcing the MBTA. Per the MBTA Reform Act (MBTARA) of 2004 protects all species native to the U.S. or its territories which occur as a result of natural biological or ecological processes (70 FR 12710, March 15, 2005) and does not include nonnative species whose occurrences in the U.S. are solely the result of intentional or unintentional human introduction. The USFWS maintains a list of bird species protected under the MCTA and the MBTRA. However, on December 22, 2017 the Deputy Solicitor General issued an opinion (Order 3345) that the MBTA does not prohibit the "incidental take" of a migratory bird as the result of an otherwise lawful activity.

Federal Endangered Species Act prohibits "take" of any federally listed species. "Take" under the federal definition means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. "Candidate species" do not have the full protection of FESA. However, the USFWS advises project applicants that it is prudent to address these species since they could be elevated to "listed status" before completion of projects with long planning or development schedules. "Incidental take" is defined as that that may occur during the implementation of an otherwise lawful activity.

Under the Endangered Species Act (federal or State), an Incidental Take Permit or Take Permit is required when an activity would either kill, harm, harass, or interrupt the breeding or nesting of a listed species or remove a known population of endangered plants. However, the ESA definition of "harm" has been somewhat less definitive since it captures ubiquitous activities. In 1999 the USFWS published in the Federal Register a clarification of the term "harm" as it applies to the ESA. As stated, the final ruled defined the term "harm" to include any act which kills or injures fish or wildlife, and emphasizes that such acts may include significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife. Further clarification within the Federal Register includes the following: For a modification to be

significant, it must be capable of resulting in the death or injury of fish or wildlife. Habitat modification or degradation can be considered significant even if it is of limited physical extent, if it causes injury or death to fish or wildlife", however, the mere potential for harm is not in and of its "take." Assessing the significance of a given act of habitat modification or degradation depends on an evaluation of all the related factors.

There are two regulatory processes under the Federal ESA that allows an individual to obtain legal coverage from prosecution. A landowner/permittee can either obtain authorization for "take" under Section 7 or Section 10 of the ESA. Section 7 is triggered when there is a federal nexus that requires a federal agency to initiate consultation with the USFWS under Section 7 of the ESA. If there is no federal agency involvement (i.e., a landowner does not need a federal entitlement or is not receiving federal funding), then an Incidental Take permit can be obtained through Section 10(a)(1)(B) of the Act.

The USFWS cannot require or compel a landowner to obtain an Incidental Take permit, especially under Section 10. On April 25, 2018, the USFWS issued a guidance memorandum intended to help the USFWS' Regional Directors clarify the appropriate trigger for an incidental take permit (ITP) under the Endangered Species Act (ESA). While this guidance was directed internally to USFWS staff to aid in a determination of whether project-related habitat modification is likely to result in "take" of a listed species, it also provides a tool for project proponents to determine whether to seek an ITP. The guidance emphasizes that the decision to pursue an ITP or whether to cover a species is the project proponent's choice to make and is not up to the USFWS. Further, the guidance recognizes that "[t]he biological, legal, and economic risk assessment regarding whether to seek a permit belongs with the private party determining how to proceed."

Of significance is that the guidance provides that habitat modification, in and of itself, does not constitute "take" unless the three components of "harm" are met. Thus, to find that habitat modification constitutes an incidental take of listed species, the following questions must all be answered in the affirmative:

- Is the modification of habitat significant?
- Does that modification also significantly impair an essential behavior pattern of a listed species?
- Is the significant modification of the habitat likely to result in the actual killing or injury of wildlife?

California Department of Fish and Wildlife

The California Department of Fish and Wildlife (CDFW), formally known as the California Department of Fish and Game, is a Trustee Agency with responsibility under the CEQA for commenting/providing recommendations on projects that could impact plant and wildlife resources. Also, under the Fish and Game Code Section 1802, the CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of those species. The California Fish and Game Code also

provide authority for the CDFW to regulate projects that could result in the "take" of any species listed by the State as threatened or endangered (Section 2081). CDFW also has authority over all state streams, as described below.

Perennial and intermittent streams also fall under the jurisdiction of CDFW under Sections 1601-1603 of the Fish and Game Code (Streambed Alteration Agreements). The CDFW's jurisdiction includes work within the stream zone, but is not limited to the diversion or obstruction of the natural flow or changes in the channel, bed, or bank of any river, stream or lake. Before issuing a 1601 or 1603 Streambed Alteration Agreement, the CDFW must demonstrate compliance with CEQA. In most cases, CDFW relies on the CEQA review performed by the local lead agency. However, if no CEQA review was completed, CDFW would act as the lead agency under CEQA.

The CDFW also has authority for protection state-listed species issues under Section 2081 Incidental Take Permit if a project has the potential to negatively affect state-protected plant or animal species or their habitats, either directly or indirectly. Protected species include those "listed" by the State as endangered or threatened. Besides listed species, there are other categories of species protection, including "fully protected" and California Species of Special Concern (CSC). Adverse impacts to species that have the "fully protected" designation are prohibited.

Under the current California Fish & Game Code (FGC Section 3503), "it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird…" Birds of prey (falcons, hawks, owls, and eagles) get extra protection under the law (FGC Section 3503.5). As is the case with USFW, CDFW does not have the authority to require a landowner to apply for an Incidental Take Permit (ITP) authorizing take. Instead, it is the landowner that has the legal obligation to avoid any take of CTS if it does not seek an ITP, or to apply for and receive an ITP which authorizes take. That said, CDFW (and USFWS) can initiate an enforcement action if they believe that illegal take has occurred or will occur.

California Endangered Species Act

The California Endangered Species Act (CESA) provides protection for candidate plants and animal species as well as those listed as rare, threatened, or endangered by the California Department of Fish and Game (CDFG). This Act prohibits the take of any such species unless authorized. Section 2081 authorizes the State to issue incidental take permits. The state definition of take applies only to acts that result in the death of or adverse impacts to protected species. The CAESA mirrors the federal regulation as it relates to "take"; however, there is no State equivalent definition of "harm" or "harass." Incidental take is also not defined by the CAESA statute or regulation. Unlike the federal ESA, CAESA does not exclude " take" that occurs as a result of normal farm or ranch activities in the course of an otherwise lawful routine and ongoing agricultural activity. Where disagreement occurs (and in some cases, this has been the subject of court cases) is in the common understanding of "routine and ongoing agricultural activity."

California Environmental Quality Act

The CEQA Guidelines require a review of projects to determine their environmental effects and to identify mitigation for significant effects. The Guidelines state an effect may be significant if it

affects rare and endangered species. Section 15380 of the Guidelines defines rare to include listed species and allows agencies to consider rare species other than those designated as State or Federal threatened or endangered, but that meet the standards for rare under the Federal or State endangered species acts. On this basis, plants designated as rare by non-regulatory organizations (e.g., California Native Plant Society), species of special concern as defined by CDFW, candidate species as defined by USFWS, and other designations are considered in the CEQA analyses.

Land Use Entitlements

City of Clovis

The Study Area falls within the City of Clovis, California. The City is responsible for all local land use decisions and entitlements within its jurisdictional boundary. Fresno County is also the local lead agency under CEQA. As the lead agency under CEQA, the City3 considers recommendations made by other responsible agencies during the CEQA review.

2.0 RESOURCES CONSULTED AND METHODS

The following section describes the methods used to assess the Study Area and includes a combination of data review and evaluation, field studies, and aerial photograph interpretations.

2.1 DATA AND LITERATURE REVIEW

The 36.76 acre Study Area is in a historically agricultural area in Fresno, California. The following documents and/or sources used in preparing this report.

- U.S. Department of Agricultural, Natural Resources Conservation Service, Soil Survey of Fresno Area (Soils mapper).
- Aerial photography (Google Earth®, Bing®, and historic aerials dating back to 1983).
- The California Department of Fish and Game, California Natural Diversity Database (CNDDB/RareFind - Recent version with updates)
- U.S. Fish and Wildlife Service National Wetland Inventory Map
- U.S. Geologic Survey, Historic topographic Map, Clovis Quadrangle, 1919, University of Texas, Austin, Perry-Castañeda Map Collection
- Henry Madden Library, Fresno State University. Historic Aerial Photography collection dating back to 1938

2.2 AERIAL PHOTOGRAPHY AND WETLAND MAPPING

Aerial photographs of the Study Area were reviewed to assess changes in land use over time, dating back to the early 1940s. Both black and white and color aerial photographs ranging in resolution from 0.5 meters to 1.0 meter. We also reviewed historic aerial photographs to evaluate land use changes.

2.3 FIELD REVIEW

The original biological field work was conducted in August 2016. The Study Area was revisited on February 7, 2020. Before conducting a site review, we reviewed the California Natural Diversity Database/ RareFind (CNDDB/RareFind). The CNDDB includes records of reported observations for special status plant and animal species. The results of the CNDDB/RareFind identify which species would present the highest likelihood of being present on the site based on the distance of the site from known records and the similarity in habitats between the Study Area and the habitats that the species required and/or preferred. High-resolution aerials were reviewed photographs to determine if any areas on the site appear to support waters of the U.S., or other water features. We walked to identify habitat types, identify any wetlands potentially present, and assess habitat conditions and land use. This information formed the basis of our evaluation.

3.0 RESULTS AND CONCLUSIONS

This section describes the physical (i.e., topography, drainage, and soils) and the biological resources present, or potentially present, within the Study Area. Section 3.1 describes the physical components (i.e., soils, hydrology, etc.) of the Study Area. The physical components strongly influence the types of plants and animals present. Section 3.2 is an overview of the resources and habitats present within the Study Area, including descriptions of the specific biological resources observed.

The information presented is not an exhaustive inventory of plants or animals present. Rather provides sufficient information to identify what, if any, biological resources are present that may be considered unique, sensitive, or protected by current law and the potential impacts to those resources if the site is developed. This section also includes recommended avoidance and minimization measures to minimize potential impacts.

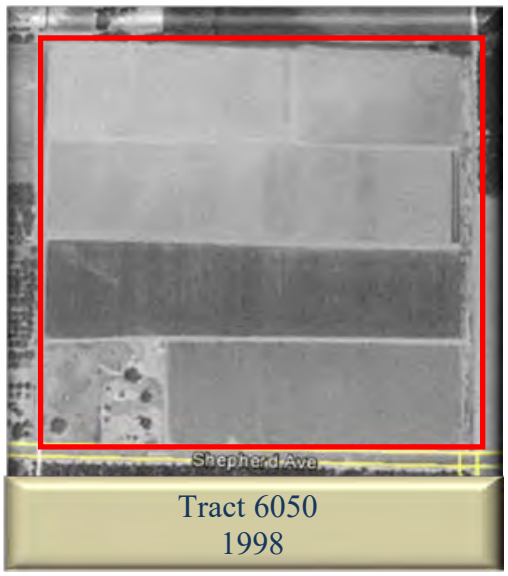
3.1 PHYSICAL RESOURCES AND NATURAL RESOUCES

Climate

Climate in the Study Area is typical of the central San Joaquin Valley with summers that are long, hot, and dry and winters that are cool and mild. Rainfall in the winter averages approximately 10.9 inches per year, falling mainly between November and April (Western Regional Climate Center, 2004). During this rainy season (Oct – May/to date) the total rainfall has been over 11 inches as recorded at California State University, Fresno.

Land Use and Habitat Types

The Study Area is located within the City of Clovis within an mixed agricultural and urban environment. The land is currently zoned as agricultural land, AE-20. The zoning is proposed to be changed to residential. The proposed land use will be single family residential subdivision. At the time of the 2016 biological review, the entire property was in full agrincultural production. The property has been in agricultural production since at least 1998 (See right). There was a home parcel within southwest corner of the property that has been there since at least 1998. Between 1998 and 2017 the site appears to have been in continuous agricultural production with periodic years when the ground was fallow. Cropping patterns changed but at no time was the land taken out of production.



Tract 6050
1998

During the February 7, 2020 field review the land was tilled but not planted. A portion of the eastern edge of the Study Area has been disturbed by an adjacent construction project (immediately east).

See Figure 2, Habitat Map of the Study Area.

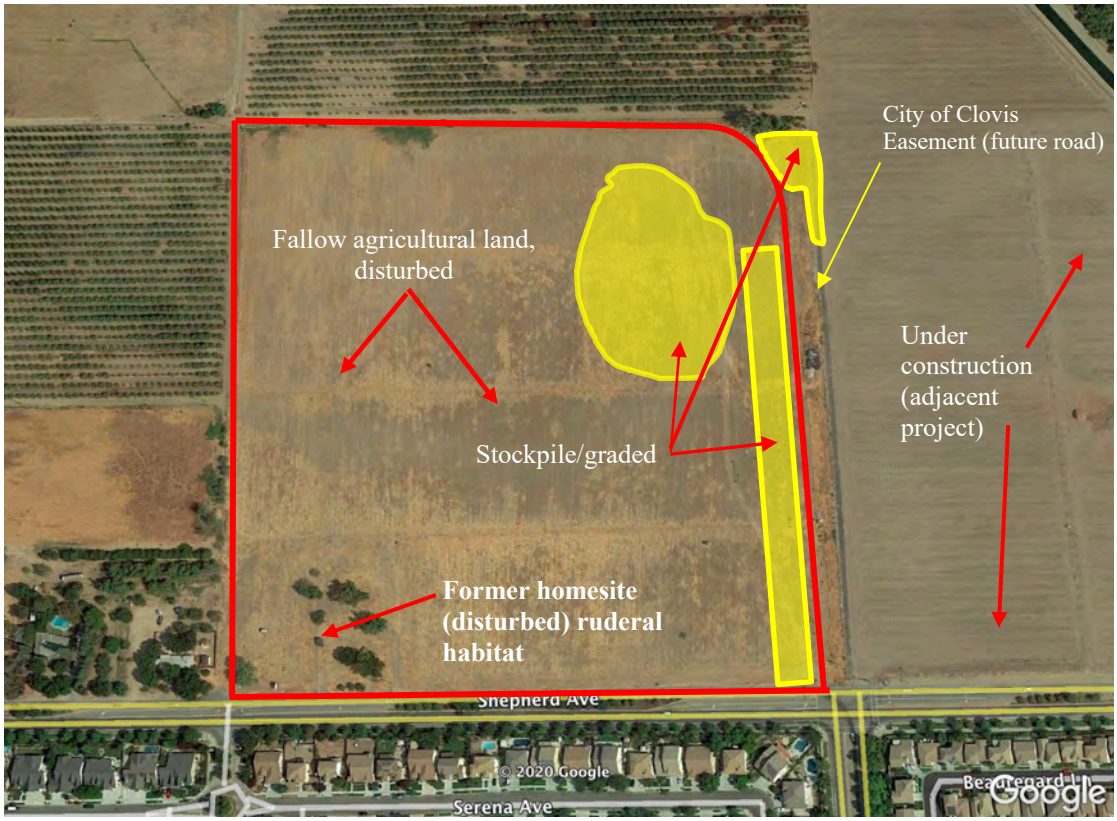


Figure 2
Habitat Map of Tract 6050 Clovis, CA

Topography, Drainage and Waters/Wetlands

Topography and Drainage

The property lies within the Central Valley. The Study Area site has historically been nearly level. Historically elevations within the area ranged from 372 ft msl just west of the Enterprise Canal (within the Study Area) to 390 msl just west of Minniwawa Avenue based on a 1919 topographic map. Current conditions do not appear to have significantly changed but, as mentioned previously, the eastern edge of the Study Area has been disturbed by an adjacent construction project. The elevation has been raised by about 2 feet.

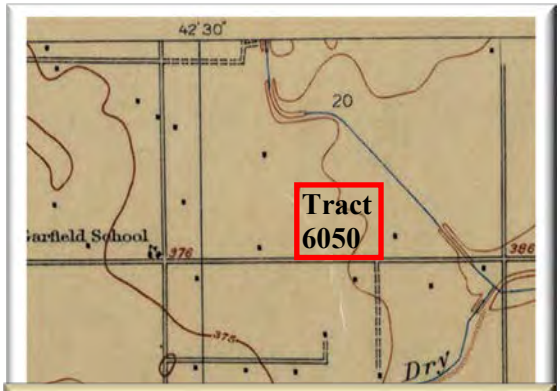


Figure 3 - 1919
USGS
Topographic Map

Historically (1919) no drainage facilities or creeks/streams were present within the Study Area. The Study Area is located within the Upper Dry Watershed (HUC 18030009). The project site historically drained to the southeast, toward the direction of Dry Creek. There is somewhat of a road ditch fronting the property along Shepherd Avenue. A query of the National Wetland Inventory Map does not show any stream, creeks, or wetland on or near the Study Area (within roughly a ½ mile) other than Dry Creek to the southeast. Over many decades portions of Dry Creek has been realigned, channelized and pipped underground. Dry Creek is managed by Fresno Metropolitan Flood Control District as part of their responsibilities to provide stormwater and flood flow conveyance. The Enterprise Canal is used for irrigation delivery and some storm water conveyance/storage as needed.

Waters/Wetland

A query of the National Wetland Inventory (NWI) Map (Figure 5, below) shows no wetlands, waters, or riparian areas within the Study Area but there is a farm ditch shown along the northern boundary. Th farm ditch is no longer present at the northern edge of the Study Area nor is it present on the land to the east of the Study Area. No other wetlands or ponds are within the Study Area.

Figure 4
USFWS National Wetland Inventory Map

Soils

The Natural Resources Conservation Service (NRCS) soil survey mapped two soil types within the Study Area. Neither soil is mapped as hydric soils. Hydric soils area is readily formed under ponded conditions. The presence of mapped hydric soils may indicate that the soils could support wetlands but, there is no direct correlation. Wetlands can occur in areas where no hydric soil are mapped and may be absent in areas mapped as hydric soils. There was no indication of any wetlands/waters within the Study Area. The following is a summary of the soil type present.

Table 1
Tract 6050 Study Area - Mapped Soil Units

Soil Series	Map Symbol	Hydric Soil	% of Study Area
Alamo clay	AM	Y	0.2
Exeter sandy loam	ES	N	14
Hanford fine sandy loam, hard substratum	HR	N	8.6
Tujunga loamy sand, 0 to 3 % slopes	TZBA	N	6.3
Visalia sandy loam, 0 to 3% slopes	VaA	N	63

Special Status Species

A search of the California Natural Diversity Database (CNDDB) was reviewed to determine whetherspecial status species could be present within the Study Area. There is no critical habitat for any listed species within or near the Study Area. Table 2 provides a summary of the species identified in the CNDDB that would have the highest likelihood of being present based on habitat requirements. Species that only reside in aquatic habitat are not included in the table since there is no aquatic habitat within or near the Study Area. Figure 6 shows the location of known special status species records within the vicinity of the Study Area.

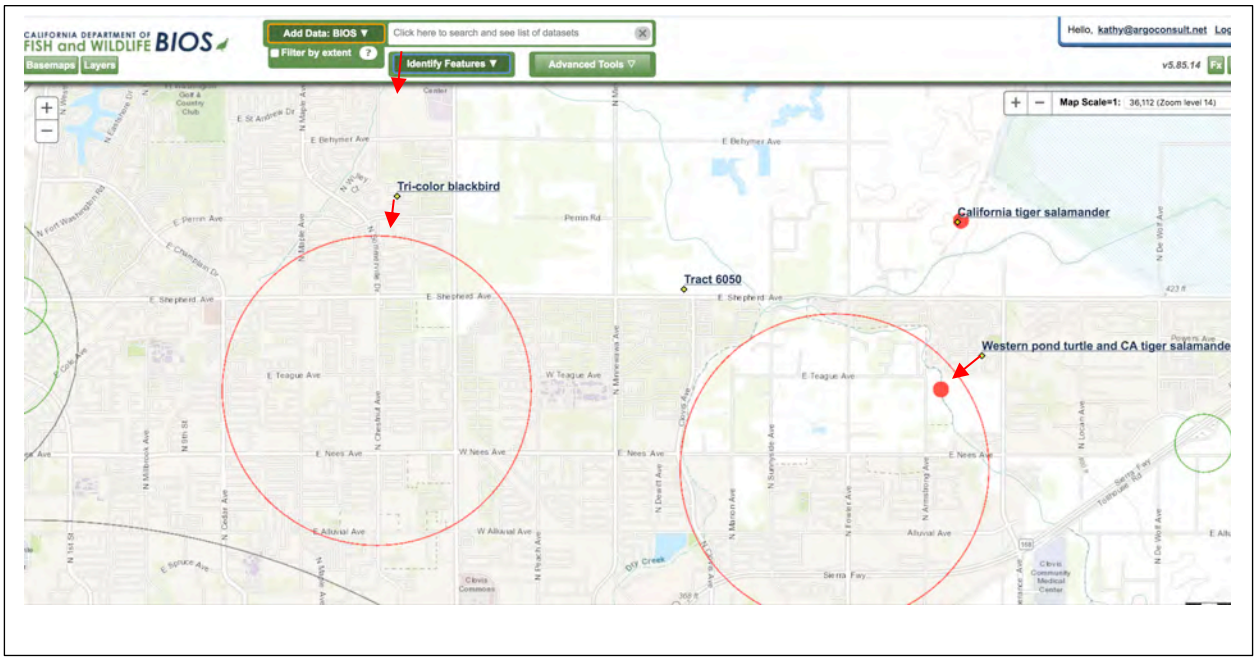


Figure **5**
California Natural Diversity Database (CNDDB) Query Results

Table 2
Special Status Species Summary For Tract 6050 Study Area

Common Name	Scientific Name	Status[1]	Effects[2]	Occurrence in the Study Area[3]
Birds				
Swainson's hawk	*Buteo swainsoni*	CT	NE	**Absent.** No raptor nests were observed. Species may use the site for foraging. Species could use trees on adjacent property for nesting but no evidence of potential presence.
Tricolored blackbird	*Agesaius tricolor*	CT	NE	**Absent.** Suitable breeding habitat is not within or near the Study Area.
Burrowing owl	*Athene Cunicularia*	BCC	NE	**Absent**. No evidenc of burrowing owl habitat is present. No ground squirrel population is present and the site is disturbed frequently. No ground squirrels are present, which would be indivitative of potential suitable habitat.
Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	FT/CE	NE	**Absent.** The study area does not support riparian streams or riparian habitat that this species requires.
least Bell's vireo	*Vireo bellii pusillus*	FE/CE	NE	**Absent**. No suitable breeding habitat is present within or near the Study Area.
Mammals, Amphibians, and Reptiles				
Fresno kangaroo rat	*Dipodomys nitratoides*	CE, FE	NE	**Absent**. Species requires a land surface with hummocks as sites for its extensive, but shallow burrow system, and a substrate of suitable compactness to permit burrowing. No suitable habitat is present.
San Joaquin kit fox	*Vulpes macrotis mutica*	CT, FE	NE	**Absent**. No suitable habitat present to support species, no dens and minimal prey base evident.
California tiger salamander	*Ambystoma californiense*	CT, FT	NE	**Absent.** Species requires aquatic breeding habitat and no breeding habitat is present within or near the Study Area.
Plants				
Hartweg's golden Sunburst	*Pseudobahia bahiifolia*	CE, FE 1B	NE	**Absent.** Found in Valley grassland habitat. The study area does not support grassland habitat. Habitat appears to be routinely disturbed by agricultural activities and likely precludes establishment.
San Joaquin adobe sunburst	*Pseudobahia peirsonii*	CE, FT 1B	NE	**Absent.** Found in Valley grassland habitat. The study area does not support grassland habitat.

California jewelflower	*Caulanthus californicus*	CE, FE 1B	NE	**Absent.** Found in Chenopod scrub, valley and foohill grassland, and juniper woodland. Suitable habitat not present within or near Study Area.
Caper-gruited tropidocarpum	*Tripodocarpum capparideum*	--, --	NE	**Absent.** Occurs within Valley and foothill grassland**.** Only source of information for this species is from 1930 record. No grassland habitat present within the Study Area**.**
Sanford's arrowhead	*Sagittaria sandordii*	1B	NE	**Absent:** Occurs in slow moving waters and irrigation canals, ditches, and detention basins. No suitable habitat present.

1 Status= Listing of special status species, unless otherwise indicated
- CE: California listed as Endangered
- CT: California listed as Threatened
- FE: Federally listed as Endangered
- FT: Federally listed as Threatened

2 Effects = Effect determination
- NE: No Effect
- ME: May effect, not likely to adversely affect

3 Definition Of Occurrence Indicators
- Present/Potentially: Species recorded in area
- Absent/Likely Absent: Species not recorded in study area and/or
- CNDDB = California Natural Diversity Database provided by CDFG

The habitt is highly disturbed as a result of recurring heavy agricultural production. The vegetation is characteristic of fallow agricultural plants include rye and oats. Some non-native ruderal species including prickly oax tongue, wild mustard, erodium, and wild oats. The site was uniformily tilled. Soils were inspected to look for the potential presence of wetland soils but none were found. Little wildlife was observed. The majority of the wildlife included mourning doves, crows, and during the site review red-tailed hawk perched in a dead tree in the southwest corner of the Study Area (where the old farmhouse once stood) for a few minutes before resuming to hunt over the property to the east (under construction). There was no ground squirrel population present nor any ground squirrel burrows.

There are no potential nest trees for raptors within the Study Area. There is one large dead tree in the southwest corner but no raptor nest.

Althought there is a known California tiger salamander (CTS) breeding site within 1.5 miles from the Study Area (See Figure 6), the site does not support any suitable habitat for CTS. CTS requires the presence of burrowing mammals to create underground burrows for aestivation during the hot, dry summers. The Study Area has no ground burrowing mammals (ground squirrels), therefore CTS upland habitat is not present.

Several plant species identified within the CNDDB occur within this region of Fresno County. Based on the habitat condition (ruderal, and fallow agricultural but no grassland component) the likelihood of any of the species identified in Table 2 is very low.

3.2 Conclusions And Recommendations

- Habitat within the Study Area consists of primarily of currently fallow agricultural land and ruderal habitat.
- There are no wetlands or waters of the U.S. or waters of the State present within the Study Area.
- There are no suitable nest trees for raptors or migratory birds.
- There is no suitable nesting habitat for migratory birds within the Study Area.
- There is no suitable habitat within or adjacent to the Study Area for any listed species of plants or animals.
- No avoidance or minimization measures are recommended.

Appendix A: Photographs

ARGONAUT ECOLOGICAL CONSULTING, INC.

Photographic Documentation

Client: Tract 6050 Enterprises, LP
Project: Tract 6050, Clovis CA
Photographer: K. Kinsland

Date: February 2020

Photograph No. 1:

View of Eastern edge of Study Area, area disturbed.

Photograph 2:

View looking south from the northeast corner of the Study Area.

ARGONAUT ECOLOGICAL CONSULTING, INC.

Photographic Documentation

Client: Tract 6050 Enterprises, LP
Project: Tract 6050, Clovis CA
Photographer: K. Kinsland

Date: February 2020

Photograph No 3:

View of stockpile area

Photograph 4:

View looking east (adjacent land under construction)

ARGONAUT ECOLOGICAL CONSULTING, INC.

Photographic Documentation

Client: Tract 6050 Enterprises, LP
Project: Tract 6050, Clovis CA
Photographer: K. Kinsland

Date: February 2020

Photograph 5:

View along center of Study Area looking east.

Photo 6:

View of Study Area looking northwest

Appendix B: Soils Report

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 Eastern Fresno Area, California

Tract 6050

February 18, 2020

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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

Contents

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

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 Scale: 1:3,390 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

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

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

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: Eastern Fresno Area, California
Survey Area Data: Version 12, Sep 16, 2019

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

Date(s) aerial images were photographed: Jun 1, 2018—Jul 1, 2018

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
An	Alamo clay	0.0	0.0%
Es	Exeter sandy loam	5.5	13.5%
Hr	Hanford fine sandy loam, hard substratum	3.8	9.5%
TzbA	Tujunga loamy sand, 0 to 3 percent slopes	6.1	15.0%
VaA	Visalia sandy loam, 0 to 3 percent slopes	25.1	62.0%
Totals for Area of Interest		**40.5**	**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.

Eastern Fresno Area, California

An—Alamo clay

Map Unit Setting

National map unit symbol: hl0s
Elevation: 300 to 500 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 275 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Alamo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Alamo

Setting

Landform: Depressions on fan remnants
Landform position (two-dimensional): Toeslope, shoulder
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed and/or alluvium derived from granite

Typical profile

A - 0 to 11 inches: clay
Bss1 - 11 to 15 inches: clay
Bss2 - 15 to 23 inches: clay
Bqm - 23 to 33 inches: cemented

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to duripan
Natural drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Occasional
Frequency of ponding: Occasional
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Ecological site: TERRACE 12-14" (R018XE052CA)
Hydric soil rating: Yes

Minor Components

Unnamed, hummock

Percent of map unit: 10 percent
Landform: Hummocks on fan remnants
Hydric soil rating: No

San joaquin

Percent of map unit: 5 percent
Landform: Hummocks on fan remnants
Hydric soil rating: No

Es—Exeter sandy loam

Map Unit Setting

National map unit symbol: hl3t
Elevation: 200 to 450 feet
Mean annual precipitation: 9 to 14 inches
Mean annual air temperature: 61 to 64 degrees F
Frost-free period: 225 to 275 days
Farmland classification: Not prime farmland

Map Unit Composition

Exeter and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Exeter

Setting

Landform: Stream terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

Ap - 0 to 15 inches: sandy loam
Bt - 15 to 30 inches: sandy loam
Bqm - 30 to 40 inches: cemented

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to duripan
Natural drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.2 inches)

Interpretive groups
Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Unnamed
Percent of map unit: 14 percent
Landform: Stream terraces
Hydric soil rating: No

Unnamed, ponded
Percent of map unit: 1 percent
Landform: Depressions on stream terraces
Hydric soil rating: Yes

Hr—Hanford fine sandy loam, hard substratum

Map Unit Setting
National map unit symbol: hl5t
Elevation: 200 to 500 feet
Mean annual precipitation: 8 to 15 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 275 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Hanford and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hanford

Setting
Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile
A - 0 to 16 inches: fine sandy loam
C - 16 to 40 inches: fine sandy loam
2Bqmb - 40 to 50 inches: cemented

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to duripan
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Unnamed, clay substratum

Percent of map unit: 15 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

TzbA—Tujunga loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: hlc1
Elevation: 180 to 400 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 62 to 64 degrees F
Frost-free period: 225 to 275 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Tujunga and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tujunga

Setting

Landform: Flood plains, alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear

Parent material: Alluvium derived from granite

Typical profile

A - 0 to 4 inches: loamy sand
C - 4 to 60 inches: stratified sand to loamy sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water storage in profile: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): 4s
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Unnamed, loamy coarse sand

Percent of map unit: 12 percent
Landform: Flood plains, alluvial fans
Hydric soil rating: No

Unnamed, compact substratum

Percent of map unit: 2 percent
Landform: Alluvial fans, flood plains
Hydric soil rating: No

Unnamed, flooded

Percent of map unit: 1 percent
Landform: Flood plains
Hydric soil rating: Yes

VaA—Visalia sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: hlc6
Elevation: 300 to 3,400 feet
Mean annual precipitation: 11 to 31 inches
Mean annual air temperature: 59 to 62 degrees F
Frost-free period: 175 to 275 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Visalia and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Visalia

Setting

Landform: Depressions on valleys, depressions on drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Recent alluvium derived from granite

Typical profile

A - 0 to 10 inches: sandy loam
AC - 10 to 48 inches: sandy loam
C - 48 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 4c
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Unnamed, somewhat poorly drained

Percent of map unit: 3 percent
Landform: Depressions on valleys, depressions on drainageways
Hydric soil rating: Yes

Unnamed, moderately deep gravelly substratum

Percent of map unit: 3 percent
Landform: Depressions on drainageways, depressions on valleys
Hydric soil rating: No

Hildreth

Percent of map unit: 3 percent
Landform: Swales on flood plains
Hydric soil rating: Yes

Chualar

Percent of map unit: 2 percent

Landform: Flood plains
Hydric soil rating: No

Foster

Percent of map unit: 2 percent
Landform: Depressions on flood plains
Hydric soil rating: Yes

Chino

Percent of map unit: 2 percent
Landform: Alluvial fans, flood plains
Hydric soil rating: No

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